



Chalimbana University

Integrity. Service. Excellence

DIRECTORATE OF DISTANCE EDUCATION

BIP 2101: INTRODUCTION TO PURCHASING

FIRST EDITION 2019

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## Module Overview

Pre-requisite: None

### Introduction

Welcome to the introduction to purchasing course. Purchasing is a vital and value adding activity in any company thereby leading to the need to understand its importance and value. This highlights the key areas that give a company real purchasing benefits. Moreover, emphasis of value has been given to the purchasing cycle and its benefits in the negotiation process. Further, supplier evaluation and warehousing has also been discussed. Hope you will enjoy the course and contribute positively to the economic development of the country.

### Rationale

Understanding purchasing will help the learners to develop a skill of logical reasoning, because it applies to most aspects of everyday life and the company's well being.

### Aim

The aim of this course is to expose learners to the concepts and practices in the procurement of goods, works and services.

### Learning Outcomes

At the end of this course, learners should be able to;

- Understand the concept of purchasing.
- Identify purchasing activities and know the importance of purchasing.

- Learn the principles, processes and procedures to achieve effective purchasing within your company
- Identify the potential downside of ineffective purchasing and how to avoid it
- Appreciate the positive impact of purchasing on the company's financial health

## Summary

The module looks at purchasing and its benefits in an organisation.

## Study Skills

As an adult learner, your approach to learning will be different to that of your school days: you will choose when you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic responsibilities. Essentially you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to acquaint yourself with areas such as essay planning, searching for information, writing, coping with examinations and using the internet as a learning resource.

Your most significant considerations will be *time* and *space* i.e. the time you dedicate to your learning and the environment in which you engage in that learning. It is recommended that you take time now before starting your self-study to familiarise yourself with these issues. There are a number of excellent resources on the web. A few suggested links are:

<http://www.how-to-study.com/>

The "How to study" website is dedicated to study skills resources. You will find links to study preparation (a list of nine essentials for a good study place), taking notes, strategies for reading text books, using reference sources, test anxiety.

<http://www.ucc.vt.edu/stdysk/stdyhlp.html>

This is the website of the Virginia Tech, Division of Student Affairs. You will find links to time scheduling (including a “where does time go?” link), a study skill checklist, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis, memory skills (“remembering”).

### Timeframe

You are expected to spend at least 18 hours of study time on this module. In addition, there shall be arranged contact sessions with lecturers from the University during residential possibly in April, August and December. You are requested to spend your time judiciously so that you reap maximum benefit from the course.

### Need Help

In case you have difficulties during the duration of the course, please get in touch with your lecturer for routine enquiries during working days (Monday-Friday) from 08:00 to 17:00 hours on Cell: +260963804004; E-mail: [adsikalumbi@gmail.com](mailto:adsikalumbi@gmail.com); website: [www.chau.ac.zm](http://www.chau.ac.zm). You can also see your lecturer at the office during working hours as stated above.

You are free to utilise the services of the University Library which opens from 07:00 hours to 20:00 hours every working day.

It will be important for you to carry your student identity card for you to access the library and let alone borrow books.

### Required Resources

In this module you will need the following tools;

Note Book

Assessment

In this module you will be assessed on the basis of your performance as follows:

Continuous Assessment	50%
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Assignment	10%	
Project		15%
2 Tests of equal weight	25%	
Final Examination		50%
Total		100%

#### References

##### Prescribed readings

Saunders, M. (1995) *Purchasing & Supply Management I: Strategy*. London. CIPS

##### Recommended readings

Bailey, F.T. and Jones. (1998). *Purchasing and Principles and Management*. London: CIPS.

Lysons, C.K. (2006) *Purchasing and Supply Chain Management* London.

## Unit 1: Introduction to Purchasing

### Introduction

Welcome to the first unit of this module. Purchasing describes the process of buying. It is the learning of the requirement, identifying and selecting a supplier, negotiation price. Purchasing is an element of the wider function of procurement and it includes many activities such as ordering, expediting, receipt and payment. Purchasing is responsible for obtaining the materials, parts, supplies and services needed to produce of a product or provide a service.



### Learning Outcome:

By the end of this unit you should be able to;

- define purchasing.
- explain the background of purchasing.
- discuss the importance and benefits of purchasing management.



### 1.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 1 hours in class

### 1.4 What Is Purchasing

Purchasing is about acquiring the right quality of material, at the right time, in the right quantity, from the right source, at the right price. This definition is viewed by some as rather being superficial and simplistic. To buy materials of the right quality, in the right quantity from the right source delivered to the right place at the right time, at the right price. (lysons and Farmington, 2006). It is said to be superficial in that what is right is dependent on a particular organization or situation and that some of the rights are inconsiderable and a particular "right" can only be obtained by trading off another .i.e. It may be possible to obtain the right of quality but not at the right price or right time. They argue further that the above definition implies that purchasing is:

- Reactive rather than productive
- Transactional rather than relational- purchasing viewed as primarily concerned with the mechanics of order placing on one-off basis rather than establishing whose appropriate long term collaborative supplier relationships.
- Tactical rather than strategic-purchasing is concerned with activating short term buying rather than contributing to the long term corporate goods of the organization.

According to Peter Baily etal (2009) in order for purchasing to work as an effective function in the management team he suggested the following broad statement of objectives.

- To supply the organization with a flow of materials and services to meet its needs.
- To ensure continuity of supplies by maintaining effective relationship with existing sources and by developing other sources of supply either as alternatives or to meet emerging or planned needs.
- To buy efficiently and wisely, obtaining by an ethical means the best value for every kwacha spent.
- To maintain sound cooperative relationship with other departments, providing information and advice as necessary to ensure effective co-corporation of the organization as a whole.

- To develop straight, policies, procedures to ensure the achievement of these objectives.

The more specific objectives would include:

- To select the best suppliers in the market
- To help generate the effective development of new product.
- To protect the companies cost structure
- To maintain the current quality/value balance
- To monitor supply market trends
- To negotiate effectively in order to work with suppliers who will seek mutual benefits through economically superior performance.
- To adopt environmentally responsible supply management.

Table 1-1 History of Purchasing

Period	Status
Late 1890s	Purchasing rarely used as a different department except in the railroad.
Early 1900s	Purchasing considered clerical work.
World War I and II	Purchasing function increased in importance due to the importance of obtaining raw materials, services, and supplies to keep the mines and factories running.
1950s and 1960s	Continued to gain stature, processes more refined, and more trained professionals. Still considered order placing clerical in a staff-support position.

Period	Status
Late 1960s–early 1970s	Integrated materials systems introduced, materials became part of strategic planning, and importance of department increased.
1970s	Oil embargo and shortages of basic raw materials turned the focus of the business world to purchasing.
1980s	Advent of just-in-time with an emphasis on inventory control and supplier quality; quantity, timing, and dependability made purchasing a cornerstone of competitive advantage.
Early 1990s	Value proposition of purchasing continued to increase; cost-savings became the buzzword.
Late 1990s	Purchasing evolved into strategic sourcing, contracts were more long term, and supplier relationship building and supplier relationship management started.
2000s	Purchasing shifted its myopic focus on cost to much broader terms. Some of the widely used developments: spend analysis, low-cost country sourcing, procurement technology evolved (ERP, e-sourcing), procurement outsourcing evolved (P2P), total cost of ownership, data mining and benchmarking, and lean purchasing.

Source: (Martinez, 2016)

## 1.5 Importance of Purchasing

### For Cost Effective

The Purchasing function is responsible for learning of the internal requirements,

locating and selecting suppliers, obtaining the materials, parts, supplies and services needed to produce a product or provide a service. Following the learning, negotiating the prices is also part of cost effective.

Nonetheless, the importance of purchasing is more than just the cost of goods purchased; other important factors include the quality of goods and services and the timing of deliveries of goods or services, both of which can have a significant impact on operations.

### **For Strategic Purposes**

Purchasing is a strategic issue. Organisations have to procure capital items like plant and machinery. This requires heavy investment. So, purchasing is an important function. But in some organisations, especially small organisations, purchasing is considered as a clerical activity. They assign this job to the persons simply who are loyal to the organisation. But it is a wrong way. In purchasing, the executives must be dynamic, innovative, creative and must have analytical decision making.

The emergence of the supply chain management concept has enlightened managers about the strategic role played by purchasing. Purchasing helps to determine a firm's cost structure through negotiations with suppliers. If the executives are efficient in bargaining then they can save for the organisations and this will help the organisations to cut costs and helpful in getting competitive advantage in the market. Purchasing initiatives can lead to reducing inventory and improving the quality of incoming parts and components through vendor selection and supplier development. Purchasing also supports new product development by encouraging supplier involvement in product development.

### **1.6 Purchasing Objectives**

The objectives of a world-class purchasing organization move far beyond the traditional belief that purchasing primary role is to obtain goods and services in response to internal needs. To understand how this role is changing, we must understand what

purchasing is all about, starting with the primary objectives of a world-class purchasing organization.

#### Objective 1: Supply Continuity

Purchasing must perform a number of activities to satisfy the operational requirements of internal customers, which is the traditional role of the purchasing function. More often than not, purchasing supports the needs of operations through the purchase of raw materials, components, subassemblies, repair and maintenance items, and services. Purchasing may also support the requirements of physical distribution. Purchasing must be responsive to the materials and support needs of its internal users (sometimes also called internal customers). Failing to respond to the needs of internal customers will diminish the confidence these users have in purchasing, and they may try to negotiate contracts themselves (a practice known as backdoor buying).

#### Objective 2: Manage the Purchasing Process Efficiently and Effectively

Purchasing must manage its internal operations efficiently and effectively, by performing the following:

- Determining staffing levels
- Developing and adhering to administrative budgets
- Providing professional training and growth opportunities for employees

#### Objective 3: Develop Supply Base Management

One of the most important objectives of the purchasing function is the selection, development, and maintenance of supply, a process that is sometimes described as supply base management. Purchasing must keep abreast of current conditions in supply markets to ensure that purchasing;

- Selects suppliers that are competitive
- Identifies new suppliers that have the potential for excellent performance and develops closer relationships with these suppliers,
- Improves existing suppliers,

- Develops new suppliers that are not competitive

In so doing, purchasing can select and manage a supply base capable of providing performance advantages in product cost, quality, technology, delivery, and new-product development. Supply base management requires that purchasing pursue better relationships with external suppliers and develop reliable, high-quality supply sources. This objective also requires that purchasing work directly with suppliers to improve existing capabilities and develop new capabilities.

#### Objectives 4: Develop Aligned Goals with Internal Functional Stakeholders

Purchasing must communicate closely with other functional groups, which are purchasing internal customers. These are sometimes called stakeholders, in that they have a significant stake in the effectiveness of purchasing performance. If a supplier's components are defective and causing problems for manufacturing, then purchasing must work closely with the supplier to improve its quality. Similarly, marketing may spend a great deal on advertising and promotion, so purchasing must ensure that the pricing is competitive and that service-level agreements are being met. In order to achieve this objective, purchasing must develop positive relationships and interact closely with other functional groups, including marketing, manufacturing, engineering, technology, and finance.

#### Objective 5: Support Organizational Goals and Objectives

Perhaps the single most important purchasing objective is to support organizational goals and objectives. Although this sounds easy, it is not always the case that purchasing goals match organizational goals. This objective implies that purchasing can directly affect (positively or negatively) total performance and that purchasing must concern themselves with organizational directives. For example, let's assume an organization has an objective of reducing the amount of inventory across its supply chain. Purchasing can work with suppliers to deliver smaller quantities more frequently, leading to inventory reductions. Such policies will show up as improved performance on the firm's balance sheet and income statements. In so doing, purchasing can be recognized as a strategic asset that provides a powerful competitive advantage in the marketplace.

## Objective 6: Develop Integrated Purchasing Strategies That Support Organizational Strategies

Far too often the purchasing function fails to develop strategies and plans that align with or support organizational strategies or the plans of other business functions. There are a number of reasons why purchasing may fail to integrate their plans with company plans. First, purchasing personnel have not historically participated in senior level corporate planning meetings, because they were often viewed as providing a tactical support function. Second, executive management has often been slow to recognize the benefits that a world-class purchasing function can provide. As these two conditions are rapidly changing, purchasing is being integrated within the strategic planning process in multiple industries. A purchasing department actively involved within the corporate planning process can provide supply market intelligence that contributes to strategic planning. Effective supply market intelligence involves the following:

- Monitoring supply markets and trends (e.g., material price increases, shortages, changes in suppliers) and interpreting the impact of these trends on company strategies
- Identifying the critical materials and services required to support company strategies in key performance areas, particularly during new-product development
- Developing supply options and contingency plans that support company plans
- Supporting the organization's need for a diverse and globally competitive supply base

### **Purchasing Activities**

There are two major forms of purchasing activities that take place in an organization:

- Tactical purchasing
- Strategic sourcing

### **Tactical Purchasing**

The organisations require some materials for the smooth flow of production. The day to

day management of materials flow is called tactical purchasing. These activities generally ensure that products and services are delivered to the right internal people at the right time but are often not carried out using a long term horizon. (Monczka, 2002).

### **Strategic Sourcing**

The purchasing which affects the long-term profitability is called strategic purchasing. Strategic sourcing is a part of purchasing activities but in a border sense. In the strategic sourcing process there may includes members from other than purchasing department like from engineering, quality, design, manufacturing, marketing and accounting department for managing, developing and integrating with supplier capabilities to achieve competitive advantages like cost reduction, technology development, quality improvement and cycle time reduction.

### **1.6 Purchasing Responsibilities**

Functional groups carry out certain duties on behalf of the organization. We refer to this as a function's responsibility or span of control. Purchasing must have the legitimate authority to make decisions that fall within their span of control. Span of control is established through senior management policies and support. Although internal customers influence many important decisions, final authority for certain matters must ultimately be assigned to the purchasing department.

Note: It is important to note that the hierarchy of purchasing in an organisation is dependent on that particular organisation.

### **1.7 Benefits of Purchasing Management.**

- Cost reduction or improvement (required utmost to be competitive in market)
- Improved material delivery (required for smooth flow of production)
- Shorter cycle time, including product development cycle times (helpful in fast production)
- Quality improvement (required to satisfy or win the hearts of the customers ultimately)



### **Activity 1.1**

Explain the Structure of purchasing in the following organisation

- Centralized organizational structure
- Decentralized organizational structure



### **1.8 Summary**

Congratulation for having reached the end of the unit, I know it has been a marathon, but worth it right!! I can confidently say that by now, you should be able to define purchasing, its background, importance and benefits.

## **Unit Two - The Purchasing Cycle**

### **2.1 Introduction**

Now that the light has been shed on the definition of purchasing, we then move on to a very interesting topic which is the purchasing cycle, This topic is a must know topic, because the practice of purchasing is centered on the purchasing cycle.



## **2.2 Learning Outcome:**

By the end of this unit you should be able to;

- describe the purchasing cycle.
- explain the types of purchases.



## **2.3 Time Frame:**

You will cover the following time;

- 2 hour 30 minutes' study time
- 1 hours in class

## **2.4 Stages of the Purchasing Process**

This unit presents the purchasing process as a cycle consisting of six major stages:

1. Forecast and plan requirement
2. Need clarification (requisition)
3. Supplier identification/selection
4. Contract/purchase order generation
5. Receipt of material or service and documents

## 6. Settlement, payment, and measurement of performance

These stages may vary in different organizations, depending on whether purchasing is buying a new or a repetitively purchased item, and also whether there is a detailed approval process for purchases that exceed a specific Kwacha amount. New items require that purchasing spend much more time up front evaluating potential sources. Repeat items usually have approved sources already available. Historically, preparing and managing the proper purchasing documents has been a time-consuming process. Most firms have streamlined the document flow process to reduce the paperwork and handling required for each purchase. The suite of tools used to achieve efficiency in purchasing transactions is broadly defined as e-procurement. Companies are using e-procurement tools to manage the flow of documents by (1) automating the document generation process and (2) electronically transmitting purchase documents to suppliers. The benefits of electronically generating and transmitting purchasing-related documents include the following:

1. A virtual elimination of paperwork and paperwork handling.
2. A reduction in the time between need recognition and the release and receipt of an order.
3. Improved communication both within the company and with suppliers.
4. A reduction in errors.
5. A reduction in overhead costs in the purchasing area.
6. A reduction in the time spent by purchasing personnel on processing purchase orders and invoices, and more time spent on strategic value-added purchasing activities.

### **2.4.1 Forecast and Plan Requirement**

The purchasing cycle begins with the identification of a need (a requirement). In most cases, procurement personnel have an annual budget planning process, whereby they will review the spending pattern for the organization and prepare a forecast of what will be purchased. In some cases, there may be a whole set of new requirements that have not been planned for (such as for new product introductions). In such cases, purchasing

personnel meet with internal customers to discuss their needs for the coming year. In many firms today, purchasing is the primary vehicle for obtaining external inputs (products or services) from suppliers, so that means that purchasing personnel have to work with a large number of internal customers, which will often include marketing, operations, finance, information technology, and other internal customers. Through a structured dialogue, purchasing will understand and plan for what these customers will be buying and translate this into a forecast that is shared with suppliers, the process that takes place to identify which suppliers are to receive the business associated with fulfilling this need.

A projected need may take the form of a component (e.g., a set of fasteners), raw material (e.g., resins), sub-assembly (e.g., a motor), or even a completely finished item (e.g., a computer). In other cases, the need may be a service, such as the need to contract with an ad agency for a new marketing campaign, or a food service to provide lunches at the company cafeteria. Because purchasing is responsible for acquiring products and services for the entire organization, the information flows between the purchasing function and other areas of the organization can be extensive. Of course, not all needs can be forecasted ahead of time.

There are situations that arise when an internal customer has a need that comes up suddenly, which is not planned for and for which there is no pre-existing supplier identified to provide the product or service required. Such needs are often handled through a spot buy approach. For example, marketing may need to purchase a set of pens and cups for a special promotion and may alert purchasing on sudden notice of this need. If it was not been planned for, then purchasing must work with marketing to quickly identify a supplier to provide these products on short notice at the lowest possible cost with an acceptable level of quality and delivery time. When creating a forecast for a needed product or service, internal customers may not always be able to express exactly what it is they will need at a single point in time.

For example, a chemical plant maintenance group may not say that they will need replacement parts for their equipment, but they might not be able to provide details on the exact nature of the specific parts they will need, nor the exact time they will need

them. In such cases, purchasing may negotiate agreements with distributors of parts that can provide a whole different set of products that can meet that need. In other cases, an internal customer may say that they need to work with a specific service provider for temporal services, consulting services, or software programming, but they cannot express exactly what type of service they will need in advance. Purchasing will then go off and attempt to secure a contract with already established costs for different classes of workers who can provide these services on short notice.

#### **2.4.2 Needs Clarification: Requisitioning**

At some point, however, internal customers identify their need for a product or service and communicate to purchasing exactly what it is they need and when it is required. Internal users communicate their needs to purchasing in a variety of ways including purchase requisitions from internal users, forecasts and customer orders, routine reordering systems, stock checks, and material requirements identified during new product development

#### **2.4.3 Purchase Requisitions/Statement of Work**

The most common method of informing purchasing of material needs is through a purchase requisition. Users may also transmit their needs by phone, by word of mouth, or through a computer-generated method. Although there are a variety of purchase requisition formats, every requisition should contain the following:

- Description of required material or service
- Quantity and date required
- Estimated unit cost
- Operating account to be charged
- Date of requisition (this starts the tracking cycle)
- Date required
- Authorized signature

Although varieties of formats exist, at a minimum a purchase requisition should include

a detailed description of the material or service, the quantity, date required estimated cost, and authorization. This form of communication for a specific need is called a requisition. A requisition is an electronic or paper form that provides some critical information about the need. A typical requisition will provide a description of the product (e.g., a valve), the material and color (brass, red valve), the quantity required (20 red brass valves), the intended purpose (20 red brass valves to be used in a maintenance project for equipment XYZ), and the required date for delivery (three weeks).

Sometimes a service is required. For instance, marketing may want to purchase an advertising campaign, R&D may need a clinical trial, or human resources may need to print a brochure. In this case, the user will complete a statement of work (SOW) that specifies the work that is to be completed, when it is needed, and what type of service provider is required. A standard purchase requisition or SOW is used most often for routine, noncomplex items. For routine, off-the-shelf items, the requisition may contain all the information that purchasing requires. However, for technically complex or nonstandard items, purchasing may require additional information or specifications with the requisition.

Examples of such specifications include the grade of material, method of manufacture, and detailed measurements and tolerances. Purchasing may send an acknowledgment of the receipt of the purchase requisition to the requestor. This acknowledgment often takes the form of a confirming order requisition. The acknowledgment may be a separate form notifying the user that purchasing has received and is processing the requisition, or it may be a copy of the original requisition. The confirmation verifies the accuracy of the user's material request.

#### **2.4.4 Forecasts and Customer Orders**

Customer orders can trigger a need for material requirements, particularly when changes to existing products require new components. Customer orders can also signal the need to obtain existing materials. As companies increasingly customize products to meet the needs of individual customers, purchasing must be ready to support new material requirements. Market forecasts can also signal the need for material. An

increasing product forecast, for example, may signal the need for additional or new material. If a supplier is already selected to provide that material, then an automated ordering system such as a material requirements planning (MRP) system may forward the material request to suppliers automatically.

#### **2.4.5 Reorder Point System**

A reorder point system is a widely used way to identify purchase needs. Such a system uses information regarding order quantity and demand forecasts unique to each item or part number maintained in inventory. Each item in a reorder point system, which is usually computerized, has a predetermined order point and order quantity. When inventory is depleted to a given level, the system notifies the materials control department (or the buyer, in some organizations) to issue a request to a supplier for inventory replenishment. This signal might be a blinking light on a screen, a message sent to the materials control department's e-mail address, or a computer report. Most reorder point systems are automated using predetermined ordering parameters (such as an economic order quantity, which considers inventory holding and ordering costs). Electronic systems (such as material requirements planning systems) can instantly calculate reorder point parameters. Most systems can also calculate the cost tradeoffs between inventory holding costs, ordering costs, and forecast demand requirements.

Reorder point systems are used for production and nonproduction items. An automated reorder point system efficiently identifies purchase requirements. This type of system can routinely provide visibility to current inventory levels and requirements of thousands of part numbers. The reorder point system is the most common method for transmitting routine material order requests today, particularly for companies that maintain spare-part distribution centers.

#### **2.4.6 Stock Checks**

Stock checks (or cycle counts) involve the physical checking of inventory to verify that system records (also called the record on hand, or ROH) match actual on-hand inventory levels also called the physical on-hand (POH) levels. If the physical inventory for an item is below the system amount, an adjustment to that part's record can trigger a reorder

request for additional inventory. Why might physical inventory be less than what the computerized system indicates should be on hand? Placing material in an incorrect location, damage that is not properly recorded, theft, and short shipments from the supplier that receiving did not notice all can contribute to the POH being less than the ROH.

For example, at one major hardware retailer, missing inventory on the shelf may be located in another area of the store, or may simply be missing because of a problem with the incorrect item being entered into the system. Smaller firms that rely on standard, easy-to-obtain items often use stock checks to determine material ordering requirements. In this environment, the stock check consists of physically visiting a part location to determine if there are enough inventories to satisfy user requirements. No purchase reorder is necessary if there are enough inventories to cover expected requirements.

#### **2.4.7 Supplier Identification and Selection**

Once the need and the description of the need are identified, one of two things can happen:

- The need is fulfilled by a supplier that has an existing contractual relationship with the buying company.
- The need is fulfilled by a new supplier that is not currently qualified to provide products and services to the firm.

Through the need forecasting process, purchasing personnel have already identified which suppliers will be used to source the need, and they have already taken steps to evaluate and prequalify the supplier. Qualification is important, as the purchasing firm must ascertain that the supplier meets several criteria and evaluate whether it is qualified to do business and meet the needs of their internal customers in a satisfactory manner. In the second case, where a supplier is not identified, or when the internal customer requests that the need be fulfilled by a specific supplier of their choosing,

purchasing face a more difficult challenge.

Because there is no existing contract with the supplier, they may balk at approving the need fulfillment from this supplier. When internal customers purchase directly from nonqualified suppliers and try to bypass purchasing in the process, this is known as maverick spending. That is, customers are acting as a maverick, in that they do not wish to use suppliers already deemed by purchasing as qualified to fulfill the need. Although some level of maverick spending is always going to occur in an organization, there are significant risks that can occur when it reaches high proportions.

Maverick spending is acceptable when there is little risk associated with the purchase. For example, if someone needs to purchase a box of copy paper, there is little risk when an internal customer goes to the local staples store and purchases a box using the company procurement card. In fact, purchasing will often encourage them to do so, as this does not represent a productive use of their time in managing these types of expenses. However, when high levels of maverick spending occur repeatedly throughout the company, it can result in major lost opportunities to control cost and also expose the firm to undue risk and loss of control over the purchasing process. Let's assume for the moment that a qualified supplier is able to provide the product or service, and that the supplier has been through the evaluation process. For some items, firms may maintain a list of preferred suppliers that receive the first opportunity for new business. A preferred supplier has demonstrated its performance capabilities through previous purchase contracts and therefore receives preference during

### **Reduce Complexity in Buying Channels to Streamline Procurement**

Many of the experts also emphasized that the need to reduce complexity in the interface systems through pre-defined procurement buying channels is critical to improving the entire cycle. There is no need for users to have multiple channels for procurement. However, establishing the credibility for users to only be able to use these channels also requires significant management support in the supplier selection process. By maintaining a preferred supplier list, purchasing personnel can quickly identify suppliers with proven performance capabilities.

In cases when there is not a preferred supplier available, purchasing must get involved in selecting a supplier to fulfill that need. Final supplier selection occurs once purchasing completes the activities required during the supplier evaluation process. Selecting suppliers is perhaps one of the most important activities performed by companies. Errors made during this part of the purchasing cycle can be damaging and long-lasting. Competitive bidding and negotiation are two methods commonly used for final supplier selection when there is not a preferred supplier.

#### **2.4.8 Bidding or Negotiating**

Identifying potential suppliers is different from reaching a contract or agreement with suppliers. Competitive bidding and negotiation are two methods commonly used when selecting a supplier. Competitive bidding in private companies involves a request for bids from suppliers with whom the buyer is willing to do business. This process is typically initiated when the purchasing department sends a request for quotation (RFQ) form to the supplier. The objective is to award business to the most qualified bidder. Purchasers often evaluate the bids based on price. If the lowest bidder does not receive the purchase contract, the buyer has an obligation to inform that supplier why it did not receive the contract. Competitive bidding is effective under certain conditions:

- Volume is high enough to justify this method of business.
- The specifications or requirements are clear to the seller. The seller must know or have the ability to estimate accurately the cost of producing the item.
- The marketplace is competitive, which means it has an adequate number of qualified sellers that want the business.
- Buyers ask for bids only from technically qualified suppliers that want the contract, which in turn means they will price competitively.
- Adequate time is available for suppliers to evaluate the requests for quotation.
- The buyer does not have a preferred supplier for that item. If a preferred supplier exists, the buyer may simply choose to negotiate the final details of the purchase contract with that supplier.

Buyers use competitive bidding when price is a dominant criterion and the required item (or service) has straightforward material specifications. In addition, competitive bidding is often used for large projects (e.g., construction projects and information system development). If major non-price variables exist, then the buyer and seller usually enter into direct negotiation. Competitive bidding can also be used to narrow the list of suppliers before entering contract negotiation. Negotiation is logical when competitive bidding is not an appropriate method for supplier selection. Face-to-face negotiation is the best approach in the following cases:

- When any of the previously mentioned criteria for competitive bidding are missing. For example, the item may be a new or technically complex item with only vague specifications.
- When the purchase requires agreement about a wide range of performance factors, such as price, quality, delivery, risk sharing, and product support.
- When the buyer requires early supplier involvement.
- When the supplier cannot determine risks and costs.
- When the supplier requires a long period of time to develop and produce the items purchased.

This often makes estimating purchase costs on the part of the supplier difficult. As firms continue to develop closer relationships with selected suppliers, the negotiation process becomes one of reaching agreement on items in a cooperative mode. One thing is certain: The process that buyers use to select suppliers can vary widely depending on the required item and the relationship that a buyer has with its suppliers. For some items, a buyer may know which supplier to use before the development of final material specifications. For standard items, the competitive bid process will remain an efficient method to purchase relatively straightforward requirements. The bid process can also reduce the list of potential suppliers before a buyer begins time-consuming and costly negotiation. After bids have been received or the negotiation has taken place, the sourcing team will select a supplier and then move on to authorize the purchase through the purchase approval process.

### **2.4.9 Request for Quotation**

If the requisition requests an item for a higher Kwacha amount with no existing supplier, then purchasing may obtain quotes or bids from potential suppliers. Purchasing forwards a request for quotation to suppliers inviting them to submit a bid for a purchase contract. The form provides space for the information that suppliers require to develop an accurate quotation, including the description of the item, quantity required, date needed, delivery location, and whether the buyer will consider substitute offers.

Purchasing can also indicate the date by which it must receive the supplier's quotation. The supplier completes the form by providing name, contact person, unit cost, net amount, and any appropriate payment terms. The supplier then forwards the request for quotation to the buyer for comparison against other quotations. The normal practice is for a buyer to request at least three quotations. Purchasing evaluates the quotations and selects the supplier most qualified to provide the item.

### **Specifications or Blueprints**

If the requested item is complex or requires an untested or new production process, purchasing can include additional information or attachments to assist the supplier. This might include detailed blueprints, samples, or technical drawings. In addition, buyers can use requests for quotation as a preliminary approach to determine if a potential supplier even has the capability to produce a new or technically complex item. A buyer must identify suppliers with the required production capability before requesting detailed competitive bids. Further quotation and evaluation can then occur to identify the best supplier. If the purchase contract requires negotiation between the buyer and seller (rather than competitive bidding), purchasing sends a request for proposal (RFP) to a supplier. In many firms, RFQs and RFPs are synonymous. However, in the latter case, the item's complexity requires that a number of issues besides price need to be included in the supplier's response.

### **2.4.10 Evaluate Suppliers**

When the size of the purchase dictates that a detailed evaluation is required for a new purchase, supplier evaluation may be required. The potential evaluation of suppliers begins after determining that purchase need exists (or is likely to exist) and the development of material specifications occurs. For routine or standard product requirements with established or selected suppliers, further supplier evaluation and selection is not necessary, and the approval process may be generated. However, potential sources for new items, especially those of a complex nature, require thorough investigation to be sure that purchasing evaluate only qualified suppliers. The source evaluation process requires the development of a list of potential suppliers. This list may be generated from a variety of sources, including market representatives, known suppliers, information databases, and trade journals.

For some items, companies may maintain a list of preferred suppliers that receive the first opportunity for new business. A preferred supplier has demonstrated capability through past performance. Relying on a list of preferred suppliers can reduce the time and resources required for evaluating and selecting suppliers. Buyers use different performance criteria when evaluating potential suppliers. These criteria are likely to include a supplier's capabilities and past performance in product design, commitment to quality, management capability and commitment, technical ability, cost performance, delivery performance, and the ability to develop process and product technology. These factors are weighted in the supplier evaluation process. Final evaluation often requires visits to supplier plants and facilities. Because the resources to conduct such visits are limited, the purchaser must take great care in deciding which suppliers to visit.

Approval, Contract, and Purchase Order Preparation After the supplier is selected or a requisition for a standard item is received, purchasing grant an approval to purchase the product or service. This is accomplished through several different approaches, depending on the type of system in place.

Purchase Order (PO) The drafting of a purchase order, sometimes called a purchase agreement, takes place after supplier selection is complete. Purchasing must take great care when wording a purchase agreement because it is a legally binding document. Almost all purchase orders include on the reverse side of the agreement the standard

legal conditions that the order (i.e., the contract) is subject to. The purchase order details critical information about the purchase: quantity, material specification, quality requirements, price, delivery date, method of delivery, ship-to address, purchase order number, and order due date. This information, plus the name and address of the purchasing company, appears on the front side of the order.

Companies with an older paper system have a cumbersome process approximately seven to nine copies typically accompany the purchase order. In computerized environments, a file containing a copy of the PO is sent to each department's computer mailbox. The supplier receives the original copy of the purchase order along with a file copy. The supplier signs the original and sends it back to the buyer. This acknowledges that the supplier has received the purchase order and agrees with its contents. In legal terms, the transmittal of the purchase order constitutes a contractual offer, whereas the acknowledgment by the supplier constitutes a contractual acceptance. Offer and acceptance are two critical elements of a legally binding agreement.

Purchasing forwards a copy of the purchase order (either electronically or manually) to accounting (accounts payable), the requesting department, receiving, and traffic. Purchasing usually keeps several copies for its records. There are good reasons for allowing other departments to view purchase orders and incoming receipts:

- The accounting department gains visibility to future accounts payable obligations. It also has an order against which to match a receipt for payment when the material arrives.
- The purchase order provides the requesting department with an order number to include in its records.
- The requestor can refer to the purchase order number when inquiring into the status of an order.
- Receiving has a record of the order to match against the receipt of the material. Receiving also can use outstanding purchase orders to help forecast its inbound workload.
- Traffic becomes aware of inbound delivery requirements and can make

arrangements with carriers or use the company's own vehicles to schedule material delivery.

- Purchasing use their copies of the purchase order for follow-up and monitoring open orders.
- Orders remain active in all departments until the buying company acknowledges receipt of the order and that it meets quantity and quality requirements.



Note that firms are increasingly using computerized databases to perform these processes and are moving toward a paperless office.

### **Blanket Purchase Order**

For an item or group of items ordered repetitively from a supplier, purchasing may issue a blanket purchase order an open order, usually effective for one year, covering repeated purchases of an item or family of items. Blanket orders eliminate the need to issue a purchase order whenever there is a need for materials. After a buyer establishes a blanket order with a supplier, the ordering of an item simply requires a routine order release. The buyer and seller have already negotiated or agreed upon the terms of the purchase contract. With a blanket purchase order, the release of material becomes a routine matter between the buyer and seller. Almost all firms establish blanket purchase orders with their suppliers.

In fact, blanket orders have historically been the preferred method for making the purchasing process more efficient and user friendly. Buyers usually prefer a purchase order for initial purchases or a one-time purchase, which purchasing professionals may also call a "spot buy." Blanket purchase orders are common for production items ordered on a regular basis or for the routine supplies required to operate. A maintenance supplies distributor, for example, may have a purchase order covering

hundreds of items. It is not unusual for the buyer or seller to modify a purchase order to reflect new prices, new quantity discount schedules, or the adding or deleting of items.

The blanket purchase order is similar to the purchase order in general content and is distributed to the same departments that receive a copy of a purchase order. The major difference between a purchase order and a blanket purchase order is the delivery date and the receiving department. This information on the blanket order remains open because it often differs from order to order. When negotiating a blanket purchase order, the buyer and supplier evaluate the anticipated demand over time for an item or family of items. The two parties agree on the terms of an agreement, including quantity discounts, required quality levels, delivery lead times, and any other important terms or conditions. The blanket purchase order remains in effect during the time specified on the agreement. This time period is often, but not always, six months to a year. Most buyers reserve the right to cancel the blanket order at any time, particularly in the event of poor supplier performance. This requires an escape clause that allows the buyer to terminate the contract in the event of persistently poor quality, delivery problems, and so on.

**Material Purchase Release:** Buyers use material purchase releases to order items covered by blanket purchase orders. Purchasing specifies the required part number(s), quantity, unit price, required receipt date, using department, ship-to address, and method of shipment and forwards this to the supplier. Purchasing forwards copies of this form to the supplier, accounting, receiving, and traffic. Purchasing retains several copies for its records. The copy to the supplier serves as a notification of a required item or items. Accounting receives a copy so it can match the quantity received against the quantity ordered for payment purposes. Receiving must have visibility of incoming orders so it can compare ordered quantities with received quantities. As with other forms, this part of the process is increasingly becoming electronic. Different types of material releases exist. Organizations often use the material release as a means to provide visibility to the supplier about forecasted material requirements as well as actual material requirements.

#### **2.4.11 Fixed-Price Contracts**

## **Firm Fixed Price**

The most basic contractual pricing mechanism is called a firm fixed price. In this type of purchase contract, the price stated in the agreement does not change, regardless of fluctuations in general overall economic conditions, industry competition, levels of supply, market prices, or other environmental changes. This contract price can be obtained through a number of pricing mechanisms: price quotations, supplier responses to the buying organization's requests for proposal, negotiations, and other methods. Fixed-price contracts are the simplest and easiest for purchasing to manage because there is no need for extensive auditing or additional input from the purchasing side. If market prices for a purchased good or service rise above the stated contract price, the seller bears the brunt of the financial loss. However, if the market price falls below the stated contract price because of outside factors such as competition, changes in technology, or raw material prices, the purchaser assumes the risk or financial loss. If there is a high level of uncertainty from the supplying organization's point of view regarding its ability to make a reasonable profit under competitive fixed-price conditions, then the supplier may add to its price to cover potential increases in component, raw material, or labor prices. If the supplier increases its contract price in anticipation of rising costs, and the anticipated conditions do not occur, then the purchaser has paid too high a price for the good or service. For this reason, it is very important for the purchasing organization to adequately understand existing market conditions prior to signing a fixed-price contract to prevent contingency pricing from adversely affecting the total cost of the purchase over the life of the contract.

## **Cost-Based Contracts**

Cost-based contracts are appropriate for situations in which there is a risk that a large contingency fee might be included using a fixed-price contract. Cost-based contracts typically represent a lower level of risk of economic loss for suppliers, but they can also result in lower overall costs to the purchaser through careful contract management. It is important for the purchaser to include contractual terms and conditions that require the supplier to carefully monitor and control costs. The two parties to the agreement must agree on what costs are to be included in the calculation of the price of the goods or

services procured. Cost-based contracts are generally applicable when the goods or services procured are expensive, complex, and important to the purchasing party or when there is a high degree of uncertainty regarding labor and material costs. Cost-based contracts are generally less favorable to the purchasing party because the threat of financial risk is transferred from the seller to the buyer. There is also a low incentive for the supplier to strive to improve its operations and lower its costs (and hence the price to the purchaser). In fact there is an incentive, at least in the short run, for suppliers to be inefficient in cost-based contracts because they are rewarded with higher prices.

#### **2.4.12 Receipt and Inspection**

This phase of the purchasing cycle involves the physical transmittal of purchase requirements. This should be a fairly routine as part of the purchasing cycle.

##### **Material Packing Slip**

The material packing slip, which the supplier provides, details the contents of a shipment. It contains the description and quantity of the items in a shipment. It also references a specific purchase order and material release number for tracking and auditing purposes. A packing slip is a critical document when receiving material at a buyer's facility. The receiving clerk uses the packing slip to compare the supplier packing slip quantity against the actual physical receipt quantity. Furthermore, the packing slip quantity should match the material release quantity. The comparison between material release quantity and packing slip quantity is critical. It determines if suppliers have over- or under shipped.

##### **Bill of Lading**

Transportation carriers use a bill of lading to record the quantity of goods delivered to a facility. For example, the bill of lading may state that ABC carrier delivered three boxes to a buyer on a certain date. This prevents the purchaser from stating a week later that it received only two boxes. The bill of lading details only the number of boxes or containers delivered. Detailing the actual contents of each container is the supplier's responsibility; that information appears on the packing slip. The bill of lading helps

protect the carrier against wrongful allegations that the carrier somehow damaged, lost, or otherwise tampered with a shipment. This document does not necessarily protect the carrier against charges of concealed damage, however. A user may discover concealed damages after opening a shipping container. Responsibility for concealed damage is often difficult to establish. The receiving company may blame the carrier. The carrier may blame the supplier or maintain that the damage occurred after delivery of the material.

### **Receiving Discrepancy Report**

A receiving discrepancy report details any shipping or receiving discrepancies noted by the receiving department. It is often the job of purchasing or material control to investigate and resolve material discrepancies. Material discrepancies usually result from incorrect quantity shipments. They can also result from receiving an incorrect part number or a part number incorrectly labeled.

### **2.4.12 Invoice Settlement and Payment**

Once the item or service is delivered, the buying firm will issue an authorization for payment to the supplier. Payment is then made through the organization's accounts payable department. This is increasingly being accomplished through electronic means. Suppliers are more often being paid through electronic funds transfer (EFT), which is the automatic transfer of payment from the buyer's bank account to the supplier's bank account. More and more organizations are moving to integrated systems where all purchase orders, receipts, and payments are made electronically.

### **2.4.13 Records Maintenance**

After the product or service has been delivered and the supplier paid, a record of critical events associated with the purchase is entered into a supplier performance database. The supplier performance database accumulates critical performance data over an extended period, helping purchasing identify trends or patterns in supplier performance.

### **2.4.14 Continuously Measure and Manage Supplier Performance**

One way to identify the best suppliers is to track performance after awarding a contract.

Supplier measurement and management is a key part of the purchasing cycle. Buyers should not assume that the purchasing cycle ends with the receipt of an ordered item or the selection of a supplier. Continuous measurement is necessary to identify improvement opportunities or supplier non-performance. A desired outcome from performance measurement is improved supplier performance. If no formal evaluation takes place, a buyer has little insight into supplier performance over time, and tracking any performance improvement that results from supplier development efforts is not possible. Without a measurement and evaluation system, a buyer lacks the quantitative data necessary to support future purchase decisions.

A major issue when evaluating supplier performance is the frequency of evaluation and feedback. For example, should a buyer receive a supplier quality performance report on a daily, weekly, monthly, or quarterly basis? Although most firms recognize the need to notify suppliers immediately, when a problem arises, there is little consensus about the frequency for conducting routine or scheduled supplier evaluations. For many firms, this overall evaluation may occur only one or two times a year. Regardless of the reporting frequency, supplier performance measurement is an important part of the purchasing process cycle.

## **2.5 Types of purchases**

Organizations buy many different goods and services. All purchases represent a tradeoff between what an organization can make by itself versus what it must buy externally. For many items, the make-or-buy decision is actually quite simple. Few firms could manufacture their own production equipment, computers, or pencils. However, all firms require these items to support continued operations. The challenge is deciding which suppliers offer the best opportunity for items an organization must purchase externally. In this unit, we are going to look at the variety of goods and services a typical purchasing department is responsible for buying. Please note that for each category, organizations should establish measures that track the amount of goods that they have in physical inventory at the warehouse or stores before making another purchase.

### **2.5.1 Raw Materials**

The raw materials purchase category includes items such as petroleum, coal, and lumber, and metals such as copper and zinc. It can also include agricultural raw materials such as soybeans and cotton, maize. A key characteristic of a raw material is a lack of processing by the supplier into the end product. Any processing that occurs makes the raw material saleable. For example, copper requires refining to remove impurities from the metal. Another key characteristic is that raw materials are not of equal quality. Different types of coal, for example, can differ by sulfur content. Raw materials often receive a grade indicating the quality level. This allows raw materials purchases based on the required grade.

### **2.5.2 Semi-finished Products and Components**

Semi-finished products and components include all the items purchased from suppliers required to support an organization's final production. This includes single part number components, subassemblies, assemblies, subsystems, and systems. Semi-finished products and components purchased by an automobile producer include tires, seat assemblies, wheel bearings, and car frames. Managing the purchase of semi-finished components is a critical purchasing responsibility because components affect product quality and cost.

### **2.5.3 Finished Products**

All organizations purchase finished items from external suppliers for internal use. This category also includes purchased items that require no major processing before resale to the end customers. An organization may market under its own brand name an item produced by another manufacturer. The purchase of finished products also allows a company to offer a full range of products. Purchasing (or engineering) must work closely with the producer of a finished product to develop material specifications. Even though the buying company does not produce the final product, it must make sure the product meets the technical and quality specifications demanded by engineering and the end customer.

Maintenance, Repair, and Operating Items Maintenance, repair, and operating (MRO) items include anything that does not go directly into an organization's product. However,

these items are essential for running a business. This includes spare machine parts, office and computer supplies, and cleaning supplies. The way these items are typically dispersed throughout an organization makes monitoring MRO inventory difficult. The only way that most purchasing departments know when to order MRO inventory is when a user forwards a purchase requisition. Production Support Items

Production support items include the materials required to pack and ship final products, such as pallets, boxes, master shipping containers, tape, bags, wrapping, inserts, and other packaging material. Production support items directly support an organization's production operation; this is a key distinction separating production support and MRO items.

## **2.6 Services**

All firms rely on external contractors for certain activities or services. An organization may hire a lawn care service to maintain the grounds around a facility or a heating and cooling specialist to handle repairs that the maintenance staff cannot perform. Other common services include machine repair, data entry, consultants, and the management of cafeteria services. Like MRO items, the purchase of services occurs throughout an organization. Therefore, there has been a tendency to pay limited attention to them and to manage the service purchases at the facility or department level.

## **2.7 Capital Equipment**

Capital equipment purchasing involves buying assets intended for use over one year. There are several categories of capital equipment purchases. The first includes standard general equipment that involves no special design requirements. Examples include general-purpose material-handling equipment, computer systems, and furniture. A second category includes capital equipment designed specifically to meet the requirements of the purchaser. Examples include specialized production machinery, new manufacturing plants, specialized machine tools, and power-generating equipment. The purchase of these latter items requires close technical involvement between the buyer and seller.

## **2.8 Recap**

- Raw materials and production inventories: Raw materials and other supplies, parts and components, which enter into the product during the production process and usually form part of the product.
- In-process inventories: Semi – finished, work – in – progress and partly finished products formed at various stages of production
- MRO Inventories: Maintenance, repairs and operating supplies consumed during production process and usually not a part of the product itself (eg: oils and lubricants, machinery and plant spares, tools and fixtures, etc.)
- Finished goods inventories: Completed products ready for sale.
- Anticipation inventories: Inventories carried to meet predictable changes in demand.



### Activity 2.1

1. Describe the purchasing cycle.
2. Explain the types of purchases.



### 2.9 Summary

Congratulations for reaching this far. I am confident that you will be able to explain the process of purchasing.

## Unit 3 - Negotiation

## Introduction

At this particular moment, we have now exhausted the purchasing process. Now we turn to negotiation. The word 'Negotiation' has its origin from Latin civil law which signifies trading deliberation leading to an agreement. It is one of the most important and most interesting parts of purchasing. Negotiation is the process by which two or more individual/parties/groups confer or interact to reach consensus or agreement. It is an activity with a start, middle and end. The interested parties must have predetermined goals and some expectations of outcome. The parties understand the meaning and true purpose of negotiation and are willing to modify their positions to reach resolution and consensus. Sometimes more than two parties may be involved in the negotiation. When three parties are involved it is called tri-partite and when more than three parties are involved it is called multi-partite negotiations. All the parties need to reach a single consensus or agreement. Such negotiations are difficult and require careful management.



### 3.2 Learning Outcome

By the end of this Unit you should be able to;

- explain the meaning of negotiations.
- illustrate examples of negotiation.
- describe the types of negotiation.
- discuss the skills for successful negotiation
- explain the obstacles to negotiation



## 2.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 2 hours in class

## 3.4 Negotiation

Negotiation is an essential business activity. It can be formal or informal. It can be face-to-face or without any direct human interaction through mobile phone, videoconferencing, internet etc. The consensus/agreement or the output of the negotiation can be the result of a short single event or can be an ongoing series of interactions and discussions. It establishes good trade relationships between the organisations. It is a dialogue between two or more parties like supplier and buyer intended to reach a desired goal. It is a win-win game. The loss of any party is not the true outcome of the negotiation. At the end of the negotiation, both supplier and buyer must be in a win-win situation. The outcome in the form of an agreement must be arrived with the consent of all of the parties involved in the negotiation. In a general context, negotiation is a bargaining process between two or more individuals/parties/groups, seeking to reach a mutually satisfactory agreement on, or settlement of, a matter of common concern. Each party bargains within their opinion, arguments, viewpoints, influence and objectives. Negotiation is an essential business activity for purchasing and establishing trade relationships between partners.

### Meaning of Negotiation

Negotiation is a discussion between people, with the goal of reaching an agreement on some pre-determined issues, and separating the parties when neither party has the power to get its way.

“Negotiation is a bargaining (give and take) process between two or more parties (each with its own aims, needs, and viewpoints) seeking to discover a common ground and reach an agreement to settle a matter of mutual concern or resolve a conflict.”

([www.businessdictionary.com](http://www.businessdictionary.com))

“Negotiation is the process of discussing something with someone in order to reach an agreement with them, or the discussions themselves.” For example there is a negotiation between interviewer and interviewee for salary at the time of interview. ([www.dictionary.cambridge.org](http://www.dictionary.cambridge.org))

“Negotiation is a formal discussion between people who are trying to reach an agreement: an act of negotiating.” ([www.merriam-webster.com/dictionary](http://www.merriam-webster.com/dictionary))

Negotiation is a method by which people settle differences and result a compromise or agreement. It is a process by which a consensus is reached while avoiding any conflict or dispute. It is like an argument between two parties over an issue to be settled down. In the agreement, parties understandably aim to achieve the best possible outcome for their position in the best interest of their organisation. However, the principles of fairness, seeking mutual benefit and maintaining a relationship are the keys to a successful outcome.

### **3.5 Examples of Negotiation**

In negotiation, individuals/parties/groups interact with each other with some purposes and find a way to sort out the differences to reach a resolution or agreement. The examples where negotiation needed and used are as follows:

- The buyer and supplier negotiate for acceptable price, terms, conditions and basis for raw materials and parts;
- The interviewee and interviewer negotiate for acceptable terms & conditions of the job, job profile and salary etc.
- The management and the union negotiate for acceptable terms and conditions of issues like compensation, welfare issues, insurance etc.
- The countries negotiate on the various issues like border sharing, defence issues, loans, sharing information technology cooperation etc.
- Negotiation at the time of securing the safe release of a hostage.

- Negotiation at the time of an online e-auction.

Negotiation involves communication and some sort of exchange between the individuals. The traditional approach demands that it should be face-to-face. As for example, salespersons like to have face-to-face interactions because it helps them to build relationship, instilling trust, dedication and helps them to settle down the negotiation as soon as possible. Man is a social animal and responds more favourably when the other person is just opposite to us. Face-to-face interaction also increases the opportunity to 'read' the eye movements of the other party and helpful in bargaining. It is beneficial in the cases of bulk buying especially when one rupee reduction during bargaining can bring a huge saving. However face-to-face interaction is not always possible and practical. Furthermore with the invention of internet and with the help of latest information technology, now-a-days negotiations are conducted through internet, phone, web-conferencing and video-conferencing. These forms of new technology offer a new and alternative approach to negotiation. In fact, it had made negotiations very fast and now the parties can have negotiations while sitting at different locations. They do however introduce a series of new challenges and skills.

### **3.6 Types of Negotiations**

There are two basic types of negotiations namely (i) Win-Win Negotiation or Integrative Negotiation; and (ii) Zero-Sum Negotiation or Distributive negotiations require different approaches. The details of the types of negotiations are as follows:

#### **Win-Win Negotiation or Integrative Negotiation**

The characteristic feature of win-win or integrative bargaining is that it believes in friendly and constructive situation. The supplier and buyer involved in negotiation process sit together and try to find an acceptable agreement. Integrative negotiations are based on cooperation of the parties. The outcome of the win-win negotiation is acceptable to both parties without giving up something important. The simple approach in win-win or integrative negotiations is problem solving. Its principle behind this approach is information sharing. Both parties share information so that acceptable agreement can be achieved with smooth communication, trust and cooperation.

## **Zero-Sum Negotiation or Distributive Negotiations**

The most distributive feature is that it operates under a zero sum game, that both parties play game to get bigger slice. The gain made by one party is the loss incurred by the other party. Each party involved in the negotiation decide ultimate gain where the settlement will be made. When one wins and other loses then it is called zero-sum game. The principal behind zero-sum game is that the parties keep secret and don't share information. The target of both parties is to win only and both the parties are less interested in forming a relationship. They are not interested in cooperation and trust with each other.

## **The Process of Negotiation**

The negotiation must be planned and controlled to achieve the desirable outcome. A well thought-out process can give acceptable agreement. It is highly recommended to follow a structured approach of negotiation in order to achieve a desirable outcome. The negotiation process has five stages. In this process, the involved parties bargain in a systematic way while maintaining each other's interests. The stages of the process of negotiation are (i) Preparation for Negotiation; (ii) Discussion & Clarification of Goals; (iii) Bargaining for Win-Win outcome; (iv) Agreement; and (v) Implementation of a course of action. The details are as follows:

### **Preparation for Negotiation**

It is important to have some prior research and collect information about when and where a meeting will take place, who will attend the negotiation and what to settle for?

This stage involves ensuring and knowing all the important facts of the situation in order to take your position and viewpoint. In this regard the negotiators must prepare themselves. Here the knowledge of the organisational policies is must which can be required for reference during the negotiation. This preparation will be beneficial to avoid any deadlock during negotiation.

## **Discussion & Clarification of Goals**

During this stage, the parties give their viewpoints reasonably and in an amicable environment. They listen carefully, argue carefully, and clarify to each other so that they can reach an agreement in a very cooperative way. The individuals or members of each side put forward the case and try to understand the situation. Each side must have an equal opportunity to present their viewpoint and case. Discussion is helpful in the clarification of all the goals, interests and viewpoints. Clarification is an essential part of the negotiation process as it gives the solution to all the doubts and misunderstandings. All the barriers to reach a beneficial outcome are overcome through it.

## **Bargaining for 'Win-Win' Outcome**

The heart of negotiations is in bargaining and the 'win-win' outcome is the expected result from it. It is the adjustment of what is being discussed with the satisfaction of both parties. Both parties must feel that their point of view has been taken into consideration. Suggestions of alternative strategies and compromises need to be considered at this point.

## **Agreement**

Agreement is an acceptable solution with an open mind involvement of all the parties. It is achieved once the understandings of both parties' viewpoints and interests have been considered. Any agreement needs to be doubt free so that both parties know what has been decided.

## **Implementing a Course of Action**

The final step in the negotiation is the formalization of the agreement that has been worked out. From the agreement, a course of action has to be implemented to carry through the decision.

## **Skills for Successful Negotiating**

Negotiation requires skills like effective presentation, effective speaking, effective listening, good sense of humour, a positive attitude, high intelligent quotient, emotional control, persistence in behaviour, patience, creativity, decision making etc. A successful

negotiation requires the two individuals/parties/groups to come close together to find out an agreement that is acceptable to both. It is very difficult to reach successful agreement without skills. A successful negotiation requires the following skills:

### **3.7 Problem Analysis**

The problem analysis skills are helpful to identify the real issue, the interest of the parties and the probable or expected outcome of the negotiation. Identification and analysis of the issues are helpful for both parties to find an agreeable solution.

#### **Active Listening**

It is a very important skill because it is important to listen to the other party to find the scope of compromise during the negotiation. It is valuable to listen to other party instead of spending the bulk of the time in giving your viewpoint. One sided communication can be disaster for negotiation.

#### **Verbal Communication**

Effective communication skills means to clearly express your own thoughts and ideas in such a way that it is easily followed and understood by others. It is to deliver the intended message clearly. The negotiators must have effective verbal communication skills because both the parties must be able to understand each other during the process of discussion over the issue. There can be misunderstanding of the issues if the parties do not state their cases and desired outcomes clearly. Effective communication plays a fundamental role in any interaction and is essential for the successful negotiations.

#### **Emotional Control**

Emotional control can play a pivotal role in successful negotiations. The higher the perceived risk-reward ratio in a negotiating process, the greater the chance that emotions will play an important role in the final outcome. It is necessary for the

negotiator to control his emotions during the negotiations. Lacking control on the emotions can be disastrous and can lead to a win-lose situation.

### **Quick Decision Making**

The parties must have the skill to take quick decision during the negotiation to reach the settlement over contentious or controversial issues.

### **Sense of Humour**

A sense of humour and a positive attitude are necessary because they allow for a sense of give and take. The art of giving and taking requires good sense of humour. It requires the ability to see the other side's point of view sensibly while being alert with regard to what you can achieve. Of course you will want as much as you can get but the other side needs to achieve what they can, too. Good negotiators understand the importance of balance between giving and taking.

## **3.8 Obstacles to Negotiation**

### **Limited Knowledge**

Sometimes people fail to negotiate because they do not conduct some prior research and collect information about when and where a meeting will take place, who will attend the negotiation and what to settle for?

### **Illogical Presentation**

Sometimes people fail to negotiate because they do not present their viewpoints reasonably. They don't listen carefully, don't argue carefully, and don't clarify to each other which lead to an un-agreeable environment.

### **Reasons to Negotiate**

Sometimes people fail to negotiate because they do not recognize the need for

bargaining and do not fully understand the process of negotiation.

### **Lack of Communication Skills**

Sometimes people fail to negotiate because they lack good negotiating skills.

### **Lack of Proper Training**

If the trained people are not involved in negotiations, the process is not likely to succeed.



## **3.1 Activities**

- (1) Define the concept of negotiation with suitable examples.
- (2) Enumerate different types of negotiation.
- (3) Discuss the process of negotiation.
- (4) Explain the types of skills are required for Successful Negotiating?
- (5) Explain how pricing affects the purchasing decisions?
- (6) Explain the limitations of negotiation? How these can be removed?
- (7) Discuss the probable obstacles to Negotiation? How these can be overcome?



## **3.9 Summary**

Negotiation is a bargaining (give and take) process between two or more parties (each with its own aims, needs, and viewpoints) seeking to discover a common ground and

reach an agreement to settle a matter of mutual concern or resolve a conflict. The two basic types of negotiations are namely win-win negotiation or integrative negotiation and zero-sum negotiation or distributive negotiations. The stages of the process of negotiation are preparation for negotiation; discussion & clarification of goals; bargaining for win-win outcome; agreement; and implementation of a course of action. Negotiation requires skills like effective presentation, effective speaking, effective listening, good sense of humour, a positive attitude, high intelligent quotient, emotional control, persistency in behaviour, patience, creativity, decision making.

## **Unit 4: Supplier Rating and Evaluation**

### **4.1 Introduction**

Supplier evaluation is a term used in businesses and it refers to the process of evaluating the supplier's potential by quantitative assessment. Supplier evaluation is the assessment of the existing or new suppliers on the basis of their delivery, prices,

production capacity, quality of management, technical capabilities and services. The evaluation and selection of suppliers is an important task and requires a strategic direction. Every organization especially manufacturing organizations needs to evaluate the suppliers' efficiency. It requires a typical suppliers' evaluation framework which blends with company's basic vision, mission, philosophy, values, and helps in establishing a strategic policy to evaluate the suppliers' efficiency. It includes vendor rating, selection and development.

Vendor evaluation is a system for recording and ranking the performance of a supplier. A vendor is any person or company that supplies raw materials/parts, goods or services to the buyer organisations. Vendor is rated on the basis of their performance, consistency in delivery, lead time, quality products and services, price or some combination of these variables. It is done on a periodic basis and it may take the form of a hierarchical ranking from poor to excellent. The vendor can be evaluated on the basis of delivery performance, lead time, and the supply of quality of raw materials and parts. The most compelling reason for evaluating the suppliers is that it helps to manage risks.

The majority of businesses are dependent on the continuous and smooth flow of supplies and if this flow is interrupted, problems will soon appear. The wrong decision regarding suppliers can have serious consequences. Evaluating suppliers' efficiency also outlines ways and means to reward a supplier and establish long-standing relationships with suppliers. The increased communication with the supplier helps to understand exactly what the organisation needs and helps to reduce the potential for defect. The evaluation of suppliers' efficiency helps to bring about better co-ordination between the supplier and the organisation. Thus the organisation is able to give the supplier an indication of when extra supplies are required well in advance. The evaluations can act as an incentive for the supplier to implement new procedures or tasks.



## Learning Outcome

After going through this unit, you should be able to;

- explain the basic concept vendor/supplier evaluation and selection, vendor rating.
- evaluate the need and process of measuring supplier performance.
- discuss the process of supplier evaluation and selection.
- describe the factors affecting vendor rating and methods of vendor rating.



### 4.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 2 hours in class

### 4.4 Supplier/ Vendor Evaluation

Supplier selection and evaluation is one of the most critical activities in purchasing or procurement process. The evaluation process consists of four stages such as defining objective, formulating the selection criteria, qualifying the suitable alternatives, and final selection. To qualify the prospective suppliers, the effective defining of selection criteria is necessary. Beyond the high significance on the product cost and partners relationship, it has considerable impacts on the buyer's corporate competencies. (Thanaraksakul & Phruksaphanrat, 2009)

The vendor rating is essential for effective purchasing. Usually, the most important measure of a supplier's service is his record of past performance. Vendor rating is the result of a formal vendor evaluation system. Vendors or suppliers are given ranking, status, or title according to their attainment of some level of performance, such as delivery, lead time, quality, price, or some combination of variables. Vendor selection is

crucial because of its strategic importance especially when it comes to large buying of raw materials and spare parts especially in the case of large organisations.

Evaluating suppliers' efficiency is a regular exercise within purchasing departments. It is a process applied to present suppliers in order to measure and monitor their efficiency. Evaluation of suppliers' efficiency is must for the purpose of reducing cost, reducing business risk, and developing continuous improvement. It is a cordial working cooperation between the supplier and organisation. The evaluation process often includes use of questionnaire tools, interviews and supplier's site visit. A typical suppliers' efficiency evaluation framework must be used where the standard production material is required for quality production. It can be used for both the existing and potential suppliers. It includes evaluation of suppliers' existing production process, capacity, quality, use of technology etc. Existing suppliers get the benefit of expertise in taking corrective action. It also helps companies in rewarding suppliers for their excellent performance and punishing them or de-listing them if found otherwise.

Most firms navigate nowadays in a fierce competitive environment, characterized by thin profit margins, high consumer expectations for quality products, and short lead-times. These complex conditions have enticed managers to focus on the management of their complete supply chain, from upstream suppliers to the final end-users of their products. More specifically, firms are involved in improving the performance of their supply chains through various strategic and operational tools. One such strategy utilized by companies is to concentrate on their core competencies in the value chain and outsource the other functions. Purchasing managers need periodically to evaluate supplier performance in order to retain those suppliers who meet their requirements in terms of several performance criteria. (Saen, 2008)

#### **4.5 Need for Measuring Supplier Performance**

There are various benefits associated with an evaluating supplier's efficiency. It is helpful in identifying poor supplier performance in terms of failure to deliver quality products consistently. This process is helpful to motivate the suppliers to further improve their performances. It is helpful them in developing a robust and effective system. It gives continuous feedback to suppliers about their actual performance and

monitor them to improve consistently. "Supplier performance has to be measured for the following reasons:

- It is helpful to increase performance visibility.
- It uncovers and removes hidden waste and cost drivers in the supply chain.
- It leverages the supply base.
- It aligns customer and supplier business practices.
- It mitigates risk.
- It improves supplier performance." (Elanchezhian, Ramnath, & Kesavan, 2010)

#### **4.6 Categories of Suppliers**

There are many types of suppliers like wholesale suppliers, strategic suppliers, preferred suppliers, transactional suppliers, franchisers, registered suppliers, panel suppliers etc. The explanation is as follows:

##### **Wholesale Suppliers**

These suppliers are companies that take order in bulk. These supplier companies manufactures in high quantity and fulfil the orders themselves.

##### **Strategic Suppliers**

Strategic suppliers are those that are strategically important for the buying organisations. They supply the buying firm with important materials/parts and their manufacturing capabilities cannot be easily replaced. The buyer organisations develop good coordination with such firms and have good communications for long term relationships

##### **Preferred Suppliers**

Preferred suppliers are those that are important to the buying organisations. There may be large number of suppliers available in the market for the same materials or parts. Hence, these types of suppliers can be searched in the market with less effort. However,

the selection of such suppliers is very important.

### **Transactional Suppliers**

The dependency of the buyer organisation on this type of suppliers is very less. These suppliers can be easily replaced in a short time.

### **Franchisers**

These types of suppliers have developed their own network in the wide spectrum of the geography so that they can be approached easily. They work with their own trademarks, brands and business systems.

### **Registered Suppliers**

The registered suppliers are those suppliers who are registered in the buying organisations and have shown interest in supplying specific types of materials, parts, goods or services. A proper list about the active suppliers is found in the buyer organisations that are ready to meet deadlines for responses.

### **Panel Suppliers**

These types of suppliers are pre-approved by an agency and who have agreed to the terms and conditions for supply.

## **4.7 Supplier Evaluation and Selection Process**

This process covers evaluating and analysing the suppliers' performance and seeks suppliers who support or meet buyers' strategic goals while continually looking for ways to manage cost, quality and other evaluation parameters. The supplier evolution and selection process consists of steps like indentifying the need of the supplier evaluation, identifying criteria for supplier evaluation, determine sourcing strategy, determine method of supplier evaluation and selection and select supplier and reach agreement.

### **Identifying the Need of Supplier Evaluation**

At this stage, the buyer organisations identify a need to evaluate and select a supplier.

The supplier evaluation may be requested by purchase officers, production manager, quality manager or design managers.

### **Identifying Criteria for Supplier Evaluation**

At this stage the criteria for supplier evaluation is fixed. It can be on-time delivery/delivery commitments, quality of raw materials/parts, technical performance, production capabilities, design verification, evaluation of product samples, innovation and management expertise, meeting specific requirements/standards, suppliers' financial viability, customer service, reliability and responsiveness, records of past achievement etc. These are the parameters on which the evaluation of the supplier(s) is decided.

### **Determine Sourcing Strategy**

The sourcing will differ from requirement to requirement of the buyer organisations. It can be like dependency on single supplier or multiple suppliers, short-term or long-term contracts and domestic suppliers or foreign supplier. According to sourcing strategy, the supplier(s) are identified. Various internal as well as external sources of information are used to identify the supplier(s). The buyer organisation may get a long list of suppliers. The list must be narrowed down on the basis of some criteria like financial risk analysis evaluation of previous performance of the suppliers, evaluation of information provided by suppliers etc.

### **Determine Method of Supplier Evaluation and Selection**

After reducing the number of suppliers, the method is to be determined regarding suppliers' evaluation and selection. The evaluation process often includes use of questionnaire tools, interviews and supplier's site visit. The possible areas to evaluate during a supplier visit are workforce capability, production capability, quality parameters, supplier agility and flexibility, supplier's supply chain management capabilities, production scheduling and control systems, statistical quality control methods etc.

### **Select Supplier and Reach Agreement**

In the last stage, the supplier(s) is finalised and negotiated for certain stipulated terms

and conditions.

#### **4.8 Vendor Rating**

A vendor is any person or company that supplies raw materials/parts, goods or services to the buyer organisations. The effectiveness of the purchasing department is judged by the quality and reliability of its suppliers. Good suppliers need to be cultivated to meet current and future demand of the buyer organisations. The buyer organisations want to work with the suppliers that give them value. Therefore, the suppliers' performance matters a lot. Vendors or suppliers are rated on the basis of their performance, consistency in delivery, lead time, quality products and services, price or some combination of these variables. Rating evaluation is done on a periodic basis and it may take the form of a hierarchical ranking from poor to excellent.

#### **Objectives of Vendor Rating**

Assessment of vendor's performance on certain criteria is called vendor rating. Vendor rating is the result of a formal vendor evaluation system. It can be used to "assess and monitor supplier performance, provide accurate feedback to suppliers, provide benchmark data, improve overall competitiveness in the market, minimize subjectivity in judgment, make it possible to consider all relevant criteria in assessing suppliers, providing feedback from all areas in one package, establishing continuous review standards for vendors, and select vendors for further development." (John, Baby, & Mangalathu, 2013)

The key objectives of vendor rating are as under:

- Selection of Right Suppliers
- It helps the buyer organisations in the selection of right suppliers.
- Rating Assessment of Suppliers
- It rates the entire performance of the suppliers and gives a clear-cut vision about the quality, cost, reliability of the products and services to be provided by the suppliers.

- Negotiation with Suppliers
- It provides buyer organisations with the information helpful in subsequent negotiation with suppliers.

### **Proper Feedback**

It gives a feedback to suppliers to further improve their performances.

### **Useful Information**

It provides the buyer organisations with the important information which is helpful in the development of the suppliers.

### **Reward**

It recognizes and rewards outstanding suppliers.

### **Standardised Practices**

It generates suppliers' standard practices.

## **4.9 Factors Affecting the Selection of Optimal Suppliers or Vendor Rating**

Most buyer organisations want all the suppliers to provide supply of quality raw materials/parts, defect -free goods and services and deliver them when required. To fulfil these objectives the buyers need right suppliers and to identify right supplier it is required that to evaluate them from time to time so that their performance can be certified. There are many factors like quality, cost, delivery, service, consistency, reliability, technically upgraded, quality factors etc. on which suppliers' performance is usually evaluated. A more comprehensive approach covers 7 C's (Competency, Capacity, Commitment, Control, Cash Resources, Cost, and Consistency) which are need to be measured to evaluate the suppliers' performance. "From research, it was found that quality, delivery and cost are the most considered criteria with percentages over 90. Quality, delivery, cost, production facility and capability, technical capability and support, and financial criteria are significant basic criteria generally used for last forty years." (Thanaraksakul & Phruksaphanrat, 2009)

#### **4.10 Suppliers Evaluation Methods/ Vendor Rating Methods**

The buyer organisations know the importance of evaluating the suppliers. It is important to evaluate each supplier before signing an agreement or orders. The improper vendor evaluation and selection process lead to production loss and raw materials/parts rejection. Therefore, the buyer organisation requires an appropriate suppliers evaluation method or vendor rating method. There are three key methods of vendor rating methods: categorical method, weighted score method and cost-ratio method.

##### **Categorical Method**

Categorical method is a very easy method. The buyer organisation prepares the lists of relevant performance variables or factors according to their experience. Then the buyers assign performance ratings of each variable in categorical terms, like 'very good', 'good', 'neutral', 'very poor' and 'poor'. Each supplier is evaluated against each factor on the basis of performance ratings. The supplier who obtains highest score will then be the best performer. The main advantages of this method are that it is very easy to implement, requires minimal data and low cost.

##### **Weighted-Score method**

Weighted-point method is the most frequently used method for evaluation process. In this method, different weights are given to different variables according to the importance level. The most important variables get maximum weights and least important variables get least weights. The evaluator assigns the score to each supplier performance in each attribute and then the score will be multiplied by the assigned weight of each variable accordingly. Finally, the weighted score is totalled to find out the final performance rating of each supplier. The supplier who obtains highest score is the best performer. The main advantage of this method is that the weights are given according to the importance of variables/factors. It is very suitable as the importance of different variables is different in different industries.

##### **Cost – Ratio Method**

In this method, the supplier rating is done on the basis of various costs incurred for

procuring the materials/parts from various suppliers. The cost ratios are calculated for different factors such as quality, price, timely delivery, etc. the cost ratio is calculated in percentages on the basis of total individual costs and total value of purchases. As for example, the total delivery cost is K10,000 and the total purchase is of K100,000 then the delivery cost ratio will be  $(10,000/100,000) \times 100 = 10$  per cent. "The supplier with the lowest net adjusted cost would be the best preferred supplier. However, this approach is complicated and requires a comprehensive accounting system to identify the accurate cost data. Hence, it is usually used only in the big-sized companies." (Humphreys et al., 1998).

#### **4.11 Advantages of Vendor/Supplier Rating**

There are many advantages of vendor rating as follows:

##### **Comparison of Suppliers**

The key advantage of vendor rating is that it is helpful in identification of best suppliers. The best suppliers give best results in terms of right quality, right quantity, right time delivery, at right cost.

##### **Performance of Suppliers/Vendors**

It gives clear-cut picture about the performance of the suppliers.

##### **Feedback about Suppliers**

It provides feedback regarding the suppliers about all areas in one package to the manufacturer.

##### **Feedback to the Suppliers**

It gives feedback to the suppliers about specific action(s) to correct their identified performance weaknesses.

##### **Better Communication**

It facilitates better communication with vendors which generates cordial relationships. It helps building supplier partnerships.

## Control

It provides overall control of the supplier base.

## Revision/Review

It establishes continuous review standards for vendors, thus ensuring continuous improvement of vendor performance.



### 4.1 Activity

- Explain vendor/supplier evaluation? Explain the need for measuring supplier performance?
- Enumerate the categories of suppliers.
- Explain the steps of supplier evaluation and selection process?
- Define vendor rating. How it is useful in purchasing decisions?
- Elaborate the factors affecting the selection of optimal suppliers or Vendor Rating.
- Enumerate the supplier evaluation methods or vendor rating methods.



### 4.12 Summary

A Vendor or Supplier is any person or company that supplies raw materials/parts, goods or services to the buyer organisations. Vendors or suppliers are rated on the basis of their performance, consistency in delivery, lead time, quality products and services,

price or some combination of these variables. Rating evaluation is done on a periodic basis and it may take the form of a hierarchical ranking from poor to excellent. There are three key methods of vendor rating methods: categorical method, weighted score method and cost-ratio method.

Vendor evaluation is a system for recording and ranking the performance of a supplier. The vendor can be evaluated on the basis of delivery performance, lead time, and the supply of quality of raw materials and parts. Evaluation of suppliers' efficiency is must for the purpose of reducing cost, reducing business risk, and developing continuous improvement. It is a cordial working cooperation between the supplier and organisation. The evaluation process often includes use of questionnaire tools, interviews and supplier's site visit. There are many types of suppliers like wholesale suppliers, strategic suppliers, preferred suppliers, transactional suppliers, franchisers, registered suppliers, panel suppliers etc. The supplier evaluation and selection process consists of steps like indentifying the need of the supplier evaluation, identifying criteria for supplier evaluation, determine sourcing strategy, determine method of supplier evaluation and selection and select supplier and reach agreement.

## **Unit 5: Materials Management**

### **5 .1 Introduction**

Welcome to the fifth unit of this module, I also want to congratulate you for reaching this far. Yes, we are now going to look at Materials Management. Material Management

is the process of management, which co-ordinates, supervises and executes the tasks associated with the flow of materials to, through, and out of an organization in an integrated fashion. There is maximum utilization, conservation, elimination of wastes, and thus avoidance of unnecessary delays.



## 5.2 Learning Outcome

By the end of this unit, you should be able to;

- explain the material planning, inventory management and control systems.
- describe the objectives of material management
- discuss material handling
- describe warehousing



## 5.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 2 hours in class

## 5.4 Materials Planning

This is a scientific technique of determining in advance, the requirements of raw materials, ancillary parts and components, spares, etc. given by the production programme. The overall management planning and control system is a broad perspective within which material planning functions, and materials budgeting are an

exercise translated in money terms for its effective functioning, control as well as execution.

The actual planning starts with the information gathered from the annual sales forecasts, production and general business forecast. Forecasts provide the means for satisfying locational needs, and the general business forecasts provide the means to estimate in advance the trends in prices, wages and costs of other services. While breaking down broad forecasts into specific plans, the next step is to make the price and supply available to confirm to the specific plan. The materials consumption estimation is broken down into specific periods. The quantities are checked against the inventory control procedure, by taking into account the safety stock and lead-time requirements.

#### 5.5 Objectives of materials management

- Economical procurement of materials
- Issuance and timely distribution
- Store accounting
- Record keeping
- Stores control
- Looking at new supply sources
- Development of vendors
- Value engineering
- Coordinating smooth flow of materials

As the objectives of purchasing:

- To maintain a continuous supply of materials to support production as well as the schedule
- Avoidance of duplication of purchases, wastes, obsolescence and delays

- Adopting proper standards of quality on the basis of suitability
- Procurement of materials at the lowest possible cost, at the same time ensuring that it is consistent with quality and service requirements
- Maintenance of the company's competitive position in the market

The purchasing department has the following functions:

- Selection of suppliers
- Analyzing bids
- Price negotiations
- Issuing purchase orders
- Follow – up actions
- Cost – analysis and study of market conditions
- Maintenance of price catalogues, information library, etc.

## **5.6 Inventory Management and Control Systems**

Inventory refers to the stock of materials of any kind stored for future use, mainly in the production process. Inventory is critical to supply chain management because it directly impacts both cost and service. It is necessary to have an optimum minimum of inventories, where the inventories are minimum and the chances of stock out also minimum. A Company achieves this through inventory management.

Inventory has various functions like striking a balance between demand and supply; minimize costs at acceptable inventory levels, providing the desired customer levels, availing quantity discounts etc.

Inventory control is a scientific method of storekeeping and considerably brings down the acquisition and retention costs of materials. It is concerned with maintaining the optimum level of stock and also recording its movement. The need for inventory control

arises due to many factors such as increase in the manufacturing units, growing complexity of the modern industry, higher idle time cost of machine and men and a higher degree of stress on liquidity.

The various inventory models are Economic Order Quantity (EOQ), Materials Requirement Planning, Just – In – Time, and Distribution Requirement Planning.

### **5.7 Stores Management and Operation**

The three main storage systems on a broad view are receipts, physical upkeep and maintenance system. The system must be flexible enough to change with the change in the environment as well as production demands.

5.8 The key activities of stores are as follows:

- Receipt of materials, checking the quantity, co-ordination for inspection and the preparing the goods receipt note
- Accepting the checked materials, preparing rejection notes and thus completion of formalities for payment of bills
- Taking stock of the accepted materials and storing them in their respective locations
- Preparing issue vouchers, making actual issues for disposals and accounting for the same
- Ensuring proper sharing of information with the purchase departments through regular reports
- Ensuring the storage place is clean to facilitate handling, movements and observing all safety and security measures.

Having a key role to play in the success of warehousing operations, the storage system should be designed in such a way that it accommodates the inflow of inputs of materials and bought out components from the outside sources, in-process inventories and the outflow of finished goods to the ultimate customers. The design, size and location of a storehouse must be an important part of the management strategy.

### **5.9 Three basic ways of storage are as follows:**

- Fixed Location: Stock can be found easily without any complex system of recording, but there is a considerable wastage of space.
- Random Location: Space is better utilized, but there is a need to keep good and elaborate records for the location of materials.
- Zoned Location: Goods of a particular group are stored together in a given area.

### **5.10 Warehousing**

Warehousing is an element of strategic importance in the purchasing. A proper decision making regarding warehouse is necessary to ensure effectiveness of marketing. The warehouse acts as an important link in the supply chain of a company. It serves as the interface area for production, market, customers and suppliers. Functionality of warehousing covers operations like holding, consolidating break bulk, cross docking, postponement, mixing, packaging, and information handling. Public, private and contract storage are the different types of warehousing operations.

While making the warehouse selection, factors like nature of the product, access, availability, infrastructure, market, regulations and local factors influence. Warehouse network planning is a complex activity, and whose decision upon the number is dependent on a number of factors such as product characteristics, objectives of purchasing, and availability of resource. Performance parameter ratios such as stock turnover, cost to sales, occupancy rate etc enable in successful management of a

warehouse.

## 5.11 Material Handling and Storage Systems

Every operation in materials management involves the raising, lowering or moving an item, which is termed as materials handling.

### Basic Principles of Material Handling

**Best handling is least handling:** As handling does not add any value to the product, it is advisable to keep the handling cost minimum

**Use of standardized equipment:** The material handling equipment must be chosen in such a manner as to afford flexibility and also be capable of performing multiple standardized operations.

**Minimum use of specialized equipments:** Though it is desirable to have specialized equipment, the cost of acquisition, cost of operation, maintenance, repair etc needs to be taken into consideration

**Payload:** The selection of equipment needs to be made after careful consideration of the cost of moving. The economics can be measured by studying the cost of operation involved in handling in each move.

**Standardized methods:** When the methods of picking, carrying and settling down are fixed, the wastage in time, labour and equipment will be eliminated.

**Capacity of equipment:** The capacity needs to be examined carefully, as any over loading causes undue wear, and also results in excessive maintenance.

**Loading and unloading:** A major portion of Material handling activity is in the loading and unloading and thus this function needs a lot of attention.

## 5.12 Types of material handling equipments

**Pallets:** Specially designed platform, which is built to dimension to suit forklift operations. These are designed out of hardwoods, though in some cases, steel pallets may also be used. The supplies are loaded onto the pallets, transported and stored in warehouses.

**Forklift trucks:** Move loads of master carton horizontally and vertically. The master cartons are stacked upon the pallet, which forms a platform. There are many types of forklift trucks, which are available for handling a variety of products. Though these trucks can be used to load and unload other vehicles too apart from transporting material, they are not economical for long distance horizontal movement due to the high ratio of labour per unit of transfer.

**Cranes:** These are power-driven, self-propelled units fitted with a boom mounted on a mobile chassis.

**Conveyors:** These enable straightforward transportation as re-handling before each and every activity is eliminated. Nowadays these are loaded and unloaded automatically. The cost increases with the distance to be traveled and thus it makes them more attractive for high-volume throughputs overshooting the distances.

**Elevators:** Contains an endless chain or a belt which runs over two terminal pulleys or sprocket wheels fixed at different levels on a vertical plane.

**Tractors:** Used as a substitute for forklift trucks, which are uneconomical for long distance movements.

**Towlines:** Consist of either in floor or overhead mounted drag devices and are used in combination with four-wheel trailers on a continuous power basis.

**Carousels:** Operates on a different concept than other equipments. The desired item to the order selector is delivered by using a number of bins mounted on an oval track. The logic behind carousel systems is to reduce walking length/paths and time.

### **5.13 Containerization**

Containerisation unifies a number of shipments which then move as individual units. It is used to handle bulk commodities as well as merchandise. Some of the benefits include door-to-door shipment, reduced freight costs, higher labour productivity, lesser documentation, reduced warehousing costs, environmental control and better utilization of capital equipment.

#### **Roll On/Roll Off Ferries (RORO)**

A lorry is loaded at the manufacturer's workstation driven on to a ship and then driven off at the end of the voyage directly to the consignee, using the ship as the moving bridge.

### **LASH (Lighters Aboard a Ship)**

LASH barges are loaded at Inland River and shallow ports. Then, the barges are towed to ocean port's fleeting areas to meet the LASH mother vessel. On arrival, the mother vessel's crane lifts LASH barges onto the ships. The same crane lifts outbound barges, which are placed in the water, and then towed, to their final destination. LASH cargo does not require transshipment, as the movement from origin to destination with a single bill of lading.

## **5.14 Material Storage Systems**

The storage system in a warehouse has a key role to play in the total cost and the efficiency of warehouse operations. The manner in which inventories are handled rather than how they are stored is very important. An efficient usage of material handling equipment is possible if the storage system allows easy access and retrieval of inventory. ~~Selecting a storage system for a specific application depends upon the~~ following factors:

**Nature of the product:** Products, which have a higher risk of contamination, will have to be isolated from other product groups. For example hazardous chemicals can cause damage to other products.

**Configuration:** While uniform products may be stored in stacks or in an enclosure, products, which are in odd shapes and sizes, need more space.

**Perishability:** Perishable products are stacked in such a manner that consignments, which come in first, are distributed first.

**Product variety:** When a variety of products are stored together, there needs to be segregation for easy identification for storage and retrieval.



### Activity 5.1

1. Explain the material planning, inventory management and control systems.
2. Describe the objectives of material management
3. Discuss material handling
4. Describe warehousing



### 5.15 Summary

Congratulation for reaching this far, by now, we are confident that we can elaborate clearly and confidently on material handling.

## Unit 6: Inventory Management

### 6.1 Introduction

Welcome to another exciting unit of this module. In this module we are going to look at

Inventory Management.



## 6.2 Learning Outcome

- explain the characteristics of inventory.
- describe the need for inventory and its control.
- discuss the importance of inventory management in the supply chain.
- explain the types of selective inventory control techniques.
- evaluate the inventory management strategy development process.
- demonstrate improved inventory management.



## 6.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 2 hours in class

## 6.4 Inventory

Inventory decisions are high -risk and high - impact in nature from the logistics perspective. Inventory Management is an integrated process, which aims to operationalize a firm's as well as the value chain's inventory policy. It is a strategic area in logistics and has an overall impact on the efficiency and effectiveness of the entire supply chain. It is basically a practice of planning, directing and controlling inventory so that it contributes to the profitability of business.

Since it is necessary to have an optimum minimum of multiple types of inventory, inventory management is essential. There are three methods for inventory management – The first one being a reactive or pull approach, which uses the customer demand to pull the product through the distribution channel. Another philosophy is the planning approach, which proactively schedules the product movement and also its allocation through the channel according to the demand forecast. The final approach, hybrid logic combines the former versions and results in an inventory management philosophy, which responds to product as well as market environments.

### **6.5 Characteristics of Inventory:**

- Once an investment has been made in inventory, it cannot be reversed and that fund cannot be utilized to obtain other assets to improve corporate performance. Thus investments in inventory are risky.
- There are a lot of chances for the inventory to be pilfered or to become obsolete.
- The magnitude of risk varies according to the position of the enterprise in the distribution channel:

**Manufacturer:** For the manufacturer, there is a longer dimension of risk. Starting with the raw material, and component parts, the risk includes work – in – progress, and finally the finished goods. It doesn't end here, as the inventory needs to be transferred to warehouses in close proximity to the wholesalers and retailers. Though, the product line may be narrower, the risk element is deeper and of longer duration.

**Wholesaler:** The wholesaler handles more product lines than the manufacturer. He purchases in bulk and distributes in smaller lots to the retailers. Also these small lots are in assortment. Especially, when the product lines are more in number, there is a grave problem. The problem escalates for a seasonal product where the wholesaler has to stock much in advance of the sale.

**Retailer:** The risk for a retailer is wider and not deeper in the sense he stocks a wide variety of products. The number of Stock Keeping Units within a Supermarket is

enormous. The risk is primarily of marketing in nature. The enormity of risk faced by the retailers makes them push the risk towards manufacturers and wholesalers by pressing them to assume greater inventory responsibility.

## 6.6 The need for inventory and its control

Inventories of materials are necessary by all manufacturing organizations. Materials and inventories serve some social purpose in industries, which stems from some economic motives. The motive behind inventory is the following:

**Meeting the production requirements:** A manufacturing organization needs to keep stock of raw materials, components and parts required for producing finished goods to meet the continuous production requirements.

**Support in operational requirements:** Inventories are required for repairs, maintenance as well as operational support. Inventory for this purpose include production machinery spare parts, chemicals, lubricating oils, welding rods etc.

**Customer Service:** Customer satisfaction is used as a tool for competitive advantage. To ensure customer satisfaction, it is necessary for suppliers to maintain parts in order to extend after sales service to their clients.

**Speculation:** Provides ample scope for holding large amount of inventories, but this inventory is not important for industrial purpose.

**Precaution:** Arises out of the inability to predict future demands precisely and getting the materials in time, without incurring extra costs.

## 6.6 Importance of Inventory Management in the Supply Chain

Managing inventory has become important due to the following factors:

- Availability of resource (such as finance and space) has made the management to consider lowering the levels of inventory within the supply chain management systems to maintain margins

- Latest concepts like Just in Time (JIT) applications and lean manufacturing have reduced the need for inventory as an insurance buffer within the overall logistics activity
- Many companies have realized that a greater return on investment (ROI) can be obtained by developing the core business, and investment in working capital items, like inventory and debtors give lesser returns.
- With the advent of Information technology (IT), inventory management has become essential which can be used to reduce inventory. Better the information, lower is the inventory.

### **6.7 Inventory Control**

This is a mechanical procedure, which helps in implementing an inventory policy. Control procedures are devised to implement the desired inventory management policies. Procedures for inventory control can either be perpetual or periodic. In a perpetual control process, inventory status is reviewed daily in order to determine the needs of replenishment. To ensure proper implementation of this system, there is need to have accurate accountability of all stock keeping units, apart from proper computer assistance. In a periodic review, the inventory status of an item is reviewed at regular time intervals, maybe weekly or monthly.

### **6.8 Types of Selective Inventory Control Techniques**

#### **ABC Analysis**

Relates to the annual usage cost of a particular item. Generally 10 per cent of items account for nearly 70 per cent of usage value, another 20-30 percent may account for 20 per cent of usage value and the balance 60 – 70 per cent accounts for 10 per cent of the usage value. Items are classified as per their usage value.

'A' items costs approximately 60 – 70 per cent of the total inventory cost while they are less in number. 'B' items cost 20-30 per cent of the total inventory cost while 'C' class

items are greater in number and carry less than 10 per cent of the cost of the entire inventory.

### **VED Analysis**

Related to the Vital, Essential, and Desirable status of inventory items. As the term implies, certain parts and items are considered to be vital for meeting operational requirements and this aspect is taken into consideration while making a forecast. While making a forecast, certain items and parts, which are considered as vital for meeting operational requirements, are considered. The modified version of this is the ABC analysis. VED analysis, takes into consideration both the value and criticality of each item. Continuous review is necessary for high value and critical items and thus is ordered in low quantities. Low value, least critical items are reviewed periodically and ordered in large quantities and have lower safety stock requirements.

### **SAP analysis**

Refers to Scarce, Available and Plenty analysis which allows to build into provision forecasts. The ordered quantity is governed by the scarcity factor. The guideline for procurement policy decisions would be the limitations in supply or the obsolescence of the firm in the near future.

### **FSN analysis**

The Fast, Slow or Normal analysis determines the consumption pattern of each item. However, a realistic picture for procurement action will not be available from a consumption pattern where the production run is slowed down due to various other reasons.

### **SDE Classification**

Classification based on the availability of an item. S items are scarce items, which needs to be imported and thus take a long time to obtain. D items are difficult to obtain, and E items are easily obtainable.

### **Inventory Planning Models:**

1. Economic Order Quantity (EOQ): This is the replenishment order quantity, which minimizes the combined cost of inventory maintenance and ordering.

#### Assumptions of Basic EOQ Model

- Demand is known with certainty
- Demand is relatively constant over time
- No shortages are allowed
- Lead time for the receipt of orders is constant
- The order quantity is received all at once

In this model, the inventory holding/carrying cost is taken to be proportional to the average inventory held during a period. Thus, by reducing the inventory, its carrying cost can be reduced. On the other side, smaller lot sizes will increase the number of lot sizes per annum to cover the annual demand and thus the cost of ordering will be more. Thus the economic lot size must balance both these opposing costs.

The mathematical formula for economical lot size is:

$$Q = \sqrt{2DS / HC}$$

Where:

Q = Order quantity in units

S = Cost of placing an order in rupees

D = Average annual consumption in units

H = Percentage of inventory cost vis a vis unit cost C = Cost per unit

#### Material Requirement Planning (MRP)

Materials Requirement Planning (MRP) is a scheduling procedure for production processes that have several levels of production. MRP determines a schedule for the

operations and raw material purchases, given information describing the production requirements of the several finished goods of the system, the structure of the production system, the current inventories for each operation and the lot sizing procedure for each operation.

### **Distribution Requirement Planning (DRP)**

This is a sophisticated planning approach, which consider multiple distribution stages and the characteristics in each stage. It is a logical extension of MRP. While MRP is determined by a production schedule, which is defined and controlled by the enterprise, a DRP is guided by customer demands, which cannot be controlled by the enterprise. A DRP allocates inventory from the mother warehouse to the various distribution centers based on the following:

- Pattern of demand
- Provision of safety stock
- Quantity ordered
- Re-order point
- Average performance cycle length

DRP also coordinates the finished goods requirement across the distribution network.

#### **6.8 Major benefits of using DRP**

- Improved customer service level with increased on-time deliveries.
- Efficient and effective marketing efforts for high stock items.
- Reduced inventory levels and thus lower carrying costs.
- Reduced inventory and thus lesser warehouse space requirements.
- Reduced customer freight costs due to fewer back-orders.
- Improved budgeting capability where DRP can simulate inventory and transportation requirements under multiple planning scenarios

## **Just – in – Time System (JIT)**

Just in Time (JIT) is a manufacturing philosophy, which leads to Production of necessary units, in the necessary quantities at the necessary time with the required quality. It is an approach to achieving excellence in the reduction or total elimination of waste (Non-Value Added Activities). The JIT-technique is a "Pull System", based on not producing units until they are needed. The Kanban Card is used as a signal to produce. Overproduction, Unnecessary Inventory, Defective Products, Transport and Waiting Time are some examples of waste according to JIT. The benefits of JIT include:

- Better quality products.
- Higher inventory turnover.
- Higher productivity.
- Lower production costs.
- Vendor Management Inventory (VMI)

In VMI, the supplier takes charge of the inventory management of the product and also manages the replenishment process based on the customer's consumption pattern. EDI or other inter – organizational software packages are used.

## **6.9 Inventory Management Strategy Development Process**

**This process consists of three steps:**

**Market / Product Classification:** Also known as ABC classification, this groups products and markets with similar characteristics to ease inventory management. The objective of this classification is to focus and to refine the inventory management efforts. Classification can be based on a variety of measures like sales, contribution of profit, inventory value, nature of the item etc.

**Segment Strategy:** In the second step, the integrated inventory strategy for each product or market group or segment is defined. Various aspects of the inventory

management process like service objectives, forecasting methodology, management technique and the review cycle are included in this strategy.

**Operationalised policies and parameters:** Finally, the focused inventory management strategy has to be implemented which involves clearly defining the detailed procedures and parameters. The procedures have to define the data requirements, software applications, performance objectives, etc. The parameters give the actual numeric values like the length of the review period, service objectives, percentage of inventory carrying cost, order quantities and re-order points.

### **6.10 Improved Inventory Management**

Certain additional initiatives need to be taken to improve the effectiveness of inventory. These are a number of policies and procedures that form guidelines for inventory related decisions are incorporated in inventory management.

**Performance Measures:** Clear and consistent measures of performance are necessary for the inventory management process. These measures must bring out the tradeoffs between service and inventory level. For example, if the performance measure of the planner focuses only on inventory level, then the planner will have a tendency to minimize the inventory levels, which might have a potential negative impact on the service level. On the contrary, if the planner's single focus is on service, it will lead the planner to disregard the inventory level.

**Training:** Inventory management is complex owing to the number of factors involved. The interface between the inventory management in the enterprise and also other entities within the value chain needs to be understood. Thus the firms need to increase not only the amount, but also the sophistication of training in order to improve inventory management decision-making. Planners must understand how certain inventory parameters like service objectives, review periods, order quantity, safety stock etc, influence inventory operations and performance etc. Also, planners must understand how their inventory management decisions will affect other members in the value chain.

**Integration of Information:** Effectiveness and performance of inventory can be increased substantially and the uncertainty can be decreased by integrating the

information requirement related to forecasts, orders, marketing plans, status of inventory, shipment etc across the enterprise and also among the channel partners. Exchange of information using global networks, forecasts and also a reliable measure of inventory reduce the uncertainty between the enterprise systems and thus result in lesser need for buffer inventory.

**Application of Expert Systems:** These expert systems utilize a computerized knowledge base to share inventory management expertise among the enterprise. This expertise can provide a lot of support for the training and awareness and thus lead to substantial improvements in productivity and performance of inventory.



### Activity 6.1

1. Explain the characteristics of inventory.
2. Describe the need for inventory and its control.
3. Discuss the importance of inventory management in the supply chain.
4. Explain the types of selective inventory control techniques.
5. Evaluate the inventory management strategy development process.
6. Demonstrate improved inventory management.



### 6.11 Summary

Supply Chains being complex and purchasing being part and parcel of it, inventory plays

a key role in managing them. Inventory managers need to provide for stocks, whenever necessary in order to utilize the available storage space efficiencies such that stocks do not exceed the storage space available for them, and at the minimum inventory cost. There is a need for trade-offs to be achieved amongst the various costs so that the production and marketing functions of inventory are fulfilled.

## **Unit 7: Quality Inspection and Assurance**

### **7.1 Introduction**

Quality inspection aims at regular checking, measuring and testing of the following: (i) incoming materials and parts; (ii) one or more processes; and (iii) finished goods. Quality inspection is very much helpful in improving the quality, minimising the manufacturing cost and eliminating the scrap losses. It is the most common method

used to attain the standardisation and conformance to quality.

In production department, the quality inspection is related with checking, measuring and testing of one or more products and the products that don't comply with the standard specifications are rejected or returned for improvement.



## 7.2 Learning Outcome

After going through this lesson, you will be able to:

- explain the basic concept of quality inspection.
- explain the importance of receiving and incoming quality inspection.
- discuss the process of receiving materials and parts.
- explain the common methods of inspection.



## 7.3 Time Frame

In this unit you are expected to spend approximately;

- 1 hour 30 minutes' study time
- 2 hours in class

## 7.4 Broad Objectives of Quality Inspection

The Quality Inspection has the following broad objectives:

**Identification of the problem:**

Quality inspection is helpful in the identification of the problem. The problem can be related with the incoming materials and parts, one or more processes in the production, or to the finished goods.

#### **Prevention:**

Quality inspection is helpful in the prevention of the occurrence of problems in the area of incoming and reception of raw materials and parts, in the production process and in the finished goods.

#### **Elimination of the problem:**

Quality inspection aims to eliminate of the problem(s) of the poor quality, pilferage, shortage or damage of any kind.

#### **Responsibilities of the Receiving and Store Units**

The receiving and store units provide multiple services. First of all, the receiving officers collect information regarding the established standards of the incoming materials and parts for their use in production. This information helps to keep a check on incoming raw materials and parts from the suppliers in terms of quality. The receiving officers inspect all the containers for external damage. After unpacking of the containers they ensure that the items supplied are in good condition. Then they check the quantity of materials and parts. They distinguish good lots from bad lots and good pieces from bad pieces. This process helps to maintain quality standards of incoming materials and parts. It also helps to rate the quality of products as well as suppliers.

Thus, receiving and store units are very helpful in the smooth and effective flow of materials required in the production operations.

#### **Stages of Quality Inspection**

There are three stages of Quality Inspection:

- Inspection of incoming materials and parts;
- Inspection of production process/processes;

- Inspection of the finished goods.

#### **i) Inspection of incoming materials and parts:**

It is also called receiving inspection. It is checking, measuring and testing of incoming materials and parts that are supplied before they are taken to store or inventory.

Incoming inspection can be conducted either at supplier's end or at manufacturer's gate. If the incoming materials are bulky or large in quantity and involve huge transportation cost, it is economical to inspect them at the place of vendor or supplier.

#### **ii) Inspection of production process/processes:**

This work of inspection is done while the production process is in progress. Inspection at production house is very important to maintain the quality of products. Inspection at this point is very helpful in preventing wastage of resources like materials, parts, time and money. It prevents defective goods and minimizes the wastage.

#### **iii) Inspection of the finished goods:**

This is the last stage when finished goods are inspected before delivery to the customers. At this point, the poor quality products are rejected or sent back for further improvement.

### **Receiving and Incoming Quality Inspection**

Each department makes sure that the goods or services received are acceptable and comply with all the stated terms and conditions of the purchase-document. The entire receiving process consists of the following steps:

#### **Receiving**

It is the act of taking possession of goods in order to stage them for inspection or place them into inventory.

#### **Inspecting:**

It is the act of examining goods that have been supplied by the supplier to check the quality of what was ordered via purchase document. It requires specialized skills or expertise to examine the goods to ensure that the goods received comply with the standards.

**Acceptance:**

It is the legal act of documenting that the goods and/or services conform to the requirements of the purchase document terms and conditions normally, the purchasing department is responsible for purchasing of materials and parts required. So, the purchasing managers must be well versed in the knowledge of the checking, measuring and testing of raw materials and parts to be purchased. The receiving department is responsible for receipt, identification, general inspection and condition of all incoming raw materials and parts. Now, the receiving manager acts like a controlling agency for receiving and maintaining the quality of the materials to be received. He/she acts as custodial agency too because he/she protects all the materials and parts from pilferage, damage, unauthorized withdrawals, etc.

**7.5 Importance of Receiving and Incoming Quality Inspection**

Quality Inspection consists of checking, measuring and testing of all the purchased raw materials and parts received from the suppliers. It is must before the materials and parts are taken into stock. Receiving Inspection is the most important aspect because the purchased raw materials and parts are to be used in the manufacturing. The substandard raw materials and spare parts generate sub-standard products which is unacceptable at any stage by any stakeholder.

Receiving and incoming of materials and parts is a routine work, hence, it is considered as clerical task and understated by some companies. Sometimes this job is considered very light in terms of receiving, incoming and generating documents. It is a very serious mistake. If the poor quality, pilferage, shortage or damaged quantity is overlooked at the receiving stage and the problem(s) is discovered at later stage, it will prove to be a disaster. It will not only increase the cost of the product, but also waste the precious time of the employees. The problem(s) must be considered at the receiving to run the

production smoothly.

### Check-lists for Receiving and Incoming Materials and Parts

Table 7.1 Check-list before Taking Receipt of any Shipment

Statement	Yes	No
The incoming shipment is for the concerned department.		
The number of containers is correct.		
The containers are free from any damage		
If containers are externally damaged, then it is noted on the receipt.		

Source (Sharma, 2014)

Table 7.2 Check-list for receiving goods on behalf of the department

Statement	Yes	No
The delivery is significantly on time.		
The delivery is complete.		
The specifications and packaging requirements comply with the order.		
Correct items are shipped.		
The delivery requires further inspection by another technical person.		
All the terms mentioned in the purchase document have been met		
Damage is from supplier side.		
Damage is from carrier side.		

Source (Sharma, 2014)

Table 7.3 : Check-list for completion of the receiving report and documentation.

Statement	Yes	No
Timely inspection is done.		
During inspection all the stated standards are followed		
Purchase order number is mentioned on the receiving report.		
Partial shipment is clearly mentioned, if any.		

Source (Sharma, 2014)

## 7.6 Inspecting a Shipment

After acknowledging receipt of the order, the receiving staff must conduct an inspection of all the materials and parts received. If the goods are very technical, he/she may accompany a specialized expert. He/she must check/inspect and verify the following very important aspects:

- Verify that all the items are according to purchase document and the specifications, measurements, model, product description, company name, brand are same as mentioned in the purchase document. He/she must carry a copy of purchase order as the purchase is the primary document based on which the supplies are made, examined, accepted and paid for.
- The purchase officer should check and verify that the quantity received is matched against the order given.
- Inspect for any pilferage, leakage, damage or breakage of the container.
- The purchase officer should check and verify the supplier's full name and address, the order number, date, delivery date and schedule, packing instructions etc.
- Check for operability/functionality.
- Confirm instructions regarding special handling or packaging were followed.
- Verify that the unit of measurement count is correct (e.g. if the unit of measurement on the purchase document is one dozen, count 12 in the unit package).
- Verify that delivery documentation (packing slip, certifications, etc.) is acceptable.
- Verify that packaging integrity is preserved.
- Verify that perishable items are in good condition and expiration dates have not

been exceeded.

- Conduct timely inspections
- Inspections should be completed within a reasonable amount of time. If a department knows that the inspection will not be immediate, then the purchase document must provide when the inspection will occur and how it will be accomplished.

### **Installation checklist**

Documentation may include a standard installation checklist for the supplier to complete and provide to a state representative upon completion of the tasks.

### **Documenting the results**

Departments are advised to document all inspection results and provide the results to the department procurement office for filing within the procurement file. The document should, at a minimum, identify what action was performed, who was in attendance, both department and supplier personnel by name and title, when and where the inspection occurred, and the inspection results. Documentation shall be retained within the procurement file.

### **7.7 Inspection of Goods at Receiving**

Inspection is the most common method of attaining standardisation, uniformity and quality of the receiving and incoming materials and parts. It is confirmed that the raw materials and parts are according to the purchase order and conforms standards and specifications. Inspection is must from quality aspect. In fact, it is the function of quality control. If the said item does not fall within the zone of acceptability it will be rejected and corrective measures will be applied to see that the items in future conform to specified standards. Inspection is an indispensable tool of modern manufacturing process. It helps to control quality, reduces costs, eliminate scrap losses and assignable causes of defective work. It is important, upon receiving a shipment, to make sure that the material meets quality specifications. If it is of great importance that

no defects in quality exist, you will probably want to run a complete inspection check on the materials and items received.

Increased costs of product maintenance and repair, together with increased reliability requirements, have generated both internal and external pressures on firms to intensify their concern for product quality.

## **7.8 Methods of Inspection**

The decision of acceptance or rejection of receiving and incoming raw materials and parts depend upon the methods of inspection. There are two methods of inspection. These are (i) 100% inspection/Census method; and (ii) Sampling inspection methods.

### **100% Inspection/Census Method**

Census means that the data are to be obtained from each and every unit of the population. This type involves careful inspection of quality in detail as every piece is separately inspected. The effort, money and time are required to carry out complete inspection. Even more number of inspectors is required and hence it is a costly method. There is no chance of sampling error as each item has gone through the process of inspection. However, inspection errors arising out of fatigue, negligence, difficulty of supervision etc. cannot be neglected in this case. It is suitable only when a small number of pieces require inspection or a very high degree of quality is required. This method is suitable for the organisations dealing in the business of jet engines, aircraft, medical and scientific equipment etc.

### **Sampling Inspection**

Sampling is the process of learning about the population on the basis of a sample drawn from it. In sampling inspection, money and time is saved. Here, less number of inspectors is required in comparison to census method. In this method randomly selected samples are inspected instead of every receiving raw materials and parts. Samples taken from different batches of products are representatives and the conclusions are drawn on that basis for the entire receiving. If the sample proves defective, the entire concerned is to be rejected. Sampling inspection is cheaper and

quicker. In this process, how you draw the sample matters a lot. This method is very suitable and frequently used in the organisations making, fans, A.C., music systems, washing machine etc.



## 7.9 Summary

Quality inspection are the measures aimed at checking, measuring and testing of incoming materials and parts, one or more processes and finished goods at regular basis. The receiving and stores units provide both service and control functions. First of all, the receiving officers collect information regarding the established standards of the incoming materials and parts for the use in production. They are helpful to protect production from receiving poor quality. They inspect all the containers for external damage. After unpacking of the containers they verify the correct items. Then they check the quantity of materials and parts. They distinguish good lots from bad lots and good pieces from bad pieces. They sort out poor quality of the incoming materials and parts and thus maintain standards. They are very helpful to rate quality of product as well as suppliers. The receiving and stores are very helpful in the smooth flow of materials required in the production operations. Normally, the purchasing department is responsible for purchasing of materials and parts required. So, the purchasing managers must be well versant with the knowledge of the checking, measuring and testing of raw materials and parts to be purchased. The receiving department is responsible for receipt, identification, general inspection and condition of all incoming raw materials and parts.

The receiving manager acts like a controlling agency for receiving and maintaining the quality of the materials to be received. He/she acts as custodial agency and looks after the store management. Inspection is the most common method of attaining standardisation, uniformity and quality of the receiving and incoming materials and parts. It can be conducted through either 100 %/census inspection methods or sampling inspection method.



### **Activity 7.1**

1. Define quality inspection. Discuss its stages.
2. Prepare a checklist of the activities of inspection of goods at receiving.
3. Receiving and incoming raw materials and parts is very important activity and it influence cost." Comment on this statement.
4. Discuss briefly the responsibilities of a purchase officer.
5. Discuss the importance of receiving and incoming quality inspection.
6. Explain the ways of doing inspection? Enumerate advantages and disadvantages of each method.
7. Differentiate between 100% inspection and sampling inspection

## **Unit 8: Warehousing / Distribution**

### **8.1 Introduction**

I know by now we have been introduced to the concept of warehousing. In this unit we are going to look at warehousing in details. Warehousing is a support function for purchasing and plays an important role in attaining the overall objectives of an organization's supply chain system. Warehouse is a place where inventory is stored. It is basically an area of interface for production, market, customers as well as suppliers. The performance of warehouse is often judged by its productivity and its cost performance.



## 8.2 Learning Outcome

By the end of this unit you should be able to;

- discuss the functions within the warehouse.
- explain the benefits of the warehouse.
- examine the warehouse alternatives.
- determine the nature of warehouse costs.
- discuss the decisions in planning the warehouse.
- develop a warehouse space and design.
- develop the warehouse management systems..



## 8.3 Time Frame:

You will cover the following time;

- 2 hour 30 minutes' study time
- 2 hours in class
- 

## 8.2 Warehousing

In today's highly interconnected and interdependent supply chain networks, successful warehouse management involves a thorough understanding of how the basic warehouse management functions impact the supply chain. The warehouse, being a

critical link in the supply chain, serves as the source of order status information for the customers, provides inventory visibility for the supply chain partners and for the enterprise as a whole.

While focusing on warehouse objectives of improving profit through reducing cost and enhancing customer service level, the following have to be taken into consideration:

- Utilizing the storage space to the maximum
- Higher productivity of labour
- Reduced material handling
- Reduced order filling time Maximum utilization of assets
- Reduced operating cost

#### **8.5 Functions within the warehouse:**

**Receiving:** Collection of activities involved in proper receipt of all materials coming into the warehouse, providing the assurance that the quantity as well as quality is as per ordered, and distributing the materials to storage or to the other organizational functions which require them.

**Pre packing:** This is done in the case when products are received in bulk from a supplier and repacked into single consignments. The entire merchandise, which is received, may be processed at once, or a portion may be held in bulk for processing later.

**Storage:** Putting away the inventory received to complement order picking. It can be explained as the physical holding of merchandise while it awaits demand. Method of storage depends on the size and the quantity of the items in inventory and the handling characteristics of the product or its container.

**Order picking:** Physical selection of the products from their locations after receiving the customer orders. In other words, process by which items are removed from storage in order to cater to a specific demand. A document named pick list containing details like sales order number, shipment details, item details, quantity etc facilitates order picking.

**Packaging and / or pricing:** This is basically optional which may be done after the picking process.

**Sortation and / or accumulation:** When a warehouse stores multiple products, this activity is done.

**Packing and shipping:** Performance of tasks related to dispatching an order. This includes the following tasks like checking whether order is complete or not, packing material in an appropriate shipping container, preparation of shipping documents, including packing list, address label, and the bill of lading, weighing the shipments to determine shipping charges, accumulate orders by outbound carrier, loading trucks etc.

**Traffic management:** Choosing the best mode of transportation for inflow and outflow.

#### **8.6 Benefits of warehousing:**

**Economic:** Refers to the overall reduction in the purchasing costs by utilizing one of more benefits. The major benefits are as follows:

**Stock Piling:** Stocks piled in the warehouse act as buffer inventory which help to tide over situations of material constraints and customer demands.

**Service:** Service benefits may not reduce costs and the justification for a warehouse based on service is an increase in the market share, revenue and thus an increase in margin. The benefits are as follows:

**Spot Stocking:** A selected amount of a firm's product line is placed in a warehouse to fulfill customer orders during a key period of maximum seasonal sales. Features include a narrow product assortment and stocks placed in many small warehouses catering to specific markets over a limited time horizon.

**Assortment:** Various product combinations are stocked in an assortment warehouse in anticipation of customer orders. This is similar to spot stocking except that this has a broader product line, is limited to a few strategic locations and functions throughout the year.

**Support in production:** Production support warehouses provide a constant supply of

components and materials for assembly units. Such a warehouse supports production by supplying components or sub - assemblies in a regular and timely manner.

### **8.7 Warehousing Alternatives:**

The various warehouse strategies are as follows:

#### **Private warehouse:**

Refers to having the entire facility under the financial and administrative control of the firm, i.e. the firm owns the product and also operates the warehouse. The actual facility can be either owned or can be taken on lease, for a short period. The major benefits of this warehouse are:

**Control:** The enterprise has complete decision-making authority over all activities in the facility thus enabling integration of warehousing operations with other internal processes of the firm.

**Flexibility:** Operation policies and procedures can be formulated and altered to suit individual needs.

**Cost:** The basic objective of this warehouse is not profit- making, thus the cost aspects are less compared to public warehouses.

**Marketing:** An intangible benefit is a marketing advantage over other firms due to the firm's name attached with the warehouse thus enhancing customer perception.

#### **Public Warehouse:**

Public warehouse is a service provided to others by firms that have warehousing space, storage facility, and material handling equipment for their own use. These are designed to handle the most general packaged products or commodities, which would not require specialized storage or handling arrangement. The products usually stored are food grains, paper rolls, bulk material (cement, fertilizers), furniture, chemicals etc.

A major advantage of a public warehouse is that they provide financial flexibility and economies of scale. More operating and management expertise is provided, as warehousing is the core business for such firms. Variable costs are lower compared to

private facilities. With more customers and higher volumes, the fixed costs are spread over resulting in economies of scale. Public warehouses are of great use to firms, which are newly formed, and have the desire of expanding their distribution network and thus needn't invest in developing a private warehouse. They can alternatively hire a space in a public warehouse or channel their funds into other activities, which generate more revenue. This would improve their performance and thus increase the return on investment. Location flexibility is also available through public warehouses. Firms can also close storage facilities in one market and open at other places without any financial losses.

### **Contract Warehouse:**

Combine features of both public and private warehouses. The risk is shared and there is a long-term relationship that will result in lower costs. Benefits include economies of scale, flexibility, information, and equipment sharing among clients.

## **8.8 Other types of warehouse**

**General Merchandise warehouses:** Deal in all commodities except specialized or commodity items. These can either be public or private.

**Refrigerated/Cold Storage warehouses:** Used for storing perishable items, which are kept at low temperatures to preserve quality. These are expensive and a variation of this type of warehouse is known as the controlled temperature warehouse, which is lesser expensive and is used for storing fruits, milk etc.

**Bonded warehouses:** A special type of warehouse whereby distributors can produce, transfer and store products without paying excise taxes and duties on them. The government licenses these to various parties.

**In-bond warehouses:** Bring in imported merchandise, store as well as display the merchandise in shops, which sell for export or sell merchandise, which is directly exported.

**Special commodity warehouses:** These are specialized and handle a specific or a bulk commodity.

**Combination warehouses:** Warehouses, which combine all the above facilities.

### 8.9 Nature of warehousing costs:

The warehousing costs can be either

**Fixed costs:** Incurred irrespective of how much or how little throughput is experienced.

**Variable costs:** Vary with the throughput.

Table 8.1: Warehousing costs are associated with the following:

Association	Costs
Land	Rent
Building	Rent & Rates
Storage and material handling equipment	Maintenance
Labour	Pickers, Packers
Supervision	Warehouse Management
Services	Electricity, Telephone

Source: (ACCA,2018)

### 8.10 Decisions in planning the warehouse:

#### 8.10.1 Warehouse Site Selection:

Cost and service are the key considerations here. The other supplementary factors are:

**Nature of product:** This influences the number and location of warehouses. For perishable commodities, proximity to the consumption centers is essential. It is preferable to have limited number of warehouses, which have delivery limitation in terms of distances and geographical reach.

**Infrastructure:** The efficiency of the warehouse operations improves with the availability of suitable infrastructure like roads, utilities (water, electricity, communication etc) and

labour, the unavailability of which will increase the transportation cost. For example, for cold storage, availability of electricity is a major influencing factor.

**Access:** Again, when there the warehouse is located at a place where there is little accessibility, the transportation costs will escalate.

**Availability:** The availability of warehouse space is an issue. In the case of non-availability, alternative location at the outskirts will be the alternative, but which will increase the transportation costs.

**Market:** To offer better service to customers, warehouses need to locate in proximity to consumption centers so that frequent deliveries by customers in small quantities can be organized at a limited time.

**Regulations and local taxes:** Government regulations guide the site selection for certain hazardous chemicals, explosives etc. In such cases, there are limited options for site selection. Also the regional sales tax and octroi charges influence the site selection. With a lack of uniformity in the sales tax structure across the States, warehouses will be planned to make maximum utilization of this.

#### **Product – Mix Consideration:**

The product mix is directly related to the design and operation of a warehouse. Considerations such as product sales, demand, weight, bulk, packaging etc needs to be made.

### **8.11 Future Expansion**

Some consideration about the estimated requirements for future operations in case of expansion must be made. A five – to – ten-year expansion plan must be considered while establishing the warehouse facilities so that normal operations are not disturbed during expansion.

#### **8.11.1 Selecting the material handling system:**

As movement is the primary function within a warehouse, it is necessary to select the appropriate material handling system.

### **8.11.2 Warehouse layout:**

The warehouse layout needs to fit specific needs. Considerations to be made while planning the layout and operation are:

- Deciding on the receiving and shipping locations
- Identify minimum paths for movement of equipment and people, for speedy storage and retrieval
- Classifying items as slow, medium and fast and then allocating separate area for these
- Placing the material handling systems at their assigned location

### **8.11.3 Determination of warehouse space and design:**

A sales forecast or total tonnage expected is used to estimate the final size of the warehouse required. A number of techniques like linear programming, simulation etc are used to determine warehouse size.

Warehouse designing is a specialty planning activity usually done by an architect. Specifications like size of warehouse, lay - out, path of material-handling equipment are required. The warehouse must be designed for maximum utilization of available space and material handling equipments.

### **8.11.4 Factors to be considered while initiating warehouse operations:**

- While stocking the warehouse, a complete list of inventory needs to be obtained. Quantities of individual stock keeping units to be determined while planning the warehouse.
- Hiring and training of personnel is an important issue. There must be clarity about the role played by personnel hired for specific requirements and each group of employees needs to be given special training.
- The management must ensure that work procedures are developed and also understood by personnel.

- Protection against theft of merchandise must be ensured. Adequate security measures to be undertaken by allowing only authorized personnel to enter the premises, where computerized inventory control and processing systems are of use.
- Product deterioration arises from careless storage and non-compatibility among products stored in the same facility. Careless handling by warehouse employees is a matter of concern.
- When firms handle a large number of products it is economical to utilize computers for billing and inventory control. The computer inventory needs to be compared with the physical stock

Accident prevention is an important consideration.

## 8.12 Warehouse Management Systems

This is a software solution to control movement and storage of materials within a warehouse, transportation management, order management, and a complete accounting system. The following activities are managed through a WMS:

**Inbound:** Functions like addition of a new purchase order, palletisation, receipt of goods, putting away received goods etc

**Inventory Management:** Transferring inventory, holding and adjusting inventory, awareness of inventory balances etc

**Outbound:** Tasks such as creating an order of shipment, shipping multiple orders, allocation of orders, shipping order status etc.



### 8.1: Activity

- (1) Explain the benefits of warehousing.
- (2) Evaluate the decisions in planning the warehouse.



## 8.2 Summary

Warehouse being the interface area for production, market, customers and suppliers performs a number of functions in the supply chain. While the role of a traditional warehouse was to maintain a supply of goods to protect any uncertainty, the contemporary warehousing offers a host of much other value added services. Effective warehousing has become the order of the day.