

Lesson No. 1

PURCHASING MANAGEMENT

STRUCTURE

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1.0 INTRODUCTION

In many Organizations, cost effective purchasing and supply chain management is a matter of survival as purchased goods and services account for up to 80% of (sales) revenue Mistakes made in this area can be costly, cause delays and can affect the quality of goods or services supplied to your customers. Our one-day short course has been designed to provide an understanding of the basic principles of purchasing and how they affect your organization Purchasing is the most important function of material management. A substantial part of enterprise's finances is blocked in materials. If the size of the concern permits then a separate purchase department is established. The function is closely connected with production and marketing functions, the efficiency of these departments depends upon the efficiency of purchase department. It ensures that right type and quality materials are available in right quality and at right time. Purchasing management directs the flow of goods and services in a company and handles all data relating to contact with suppliers. Effective purchasing management requires knowledge of the supply chain, business and tax laws, invoice and inventory procedures, and transportation and logistics issues. Although a strong knowledge of the products and services to be purchased is essential, purchasing management professionals must also be able to plan, execute and oversee purchasing strategies that are conducive to company Profitability.

The purchasing has wider meaning than mere buying. According to Alford and Beatty, "purchasing is the procuring of materials, supplies, tools and services required for equipment, maintenance and operations of a manufacturing unit"

According to Westing and fine, "Purchasing is a term that describe the business activity directed to securing the material supplies and equipment required in the operations of organization"

Some defined purchasing is, "as a fundamental function in an operational firm, is charged with the responsibility of having the correct quantity and quality of material in hand when it is needed at a price that is consistent with the existing economic conditions"- Claude S. George

1.1 Types of Purchasing

Keeping in view the size and requirements of the organization, Purchasing may be both centralized and decentralized.

Centralized purchasing:

When all types of purchasing is done at one level, it is known as centralized purchasing A separate department, known as purchase department, is set up for this purpose. All departments send their purchase requirement to purchase department and it arranges procurement of various goods needed.

Decentralized purchasing:

This type of purchasing is suitable for concerns or when there is more than one plant or the plants are situated at different places. Every department or plant, as the case may be, is authorized to make its own purchases. A separate purchasing agent is appointed for the every department or plant. To enforce general purchasing policies all the purchases agents are put under the charge of general purchasing agent. He gets periodical report from all purchasing agents. This helps in exercising control over materials. This system has some advantages as well as disadvantages.

1.2 IMPORTANCE OF PURCHASING IN MODERN AGE

Today's purchasing agent is no longer the order placer of yesteryear. He is, instead, a seakerone looking for the best value the market has to offer to meet his company needs of materials. Failure of right purchasing policy adds to the costs of production and decreases profits as surely as do outdated production methods or ineffective selling techniques.

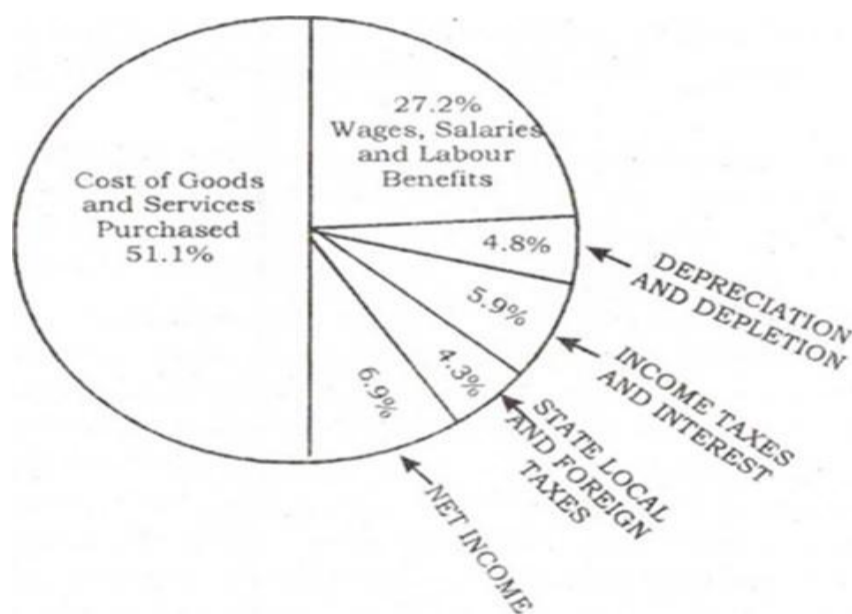
However, for a large manufacturing enterprise the importance of purchasing department can be judged from following valuable services rendered by purchasing department.

1. **How to achieve target of activity:** Purchasing department helps in production planning, scheduling and programming. This department provides guidance and suggestions from time to time that how to achieve production targets at minimum cost.
2. **How economic stability can be made:** Purchasing agent will also help in determining the proper sales mix and sales pricing during the business fluctuations and production-mix will automatically be altered so that economic stability can be possible
3. **How an investment can be minimized:** The purchasing department can fix the minimum levels of spare parts, raw materials, semi-finished materials and finished goods. While determining the minimum possible levels, the purchasing department should see that flow of productive activity is not disrupted and maximum production at the least cost is also to be assured.
4. **How Future Programmes can be continued:** The purchasing agent guides and advises the management for future production plans. In this regard, he helps in determining stock levels, capital structure and productive power of the organization.
5. **How Routine Control can be exercised:** Here routine control means that how the purchase department can guide and advise the management people in bringing alternations in day to day activities and how to make them simple and easy. It can be done so on the following lines.

- (a) By enquiring the demand and supply of stocks in the organization.
- (b) By analyzing the data made available by financier department.
- (c) By supplying information regarding other activities in relation to purchases contracts and purchase agreements.

6. **Advise regarding future planning:** The purchasing department can provide technical advice to manager of planning department for execution of future targets as follows.-
 - a) How the Production can be increased?
 - b) How cost of production can be minimised?
 - c) How the quality of the product can be improved?
 - d) How available financial resources can be better utilised?
 - e) How far the use of available technical resources be enhanced?
 - f) What particular material will be better for production?
 - g) What type of training is imparted to the workers that the quantity and quality of production be increased?

Besides the above points, the importance of purchasing of materials in the modern commercial and manufacturing organization can be depicted in the following diagram; nearly 50% of the expenditures are in the form of materials, equipment and services purchased.



Further the neo-classical model of industrial buying behaviour could be stated as an equation:
Industrial Buying = f (Economic Rationality + correction for emotional factors)

The purchasing profession is a young one. Even then, it has acquired the meaning of money management. The moment purchasing activity is initiated; the purchasing department commits a large chunk of undertakings financial resources, which in turn affects (a) the working capital | b) liquidity position. It is needless to emphasize the importance of the purchasing function to the overall success of an industrial, commercial and public utility organization.

1.3 OBJECTIVES OF PURCHASING

1. To maintain uninterrupted flow of materials to support the development schedules.
2. To procure materials economically at a cost consistent with the quality and services required. However, generally all purchases may be attempted at the lowest cost.
3. To provide the necessary expertise, advice, information to the Curators and Education Officers with regard to the best quality of material available in the market, supplier's capability and performance etc.
4. To develop and maintain good buyer-seller relationship. Suppliers naturally direct their research give advance information on new products and prices, and give better service to their permanent customers.
5. To promote source development.
6. To maintain reputation and credibility in the market by fair dealings and prompt payments.
7. To avoid duplication, waste, theft and obsolescence with respect to materials and supplies.
8. Purchasing department acts for standardization, variety reduction and value analysis.

1.4 FUNCTIONS OF PURCHASING DEPARTMENT

Purchasing Function versus Purchasing Department: It is quite clear that purchasing is an integral and essential part of business management. All the functions of business must mesh into a unified whole if management is to fulfill its basic responsibility of optimizing enterprise profit.

The functions of purchasing department are varied and wide which are based upon different approaches. The purchasing activities may be divided into those that are always assigned to the purchasing department and those that are some times assigned to some other department. The following are some of the important functions which are necessary to be performed.

1. **Receiving Indents:** The first and foremost function of purchasing is receiving demands of materials from different departments of the organization, such as from production, stores, maintenance. Administrative, drawing office, Planning, Tool room, Packing, Painting, Heat treatment etc. However, it has to be counter signed by a senior officer. Purchase department must have the list of such officers so as to check the validity of the purchase requisitions normally; there is a delegation of authority in authorizing a requisition. This is expressed in terms of the financial limits up to which the officer can authorize a requisition. These details must be available with the purchasing department. It is very important to note that capital equipment cannot be requisitioned in this manner. These decisions are taken normally at board level and they are treated differently for taxation even accounting purposes. After receiving the indent from users department it examines in details and demand and takes action according to the need and urgency of any items. This is called recognition of need . Sometimes, need can be met by transfer of a stock of one department to another department. In other cases, the reserve stock or the stock kept in bank can be utilized i.e. pledged stock with bank.
2. **Description of need or assessments of demand:** After recognizing need appropriate description i.e. qualitative as well as quantitative is necessary for the sound and successful purchasing. An improperly described demand can cost heavily money wise as well as time wise. The real problem arises when the order is placed for want of preciseness in the description of goods needed, the items are received and these are not acceptable to the user department, and it also becomes difficult to convince the suppliers of return of goods in case of faulty supplies therefore, purchasing department must have adequate knowledge of the item being purchased to be able to secure full description. However, this does not be with the purchasing department to alter or change on its own the description that appears to him inadequate or poorly described this should be avoided in any circumstances. In case the purchasing department finds any difficulty or doubt about an item it should make it a point to consult the actual users and this practice of consultation of users/indenting department in such matters will enhance the confidence and cooperation among uses and purchasing department. In such matters frictions between departments is avoided. The purchasing department should not such alternative purchases of commodities which is not available easily, on their own responsibility or at a lower cost unless and until be gets the consent from the user department.

3. **Selection of sources of supply:** Most important function of a purchasing department or officer is the selection of the sources for the requisitioned items of stores. There are different sources of supply which have no similarity between them. For majority of items selection of one of the vendors should be made. While selecting the item, the purchase officer has to see whether the item to be purchased is on a regular basis i.e. it is being purchased time and again or it is a seldom purchase non-recurring basis. As regards the first kind of items the selection process is not as difficult as the past list of the vendors available with the officer help him. His selection for the placement of current orders depends upon such consideration such as price, maintenance of goodwill, quality and similar considerations. For items which are not regular items in the purchase order, the purchase officer has to start from the development of sources. Before placing an order for them the purchase department has to check thoroughly vendor's catalogue; salesmen, capital involved, suitability, reliability of the vendor, a trade press suggestions etc. The next step will be to narrow down the list by means of investigations, salesmen's interviews, the plant visitations until he has a small group of the possible supplies with whom he can carry further negotiations. Whenever items are to be bought from single manufacturer such as branded or the order can be placed with the party according to terms and conditions of their sale.
4. **Price factor:** As soon as the purchase requisition is received in the purchase division, sources of supply will be located; a decision is then taken in respect of the method of tendering/ limitation of quotations from prospective suppliers. Prices are also ascertained by preparing a comparative statement with the help of either of the following documents supplied either by the supplier or taken from the previous records of advertisements:
- Catalogue, price lists etc.
 - Telephonic quotations.
 - Previous purchase records.
 - Quotation letter or tender i.e. letter of inquiry.
 - Samples and related price cards.
 - Negotiation between suppliers and the purchase department.
5. **Placing Order:** Placing a purchase order is the next function of purchasing officer. Since purchase order is a legal binding between the two parties, it should always be accurate, clear and acceptable to both. There should not be anything doubtful in it. No doubt, this act of placing purchase order is performed by a office clerk but the purchase manager should keep a close watch over this function and he should sign the purchase order and it should contain the following particulars in it:
- Name and address of the supplier.
 - Description and specification of the material.
 - Quantity ordered.
 - Date, time and place of delivery.
 - Price, discount and terms of payment.
 - Transport and packing charges and shipping instructions
 - The name and address of the buyer.
 - Signature of the purchase manager.

Special types of purchase order forms may be used and there should be a number of copies of the purchase order and an office copy should be preserved properly in the concerned file for linking with the future correspondence.

6. **Follow up of the orders to make delivery at proper time:** Since one of the objectives of successful purchasing is delivery of goods at right time, so as to ensure delivery when and where needed. In normal practice, the responsibility of the purchasing department is up to the time of material is received in the store and is approved by the inspection department. Every purchasing department has the responsibility for follow-up of the orders it places on different suppliers. It means that materials should reach the destination as-stipulated in the purchase order with the suppliers. If materials are not received in time, the efficiency of the department is challenged. Only with the help of follow-up the purchasing officer can promote the delivery of goods ordered on a particular vendor to be expected. This job of follow up and reminding the timely supply of materials is generally assigned to the clerks. All items do not require extensive follow-up. For some less important and low value items follow-up. For some less important and low value items follow-up would be costly and wastage of money and time only.

7 **Receiving of Stores:** It has become practice in some of the Organizations to receive the materials ordered by the purchasing department whereas others maintain a separate receiving department. Receiving activity is in a way clerical work in nature. A report must be prepared describing the type and quantity of material in the incoming consignment. This report is, usually, made on specially designed receiving slips or forms, which have space for the vendor's name and the order number so as to permit ready identification of the materials received. The receiving clerk can detect those suppliers who meet only the minimum standards of quality and service. Receiving records show which suppliers are consistently late in their deliveries, which have the maximum number of rejects and which deliver the greatest number of split supplies. Any of these suppliers failures is costly to no purchaser, hence, a close coordination between purchasing and receiving generally pass dividends.

8 **Purchasing Records and files:** Purchasing involves a lot of paper work. Daily a number of letter, bills, quotations, notes, challans, railway receipts, parcel, way bills, bills of lading, goods received notes, lorry receipts, good receipt (transport) delivery notes, inspection notes have to be dealt with. It involves lot of clerical work. This department has to refer to previous correspondence on purchase orders, notes, catalogues, blue prints price lists etc. very frequently which makes it imperative to maintain records in appropriate manner. These records are essential for making the day to day purchases.

9 **Meeting Transport Requirements of incoming and outgoing materials:** The purchasing officer must make goods/ materials available at the right time they are required, at the place they are needed, and at the lowest possible cost. It is a big responsibility, and even a slight error amounts to delay in consignment required at a particular time

. In this regard the purchase department should have a thorough knowledge of the means of transportation. He should make a correct choice of carriers or routes because otherwise it may entail delay and additional transportation costs. The transportation function in an organization concerns responsibility for the following purchasing activities.

- The transportation of incoming materials.
- The transportation of outgoing materials.
- Major internal transportation of materials and products on the firm's premises.
- Participating in hearings before the governmental bodies on matters affecting transportation costs and quality of transportation services

Transportation being an important and indispensable part of purchase, a fair knowledge of it is a must for the purchasing activity.

10 Creation of goodwill of the institution: Good vendor relationships have to be maintained and developed to reflect enterprise's image and goodwill. Maintaining such relations requires mutual trust and confidence which grows out of dealings between the two parties over a period of time. Worth of a purchasing department can be measured by the amount of goodwill it has with its vendors. ■

11 Co-ordination: A purchasing department has to fulfill the needs of other departments in the organization. It is the function of purchasing department to work in close co-operation and co-ordination with other departments of the company. To a considerable extent, the attitude and reactions of other departments towards purchasing department depend upon the degree and kind of service that purchasing department extends to these other departments. Mutual trust and cooperation is essential between the purchasing department and other departments to secure high degree of efficiency. Here a caution is given that if every departmental head understands his duties and responsibilities, conflicts or frictions can be minimized.

12 Reporting to Top Management: It is also an important function of the purchasing department to prepare weekly, monthly, quarterly, bi-annually and yearly reports regarding expenditures of this department and send the same to top management along with details of purchases made and suggestions or improvements, if any.

13 Knowledge: Purchasing department should have full and complete knowledge of maximum and minimum of stores required, availability of substitute materials in the market, preventing prices and new lines of business. It is also the responsibility of purchasing department to bring to the knowledge and notice of purchasing department, cheaper sources of supply, new design and availability of new arrivals in the market from time to time.

1.5 PURCHASING MANAGER:

A Purchasing Manager is an employee within a company, business or other organization who is responsible at some level for buying or approving the acquisition of goods and services needed by the company. The position responsibilities may be the same as that of a buyer or purchasing agent, or may include wider supervisory or managerial responsibilities. A Purchasing Manager may oversee the acquisition of materials needed for production, general supplies for offices and facilities, equipment, or construction contracts. A Purchasing Manager often supervises purchase agents and buyers, but in small companies the Purchasing Manager may also be the purchasing agent or buyer.

A Purchasing Manager's responsibilities may include:

- seeking reliable vendors or suppliers to provide quality goods at reasonable prices
- negotiating prices and contracts
- reviewing technical specifications for raw materials, components, equipment or buildings
- determining quantity and timing of deliveries (more commonly in small companies)

1.6 RELATIONSHIP WITH OTHER DEPARTMENTS:

It is clear that purchasing is an integral and essential part of business management. It is also most important function of material management. Purchasing has wider meaning which is closely related with other departments as given above:

- 1) **Relation with marketing department:** As marketing department has to look after all the requirements of customers to meet such requirement it has to keep a close relationship with the purchase department. It has to express the various requirements of customers to the purchase department so the goods can be purchased accordingly.
- 2) **Relation with finance department:** finance department looks after all the finance related aspects of business organization. It has the major responsibility to make arrangement of required finance. Similarly purchase department also needs financial support to make regular purchase of different types of inventory items. A close association of purchase department with finance department is required.
- 3) **Relation with other department:** There are many other departments like human resource department, research and development department, production department which needs to have regular interaction with purchase department to meet their material related requirements.

Every industrial and manufacturing activity requires material and supplies to work with. Before a wheel can start turning in the manufacturing process, the material must be on hand, and there must be assurance of a continuing supply to meet production needs and schedules. So this chapter mainly focused on how purchasing department is important. Also objectives, functions and its relation with other departments are also analyzed.

1.7 PRACTICE QUESTIONS:

1.7.1 Short answer type question

1. State the meaning and importance of purchasing?
2. Discuss the various objectives of purchasing. Also discuss its relationship with other departments?

1.7.2 Long answer type question

1. Discuss the function of purchasing in detail?

1.8 SUGGESTED READINGS

- Martand T. Telsand., Industrial and Business Management; published by S. Chand and company limited.
- C.L. Grover, Rakesh Katyal, Vijay Gupta., Fundamentals of store-keeping and purchasing, Kalyani Publishers.
- P. Gopalakrishnan., Purchasing and materials management, published by Tata Me Graw Hills.
- R.K. Sharma, Shashi K. Gupta, Madhu Oberoi, Rajiv Sharma., Principles and Practice of commerce theory and functional management, Published by Kalyani Publishers.

STRUCTURE

- 2.1 Organization for Purchasing: Meaning
 - 2.1.1 Centralization in the Multiple-Plant Firm
 - 2.1.2 Assignment of Responsibility for Purchasing
 - 2.1.3 Internal Departmental Organization
- 2.2 Advantages of Organization of Purchasing
- 2.3 Organizational Structure
 - 2.3.1 Organizational Structure Types
- 2.4 Summary
- 2.5 Practice Questions
- 2.6 Suggested Readings

2.1 ORGANIZATION FOR PURCHASING: MEANING

Organization is a means to an end—the end being the efficient coordination and of the efforts of individual and departments. Accepted principles that emphasize the role of the individual in the organization are being gradually integrated into concepts that emphasize the role of group as the more important organizational considerations. There is much to be derived from sound organization. Responsibilities are clearly assigned to the personnel in organization which assures that all activities will be performed but with no duplication of efforts. A sound organization also clearly defines authority so that each individual in the organization too whom he reports and who reports to him. Sound organizational structure also permits a chain of promotion to be established. These in turn facilitate training of individuals for their own and for the positions immediately above them. Finally, a sound organization will promote harmony among the component parts of the organization.

In purchasing there are two major organizational problems: first the place of Purchasing department in the overall company structure and second the internal department of the purchasing department. Two basic issues are involved in the first problem: (1) the desired degree of centralization of the purchasing function within the company and (2) the executive or division to which the purchasing officer should be responsible.

2.1.1 Centralization in the Multiple-Plant Firm:

The soundest procedure would seem to be the centralization of all policy matters and the purchase of major raw materials and equipment in the home office. The individual plants make all other purchases in accordance with policies established by the home office. There are several reasons for a substantial amount of purchasing autonomy by the branch plant. Most of the branch plants are operated as distinct entities with the branch manager held responsible for the operation of the plant in an efficient and economical manner. Another reason for decentralizing branch plants is the slowness with which things are accomplished if all matters must be channeled through a home office. Such a procedure would require branch plants to maintain higher reserve inventories of materials and supplies to compensate for the extra time involved in purchasing through the home office purchasing department. A third reason for decentralization is the better public relations that exist with the communities in which a firm has its plants. Local purchasing tends to be neglected in a centralized purchasing system. In a multiple-plant firm in which each plant manufactures different products the case for decentralized purchasing is even clearer, since so many of the requirements will differ for each plant. Furthermore, there frequently are local conditions such as transportation facilities, storage facilities, climatic conditions or local laws and customs which may not be fully understood and appreciated by a home office purchasing department. Purchases should be made in the light of local conditions and centralized purchasing in a multiple-plant operation may not be able to cope with all of the local conditions found in widely scattered plant locations.

2.1.2 Assignment of Responsibility for Purchasing:

The second organizational problem involving the purchasing department in an industrial concern is: "To whom should the purchasing agent report?" the answer to this question tends to define the status of purchasing in an organization. Purchasing has been accepted as a major line activity in a large proportion of business organizations. It is inconsistent with this status to have the head of the purchasing department report to the head of some other line function. If the purchasing department is subordinated to another line department the activities of the purchasing department tend to be greatly influenced by the particular interests of that line department. Since purchasing policies have financial and management implications as well as production implications, it is organizationally unsound to subordinate purchasing to either production or finance alone. Purchasing agents believe that assignment to top management is both logically and operationally sound. In order to secure close coordination of purchasing with the interests of the using departments, it is desirable that supervisory responsibility over purchasing be in the hands of the head of the major using department. When the supervisory responsibility is assigned to the controller, the assignment is usually justified on the basis of the need for close financial control over an activity that is empowered to commit the concern to large expenditures.

2.1.3 Internal Departmental Organization:

Purchasing department is organized on a line basis, with a purchasing agent, director of purchases or some similarly designated individual in charge. Two or three buyers are able to handle all of the purchasing for the average industrial concern because there is relatively little diversity or complexity in the items purchased. The usual procedure is to assign a specific commodity or group of commodities to a buyer and he is then held responsible for all purchasing activities in connection with those commodities. This procedure works well because it enables the buyer to become a specialist in a limited area, and the firm reaps the benefits of his specialization. Different bases may be used in grouping commodities for assignment to buyers. One common basis in grouping commodities is similarity in physical properties. A second common basis is similarity in use to which the items will be put. A third basis is the similarity in sources of supply whatever the basis of assignment no buyer should be assigned more commodities than he can handle effectively.

As a firm increases in size, the structure of its purchasing department changes. There occurs a further subdivision of the commodities assigned to buyers and the assignment of specialists in a staff capacity to the head of the department. These staff specialists take over from the buyers some of the responsibility for their specialists. Internally the governmental and institutional purchasing departments are organized on lines similar to industrial purchasing departments. There is, however, a greater emphasis on the clerical function because of the more detailed procedures required by such statutory requirements as the open-bidding method of purchase.

2.2 ADVANTAGES OF ORGANIZATION OF PURCHASING

As we know how purchasing organization is responsible for all the activities, so there are some advantages which is given as under.

- 1) **Systematic purchasing:** Organization of purchasing provides a set up under which purchasing and its other associated functions takes place in a systematic manner.
- 2) **Assigning responsibility:** With the help of proper organization of purchasing, management can be able to fix up the responsibility of purchasing.
- 3) **Centralization of purchasing function:** Organization of purchasing insures the centralization of purchase function as all the purchases take place to a purchase department. It further helps in performing purchase function in systematic and scientific manner.

2.3 ORGANIZATIONAL STRUCTURE

An organizational structure is a mostly hierarchical concept of subordination of entities that collaborate and contribute to serve one common aim. Organizations are a variant of clustered entities. The structure of an organization is usually set up in many systems to meet objectives and ambience. The structure of an organization will determine the modes in which it shall operate and will perform. Organizational structure allows the expressed allocation responsibilities for different functions and processes to different entities. Ordinary such entities is as branch, site, department, work groups and single people. Contracting of individuals in an organizational structure normally is under timely limited work contracts or work orders or under timely unlimited employment contracts or program orders.

2.3.1 Organizational Structure Types:

Although companies vary somewhat in the way they organize materials management the essential point of having departments related to materials under one head is universal. Material management is, therefore, an organizational concept that localizes or brings organizational component the responsibility for (1) determining the manufacturing (2) scheduling the manufacturing process, and (3) procuring, storing and dispersing material within allowable cost. In summary, there is no ideal organizational structure for material management, since business is diverse. The materials manager usually reports to the President, vice-president of manufacturing or the production manager. He reports to the, often in large corporations that have centralized purchasing and centralized staff activities. The commonest organizational pattern has the materials manager reporting to the vice-president of manufacturing. This organizational structure is more applicable to medium sized and small companies, where purchasing and related materials functions are concerned with the needs of one or two plants.

Organizational structures developed from the ancient times of hunters and collectors in tribal organizations through highly royal and clerical power structure to industrial structures and today's post-industrial structures. So some types of organizational structure are clearly defined as under:-

a) Pre-bureaucratic structures:

Pre-bureaucratic (entrepreneurial) structures lack standardization of tasks this structure is most common in smaller organizations and is best used to solve simple tasks. The structure is totally centralized. The strategic leader makes all key decisions and most communication done by one on one conversations. It is particularly useful for new (entrepreneurial) business as it enables the founder to control growth and development.

b) Bureaucratic structures:

Bureaucratic structures have a certain degree of standardization. They are better suited for more complex or larger scale organizations. They usually adopt a tall structure. Then tension between bureaucratic structures and non-bureaucratic is echoed in Burns and Stalker distinction between mechanistic and organic structures.

c) Post-Bureaucratic:

The term of post bureaucratic is used in two senses in the organizational literature: one generic and one much more specific. In the generic sense the term post bureaucratic is often used to describe a range of ideas developed since the 1980s that specifically contrast themselves with Weber's ideal type Bureaucracy. This may include Total Quality Management, Culture Management and the Matrix Organization amongst others. None of these however has left behind the core tenets of Bureaucracy. Hierarchies still exist, authority is still Weber's rational, legal type, and the organization is still rule bound. Heckscher, arguing along these lines, describes them as cleaned up bureaucracies, rather than a fundamental shift away from bureaucracy. Gideon Kunda, in his classic study of culture management at Tech' argued that 'the essence of bureaucratic control - the formalization, codification and enforcement of rules and regulations - does not change in principle it shifts focus from organizational structure to the organization's culture'.

d) Functional Structure:

In a functional structure, the division of labor in an organization is grouped by the main activities or functions that need to be performed within the organization—sales, marketing, human resources, and so on. Each functional group within the organization is vertically integrated from the bottom to the top of the organization. For example, a Vice President of Marketing would lead all the marketing people, grouped into the marketing department.

Employees within the functional divisions of an organization tend to perform a specialized set of tasks, for instance the engineering department would be staffed only with engineers. This leads to operational efficiencies within that group. However it could also lead to a lack of communication between the functional groups within an organization, making the organization slow and inflexible. As a whole, a functional organization is best suited as a producer of standardized goods and services at large volume and low cost. Coordination and specialization of tasks are centralized in a functional structure, which makes producing a limited amount of products or services efficient and predictable. Moreover, efficiencies can further be realized as functional organizations integrate their activities vertically so that products are sold and distributed quickly and at low cost. For instance, a small business could start making the components it requires for production of its products instead of procuring it from an external organization.

e) Divisional Structure:

Also called a "Product Structure", the divisional structure groups each organizational function into divisions. Each division within a divisional structure contains all the necessary resources and functions within it. Divisions can be categorized from different points of view. There can be made a distinction on geographical basis (an US division and an EU division) or on product/ service basis (different product for different customers: Households or companies). An other example, an Automobile company with a divisional structure might have one division for SUVs, another division for subcompact cars, and another division for sedans. Each division would have its own sales, engineering and marketing departments.

f) Matrix Structure:

Matrix structure groups employees by both function and product. This structure can combine the best of both separate structures. A matrix organization frequently uses teams of employees to accomplish work, in order to take advantage of the strengths, as well as make up for the weaknesses, of functional and decentralized forms. An example would be a company that produces two products, "product a" and "product b". Using the matrix structure, this company would organize functions within the company as follows: "product a" sales department, "product a" customer service department, "product a" accounting, "product b" sales department, "product b" customer service department, "product b" accounting department. Matrix structure is the most complex of the different organizational structures.

2.4 SUMMARY

The options available for consortium purchasing at your institution can be limitless. As a procurement professional, your ability to discern which contracts are best suited for your particular institution is what makes your role a truly strategic one. By tapping into consortium contracts in a judicious manner, you can effectively manage your procurement resources to maximize savings on campus. By acting in a strategic fashion, you enable your institution to channel more funds toward its core education mission. In this age of tight funding, budget cutbacks and limited resources, it is imperative for purchasing professionals to be innovative in their procurement functions. Consortium purchasing is one means by which such innovation is fostered.

2.5 PRACTICE QUESTIONS

2.5.1 Short answer type question

1. what is internal departmental organization?
2. Explain Matrix Structure.

2.5.2 Long Answer type question

1. Define organization of purchasing? Also discuss its advantage and responsibilities.
2. Explain Organizational structure and its types.

2.6 SUGGESTED READINGS

- Martand T. Telsang., Industrial and Business management, Sultan Chand and company ltd., first edition 2001.
- C.L. Grover, Rakesh Katyal, Vijay Gupta., Fundamental of store-keeping and purchasing, Kalyani Publishers, 1st edition.

Lesson No. 3

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PURCHASING PROCEDURE

STRUCTURE

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- 3.1 Introduction
- 3.2 Purchasing Procedure
 - 3.2.1 Acquisition Process
 - 3.2.2 Supplier Identification
 - 3.2.3 Bidding Process
 - 3.2.4 Technical Evaluation
 - 3.2.5 Commercial Evaluation
 - 3.2.6 Negotiating
 - 3.2.7 Change Orders
 - 3.2.8 Order Closeout
- 3.3 Forms Used in the Purchase Process
- 3.4 Practice Questions
- 3.5 Suggested Readings

3.0 PURCHASING PROCEDURE: OBJECTIVES

- Understand various steps involved in the process of purchasing.
- Getting familiar with forms involved in purchasing procedure

3.1 INTRODUCTION

The procurement cycle has several distinct phases:

- Request for materials, supplies and equipment from the using departments
- Selection of suppliers and issue of purchase orders
- Follow up of outstanding orders (Expediting)
- Receipt and inspection of material from supplier

Though there are several organizations that attempt to set standards in the purchasing process, processes can vary greatly between organizations. Typically the word “purchasing is not used interchangeably with the word “procurement”, since procurement typically includes Expediting, Supplier Quality, and Traffic and Logistics (T&L) in addition to Purchasing. Purchasing managers/directors, and procurement managers/directors guide the organization’s acquisition procedures and standards. Most organizations use a three-way check as the foundation of their purchasing programs. This involves three departments in the organization completing separate parts of the acquisition process. The three departments do not all report to the same senior manager to prevent unethical practices and lend credibility to the process. These departments can be purchasing, receiving; and accounts payable or engineering, purchasing and accounts payable, or a plant manager, purchasing and accounts payable. Combinations can vary significantly, but a purchasing department and accounts payable are usually two of the three departments involved.

Historically, the purchasing department issued Purchase Orders for supplies, services, equipment, and raw materials. Then, in an effort to decrease the administrative costs associated with the repetitive ordering of basic consumable items, “Blanket” or “Master” Agreements were put into place. These types of agreements typically have a longer duration and increased scope to maximize the Quantities of Scale concept. When additional supplies are required, a simple release would be issued to the supplier to provide the goods or services. In accounting, purchases are the amount of goods a company bought throughout this year. They are added to inventory. Purchases are offset by Purchase Discounts and Purchase Returns and Allowances. When it should be added depends on the Free On Board (FOB) policy of the trade. For the purchaser, this new inventory is added on shipment if the policy was FOB shipping point, and the seller remove this item from its inventory. On the other hand, the purchaser added this inventory on receipt if the policy was FOB destination, and the seller removes this item from its inventory when it was delivered. Goods bought for the purpose other than direct selling, such as for Research and Development, are added to inventory and allocated to Research and Development expense as they are used. On a side note, equipment bought for Research and Development are not added to inventory, but are capitalized as assets.

3.2 PURCHASING PROCEDURE

3.2.1 Acquisition Process:

The process is defined by a series of phases during which technology is defined and matured into viable concepts, which are subsequently developed and readied for production, after which the systems produced are supported in the field. The process allows for a given system to enter the process at any of the development phases. For example, a system using unproven technology would enter at the beginning stages of the process and would proceed through a lengthy period of technology maturation, while a system based on mature and proven technologies might enter directly into engineering development or, conceivably, even production. The process itself includes four phases of development:

- Concept and Technology Development: is intended to explore alternative concepts based on assessments of operational needs, technology readiness, risk, and affordability.
- Concept and Technology Development phase begins with concept exploration. During this stage, concept studies are undertaken to define alternative concepts and to provide information about capability and risk that would permit an objective comparison of competing concepts.
- System Development and Demonstration phase. This phase could be entered directly as a result of a technological opportunity and urgent user need, as well as having come through concept and technology development.
- The last, and longest, phase is the Sustainment and Disposal phase of the program. During this phase all necessary activities are accomplished to maintain and sustain the system in the field in the most cost-effective manner possible.

3.2.2 Supplier Identification:

This is the process where the organization identifies potential suppliers for specified supplies, services or equipment. These suppliers' credentials (qualifications) and history are analyzed, together with the products or services they offer. The bidder selection process varies from organization to organization, but can include running credit reports, interviewing management, testing products, and touring facilities. This process is not always done in order of importance, but rather in order of expense. Often purchasing managers research potential bidders obtaining information on the organizations and products from media sources and their own industry contacts. Additionally, purchasing might send Request for Information (RFI) to potential suppliers to help gather information. Engineering would also inspect sample products to determine if the company can produce products they need. If the bidder passes both of these stages engineering may decide to do some testing on the materials to further verify quality standards. These tests can be expensive and involve significant time of multiple technicians and engineers. Engineering management must make this decision based on the cost of the products they are likely to procure, the importance of the bidders' product to production, and other factors. Credit checks, interviewing management, touring plants as well as other steps could all be utilized if engineering, manufacturing, and supply chain managers decide they could help their decision and the cost is justifiable.

Other organizations might have minority procurement goals to consider in selection of bidders. Organizations identify goals in the use of companies owned and operated by certain ethnicities or women owned business enterprises. Significant utilizing of minority suppliers may qualify the firm as a potential bidder for a contract with a company or governmental entity looking to increase their minority supplier programs. This selection process can include or exclude international suppliers depending on organizational goals and criteria. Companies looking to increase their pacific rim supplier base may exclude suppliers from the Americas, Europe, and Australia. Other organizations may be looking to purchase domestically to ensure a quicker response to orders as well as easier collaboration on design and production.

Organizational goals will dictate the criteria for the selection process of bidders. It is also possible that the product or service being procured is so specialized that the number of bidders are limited and the criteria must be very wide to permit competition. If only one firm can meet the specifications for the product then the purchasing managers must consider utilizing a "Sole Source" option or work with engineering to broaden the specifications if the project will permit alteration in the specifications. The sole source option is the part of the selection of bidders that acknowledges there is sometimes only one reasonable supplier for some services or products. This can be because of the limited applications for the product cannot support more than one manufacturer, proximity of the service provided, or the products are newly designed or invented and competition is not yet available.

3.2.3 Bidding Process:

This is the process an organization utilizes to procure goods, services or equipment. Processes vary significantly from the stringent to the very informal. Large corporations and governmental entities are most likely to have stringent and formal processes. These processes can utilize specialized bid forms that require specific procedures and detail. The very stringent procedures require bids to be open by several staff from various departments to ensure fairness and impartiality. Responses are usually very detailed. Bidders not responding exactly as specified and following the published procedures can be disqualified. Smaller private businesses are more likely to have less formal procedures. Bids can be in the form of an email to all of the bidders specifying products or services. Responses by bidders can be detailed or just the proposed dollar amount. Most bid processes are multi-tiered. Acquisitions under a specified dollar amount can be "user discretion" permitting the requestor to choose who ever they want. This level can be as low as \$100 or as high as \$10,000 depending on the organization. The rationale is the savings realized by processing these request the same as expensive items is minimal and does not justify the time and expense. Purchasing departments watch for abuses of the user discretion privilege.

Acquisitions in a mid range can be processed with a slightly more formal process. This process may involve the user providing quotes from three separate suppliers. Purchasing may be asked or required to obtain the quotes. The formal bid process starts as low as \$10,000 or as high as \$100,000 depending on the organization. The bid usually involves a specific form the bidder fills out and must be returned by a specified deadline. Depending of the commodity being purchased and the organization the bid may specify a weighted evaluation criterion. Other bids would be evaluated at the discretion of purchasing or the end users. Some bids could be evaluated by a cross-functional committee. Other bids may be evaluated by the end user or the buyer in Purchasing. Especially in small, private firms the bidders could be evaluated on criteria or factors that have little if anything to do with the actual bid. Examples of these factors are history of the bidder with the company, history of the bidder with the company's senior management at other firms, and bidder's breadth of products.

3.2.4 Technical Evaluation:

Technical Evaluations, evaluations of the technical suitability of the quoted goods or services, if required, are normally performed prior to the Commercial Evaluation. During this phase of the procurement process, a technical representative of the company (usually an engineer) will review the proposal and designate each bidder as either technically acceptable or technically unacceptable. Selling is important.

3.2.5 Commercial Evaluation:

Cost of Money - Cost of Money is calculated by multiplying the applicable currency interest rate multiplied by the amount of money paid prior to the receipt of goods. If the money were to have remained in the Buyer's account, interest would be drawn. That interest is essentially an additional cost associated with such Progress or Milestone payments.

Manufacturing Location: The manufacturing location is taken into consideration during the evaluation stage primarily to calculate freight costs and regional issues which may be considered. For instance, in Europe it is common for factories to close during the month of August for Summer holiday. Labor agreements may also be taken into consideration and may be drawn into the evaluation if the particular region is known to frequent labor unions.

Manufacturing Lead-Time: The manufacturing lead-time is the time from the placement of the order (or time final drawings are submitted by the Buyer to the Seller) until the goods are manufactured and prepared for delivery. Lead-times vary by commodity and can range from several days to years.

Transportation Time: Transportation time is evaluated while comparing the delivery of goods to the Buyer's required use-date. If Goods are shipped from a remote port, with infrequent vessel transportation, the transportation time could exceed the schedule adjustments would need to be made.

Delivery Charges: The charge for the Goods to be delivered to a stated point. Bid Validity Packing Bid Adjustments Terms and Conditions Seller's Services Standards Organizations Financial Review Payment Currency Risk Analysis - market volatility, financial stress within the bidders testing

3.2.6 Negotiating:

Negotiating is a key skillset in the Purchasing field. One of the goals of Purchasing Agents is to acquire goods per the most advantageous terms of the buying entity (or simply, the Buyer). Purchasing Agents typically attempt to decrease costs while meeting the Buyer's other requirements such as an on-time delivery, compliance to the commercial terms and conditions (including the warranty, the transfer of risk, assignment, auditing rights, confidentiality, remedies, etc). Good negotiators, those with high levels of documented "cost savings", receive a premium within the industry relative to their compensation. Depending on the employment agreement between the Purchasing Agent (Buyer) and the employer, Buyer's cost savings can result in the creation of value to the business, and may result in a flat-rate bonus or a percentage payout to the Purchasing Agent of the documented cost savings.

Purchasing Departments, while they can be considered as a support function of the key business, are actually revenue generating departments. For example, if the company needs to buy \$30 million USD of widgets and the Purchasing Department secures the widgets for \$25M USD, the Purchasing Department would have saved the company \$5M USD. That savings could exceed the annual budget of the department, which in effect would pay the department's overhead - the employee's salaries, computers, office space, etc.

3.2.7 Change Orders:

It some times becomes necessary to make changes in the original order - change in quantity, scheduling or specifications. It typically consists of making minor changes, additions or subtractions that in some way change the terms of the agreement or the Seller's Scope of Supply. Such changes are often minor, but for auditing purposes must be documented into the existing agreement. This may be required because of change in the product design or change in the business conditions.

3.2.8 Order Closeout:

In this last phase the order is closed out. Final payment related adjustments are made and the accounts are settled.

3.3 FORMS USED IN THE PURCHASE PROCESS

- 1. Purchase Requisition:** Is used for materials that have to be ordered from suppliers. The person who needs the material fills the form with the material name or code identification, the amount needed and the delivery date.
- 2. Bill of Material:** Sometimes purchasing is based directly on a 'bill of material', which lists every item in company's end product. When a manufacturing schedule is set by production department, the purchase section receives a copy of the bill of materials, on which are indicated those items that are not in hand or ordered. This tabulation serves the same purpose as a whole series of requisition and is a part of Material Requirements Planning (MRP).
- 3. Request for quotation:** About the only routine procedure in the process as part of a purchasing system is the invitation to the suppliers to bid and the evaluation of bids received. In industry, when such invitations are issued prior to ordering, the form used is generally called a 'Request for Quotation', and no obligation to buy from the supplier quoting the lowest price is implied.
- 4. Purchase order:** The purchase order is the instrument by which goods are procured to fill a requirement. It expresses in specific language the agreement between the buyer and the vendor. Once accepted, it has the legal force of a binding contract. The essential information

in every purchase order includes name and address of purchasing company, identifying order number, date, name and address of vendor, general information like number of invoices required and so forth, delivery date required, shipping instructions, description of material ordered and the quantity, price and discounts and signature. Terms and conditions are generally printed on the back of the form. Simple purchase order usually require at least three copies: 1) The original, sent to vendor 2)The acknowledgment copy and 3) A purchasing department file copy.

5. **Change order:** A change order is generally used to change the original order and the revised requirements are listed in it.
6. **Receiving report:** This report is made by the receiving department, on the receipt of the goods. This report includes information about the goods received and the part damaged if any. This report is sent to purchasing department, stores and inspection departments.

3.4 PRACTICE QUESTIONS

3.4.1 Short Answer type question

1. explain bidding process.
2. What are the forms used in purchase process?

3.4.2 Long Answer type question

1. Discuss various steps involved in the process of purchasing.
2. Discuss various forms that are used in the purchase process.

3.5 SUGGESTED READINGS

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SELECTION OF SOURCES OF SUPPLY

STRUCTURE

- 2 Objectives
- 2.7 Introduction
- 2.8 Sources of Information on Potential Vendors
- 2.9 Considerations in Evaluation of Potential Suppliers
- 2.10 Stages in Evaluation of Suppliers
 - 2.10.2 Survey Stage
 - 2.10.3 Enquiry Stage
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 - 2.10.5 Experience Stage
- 2.11 Methods of Supplier Evaluation
 - 2.11.2 The Categorical Method
 - 2.11.3 The Weighted-Point Method
 - 2.11.4 The Cost Ratio Method
- 2.12 Other Aspects in Selection of Correct Source of Supply
- 2.13 Summary
- 2.14 Practice Questions
- 2.15 Suggested Readings

4.0 OBJECTIVES

After reading this chapter, the student should be able to.

- Understand the importance of selecting the right sources of supply.
- Describe the various factors that should be taken into account while selecting the sources of supply.
- Get an insight into the various methods of evaluating the potential vendors.

4.1 INTRODUCTION

The essence of the purchasing process lies in a rational selection of the sources from which supplies of materials are obtained. In spite of the expertise of the purchase manager to provide technical assistance on various matters like determining price trends, helping to define quality requirements, maintaining control on inventories etc., his primary responsibility is to find out suitable sources of supply and ensure that the right quality of materials is obtained in the right quantities at the right time, at the right place and at the right price. It is one of the functions of the purchase department to spend time and effort in thoroughly evaluating prospective suppliers and continuously appraising the performance of the current suppliers. Effective investigation and evaluation combined with sound negotiation, can avoid many difficulties in regard to supplies of materials. In case of a non-respective item such as plant, machinery or a capital requirement, the sources can be selected without much difficulty on the basis of the evaluation of quotations received from several reputed suppliers or manufacturers of the item. In cases where the item may be required on a recurring basis for a long time, there could be established suppliers and the problem is merely to choose one or two from among the many. In other cases, there may not be any supplier at all and one may have to be specially developed. Such a situation creates greater problems of sourcing. There are various ways in which suppliers are selected and evaluated.

4.2 SOURCES OF INFORMATION ON POTENTIAL VENDORS

Every purchase department must maintain a classified list of potential vendors, i.e., vendors who deal in the materials regularly purchased by the company. There are various sources from which information on suppliers of different types of materials are available. The various sources are discussed below:

- a) **Trade Directories:** There are several trade directories available, both Indian and foreign. Some of these are omnibus and deal with manufacturers and suppliers of all kinds of materials while some are specialized, e.g., those devoted to chemicals or engineering goods, and so on. These directories give information on the addresses, regional offices, names, types and range of products, and addresses of dealers or agents.
- b) **Trade Journals:** Many leading companies advertise in trade journals and these constitute an important source of information about suppliers. These journals also sometimes carry articles on specific industries and such articles often contain valuable information on developments in the industry, including product and technological improvements.
- c) **Telephone Directories:** Most telephone directories, especially in the big cities in India, contain a considerable number of pages of classified advertisements, alphabetically arranged item wise or group wise, e.g., abrasives, air conditioners, castings, diamonds, duplicators, paperboards, etc. these advertisements contain considerable information about suppliers.
- d) **Suppliers' Catalogues:** Many manufacturers produce catalogues or pamphlets periodically giving details of the products they manufacture. The catalogues contain considerable technical information, specifications, performance characteristics, price etc.
- e) **Trade Exhibitions and Fairs:** Exhibitions and fairs are useful places for obtaining information on new suppliers, new products or modifications of old products. Exhibitions of specialist products are often held, e.g., textile machinery, motors, office equipment, electronic equipment, etc. Visiting exhibitions often provides an excellent means of expanding a buyer's knowledge of new products and new suppliers.
- f) **Salesmen:** They are very good source of information for possible sources of supply. Salesmen are usually on the move and are trained to keep their eyes and ears open in regard to the developments that take place around them. They are therefore not only fully conversant with the potentialities of their own products but are usually well acquainted with similar products in the market. Because of their specialized knowledge, salesmen can often suggest new applications of their products which in some cases may eliminate the search for new vendors.
- g) **Company Personnel:** Specialist personnel in other departments, e.g., engineering, sales, design etc. within the company, are another good source of potential information. Through their own professional associations or social groups, these personnel learn about new or good suppliers. People involved in research and development usually have valuable information of this nature,
- h) **Purchase Departments of Other Companies:** Exchange of information on a mutual basis with the purchase departments of other companies can be extremely beneficial not only in regard to new sourcing but in regard to supplier evaluation and also prices.
- i) **Public Tenders:** One of the most common methods of sourcing is by advertisements in the press. The buyer states the product he wants and gives other necessary information, e.g., specifications or terms of purchase. Potential suppliers respond and send their quotations. Usually there are special tender forms in which they have to furnish the information required by the buyer.

4.3 CONSIDERATIONS IN EVALUATION OF POTENTIAL SUPPLIERS

After a list of possible suppliers has been compiled, the problem arises of selecting one of them. There are various factors that add up to make a right supplier and all these factors have to be evaluated with reference to the buyer's needs before a supplier is finally selected. Some of the main considerations that have to be taken into account are as follows:

- a) **Internal facilities:** Has the supplier adequate facilities? Will he be able to supply all the requirements in time and produce goods of the required quality? Has he got adequate quality control and testing facilities? Has he got qualified and experienced people to take charge of his production?
- b) **Financial adequacy and stability:** What is his financial status? Is he solvent or is he in financial difficulties? If he is in financial difficulties, he might not be able to procure his raw materials and consequently his production might get affected, thereby adversely affecting his supplies. What is his reputation in the market or with his bankers?
- c) **Outlook:** Has he a modern outlook and is he interested in improving his product by using modern techniques like value analysis? What is the technology that he employs? What is his attitude to improvement of technology? Does he have an efficient management to run the company? Has he an R& D facility?

- d) Reputation:** What is his reputation in the market in regard to quality, price, promises of delivery dates etc.? Does he keep his word or is he the type who will ignore you if an item produced for you can be sold in the market at a higher price?
- e) After sales service:** How is his after sales service? Does he have maintenance engineers or after sales service staff in the town where you are located?
- f) Location:** Where is he actually located? Is he near your factory or at a very distant town located in another State? What is his sales representation?
- g) Industrial Relations:** What are the labor relations like in his factory? If there is industrial strife and frequent strikes or lay offs etc., these will seriously affect his supplies.
- When choosing between one supplier and another, comparison may be made in regard to three aspects of competition:
- a) Technological Competition:** technical quality of a product, its versatility, dependability, reliability etc.
- b) Service Competition:** after sales service that the manufacturer or supplier is able to render. This will include the various guarantees and warranties attached to the product.
- c) Price Competition**
- d) Time based Competition:** refers to response time for delivery

4.4 STAGES IN EVALUATION OF SUPPLIERS

There are four stages in source selection and evaluation;

4.4.1 Survey Stage: All possible sources are explored and their capabilities are evaluated on the basis of prima facie information either supplied by the vendor himself or through advertisements, catalogues, brochures etc., A list is drawn up of those who have to be investigated further.

4.4.2 Enquiry Stage: A detailed analysis is made after obtaining as much relevant information as is necessary- The vendor may be asked to furnish information in a standard enquiry form and this may be followed by a plant visit, if necessary. Enquiries may be made of his present customers regarding his performance.

4.4.3 Negotiation and Selection Stage: The enquiry stage may reveal that quite a few of those considered at the survey stage do not come up to expectations. Those vendors who pass the enquire stage may fruitfully be called in for negotiations to discuss business possibilities and clarify various terms such as credit, quantity discounts, quality control procedures, etc. Finally a list of approved and selected vendors is drawn up.

4.4.4 Experience Stage: At this stage, the buyer evaluates the performance of the vendor. The objective is to improve the performance of the vendors in the areas in which they are deficient, such as, quality, delivery time, after sales service, etc. The evaluation is especially on two major counts: Quality and Delivery.

4.5 METHODS OF SUPPLIER EVALUATION

Usually the most important measure of a supplier's service is his record of performance in previous transactions. The standard of actual performance is tangible and concrete, whereas the other yardsticks measure performance only by inference and often vary tentatively. Three evaluation techniques have been developed:

4.5.1 The Categorical Method:

The categorical plan is the least precise of the evaluation techniques. It relies heavily on the experience and ability of the individual buyer. Essentially it consists of a procedure whereby the buyer keeps a record of all vendors and their products. After establishing a list of factors for evaluation purposes, the buyer assigns a grade indicating performance in each area. A marking system of plus, minus or neutral is usually used. In addition, evaluation lists are given to all the departments involved with the supplier's merchandise, such as quality control, production, and receiving departments. At periodic evaluation meetings the buyer discusses the ratings with representatives of the departments. Later, those suppliers with composite high or low ratings may be notified and future business allocated accordingly.

4.5.2 The Weighted-Point Method:

The weighted point method provides for quantifying the evaluation criteria. Any number of evaluation factors can be included, and their relative weights can be expressed in numerical terms so that a composite performance index can be determined and supplier comparisons made. Acceptable and unacceptable ranges could be applied to the composite ratings, such as: excellent

- 85 up; acceptable - 84 to 70; unacceptable - 69 under.

4.5.3 The Cost Ratio Method:

The third evaluation technique, the cost-ratio method, relates all identifiable purchasing and receiving costs to the value of shipments received from respective suppliers. The higher the ratio of costs to shipments, the lower the rating applied to that supplier. The choice of costs to be allocated depends somewhat on the specific products involved. However, quality, delivery, service, and price are the usual categories. The costs associated with routine qualifying of a supplier and routine inspection tend to be approximately equal for all vendors of like products, However, the costs associated with defective products will vary substantially from vendor to vendor.

4.6 OTHER ASPECTS IN SELECTION OF CORRECT SOURCE OF SUPPLY

- a) Local Purchases:** The geographical location of the supplier is a matter of real significance to the purchasing agent. The general tendency among the smaller industrial concerns is to buy as much as possible from local sources of supply. In the larger concerns, there is a greater tendency to buy directly from the manufacturer instead of through a middleman. However, a substantial number of items may still be bought from local suppliers if it is company policy to favour local sellers. A firm operating several plants in scattered locations may encourage local purchasing as a part of its policy of decentralization of the purchasing function. Where such a policy is followed, it is customary to limit the items purchased locally to certain categories that can be easily procured in any industrial community.
- b) Legal Constraints:** In governmental and other institutional buying, there is a wide divergence of policy on local purchases. Some states have so called "home preference" laws of various types. One class of home preference laws directs that preference be given to bidders doing business within the state. A second group of state purchasing preference laws directs that the products rather than persons or businesses be given preference. Such laws give preference to products raised, grown, or manufactured within the home state. Another group of state laws which affects local buying is directed at specific commodities.
- c) Reciprocity:** Many companies have a mutual arrangement with their suppliers whereby the suppliers purchase the goods produced in the buyer's company in exchange for the same consideration. This is called reciprocity. However, such arrangements should be based on merit without sacrificing the basic considerations in purchasing, such as the right price, the right quality, the right delivery etc.
- d) Personal Influence:** Whether purchasing agents admit or not, personal influence plays an important role in normal business relations. However, personal relationships should not become the prime basis for purchasing decisions. It is quite common that if a salesman is a close acquaintance of an executive of the buying firm, preference is given to that salesman's company. In other cases, the sympathy of the purchasing agent injects the element of personal influence into the transaction. Salesmen occasionally attempt to make a sale by presenting such arguments as their need to reach a quota or their participation in a sales contest.
- e) Supplier Gifts and Bribery:** The practice of giving gifts, particularly at the holiday season, is quite widespread, although there is evidence to indicate that basically it is a costly nuisance. Most sales managers do not believe that their sales or earnings would be hurt if they eliminated gift giving. In addition, most purchasing agents do not believe that the goodwill generated is worth the cost to the donor. A commercial bribe may be described as a price, gift, or favour bestowed or promised to pervert or corrupt a person in a position of trust in a commercial transaction.
- f) Samples:** The examination of samples is an important part of the process of source selection. The willingness of a supplier to furnish samples on request may be a deciding factor in the final choice of the sources. Likewise, the fact that many suppliers furnish samples without being specifically requested to do so may exert a favourable influence on a buyer.
- g) Cancellations:** Once an order has been placed by a buyer and accepted by the seller, it constitutes a legal and binding contract on both parties. However, there are occasions when it will be necessary for the buyer to seek to cancel a contract. Therefore, he should know in advance something about the cancellation policies of the prospective suppliers. Such information should be a factored inchoosing among various suppliers.

4.7 SUMMARY

This chapter focused on the importance of selection of correct sources of supply. In selecting a source of supply the purchasing officer makes decisions that influence not only his firm's economic success, but the livelihood of the supplier and the efficiency of the entire economy. The various methods of building up a list of possible suppliers and the criteria and techniques used to narrow the number down to the chosen sources have been discussed.

4.8 PRACTICE QUESTIONS

4.8.1 Short answer type question

1. What is the source of information for potential vendors ?

4.8.2 Long answer type question

1. Discuss the important sources of information used by the buyers while selecting the sources of supply.
2. What are the different factors that affect the selection of sources of supply? Discuss the various methods of evaluating the potential vendors.

4.9 SUGGESTED READINGS

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DETERMINATION OF PRICE

STRUCTURE

- 3 Objectives
- 3.7 Introduction
- 3.8 Price Terms
- 3.9 Price in Relation to Total Purchase Decision
- 3.10 The Right Price
- 3.11 Factors Influencing Price
- 3.12 Summary
- 3.13 Practice Questions
- 3.14 Suggested Readings

5.0 OBJECTIVES

After reading this chapter, the student should be able to:

- Understand the concept of price determination.
- Describe the various factors that affect the price.

5.1 INTRODUCTION

Price may be defined as the sum or amount of money at which a thing is valued or the value which a seller sets on his goods in the market. Price is one of the most important variables in purchasing. Theoretically, the price is the suggested figure at which a seller can deliver his goods at a profit and which the buyer pays, expecting to receive full value in use or manufacture. Price knowledge for a buyer is based on experience and familiarity with general price conditions. This does not necessarily imply quoted prices on enquiries or price printed in catalogues. To determine the right price, it is essential for a buyer to be conversant with business trends, trade cycles, supply and demand, how price advances and declines may be anticipated, quantity discounts and many other factors making up the price.

5.2 PRICE TERMS

The price offered may take various forms. Some of the most common are as follows:

- (i) **Firm Price:** The price quoted by the vendor will be valid for the period of the contract. It is usually for a period of one year in most contracts, extendable by mutual consent.
- (ii) **Price in effect at the time of dispatch:** The price is not firm but will be the market price quoted on the day of dispatch. For instance, in commodities like gold whose prices fluctuate almost daily.
- (iii) **Cost plus:** This type of agreement is entered into in construction or service contracts, or in sub-contracting for specialized items. The contractor is given a fixed percentage as compensation or profit over his costs.
- (iv) **Guaranteed maximum price:** It is a cost plus contract but the final price will not exceed a guaranteed maximum.
- (v) **Price adjustments:** Various types of price adjustments can be agreed upon in a purchase contract. Some of them are:
 - a) Escalation clause: Economic conditions vary considerably and price fluctuations are the literally the order of the day. An escalation clause is intended to protect the seller and buyer against the risks of such changes in price.
 - b) Price decline protection clause: It is intended to protect the buyer when prices of raw materials components or labour decline.
 - c) Cumulative discounts: In this case, quantity might not be fixed in the contract. The buyer is given a discount on the basis of actual purchases and appropriate to the quantity range.
- (vi) **Payment terms:** These might also vary and may thereby affect the ultimate price.
 - a) **Cash discount:** A discount is given if payments are made immediately on delivery.
 - b) **Cash on delivery:** No credit is allowed in this case.
 - c) **Pre-payment discounts:** Discounts would be available if advance payment is made for the purchase.
 - d) **Consignment terms:** The buyer is usually a trader and he pays the price of the goods to the seller after he has sold the goods.
 - e) **Progressive payment terms:** The payment is made in installments.
- (vii) **Price schedules:** Prices may vary with quantity purchased, size of shipment, quality specified, container size, level of distribution and the season.

5.3 PRICE IN RELATION TO TOTAL PURCHASE DECISION

The objective of the purchasing department is to buy the right amount of the right kind of goods from the right supplier at the right time and at the right price. What is right price is not necessarily the lowest price. The lowest price may not provide the quality and service needed by the company. Even where it does, the lowest price may be offered for buying a substantial quantity in advance of needs. This entails many costs not reflected in the quoted price. Occasionally low prices are quoted by the suppliers in order to secure orders, even though such prices will cause the supplier to operate at a loss, or the supplier may be unloading an oversupply at less than full cost. Where this is done, it may be a matter of strategic pricing, or it may be desperation on the part of the seller. If the low price is offered as the result of strategy on the part of the seller, the item may represent a good buy. Here the seller is willing to take less than his full average price in order to get established as a supplier of this particular buyer, and the quality and service are likely to be excellent, since the seller is building a reputation. The same would be true in the case of an oversupply that must be sold. On the other hand, the low price may represent the frantic effort of the seller to keep his plant in operation. Then, once he has the order, he might minimize service and cut corners on quality in order to reduce his loss. In evaluating a low price, the purchasing agent has to consider and weigh these possibilities. Reciprocity may also enter into the evaluation of a low price. But reciprocity should be used with a great caution. If the price differential is small, many companies do buy from their own customers at a slightly higher price. They justify it on the grounds that their continued operations are dependent on the success of their customers, and so they try to help their customers if they can do so at no great cost to themselves. The overall result of reciprocity is to raise everyone's costs, but, in the short run and in a restricted marketplace, the appeal of reciprocity is strong.

5.4 THE RIGHT PRICE

There are three basic methods of determining price:

1. Published price lists (with various types of discounts):

Many manufacturers publish periodically the price lists of the various goods produced by them. Most of these show the prices for various types of packing sizes or discounts for varying terms of payment and also discounts for various types of purchasers, i.e., wholesalers, retailers, consumers etc. Comparative costs of the same kind of material can be obtained from the catalogues of different suppliers. In such cases, negotiations may also be held by the buyer with the supplier to find out if there can be any reduction of price from the published price or whether any of the terms indicated by the supplier in the catalogue can be altered to the buyer's advantage.

2. Quotations or bids on individual specifications:

Having selected the potential suppliers, the buyer will send them an invitation to quote their prices and other terms of supply for the materials required. A purchase enquiry form is used for this purpose. The received quotations are then analyzed and evaluated. Then the buyer takes a decision in regard to the supplier on whom the order should be placed.

3. Negotiated price for specific jobs or for specific materials:

In the above two cases, it is assumed that there exists a competitive market for the materials that are required. Very often, this may not be the case and the specifications might require specialized manufacture, the ability for which rests with only one or two suppliers. Ab initio negotiations will have to take place in deciding the price of such materials.

5.5 FACTORS INFLUENCING PRICE

Various factors influence price and these have to be properly evaluated. Some of these factors are:

- a) **Economic conditions:** Economic conditions have a great effect on price. The buyer should therefore, equip himself with sufficient information on such conditions. For example, general business activity, economic climate within the industry of which the company is a part and the activity of the principal industries supplying the materials etc. such information may be obtained from the journals, newspapers, company's internal sources such as market research department etc.
- b) **Quality:** Quality is the nature or state of the material. The buyer's specifications and the seller's interpretation of the proper degree of quality in terms of selling price are two major aspects of price evaluation. It may sometimes happen that the quality specifications have not been properly understood by the person who has sent the quotation and this might have seriously affected the price quoted one way or the other.
- c) **Service:** This is an element which must be considered in price evaluation. It may happen that the supplier is located at a very distant place and has no facilities for rendering after sales services at the place where buyer is located. Though this price might be less, in all probability, the buyer would have to incur considerable costs for servicing the equipment or machinery he buys. In such cases, it might be more prudent to place the order on the supplier who has service facilities near the buyer, though his price for the equipment might be higher.
- d) **Vendor's costs:** It would be advantageous to estimate the vendor's costs to determine whether the price charged by him is reasonable. Satisfactory cooperation between the seller and the buyer on this matter is usually not easy and the information that can be obtained from the seller would be based on the harmonious relationship between the two, as also the purchasing power of the buyer.
- e) **Price paid by competitors:** it will often be prudent to find out the prices paid by the other buyers of the supplier's product. A comparison of these prices would enable the buyer to determine whether he is paying a fair price.
- f) **Quantity:** Quantity purchases generally represent a saving compared to smaller purchases. However, the inventory carrying costs would increase with higher quantities. There is also a danger of obsolescence, deterioration and spoilage when larger quantities are in the warehouse. The comparative advantages of obtaining larger quantities at discounts and that of carrying larger inventories should be made before deciding on the quantity.
- g) **Transportation costs:** this is an integral part of costs and should be valued properly. The other factors are packaging, materials handling, insurance etc.

5.6 SUMMARY

Price is value expressed in terms of money. In buying there is always a tendency to think in terms of price as being either high or low in an absolute sense, whereas a buyer should concentrate his attention on the value of the product for his purpose and then ask himself whether the price is an accurate measure of that value to him. This relating of price to value is a primary responsibility of the purchasing agent. In order to know that the price being quoted is right for him, a purchasing agent must know, for all materials, supplies, equipment and services used by the company, what quality or quality range is suitable, and then he must familiarize himself with the pieces being asked by acceptable suppliers. He can evaluate prices in terms of his needs only if he knows the price quotations, considers all related cost elements, and relates the true cost to his quality requirements.

5.7 PRACTICE QUESTIONS**5.7.1 Short answer type question**

1. what is the right price?

5.7.2 Long answer type question

1. Discuss the important factors affecting the price.
2. What is the role of price factor in purchasing? How is price determined by a purchasing agent?

5.8 SUGGESTED READINGS

- Menon K.S., Purchasing and Inventory Control, Wheeler Publishing, New Delhi, 3rd Edition, 1993.
- « Westing J.H, Fine I.V. and Zenz G.J., Purchasing Management Materials in Motion, Wiley Eastern Limited, New Delhi, 3rd Edition, 1975.

QUALITY CONTROL

STRUCTURE

- 4 Objectives
- 4.7 Introduction
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- 4.9 Defining the Right Quality
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6.0 OBJECTIVES

After reading this chapter, the student should be able to:

- Understand the role and importance of quality in buying.
- Discuss the various ways in which quality can be specified.
- Understand the organization of quality control.

6.1 INTRODUCTION

In purchasing, quality is a function of use. That is, the use to which a component or material is to be put demands a certain level of quality. Therefore, inappropriate quality may mean that a component is too good or too poor for a given application. In more precise terms, quality is an expression of the measured properties, conditions or characteristics of a product or process, usually stated in terms of grades, classes, or specifications and determined by the application that is involved.

6.2 ROLE OF QUALITY IN BUYING

The quality of a material used in production has direct relationship with the end use of the product manufactured. In other words, if an appropriate quality of material is used, it would mean.

- that the end product has features which are quite necessary for a given application, and, as a consequence, its price might be more than what it should be and, as a sequel, its competitiveness in the market might be affected; or
- that the end product is too poor for a given application, and though it might be cheaper, it might entail customer dissatisfaction and also not stand up to competition.

Both these situations are harmful to the interests of the company. Quality assurance is, therefore an essential factor for user satisfaction. Quality therefore, should just be right, i.e., neither more than what is required for a given purpose, nor less. Before a purchase is made, it is necessary to determine and define the quality we want. Once it is done, it is the purchase department's task to ensure that the quality of the material purchased conforms strictly to the quality specified.

6.3 DEFINING THE RIGHT QUALITY

The responsibility of the purchase department does not end merely with placing the purchase order and obtaining the goods in time; but it has also to ensure that the goods in their required quality have been obtained. In other words, the purchase department must ensure that the best value of money has been obtained. In this regard, the purchase department has a joint responsibility with other departments for deciding upon the quality that should be purchased. Quite often, almost the entire responsibility for quality might fall on the purchase department itself. It is one of the responsibilities of the purchase department to suggest alternative materials which meet the quality specifications of the manufacturer. Quite often, this may happen when the usual brand or quality is not available.

6.4 RESPONSIBILITY FOR QUALITY CONTROL

With the growing importance of quality control, the question of organizational responsibility is a paramount consideration. The responsibility for defining the quality of purchased materials should rest with that department whose function is to establish the standards of quality to be maintained in production. Ordinarily, this is the engineering department or the production engineering department. Where the decision involves equipment and supplies not used in production process, the responsibility usually lies with the department that will use the material.

In large companies where the responsibilities may be divided among several departments the joint interests of sales, research, production, purchasing, inspection, and engineering may enter into the decision. The same considerations must be taken into account in smaller companies, but the number of individuals concerned will be smaller.

6.5 ORGANIZATION OF QUALITY CONTROL

While quality control functions can be fitted into an organization in many ways, it was believed that to obtain maximum effectiveness, the quality control department should be at a level equal to other functions, such as shop operations, personnel and manufacturing engineering. This type of staff structuring is illustrated in figure 1 below:

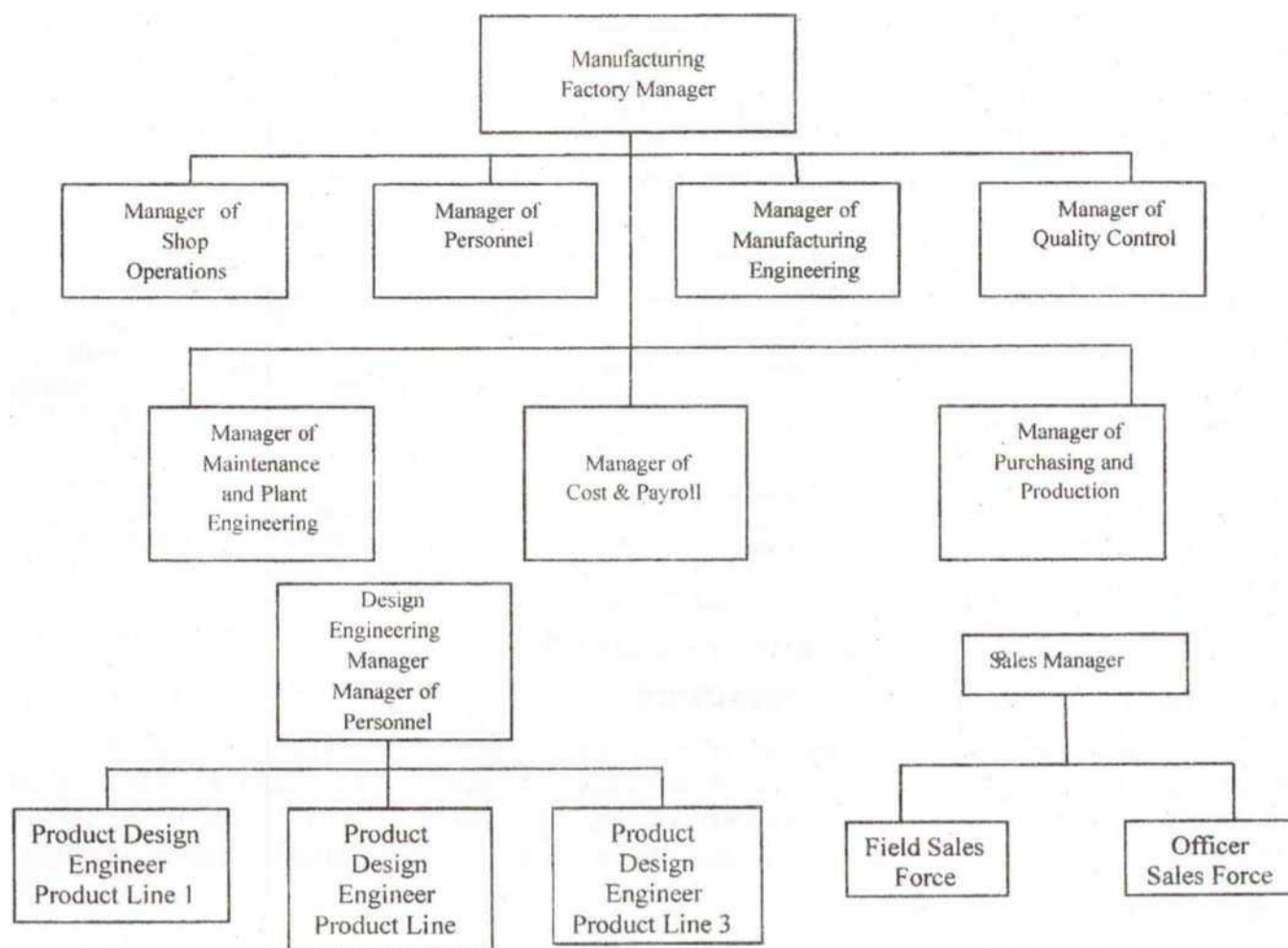
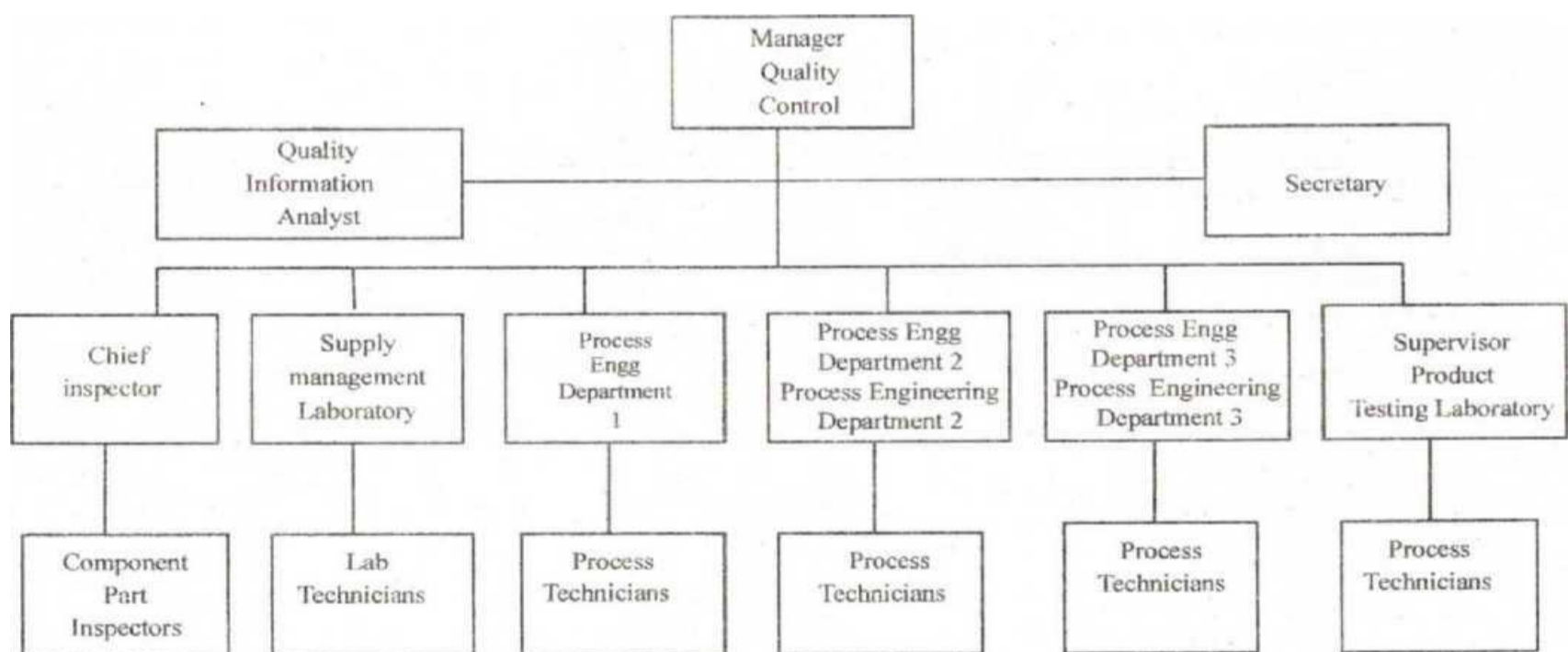


Figure 1: Staff structuring for full integration of the quality control function

6.5.1 Organization of the Quality Control department:

Depending on the plant size and structure, the number and assignment of process engineers varies. In fact, in a small plant the duties of a process engineer may be absorbed by the quality control manager. A typical quality control organization has been illustrated in figure 2 below:



Typical Quality Control Organization

6.6 DETERMINING QUALITY - INSPECTION

When the purchaser has determined the proper quality of the item to be bought, he has satisfactorily defined the quality in terms of specifications, blueprint, part number, market grade or sample, and the purchasing agent has accordingly placed an order with the chosen supplier, it becomes the duty of the inspection department to ensure compliance with the standard of quality.

6.6.1 Places of Inspection:

Inspector's responsibilities sometimes take them into the vendor's plant. If the product is complicated and manufactured to very precise standards, its high cost may justify stationing an inspector in the vendor's plant to oversee the process and the product during manufacture. Or, if the cost of transportation is great in relation to the value of the goods, final inspection may be made before shipment in order to avoid return transportation costs in the event of rejection. Some large companies find it economical to maintain inspectors at or near the source of subcontracted items, special items such as heavy forgings and castings, and goods bought in large quantity.

6.7 STANDARDIZATION:

A "standard" refers to anything we use as a measure. Any specification intended for repeated use becomes a standard. By standardization, the extent, quantity, quality, value and performance or service may be gauged or determined. Standardization may also be defined as "the unification of methods, practices, and techniques, involved in the manufacture, construction, and use of materials, machines and products for all lines of endeavor which present the necessity for performing repetitive work .

There are three basic kinds of materials standards - industry standards, national or international standards and company standards.

The objectives of standardization can be summarized as follows:

- To achieve maximum overall economy
- To ensure maximum convenience in use

- To adopt the best possible solution to recurring problems
- To define the requisite levels of quality

6.8 SPECIFYING QUALITY

Quality can be defined by several means—dimensions, weight, chemical properties, physical properties, tensile strength, hardness, surface finish, colour, conductivity, etc. For machinery or equipment, quality can be defined by factors such as productivity, versatility, dependability, economy etc. It is one of the most important responsibilities of a purchaser to ensure that he buys the right quality. There are four major factors which must be ensured in order to accomplish this satisfactorily:

Specifications: The quality requirements should be determined and correctly specified. Ambiguity in defining quality is one of the major problems in purchasing.

Right supplier: In choosing the supplier, it should be verified whether he is capable of producing the exact quality. In other words, whether his manufacturing facilities are adequate, whether he has trained personnel to ensure the quality of production, whether the quality control facilities in his firm are satisfactory, and whether the supplier's attitudes towards quality are positive.

Quality Control: For materials where quality is crucial it is usually desirable for the buyer to closely associate with the supplier's production department during the manufacture of the material and satisfy him that there are no deviations from the quality specifications.

Inspection: When the material has been delivered, it is necessary to inspect it for quality before taking the materials into stock. Such inspection may be a mere examination or may entail its being tested in a laboratory or in actual performance.

6.9 SPECIFICATIONS

Quality is usually described by the quality specifications. It may, however, not always be possible to describe the quality in precise terms in a purchase order or purchase agreement. Quality specifications are an integral part of a purchase order. There are various ways in which specifications can be described:

- Established specifications of the buyer
- Established specifications of the vendor, and brand or trade names
- Blueprints, drawings or dimension sheets
- Description of chemical or physical properties
- By references to international, national or industry standard specifications

For engineering, metal working, building and similar industries, specifications can be expressed through blueprints. The dimensions should be completely specified, the tolerances should be stated, the information must be clear and unambiguous, and the terminology must be that which is commonly understood. Certain industries have developed commonly accepted specifications which have come to be known as industry standards. Such standards are described in great detail and the quality specifications are spelt out at length. Besides industry standards, there are also international or national standards, such as those set by BIS (Bureau of Indian Standards), ASTM (American Society of Testing and Materials), BSI (British Standards Institution) etc. A common and convenient method of buying is by brand or trade names. Established brand names often have an effective and dependable standard of quality. If the buyer's needs are satisfied by these brands, it is easier and simpler to buy these products than to have products

manufactured to particular design. However, buying by brand names has the disadvantages that it limits buying to one single source for a particular product and this destroys the competitive element in sound procurement. Another drawback is that any production shut down in the supplier's factory, e.g., a strike, a fire or non-availability of raw material can cause serious production problems in the buyer's factory. It is always desirable to keep alternatives.

In the case of chemicals, metals etc., specifications are spelt out by stating the composition of the materials. In many cases, it might be a unique composition, for example, an alloy. Here the specifications should spell out the chemical composition in detail plus other characteristics as may be necessary in the material. In some materials or products, performance might be the quality specification. In such cases, the performance standards are specified with limits or variables clearly stated. In such cases, the buyer specifies not only the performance aspects, but may also specify other aspects like size, appearance etc.

When specifications are difficult to spell out, as for example, the shade of a color, it is usual to provide a sample of the material or product to the vendor for duplication. Buying by sample is a common method of buying. When the specifications cannot be expressed solely by any of the above discussed means, a combination of two or more methods may be resorted to. It is important that the buyer knows exactly what he needs and is able to clearly communicate to the vendor precisely what he expects.

6.10 PURCHASE BUDGET

Since purchasing activity accounts for a substantial portion of the corporate finance, it assumes a great importance among various budgets such as sales budget, personnel budget and revenue budget. The purchasing budget indicates the purchase to be made for achieving the complete budget plan. These represent the requirements of direct and indirect material and purchased services as set out in the production cost and capital expenditure budgets. The budgets are adjusted in respect of any planned increase or reduction of inventories of raw materials or other supplies including stores and spare parts as well as purchase orders already placed. The purchase budget enables the purchase department to plan its purchases and place long-term contracts after considering all relevant factors. It also facilitates the planning of cash requirements.

6.11 SUMMARY

Quality is an expression of the measured properties, conditions or characteristics of a product or process, usually stated in terms of grades, classes, or specifications and determined by the application that is involved. The purchase department must ensure that the best value of money has been obtained. In this regard, the purchase department has a joint responsibility with other departments for deciding upon the quality that should be purchased. Quality is usually described by the quality specifications. The quality specifications may be in the form of blueprints, samples, performance specifications, material specifications etc. While quality control functions can be fitted into an organization in many ways, it was believed that to obtain maximum effectiveness, the quality control department should be at a level equal to other functions, such as shop operations, personnel and manufacturing engineering.

6.12 PRACTICE QUESTIONS

6.12.1 Short answer type question

1. Define the right quality.
2. Explain purchase budget.

6.12.2 Long answer type question

1. Discuss the importance of quality in purchasing.
2. Explain the concepts of standardization and specification in quality control.

6.13 SUGGESTED READINGS

- Menon K.S., Purchasing and Inventory Control, Wheeler Publishing, New Delhi, 3rd Edition, 1993.
- Westing J.H, Fine LV. and Zenz G.J., Purchasing Management Materials in Motion, Wiley Eastern Limited, New Delhi, 3rd Edition, 1975.
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- Lester, R.H., Enrich, N.L., Mottley, H.E., Quality Control for Profit: Gaining the Competitive Edge, CRC Press.

AREA OF RESEARCH

STRUCTURE

- 7 Introduction
 - 7.1 Areas of Research
 - 7.2 PERT and CPM
 - 7.3 Purchasing and PERT
 - 7.3.1 Value Analysis
 - 7.3.2 Techniques of Value Analysis
 - 7.4 Conclusion

7.0 INTRODUCTION

Purchasing research has its objective of continuous development and refinement of purchasing techniques designed to contribute profit to a firm. As such, research can be conducted as an adjunct to the regular assignments of the members of a purchasing department, or it can be carried on by specialized staff members, who are usually called purchasing analysts. Although cost considerations will influence the form of organization, the consensus is that purchasing research can be carried on best by individuals who do not have primary responsibility for line buying activities. When research is a supplementary responsibility, there is a tendency to concentrate on the purchasing function, which often appears more urgent. There is also a problem of evaluating an employee when research is a supplementary activity because it is hard to know the degree to which management should reward the research efforts of line employees. The preferred procedure, therefore, is to have research assigned as a staff responsibility to separate purchasing personnel. When budget constraints preclude the use of separate staff personnel, research should be considered an important part of each buyer's assignment. Departmental schedules should be arranged to permit time for research and the performance of buyers should be evaluated accordingly.

7.1 AREAS OF RESEARCH

Purchasing research designed to increase profits by improving and refining purchasing planning and procedures may be classified into four groups:

- Procedural analyses
- Vendor and commodity research
- Economic projection
- Special projects

In practice there is an interrelationship among these areas. A given project could conceivably include all four categories.

Procedural Analysis:

This classification involves study of the internal structure and flow of work within the purchasing department and between purchasing and other departments. An illustration of interdepartmental research is provided by the following example. Observation revealed that all purchase orders were accompanied by blueprints of the purchased parts. Though this procedure was acceptable for the initial order, it was needless duplication for repeat orders with the same vendor. Blueprint costs and the costs of delays involved in waiting for blueprints were substantial. Improved procedures were developed between the purchasing and engineering departments whereby repeat orders for purchased parts merely referenced the latest revision number on the blueprint already in the vendor's possession. Other typical research objects of a procedural nature include determination of job descriptions and specifications, personnel evaluation procedures, wage payment plans, and receiving and invoice procedures. A consumer products firm reported the following areas of procedural research:

1. Study of the feasibility of contract purchasing, prepaid purchase orders, systems buying, stockless purchasing, data phone, and other new purchasing techniques.
2. More effective use of blanket orders to minimize repetitive ordering.
3. Investigation of--the forms generated and processed by purchasing to minimize the number and optimize their use.
4. Research as to the feasibility of establishing the purchasing function as a "profit center."
5. Development of a purchasing manual.

Vendor and Commodity Research:

This involves commodity studies, including availability and price trends. A representative listing of such projects would include:

1. Development of information helpful in locating and evaluating sources of supply.
2. Traffic studies of shipments from vendors' plants including the possibility of consolidated shipments, lower cost freight classifications, use of company truck fleets, use of freight forwarding companies, and so on.
3. Elimination of single sources of supply to stimulate competition.
4. Development of vendor evaluation techniques.
5. Studies of terms and discounts from vendors, with a view to obtaining the lowest net cost.

Economic Projections:

This includes analysis of probable price changes and availability of purchased commodities, and is an extension of vendor and commodity research. Economic and political developments, such as inflationary trends in nations that are large suppliers for specific commodities and changes in the "cold war," are watched and analyzed to determine their effects on prices and availability.

Special Projects:

These, by their nature, can include any type of research involving the purchasing function. Included are studies to determine economic order quantities, lease or buy decisions, quality control procedures, and value analysis.

7.2 PERT AND CPM

Purchasing planning and research can be aided by use of PERT and CPM techniques. PERT stands for Program Evaluation Review Techniques and CPM refers to Critical Path Method. Both are control techniques designed to make planning more effective. Although they are principally scheduling and cost control devices, their principles can be used in other areas of purchasing research where complex relationships are involved. An increasing number of applications are being found in subcontracting, development work, construction contracts, and project buying.

The primary advantages of the techniques include: (1) providing a means for more careful planning by specifying all of the variables involved; (2) providing a clearer understanding of the interrelationships involved in projects; (3) assuring a constant review to see that projects are progressing on schedule; (4) identifying potential trouble spots early so that resources can be diverted to avoid cumulative delays; (5) scheduling resources in the most efficient way; and (6) making it possible to predict the completion time of projects with reasonable accuracy.

Application:

The essential part of the system is the network, which is a graphic portrayal of a sequence of tasks that must be performed to complete a project. In PERT terminology, an event is a happening that marks a partial completion of the total task; for example, the completion of a subsection. An activity is the action necessary to produce an event; for example, the procurement of steel for the subsection. The network is thus the master plan showing all events and activities and the times that are necessary to complete each specific task. The network therefore (1) lists all activities necessary to complete the total project, (2) indicates the time required for the completion of each portion of the total (called events) and the total project, and (3) establishes the necessary sequence of activities. The network method discussed so far may be termed as deterministic, since estimated activity times are assumed to be the expected values. Deterministic network methods assume that the expected time is the actual time taken. Probabilistic methods, on the other hand, assume the reverse, more realistic situation, where activity times are represented by a probability distribution. This probability distribution of activity time is based upon three different time estimates made for each activity. These are as follows:

t_o = the optimistic time is the shortest possible time to complete the activity if all goes well. That is, there is very little chance that activity can be done in time less than t_o .

t_p = the pessimistic time is the longest time that an activity could take place if everything goes wrong. That is, there is very little chance that activity can be done in time less than t_p .

t_m = the most likely time is the estimate of the normal time an activity would take. If only one were available, this would be it. Otherwise it is the mode of the probability distribution. From these values it is necessary to derive the expected time. This is accomplished by an approximation developed by the experts of PERT and is given by

$$T_e \text{ (expected time)} = (t_o + 4t_m + t_p) / 6$$

$$6 \text{ (standard deviation)} = (t_p - t_o) / 6$$

7.3 PURCHASING AND PERT

As indicated in the preceding illustrations, PERT provides a means of keeping account of critical parts and materials whose delay would hinder production schedules. The writer of the article that accompanied the material in Figure 11-3 described the overall control affected by PERT scheduling as follows:

The PERT network makes it clear that production cannot start until all raw materials and components are in the plant. Many steps preliminary to production, however are taken by other departments simultaneously with purchasing activities. To prevent one material delay from setting back the entire project, the committee splits each new product into several segments. Without PERT the purchasing department may lose contact with the total project schedule and only be supplied with specific delivery dates that must be met. When purchasing is supplied with a PERT network analysis, the most economical purchasing and traffic decisions can be made. for

example, knowing how much latitude is available on delivery date, purchasing can select low cost suppliers who may require relatively long lead times. In addition slower but cheaper forms of transportation may be selected. PERT is also valuable in expediting, because it indicates quickly when a crucial delivery deadline is missed.

In summary, the advantages of PERT in purchasing research consist of (1) careful planning of all steps, including those activities that may precede purchasing; (2) an overview of the entire project; (3) a mechanism for systematic review of progress; (4) a plan for handling emergencies by diverting resources from a noncritical path to the critical path.

7.3.1 Value Analysis:

A discussion of purchasing research techniques must include value analysis. There are many names for this procedure, including "purchasing research," "value engineering, value techniques," "value control," and "product research." Some firms make a distinction between value analysis and value engineering. In such cases value analysis efforts are those directed toward existing products, while value engineering pertains to research involving products and proposals that are still in the research and development stages. Value engineering is considered, therefore, as cost avoidance and value analysis is cost reduction. In the following discussion the term "value analysis" will be used in the inclusive sense to indicate procedures involving both proposed and actual products.

Value analysis is the organized, systematic study of material, part, component, or system, to identify areas of unnecessary cost that can be eliminated without impairing the capacity of the item to satisfy its objective. It begins by someone asking the question "What is this item worth?" and proceeds to an evaluation of value in terms of the function the item performs. For example, the function of a fastener is to join two or more parts. Value analysis examines the value of this function in terms of alternative methods such as welding, taping, stapling, or gluing, in view of the stresses and vibrations involved in a specific application. Any component has a primary function, but it may also have a secondary function. In defining a function it is preferable to be as simple as possible, utilizing short definitions such as "indicates temperature" or "controls humidity. One the function has been determined, its appropriateness, cost, and possible alternatives can be analyzed.

In the typical organizational approach to value analysis, two main areas for research is recognizable - product improvement and new product design. Because of the individual company differences three basic staffing approaches to value analysis are employed: (1) committees with personnel from interested departments to discuss value considerations, (2) staff groups to support line purchasing activity, and (3) staff training programs to make operating personnel conscious of value analysis opportunities.

- **Committee:**

The committee approach is most often used by companies practicing value analysis for the first time and by small firms. The team is usually composed of representatives of the following departments: purchasing, manufacturing, engineering, quality control, accounting and marketing. On important value analysis projects, the departmental operating personnel make investigations in cooperation with their operating personnel. The most serious weaknesses in the committee arrangement are that decisions are difficult to reach because of lack of vigorous leadership. A

related difficulty is that even after decisions are reached, implementation is a major problem since operating personnel are inclined to resist change. Therefore, though the committee approach is a simple and inexpensive method of implementing value analysis it may be seriously limited in reaching decisions and putting recommendations into actions.

- **Staff:**

The most common form of organization is a permanent staff, usually assigned to the purchasing department. In this form of organization the staff members concentrate on the research aspect of value analysis while regular purchasing personnel perform the operational functions. Relating staff specialists to the operating personnel is the key to successful functioning of this form of a value analysis program. The problem is to determine the respective authority of the staff and the regular purchasing personnel. The staff analyst may be viewed as a threat by the buyer, and consequently may be given only the minimum of information. On the other hand, if the analyst is given too much authority over operating matters, a feeling of inferiority may pervade the operating personnel. Cooperation can best be assured by putting value analysis investigation on an advisory basis and encouraging line personnel to implement the findings on their own initiative. Staff personnel can also secure cooperation by providing information aids to departmental personnel to encourage acceptance of recommendations.

- **Staff Training Approach:**

An attempt is made to instill an understanding of the concept and its techniques among the personnel that purchase, specify and use production materials. It is hoped that operating personnel when apprised of the techniques and benefits of value analysis procedures, will employ them in their day-to-day routines. Although the content of value analysis training programs varies according to firm's needs such programs generally include information regarding techniques, cases illustrating successful cost reduction applications, recognition to individuals who have been responsible for successful projects, the creation of cost reduction attitude and a cooperative approach to value analysis.

7.3.2 Techniques of Value Analysis:

As indicated earlier the basic question involved in value analysis is: "What is this part worth?" To answer this question, function must be related to price. Continuing with the earlier example, a fastener function can be performed by welding, taping, stapling, or gluing. The most desirable alternative for a given application depends on the use to which the product will be put and the attendant conditions of use. The best product is the one that will perform satisfactorily at the lowest cost. Value analysis procedures essentially follow the same pattern in all cases. First there is an analysis of the design of the item and its uses, and then the application of price analysis to the alternatives.

Design Analysis:

As a starting point for analysis, it is helpful to visualize both the total functional product and its components. For instance, a panel board assembly may be dismantled and mounted so that each component is adjacent to its mating part on the board. Such an exploded assembly often provides the opportunity to view each component objectively in relation to the function it performs. A value analysis team with members representing different backgrounds views each of the subassemblies in relation to each other and to the total product. The results may include suggestions for an entirely different method of manufacture or possible elimination of the component altogether as a result of regrouping of other components.

Check Lists:

With the panel board overview as the basic point of reference the value analysis procedure usually includes the use of a detailed check list to make sure that every pertinent question is asked about each component. Check lists vary in detail but their basic purpose is to assure that a careful investigation is made. The following questions are indicative of those usually included in value analysis check lists:

- What is the precise function of the item?
- Can the item be eliminated?
- If the item is not standard, can a standard item be substituted?
- Are there any similar items used by the company that can be substituted?
- Can the item be redesigned to allow greater tolerances?
- Could the item be produced within the firm at less cost?
- Are the finishing requirements greater than necessary?
- Are there any possible economies available in packaging or shipping techniques? **Brainstorming:**

Brainstorming is a process in which value analysis members throw out ideas as they occur to them during group sessions. It attempts to elicit creative thinking. Suggestions are not evaluated as they are presented but are written down as fast as they are made. After the free-wheeling brainstorming session, the resulting ideas are evaluated as to their possible contribution in reducing cost. This technique is still employed by some firms, although it has passed its peak of popularity and some firms have not found it to be helpful.

Price Analysis:

Although cost is related to all phases of value analysis procedures, it is advisable to have intensive price analysis as a distinct phase of the procedure. The cost of producing the item is established on the assumption that the supplier is thoroughly efficient, equipped with modern facilities, and allowed to make a reasonable return on his investment. Price analysis must include a thorough study of methods of manufacture as well as the business conditions prevailing in the industry. In order to arrive at a realistic figure, factors such as the following must be considered:

- « Industry wage rates
- Rates of operation of suppliers
- Excess capacity and its effect on overhead costs
- Amount of engineering services required
- Managerial skill and capability required
- Degree of competition in the industry
- Rates of profit in the industry
- Age and condition of industry facilities
- Changes in productivity and methods of manufacture that may reduce cost

If the conclusion of the price analysis study is that the price being asked for the item is too high the company may decide to make the item instead of buying it. In other cases the company may decide that it would be preferable to show a supplier how he might produce the item profitably at a lower price.

7.4 CONCLUSION:

Purchasing research may be formal or informal, depending on the policies of individual firms. The preferred organizational form

is to have research as a specific staff assignment, since this ensures that it will receive proper attention. A few of the research techniques in use were discussed in this chapter. With increasing attention being devoted to purchasing research, it is inevitable that many techniques and sophisticated methods of analysis that have been developed in other areas will be applied to purchasing problems. Linear programming is a mathematical approach to problem solution that can be applied to some aspects of the field of purchasing. For example, a buyer faced with a decision involving the allocation of a given volume of a commodity purchase to several vendors with delivery to more than one location can use this technique to advantage. The availability of electronic data-processing equipment in more and more companies is forcing management to examine other areas of their operations in which this sophisticated research tool may be used. Purchasing applications are being developed at an accelerated pace, and it is inevitable that purchasing research will become an increasing part of the total purchasing function.

7.5 PRACTICE QUESTIONS

7.5.1 Short Answer type question

1. What is PERT?
2. What is CPM?

7.5.2 Long Answer type question

1. Explain how PERT is useful to purchasing behaviour?
2. Explain the techniques of value analysis.

7.6 SUGGESTED READINGS

- Menon K.S., Purchasing and Inventory Control, Wheeler Publishing, New Delhi, 3rd Edition, 1993.
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MAKE OR BUY AND EVALUATION OF PURCHASING PERFORMANCE**STRUCTURE**

- 8.1 Make or Buy
- 8.2 Considerations in making a decision regarding make-or-buy
- 8.3 Evaluating Purchasing Performance
 - 8.3.1 Evaluation Objectives
 - 8.3.2 Evaluation Criteria
 - 8.3.3 Evaluation Standards
 - 8.3.4 Evaluation Methods

8.1 MAKE OR BUY

The make-or-buy decision is the act of making a strategic choice between producing an item internally |in-house| or buying it externally (from an outside supplier). The buy side of the decision also is referred to as outsourcing. Make-or-buy decisions usually arise when a firm has developed a product or part-or significantly modified a product or part-, having trouble with current suppliers, or has diminishing capacity or changing demand. Make-or-buy analysis is conducted at the strategic and operational level. Obviously, the strategic level is the more long- range of the two. Variables considered at the strategic level include analysis of the future, as well as the current environment. Issues like government regulation, competing firms, and market trends all have a strategic impact on the make-or-buy decision. Of course, firms should make items that reinforce or are in-line with their core competencies. These are areas in which the firm is strongest and which give the firm a competitive advantage.

The increased existence of firms that utilize the concept of lean manufacturing has prompted an increase in outsourcing. Manufacturers are tending to purchase subassemblies rather than piece parts, and are outsourcing activities ranging from logistics to administrative services. A firm outsource all items that do not fit one of the following three categories: (1) the item is iconic to the success of the product, including customer perception of important product attributes, (2) the item requires specialized design and manufacturing skills or equipment, and the number of capable and reliable suppliers is extremely limited; and (3) the item fits well within the firm's core competencies, or within those the firm must develop to fulfill future plans, items that fit of these three categories are considered strategic in nature and should be produced internally at all possible.

Make-or-buy decisions also occur at the operational level. Following considerations has been suggested that favor making a part in-house:

- Cost considerations (less expensive to make the part)
- Desire to integrate plant operations
- Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
- Need to exert direct control over production and/or quality
- Better quality control
- Design secrecy is required to protect proprietary technology
- Unreliable suppliers
- No competent suppliers
- Desire to maintain a stable workforce (in periods of declining sales)
- Quantity too small to interest a supplier
- Control of lead time, transportation, and warehousing costs
- Greater assurance of continual supply
- Provision of a second source
- Political, social or environmental reasons (union pressure)
- Emotion (e.g., pride)

Factors that may influence firms to buy a part externally include:

- Lack of expertise
- Suppliers' research and specialized know-how exceeds that of the buyer
- cost considerations (less expensive to buy the item)
- Small-volume requirements
- Limited production facilities or insufficient capacity
- Desire to maintain a multiple-source policy
- Indirect managerial control considerations
- Procurement and inventory considerations
- Brand preference
- Item not essential to the firm's strategy
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8.2 CONSIDERATIONS IN MAKING A DECISION REGARDING MAKE-OR-BUY

It should be emphasized that various issues should be considered before a decision regarding make or buy is reached. Some decisions are major, such as a paper manufacturing firm deciding whether to build or buy a pulp mill to supply its own raw material, whereas others are minor, such as a metal products firm pondering whether to make a small fitting or purchase it from an outside source. In broad terms four relevant considerations are the elements in all purchasing decisions: quality, quantity, cost and service.

Quality Considerations:

The quality factor is important in making decision about make-or-buy as there exists quality differences between the two alternatives. Most producers will produce to new quality specification if they have reasonable assurance that the demand is sound and likely to be recurring one. However, if no producer seems willing to make the item it may be that demand is not sound and questions should be raised as to whether the user could economically and technologically produce the desired quality in his own plant. Sometimes, the dimensions or tolerances may be more rigid than the commonly accepted commercial standards for the item. Occasionally an inspection division sets up such rigid inspection standards for a purchased item that suppliers cannot reasonably comply. It then becomes necessary to determine whether such high standards are necessary. It is also important to recognize that lack of the desired quality in the product of a supplier may be a temporary situation. This is especially likely if the item is for a new product and if the product is being made by a new industry. Once a decision is reached to manufacture rather than to buy it can be changed only at great cost or after a period of time. Another reason advanced for making rather than buying is that the maintenance of a desired quality standard for the finished product is so important that it should not be left to the supplier who has a lesser interest in the finished product.

There can be certain positive reasons that can be advanced for buying instead of making. The strongest reason for buying is that a producer is likely to be particularly skilled in the manufacture of items that constitute his regular line. Thus in buying one can get the benefits of specialization, whereas in making the item it will be a sideline operation in his plant. Furthermore a company organized to make the item as a part of its regular line is likely to devote managerial effort and research to the problems of technological improvement of the product and process. Sometimes, the choice in favor of buying is clear-cut from the point of view of quality because of patents or production methods that the supplier controls. Sometimes a license can be obtained from the patent holder, authorizing production by the user. Another reason for buying instead of making is the increased flexibility that this policy permits with respect to the quality of the part being purchased. It is a relatively simple matter to change suppliers as quality specifications change. But, if the company is making the part, it is not so simple to alter its production facilities to permit a change in the quality characteristic of the part.

Quantity Considerations:

An important aspect in which quantity differs from considerations of quality is that desired quality can be accurately and specifically set forth, but this is not true of quantity. In the purchasing context, the concept of quantity must always be considered in relation to time. The correct quantity at a given time under given circumstances can become wrong at another time under change of circumstances. Thus how much to buy is a variable, whereas what to buy is not. From the viewpoint of quantity, the commonest reason for making rather than buying is that the order would be too small to interest a supplier. Before deciding to make for this reason, a buyer should consider whether it would be possible to change specifications so that several small use items could be included under common specifications. Another reason is the possibility it affords of closer coordination between the quantity produced and the quantity required. The need for large quantities may be a reason for either making or buying. If no supplier is able to supply an item in the quantities required it becomes necessary to make it or to split the order among suppliers. On the other hand if the quantity required is so large that to make it would interfere with production of the regular line of products, it becomes highly desirable to buy from suppliers rather than make the item. Furthermore, it is vital that the implications of making a small-use item in one's own plant be considered. If it is unprofitable for a supplier to accept small quantity orders it may be equally unprofitable for the user to make them.

Cost Considerations:

If quality, quantity and other factors are equal, the cost considerations in a make-or-buy decision become a comparison of a known cost with an unknown but estimated cost. For this reason it is possible to generalize by saying that if all other factors are equal and if there is a slight cost advantage in favor of making, the item should be purchased. In evaluating the estimate cost of making an item, it should be recognized that the accuracy of the estimate depends on the skill and care with which the cost estimates are compiled. This problem of estimating accurately the cost of making an item stems from the nature of overhead costs in manufacturing plants. If the make-or-buy decision were concerned with an item that was clearly separate and apart from other items made in the plant, the allocation of overhead would be a simple matter. However, usually the item is made in a plant from the same types of materials and on the same machine. Also included is the problem of the current level of production in the plant. A plant operating at or near capacity would have different costs for making an item now being purchased than would a plant that is operating well below capacity. The fixed costs of a plant operating below capacity are a relatively high percentage of total costs. Therefore additional production can be undertaken with only a small increase in total cost. On the other hand, a firm operating at capacity can take on additional production only at substantial increased costs. A plant with excess capacity can increase production by merely adding incremental costs that are variable in nature, whereas a plant being fully utilized can increase production only by increasing its capacity, thereby adding incremental costs of both fixed and variable nature. When facilities are being employed at less than capacity, the cost of making should be determined by dividing the estimated volume into the increased variable costs. The item then would be purchased only if its unit purchase cost was equal or less than the unit increase in variable costs. At any higher price the item should be made because it would be contributing something toward overhead costs. The situation is different when the facilities are being operated at capacity. The choice now is between expansion of the facilities and an outside purchase. In such a case the company is justified in purchasing on the outside at any price less than the unit total costs making the item. If raw materials or supplies are required for making an item which has not previously been purchased, the costs of buying them in this short run will be fairly high because of the need for developing and evaluating new sources. If the item to be made is somewhat different from regular production items, it may require new machines or personnel or at least additional training of present personnel to manufacture it properly.

Service Considerations:

The assurance of supply is an important service consideration. In general, it can be said that there is greater assurance of supply when a company makes an item than when it buys it. Decisions based on this particular reason are more plausible for large industrial concerns where a breakdown in the supply line creates greater disturbances, affects more personnel and results in proportionally larger losses than in small concerns. Making rather than buying items may enable a firm to give more assured and regular employment to its employees and in effect enable a company to serve itself better by stabilizing its organization. When there are but one or two suppliers available to the buying company there exists a possibility of suppliers colluding with each other to create a monopolistic situation. The buyer could be at the mercy of the seller with respect to the assurance of supply during periods of shortage. Thus, the existence of a monopolistic condition provides a strong stimulus to make rather than to buy. Another service factor to consider before a make-or-buy decision is taken is the effect the decision will have on the buyer's flexibility. When an item is purchased the buyer is in a favorable position to negotiate with various suppliers. Competition is keen, and the buyer can move from one supplier to another as the occasion demands in order to secure the right quality, the right quantity, at the right time and for the right price. However, once the company is committed to making an item, the flexibility is lost. It becomes difficult to adjust quantity, quality or price. Another factor to consider is the effect that a decision to make an item will have on suppliers of other items being purchased by the buyer. When a company begins to make items that it formerly bought, its other suppliers begin to wonder whether their items too will eventually be made by the buyer. Thus there is the risk that the quality of service and the assurance of supply may be impaired for other items when a make decision is reached for one.

8.3 EVALUATING PURCHASING PERFORMANCE

The evaluation consists of developing measurement criteria and then measuring performance against these criteria. The task of evaluation is difficult even in the simplest case because few functions can be accurately or completely measured in quantitative or objective terms. The purchasing department is difficult to evaluate because, as in sales, much of its work for the company is in the area of interpersonal relations. This is not to suggest that the purchasing department should not be evaluated, but rather that evaluation should be done with full recognition of the inherent problems that exist.

8.3.1 Evaluation Objectives:

Improve Performance: Perhaps the most fundamental reason for evaluating any department is a desire to improve its performance. As a basis for suggesting improvements it is necessary ascertain the current level of performance. After the level of performance has been determined it is possible to discern the points that need improvement. It is likewise necessary to know the current level of performance before establishing a goal of expected attainment.

Provide Evaluation Data: A second purpose of evaluating performance is to establish an acceptable basis on which to judge the abilities and capacities of the purchasing function. Colleagues and superiors are constantly forming a judgement about the people with whom they work. This judgment process is necessary and inevitable, hence it is important that those who must make formal judgments about purchasing personnel be even slightly available about their performance. Such data should also become the groundwork for establishing policies on hiring, training, compensating, and promoting personnel.

Improve Morale: A concomitant of the evaluation of purchasing performance is the likelihood of improved morale and increased efficiency of purchasing personnel. It is that employees do better work and take a greater interest in their jobs when they know that their efforts will come to the attention of their superiors. Good employees do not object to having their work measured by management if they are convinced that the measure is fair and reasonable.

Aid Organization: Evaluation may be used by management as an aid internal reorganization and the assignment of functions among departments within the organization. Through evaluation it is possible for management to determine how effectively a given activity is performed, whether it might be advisable to reassign the activity, or whether related activity should be assigned to the purchasing department.

Facilitate Coordination: A multi plant company that has several plants will find evaluation an effective tool for controlling and coordinating the purchasing function throughout the company. Through uniform evaluation techniques it is possible to compare the performance of the various purchasing departments. Moreover, evaluation

of information from the several plants through which improved methods and techniques in one plant can be transferred to others.

8.3.2 Evaluation Criteria:

Although no one formula exists for measuring purchasing performance, this does not preclude the possibility of measuring specific aspects of the purchasing function.

Cost Purchase Comparison:

A common measurement device that relates the dollar volume of annual purchases. This ratio has significance for evaluating a single department over time, provided that its responsibilities have remained fairly constant. Its greatest limitation is that it represents a measure of total departmental performance and does not indicate points of strength or weakness within the department. Cost-purchase comparisons between purchasing departments of different companies are not likely to be revealing, since there usually are substantial variations in both factors of the ratio. Different companies buy different proportions of raw materials and processed goods and this significantly alters the dollar volume of purchases. Thus, there is likely to be little common basis for comparison among companies on this criterion.

Cost per Order:

The calculation is made by dividing total purchasing department costs by the number of orders placed. This measurement may be criticized because evaluators could greatly improve their showing by ordering smaller quantities more often. Even if a company established controls over the size of orders, the cost-per-order approach to evaluation is becoming less useful because many firms are beginning to buy under open-end and annual contracts. Although this practice decreases the paper work, it raises the cost per order. In such cases the higher cost per order denotes increased rather than decreased efficiency.

Return on Investment:

Another approach employing the cost data involves the calculation of the net savings per dollar spent on purchasing—referred to as the return on purchasing investment. The return is arrived at by multiplying the degree of effectiveness (purchasing savings minus departmental operating costs divided by total purchases) by dollar disbursement (dollars spent per dollar of departmental operating costs). Dollar disbursement can be misleading because one could operate at high expenditures and thus increase the dollars spent per dollar of operating costs, but departmental efficiency might be seriously curtailed. Return on capital is a more significant measure of purchasing performance. Return on invested capital emphasizes purchasing contribution to profits rather than its expense.

Quality Criteria:

Quality achievement may be measured in terms of the number of rejections of incoming shipments. Defects discovered during the production process should also be considered. The responsibility for defective items must be assumed by the purchasing department because it selected the supplier.

Quantity Criteria:

Quantity performance can be measured in different ways. One criterion is the amount of downtime resulting from a shortage of materials. Another criterion is the amount of rescheduling of production caused by lack of materials. The number of emergency and rush orders processed in a purchasing department also is a measure of efficiency with which the department is procuring the right quantity. Another quantity factor is the relationship between inventory and use. This relationship is known as the turnover rate and is calculated by dividing the value of purchased materials by the average investment in such items during the period.

Price Criteria:

The long term relationship between the price paid for purchased goods and the price secured for the company's finished product is an important benchmark. Over time the typical company will find that a reasonably constant proportion of its sales dollar is spent for purchased goods. A comparison of the price index of company purchases with one of the standard price indexes can help in appraising price performance. A comparison of the market price at the time of use with the price that was actually paid for that item measures how well a purchasing department is anticipating price changes.

Time and Place Criteria:

Many of the criteria that measure quantity performance are also applicable in determining performance with respect to time and place. In addition to quantity measures, however, it is desirable to compare suppliers' delivery dates with promised shipping dates and to estimate the amount of follow-up required to obtain performance with respect to time and place.

8.3.3 Evaluation Standards:

It is perfectly possible to say what should be evaluated and how performance should be evaluated. Basically, evaluation involves a comparison of what is being done with one of four possible standards:

1. Past performance
2. Budgeted performance
3. Performance of departments in other companies
4. An ideal or norm of performance Past Performance:

Perhaps the most widely used standard is a comparison of the current performance of the department with its performance of those parts of the purchasing function that are capable of statistical measurement. This approach is of particular value where the size of the department and its assignments are relatively stable from year-to-year.

Budgeted Performance:

If past data are not available or if procedures or scale of operation have changed considerably performance can be evaluated against budgeted goals. This approach is a form of management by objective. At the beginning of the budget period purchasing objectives are established in view of the firm's total objectives. These purchasing objectives will presumably contribute to the profit objectives of the company and are capable of objective measurement. Evaluation by objective can include numerous budgeted criteria. It provides a goal and an incentive for personnel in addition to concrete evaluation data.

Types of Budgets: Two general types of budgets are used for purchasing activities. One is the purchasing or materials budget, and the other is the department operations budget. The materials budget is an estimate of the amount of materials, parts, and supplies to be purchased during the budget period and is derived from production schedules. The department operations budget deals with the estimated costs of running the purchasing department. Although many companies do not employ budgets, a number of reasons can be advanced for doing so. An operating budget establishes a standard of performance—at least, a standard of a very general nature. A materials budget enables other departments in the concern to coordinate their activities with those of the purchasing department. Another advantage of budgeting flows from the manner in which the budget is made. Implicit in its preparation is planning, and planning encourages coordination and cooperation. In addition, budgeting means that plans have been formalized to the extent of being put into writing and thus becoming a matter of records.

Disadvantages of Budgets: Although the advantages of budgeting are significant there are some difficulties in their use as a control device in purchasing operations. This is much more true of the materials budget than the operations budget. The main difficulty arises from the fact that a purchasing agent should buy what is needed rather than what has been forecast. Strict adherence to a budget could lead to overbuying with its attendant costs. In other instances adherence to the budget might lead to shortages and work stoppages in the plant. In both cases, the department would be given a high rating on the basis of adherence to the budget, but could hardly be considered to be performing its functions well.

Norms:

The use of nonbudgetary purchasing norms as standards for purchasing performance has not been very common. This is primarily because there is such a wide variation in the specific duties assigned to individuals within purchasing departments and because of the way in which they perform their duties. One need only consider the variation in salesmen and their concept of how to deal with buyers to understand the difficulty in developing a norm for evaluating a buyer's interview performance. What is true with respect to the development of norms for comparing buyer performance is even truer of developing norms for the need of a purchasing department. Not only are his duties and responsibilities more diverse but also more individual in nature.

8.3.4 Evaluation Methods:**Internal Audits:**

Many companies conduct an internal audit of their purchasing department, as they do of other departments, to measure conformity to established procedures and acceptable business practice. Evaluation in the usual sense is not involved, in that the internal auditor is not concerned with how well the purchasing question is functioning but only with whether it is doing things as procedures indicate they should be done. Consequently the internal audit as a method of evaluating purchasing performance is limited by the extent to which management has established purchasing objectives and standards of performance against which the internal auditor can measure the facts he finds.

Purchasing Department Savings:

Savings arising from purchasing operations are fairly commonly used as a means of evaluating performance. These savings are concerned with costs of materials, supplies and services being purchased. Some companies refer to these savings as "cost reductions" and others as "profit improvement." The problem with the use of this method is in determining actual savings in cost. If a buyer through negotiations secures a price lower than originally quoted should this be considered a savings? Is a quantity discount a savings? How does one measure savings on changes of materials or design when the purchasing department only had little or no influence on such changes? Notwithstanding these there are savings that can be clearly attributed to the purchasing department and used to evaluate its performance

Variance from Standard Cost of Materials:

Some companies establish a standard cost of the more important materials that they purchase, which is derived from the historical record of prices paid for such materials. Evaluation of purchasing performance then consists of comparing actual costs with this standard cost for the period under evaluation. This method of evaluation is commonly found in companies employing standard costing as a control over manufacturing operations. The comparison is valid only if there is reasonable stability in the market price of the commodities being reviewed. Furthermore, it should be established that the buyer can influence the prices paid.

Outside Audit:

The outside audit is an audit conducted by someone not an employee of the company whose purchasing department is being evaluated. Management consulting firms typically are employed. Auditors usually start with the purchasing procedures or policy manuals and measure adherence to these guides. They attempt to ascertain the extent to which the purchasing department is operating under commonly accepted sound management methods.

Vendor Performance:

The purchasing department is directly, if not completely, responsible for choosing vendors. If it does a good job of selecting vendors, this will show up in good vendor performance. Unfortunately, in many companies vendor evaluation is highly informal. It is conducted at the time a purchase is made, and no permanent "data bank" of information is maintained, nor are vendors of all commodities evaluated. Since vendor evaluation should consider quality, quantity, price, time and place and since there is variation in the importance of each of these elements for most purchases, few companies have attempted to develop vendor performance formulas.

Appraisal of Personnel:

Many companies have established job evaluation and merit rating systems for their personnel. Where such systems exist, they should be applied to purchasing personnel. Forms are usually developed that specify a performance review by one or more of each person's supervisors. Although such evaluation may be sound for individuals in a purchasing department, it is not adequate evaluation of an entire purchasing department.

Inventory Performance:

This method should be used only where the purchasing department has major responsibility for determining inventory levels and quantities to be bought. Most companies do not give such blanket responsibility to their purchasing departments.

8.4 PRACTICE QUESTIONS**8.4.1 Short answer type question**

1. What are the considerations while making make or buy decisions

8.4.2 Long answer type question

1. What are the objectives of evaluation of purchasing performance?
2. Explain the criteria for evaluation of purchasing performance.

8.5 SUGGESTED READINGS

- Menon K.S., Purchasing and Inventory Control, Wheeler Publishing, New Delhi, 3rd Edition, 1993.
- Westing J.H, Fine LV. and Zenz G.J., Purchasing Management Materials in Motion, Wiley Eastern Limited, New Delhi, 3rd Edition, 1975.
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