

Unit- 6

Materials Management

❖ the different functions of material management department

Functions of Materials Management :

1. **Materials Planning** : It involves forecasting demand and quantity of materials required, preparing materials budget, forecasting the levels of inventories and scheduling the orders.
2. **Purchasing** : It involves choosing right sources of material supply, placing of purchase orders, follow-up, keeping good relations with suppliers, payments to suppliers and evaluating suppliers.
3. **Procurement** : Procurement of materials, transportation, quality control and inspection of purchased materials and components.
4. **Stores Management** : It includes conservation of materials in stores, efficient handling, maintaining stores records, proper location and stocking, scrap, surplus and obsolete materials disposal.
5. **Inventory Control** : Efficient inventory control is a must to ensure timely availability of material at minimum cost.
6. **Preparin Standardization, Simplification and Specifications of materials.**
7. **Value analysis of costly materials.**
8. **Ensuring smooth flow of materials in and out of the organization.**
9. **Packaging, warehouse planning, accounting, finished goods safety and care.**

❖ various types of inventories

Types of Inventory :

- (i) **Raw material inventory** : It includes raw material, semi finished components, standard components/subassemblies purchased from suppliers.
- (ii) **In-process inventory** : It consists of semi-finished components, subassemblies and products at various stages of the manufacturing cycle. In-process inventory is the term used for all material on the shop floor at various machines or in various departments.
- (iii) **Finished product inventory** : It includes the lubricants, cutting fluids, cotton waste, stationery, cutting tools and spare parts needed for proper operation, repair and maintenance.

❖ the objectives of material management

Objectives of inventory management:

The main objectives of inventory management are operational, financial and property protection.

1. Operational Objectives

- (a) To ensure continuous supply of materials, spares and finished goods so that production should not suffer at any time and the customers demand should also be met.
- (b) To avoid both over-stocking and under-stocking of inventory.
- (c) To minimize losses resulting from inventory deterioration, obsolescence or price declines.

2. Financial Objectives

- (a) To maintain investments in inventories at the optimum level as required by the operational and sales activities.
- (b) To keep material cost under control so that they contribute in reducing cost of production and overall costs.

3. Property Protection Objectives

- (a) To safeguard inventory against theft, wastage, damage or unauthorized use.
- (b) To ensure that, materials actually lying in the stores are shown in stock ledgers and the value of inventory is correctly stated on the company's books.

❖ Differentiate between procurement and purchase

Procurement: Procurement involves the process of selecting vendors, establishing payment terms, strategic vetting, selection, the negotiation of contracts and actual purchasing of goods. Procurement is concerned with acquiring all of the goods, services and work that is vital to an organization.

Purchase : Purchasing is a subset of procurement. Purchasing generally refers simply to buying goods or services. Purchasing often includes receiving and payment as well.

Note: Procurement deals with the sourcing activities, negotiation and strategic selection of goods and services that are usually of importance to an organization. Purchasing is the process of how goods and services are ordered. Purchasing can usually be described as the transactional function of procurement for goods or services.

❖ EOQ ? and its Significance.

EOQ, or Economic Order Quantity, is defined as "the optimal quantity of orders that minimizes total variable costs required to order and hold inventory".

While deciding how to manage inventory, two questions are to be answered.

(1) How much should we order? and (2) How often should we order ?

EOQ is a formula that determines the quantity at which the combination of procurement costs and inventory carrying costs are the least. In purchasing this is known as the order quantity, while in manufacturing it is called the production lot size.

Significance of EOQ

The EOQ is used as part of a continuous review inventory system. In this system the level of inventory is monitored at all times, and a fixed quantity is ordered each time the inventory level reaches a specific reorder point.

The EOQ provides a model for calculating the appropriate reorder quantity to ensure the instantaneous replenishment of inventory without any shortages. EOQ is a valuable tool for managers to make decisions about how much inventory to keep on hand, how many items to order each time, and how often to reorder to keep the costs minimum.

❖ **Explain the objectives of purchasing**

The objectives of purchasing are as follows:

1. **To procure right material :** The specifications of the material to be purchased must be constantly examined and compared with the competitors to maintain the company's position in the industry.
2. **To ensure quality of purchased material :** The quality of the finished product largely depends upon the quality of material used, hence it is very important to ensure that the material purchased is of required quality according to the specifications.
3. **To procure material in right quantities :** The quantity of material and supplies purchased must be such that production schedule is not disrupted and inventories throughout the supply chain are as low as possible.
4. **To procure material at reasonable price :** The cost of product depends upon the cost of material consumed. In some industries this cost may be as high as 80 percent of the total cost. Hence, it is very important to get the materials, supplies and equipment at the minimum possible costs.
5. **to develop reliable sources of supply and maintain good relationship with them :** It is important to purchase from reliable sources so that you get material of right quality at right time. Moreover, good relations with suppliers are beneficial in terms of getting reasonable price, preferential allocation of materials in case of material shortages, intimation about forthcoming shortages, information about the newly developed substitute, delayed payments etc.
6. **To develop alternative sources of supply :** Alternative sources of supply should be developed to increase the bargaining power and minimize the cost of materials and also to meet the emergencies.
7. **To avoid duplication, waste and obsolescence :** The accurate knowledge of the items in hand and the requirements of materials for a particular period is necessary to avoid duplication, waste and obsolescence with respect to various items purchased.
8. **To achieve integration with other departments of the company :** The purchase function is related with other departments of the company such as production, engineering, marketing and finance. Hence, coordination with them will ensure smooth functioning of purchase department.

❖ **the functions of purchasing department ?**

Function of Purchasing Department

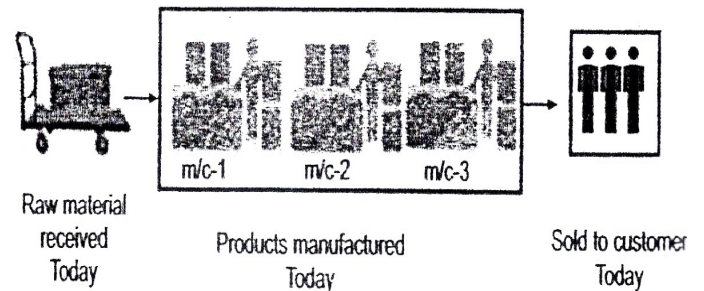
- (a) Receiving of properly authorized material requisition.
- (b) Procuring and analyzing quotations and preparation of comparative statement.
- (c) Negotiating contracts.
- (d) Issue of purchase order of the requisitioned material with

appropriate supplier.

- (e) Follow up purchase orders to ensure timely receipt of material.
- (f) Maintenance of records of all purchases.
- (g) Inspection of purchased material to ensure its quality and quantity.
- (h) Verification and passing of suppliers bills to see that payments are made promptly.
- (i) Maintenance of purchase records.
- (j) Serving as an information center on the material's knowledge i.e. their prices, source of supply, specification and other allied matters.
- (k) Keep record of reliable and also alternative sources of supply.
- (l) Preparation of purchasing budget.
- (m) To purchase all small items directly, that do not require quotations.
- (n) Development of reliable and alternate sources of supply.

❖ **JIT? the objectives of JIT (Just-in-time) techniques.**

JIT is a philosophy of manufacturing based on elimination of all the waste and continuous improvement of productivity by receiving inventories only as they are needed.



In JIT Inventory reduction is used as a tool for improvement. If you reduce inventory many good things can happen along with it. Costs are reduced greatly, quality is improved also a large inventory usually does not get rid of problems, it just hides them.

JIT eliminates waste by providing the environment to perfect the manufacturing processes and simplify them. In other words JIT is a combination of techniques used to improve operations.

Objective of JIT : The goal of JIT manufacturing is to identify the perfect process, making the process as simple and efficient as possible to :

- Reduce Cost
- Improve Quality
- Improve Performance
- Improve Delivery
- Add Flexibility, and
- Increase innovativeness.

❖ **the modern techniques of material management.**

Explanation of any one.

The modern techniques of material management are as follows :

(i) Just-in-time (JIT)

(ii) System applications and products (SAP)

(iii) Enterprise Resource planning (ERP)

- SAP is name of the ERP (Enterprise Resource Planning) software as well name of company.
- The Company SAP was started in 1972 by five former IBM employees (Wellenreuther, Hopp, Hector, Plattner and Tschira) in Mannheim, Germany. It is the world's largest inter-enterprise software company.
- The name SAP is acronym for System, Applications and Products in Data Processing
- SAP is an extremely complicated system where no one individual can understand all of it.
- SAP runs on a fourth generation programming language called Advance Business Application Programming (ABAP).
- SAP is capable of integrating multiple business applications, with each application representing a specific business area. These applications update and process transactions in real time mode. It has the ability to be configured to meet the needs of the business.
- SAP are categorized into 3 core functional areas :

(a) Logistics

(i) Sales and Distribution (SD)

(ii) Material Management (MM)

(iii) Warehouse Management (WM)

(iv) Production Planning (PP)

(v) General Logistics (LO)

(vi) Quality Management (QM)

(b) Financial

(i) Financial Accounting (FI)

(ii) Controlling (CO)

(iii) Enterprise Controlling (EC)

(iv) Investment Management (IM)

(v) Treasury (TR)

(c) Human Resources

(i) Personnel Administration (PA)

(ii) Personnel Development (PD)

Working of SAP/ERP

In a company, using SAP/ERP-

(a) All departments update data on a Central Information System.

(b) Data is shared with various departments, and

(c) All departments have access to information or data of other departments.

❖ **advantages and disadvantages of JIT?**

Advantages of JIT

1. Lower stock holding means a reduction in storage space which saves rent and insurance costs.
2. As stock is only obtained when it is needed. Less working capital is tied up in stock.
3. There is less likelihood of stock perishing, becoming obsolete or out of date.
4. Avoids the build-up of unsold finished product that can occur with sudden changes in demand.
5. Less time is spent on checking and re-working the product of others and the emphasis is on getting the work right first time.

6. Increased flexibility and innovativeness.

7. Better balance between different processes.

8. Better quality.

Disadvantages of JIT

1. Production is very reliant on suppliers and if stock is not delivered on time, the whole production schedule can be delayed.
2. There is no room for mistakes.
3. There is no spare finished product available to meet unexpected orders.
4. There may be breakdown due to weather problems, labour union problems, road repair, municipal services etc.

❖ **the modern technique used for material management**

Explain any one of them.

Some Modern techniques used for material management are:

1. JIT (Just-in-Time) manufacturing.
2. Enterprise Resource Planning (ERP).
3. System Applications and products (SAP).

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ERP : "ERP is a computer-based system designed to streamline and integrate various operations and information flows in the company".

Instead of each department having its own database of information, ERP puts all of the information into a single place. This helps with the decision making process for each department and a department no longer has to wait for a reply from another department in the company to make a decision. This makes things a lot easier and satisfies customers as well.

For example, a sales person can access the warehouse, inventory and delivery to give a customer a quick update on the status of his order.

Most large companies in the world use ERP to manage various aspects of their businesses like finance, human, resource,

products planning, production, purchase, inventory control, interacting with suppliers, providing customer service and tracking orders.



Fig. : ERP

SAP :

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❖ **ABC analysis and its advantages and disadvantages?**

ABC analysis can be used for analyzing a range of items like activities, customers, documents, inventory levels, and sales territories and so on. The analysis items which would be prioritized, managed, or controlled in different ways.

In ABC analysis the inventory is classified into three groups A, B and C on the basis of annual consumption cost as follows:

Items ‘A’: Complex and expensive parts are items that require careful management and control. These are high value, low volume type of inventories. Despite less volume, their annual consumption cost is quite high, as these are very costly items (vital few).

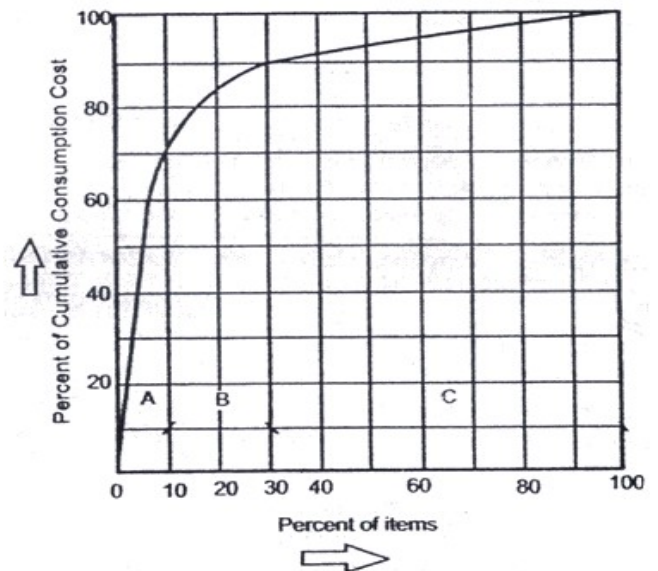
Generally, only a small percentage of items account for major percentage of total annual consumption cost of inven-

ories. These items are called A-Type items.

Items ‘B’: Moderately complex and expensive material that requires moderate levels of management. These represent around 20-30 percentage of items which account for 15 to 25 percentage of annual consumption cost. These are termed as B-type items.

Items ‘C’ : Low complex and low cost items that are typically commercially available and require little management control. Majority of the items account for a minor fraction of the total annual consumption cost.

Class of Item	% of Total consumption Cost	% of Total Number of Items
A	70 to 80	10 to 20
B	15 to 25	20 to 30
C	5 to 10	60 to 70



❖ **the various steps involved in purchasing OR the different purchase procedures**

1. Whenever a department needs an item, it is officially brought to the notice of the purchasing department by filling a purchase requisition form.
2. After receiving the purchase requisition forms, exact quantity of material to be purchased and its specification is decided.
3. Then prepare a list of suppliers who deal with the business of the articles to be purchased and are reliable.
4. If the material to be purchased is of small amount and required urgently, it may be purchased locally.

