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MATERIAL MANAGEMENT



अमृतम् तु विद्या ।

MATERIAL

- ✘ **Meaning of Material:** Material comprises of raw material, semi finished goods, finished goods, components, parts, adhesives, fuel, water, tools, jigs(a device that holds a piece of work and guides the tool operating on it.)
- ✘ **Definition of Materials -** Materials are any commodities used directly or indirectly in producing a product such as raw materials, component parts or assemblies.



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MATERIAL

- ✘ Material cost affects to a great extent the cost of production and also the amount of profits which an entrepreneur ultimately gets.
- ✘ In many organizations, material cost constitutes about 70% of the total cost of a product.
- ✘ An effective system of internal control should be introduced to keep material costs within limits.
- ✘ This is possible only if a proper system of material management is introduced.



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MATERIAL





INTEGRATED FUNCTIONS





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MATERIAL MANAGEMENT

- ✘ Material management is concerned with controlling the kind, amount, location, movement and timing of the various commodities, used in and produced by the industrial enterprise. It starts as an outgrowth of production planning with the explosion of the product into materials and parts and with the determination of supply and expendable equipment items required in the manufacturing process.
- ✘ Thereafter, it is a partner of production control, becoming the **logistics branch of that function**. Its responsibilities end as the correct finished product in proper condition and quantity passes to the customer. ”



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MATERIAL MANAGEMENT

- ✘ The term 'material management' is concerned with the determination of a policy with regard to procurement of materials (quality, quantity and price etc.) and disbursement of the same to the respective jobs as and when it is required without any delays.
- ✘ In other words, material management is concerned with control of materials in such a manner which ensures maximum return on working capital.



MATERIAL MANAGEMENT

- ✘ **“Material management is concerned with the location and purchase of needed materials, their storage and movement (internal). It also arranges to keep an account for them. It is also responsible for planning their movement through manufacturing processes, store rooms (or stock rooms or warehouses) and distribution channels. ”**

—H.B. Maynard



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IMPORTANCE OF MATERIAL MANAGEMENT

- ✘ **1. The material cost content of total cost is kept at a reasonable level. Scientific purchasing helps in acquiring materials at reasonable prices. Proper storing of materials also helps in reducing their wastages. These factors help in controlling cost content of products.**
- ✘ **2. The cost of indirect materials is kept under check. Sometimes cost of indirect materials also increases total cost of production because there is no proper control over such materials.**
- ✘ **3. The equipment is properly utilized because there are no break downs due to late supply of materials.**



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IMPORTANCE OF MATERIAL MANAGEMENT

- ✘ 4. The loss of direct labour is avoided.
- ✘ 5. The wastages of materials at the stage of storage as well as their movement is kept under control.
- ✘ 6. The supply of materials is prompt and late delivery instances are only few.
- ✘ 7. The investments on materials are kept under control as under and over stocking is avoided.
- ✘ 8. Congestion in the stores and at different stages of manufacturing is avoided.



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FUNCTIONS OF MATERIAL MANAGEMENT

Material management covers all aspects of material costs, supply and utilization. The functional areas involved in material management usually include purchasing, production control, shipping, receiving and stores.

1. Production and Material Control:

- ✘ Production manager prepares schedules of production to be carried in future. The requirements of parts and materials are determined as per production schedules. **Production schedules are prepared on the basis of orders received or anticipated demand for goods.** It is ensured that every type or part of material is made available so that production is carried on smoothly.



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FUNCTIONS OF MATERIAL MANAGEMENT

2. Purchasing:

- ✘ Purchasing department is authorized to make buying arrangements on the basis of requisitions issued by other departments.
- ✘ This department keeps contracts with suppliers and collects quotations etc. at regular intervals. The effort by this department is to purchase proper quality goods at reasonable prices.



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FUNCTIONS OF MATERIAL MANAGEMENT

3. Non-Production Stores:

- ✘ Non-production materials like office supplies, perishable tools and maintenance, repair and operating supplies are maintained as per the needs of the business.
- ✘ These stores may not be required daily but their availability in stores is essential. The non-availability of such stores may lead to stoppage of work



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FUNCTIONS OF MATERIAL MANAGEMENT

× 4. Transportation:

- × The transporting of materials from suppliers is an important function of materials management.
- × The traffic department is responsible for arranging transportation service. The vehicles may be purchased for the business or these may be chartered from outside.
- × It all depends upon the quantity and frequency of buying materials.
- × The purpose is to arrange cheap and quick transport facilities for incoming materials.



FUNCTIONS OF MATERIAL MANAGEMENT

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5. Materials Handling:

- ✘ It is concerned with the movement of materials within a manufacturing establishment and the cost of handling materials is kept under control.
- ✘ It is also seen that there are no wastages or losses of materials during their movement. Special equipment may be acquired for material handling.



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FUNCTIONS OF MATERIAL MANAGEMENT

6. Receiving:

- ✘ The receiving department is responsible for the unloading of materials, counting the units, determining their quality and sending them to stores etc.
- ✘ The purchasing department is also informed about the receipt of various materials.



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SCOPE OF MATERIAL MANAGEMENT

1. Material Planning and Control

2. Purchasing

3. Stores /Inventory Control and Management
Inventory Control and Management

4. Lead Time

5. Standardization

6. Simplification

7. Specifications

8. Value Analysis

9. Ergonomics

10. Just In Time (JIT)

11. ABC Analysis

12. Stores Accounting



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SCOPE OF MATERIAL MANAGEMENT

Materials planning and control:

Based on the sales forecast and production plans, materials planning and control is done.

This involves estimating the individual requirements of parts, preparing materials budget, forecasting the levels of inventories, scheduling the orders and monitoring the performance in relation to production and sales.



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SCOPE OF MATERIAL MANAGEMENT

Purchasing:

This includes the selection of sources of supply finalization in terms of purchase, placement of purchase orders, follow-up, maintenance of smooth relations with suppliers, approval of payments to suppliers, evaluating and rating suppliers.



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SCOPE OF MATERIAL MANAGEMENT

Stores /Inventory control or management:

This involves physical control of materials, preservation of stores, minimization of obsolescence and damage through timely disposal and efficient handling, maintenance of store records, proper location and stocking.

A store is also responsible for the physical verification of stocks and reconciling them with book figures. A store plays a vital role in the operations of a company.



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SCOPE OF MATERIAL MANAGEMENT

Stores /Inventory control or management:

Inventory generally refers to the materials in stock. It is also called the idle resource of an enterprise. Inventories represent those items, which are either stocked for sale or they are in the process of manufacturing or they are in the form of materials, which are yet to be utilized.

The interval between receiving the purchased parts and transforming them into final products varies from industries to industries depending upon the cycle time of manufacture. It is, therefore, necessary to hold inventories of various kinds to act as a buffer between supply and demand for the efficient operation of the system.

Thus, effective control on inventory is a must for the smooth and efficient running of the production cycle with the least interruptions.



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SCOPE OF MATERIAL MANAGEMENT

Lead Time:

- ✘ Lead time is the amount of time that passes from the start of a process until its conclusion. Companies review lead time in manufacturing, supply chain management, and project management during pre-processing, processing, and post-processing stages. By comparing results against established benchmarks, they can determine where inefficiencies exist.
- ✘ **Lead Time.** The lead time is the delay applicable for inventory control purposes. This delay is typically the sum of the supply delay, that is, the **time** it takes a supplier to deliver the goods once an order is placed, and the reordering delay, which is the **time** until an ordering opportunity arises again.



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SCOPE OF MATERIAL MANAGEMENT

- ✘ ***Standardization:*** Standardization means producing a maximum variety of products from the minimum variety of materials, parts, tools, and processes. It is the process of establishing standards or units of measure by which extent, quality, quantity, value, performance, etc. may be compared and measured.



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SCOPE OF MATERIAL MANAGEMENT

- + **Simplification:** The concept of simplification is closely related to standardization. **Simplification is the process of reducing the variety of products manufactured.** Simplification is concerned with the reduction of product range, assemblies, parts, materials, and design.



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SCOPE OF MATERIAL MANAGEMENT

- + ***Specifications:*** It refers to a precise statement that formalizes the requirements of the customer. It may relate to a product, process or service.
- × **Example:**
Specifications of an axle block are Inside Dia. = 2 ± 0.1 cm, Outside Dia. = 4 ± 0.2 cm and Length = 10 ± 0.5 cm.
- × **3S**



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SCOPE OF MATERIAL MANAGEMENT

- + **Value analysis:** the systematic and critical assessment by an organization of every feature of a product to ensure that its cost is no greater than is necessary to carry out its functions.
- + **Value analysis is an approach to improving the value of a product or process by understanding its constituent components and their associated costs.** It then seeks to find improvements to the components by either reducing their cost or increasing the **value** of the functions.



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SCOPE OF MATERIAL MANAGEMENT

- + Ergonomics (Human Engineering): The human factors or human engineering is concerned with the man-machine system.
- + An applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely
- + Ergonomics is “the design of human tasks, man-machine system, and effective accomplishment of the job, including displays for presenting information to human sensors, controls for human operations and complex man-machine systems.”



ERGONOMICS IN MATERIAL MANAGEMENT

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SCOPE OF MATERIAL MANAGEMENT

JIT Just-in-time: denoting a manufacturing system in which materials or components are delivered immediately before they are required in order to minimize storage costs.

Just in time (JIT) is an inventory management method whereby materials, goods, and labor are scheduled to arrive or be replenished exactly when needed in the production process



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SCOPE OF MATERIAL MANAGEMENT

- ✘ **ABC Analysis:** In materials management, *ABC analysis* is an inventory categorization technique. ABC analysis divides an inventory into three categories—"A items" with very tight control and accurate records, "B items" with less tightly control and good records, and "C items" with the simplest controls possible and minimal records.
- ✘ The ABC analysis provides a mechanism for identifying items that will have a significant impact on overall inventory cost, while also providing a mechanism for identifying different categories of stock that will require different management and controls.
- ✘ The ABC analysis suggests that inventories of an organization are not of equal value. Thus, the inventory is grouped into three categories (A, B, and C) in order of their estimated importance.



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PERIODICAL INVENTORY CONTROL SYSTEM





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- ✘ [Source:https://www.slideshare.net/madihaahmed7165/material-management-49342369#:~:text=Definitions%20of%20Material%20Management%20%E2%80%A2,supporting%20the%20complete%20cycle%20of](https://www.slideshare.net/madihaahmed7165/material-management-49342369#:~:text=Definitions%20of%20Material%20Management%20%E2%80%A2,supporting%20the%20complete%20cycle%20of)
- ✘ <https://www.odwlogistics.com/news/4-reasons-materials-management-important-manufacturers-0#:~:text=Materials%20management%20starts%20with%20good,materials%20in%20a%20com>
- ✘ <https://www.yourarticlelibrary.com/material-management/the-meaning-and-scope-materials-management/26146>
- ✘ <https://hmhub.me/scope-functions-material-management/>
- ✘ <https://www.lce.com/Employing-Materials-Management-Best-Practices-to-Drive-Down-Costs-and-Improve-Support-for-Operations-1149.html>



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