Inventory control

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Definition of **Inventory Control**...

In General Sense,

"Inventory control is a method where all stocks of goods are properly and promptly issued, accounted, and preserved in the best interest of an entity that handles its inventory."

In terms of Business,

"Inventory control is a method designed by the top level of management of a company. It requires a strategic decision to be taken for its effective implementation. Its proper implementation is the responsibility of the store manager."

In an Academic perspective,

"Inventory control is a method to identify those stocks of goods, which can be used for the production of finished goods. It shall be supported by a schedule which gives details regarding; opening stock, receipt of raw-materials, issue of materials, closing stock, and scrap generated."

Inventory Control…

- keeps a record of inventory issued to the concerned department.
- provides prompt and proper service to all concerned departments or units.
- helps to maintain inventories at lowest costs.
- helps to supply the inventory to different departments or units.
- bifurcates high-value and low-value stock of goods.
- focuses on location, storage , recording and accounting of inventories.
- avoids over-stocking and under-stocking of raw-materials.

- The simple meaning of inventory in dictionary is "detailed list of all the goods in stock."
- In short, inventory can be defined as the "*a stockpile of goods an organization is offering for sale and components that are used in the manufacturing process.*"

  It includes:

  a) Finished goods
  b) Raw materials (works in process)
  c) Supplies

- Organizations such as **hospitals** provide the consumer with **finished goods i.e. medicines and drugs**. Inventory is purchased in salable form and used without any further processing.
- Inventory exists because supply and demand are difficult to synchronize perfectly.
- Different types of costs are associated with inventory like *item cost, ordering costs, holding cost and stock-out cost.*

Need for inventory control

- • Inventories constitute the most significant part of the current assets, representing as much as 50%-70% of the capital investment. Therefore it is absolutely imperative to manage inventories effectively and efficiently in order to avoid unnecessary investment in them.

- • If a company's inventory level is too low, it risks delays in fulfilling it's customers orders.

- If the inventory level is too high, it is using up money that can be better used in other areas. It also risks obsolescence and spoilage.

Defining inventory control

- Inventory Control is defined as the supervision of supply, storage and accessibility of items in order to ensure an *adequate supply without excessive oversupply.*

- *The objective of inventory management is to have the appropriate amounts of materials in the right place, at the right time, and at low cost.*

- ABC analysis is based on **Pareto principle (80-20 rule) which states that 80% of the overall consumption value (expense) is based only on 20% of the total items.**
- i.e. small portion of the items may typically represent the bulk of money value, while a relatively large number of items may form a small part of the money value.

- • ABC analysis is a method for dividing on-hand inventory into *three classifications A, B, C based on annual consumption unit.*

- **• "A" items : money value is highest 70%, represent only 10% of items**

- **• "B" items : money value is medium 20%, represent about 20% of items**

- **• "C" items : money value is lowest 10%, represent about 70% of items**

VED ANALYSIS

- VED (V-Vital, E-Essential, D-Desirable) classification is based on the criticality of the inventories, in contrast to ABC classification which is based on consumption value.

- Vital (V): The medicines that are critically needed for the survival of the patients, which *must be available in the hospital all the times. Vital items (V) are items like Oxygen which are vital for functioning of a health care establishment and whose shortage will have serious adverse effects on routine functioning of the organisation.*

- Essential (E): Medicines with lower critical need, which *may be available in the hospital. Essential items (E) are the items whose shortage or non– availability can only be afforded for a short time (such as intravenous sets & IV fluids in a hospital) and if their shortage continues for anything more than the shortest time, the functioning would be affected seriously and adversely.*

- **Desirable (D): The remaining medicines with lowest critically, the absence of which will not be detrimental to the health of the patients. These are items whose shortage would not affect the routine functioning of an organisation even if the shortage is for a long time (such as Vit E capsules or sun screen lotions in a hospital's medical store)**

- • For V items, a large stock of inventory is generally maintained, while for D items, minimum stock is enough

EOQ (Economic order quantity)

(e) Economic Order Quantity (EOQ): Economic Order Quantity is one of the important techniques used to determine the optimum quantity or number of orders to be placed from the suppliers. The main objectives of economic order quantity is to minimize the cost of ordering, cost of carrying materials and total cost of production. Ordering costs include cost of stationery, salaries of those engaged in receiving and inspecting, general office and administrative expenses of purchase departments. Carrying costs are incurred on stationery, salaries, rent, materials handling cost, interest on capital, insurance cost, risk of obsolescence, deterioration and wastage of materials and evaporation. Economic Order Quantity can be calculated by the following formula :

$$EOQ = \sqrt{\frac{2AB}{CS}}$$

Where :

EOQ	=	Economic Ordering Quantity
A	=	Annual Consumption
B	=	Buying Cost per Order
C	=	Cost Per Unit
S	=	Storage and Carrying Cost per Annum

- From the following particulars calculate Economic Order Quantity :

  Annual Consumption = 16,000 Units

  Buying Cost per order = Rs. 18

  Cost per unit of material = Re. I

  Storage and Carrying cost = 20% of average inventory

Calculation of Economic Order Quantity:

$$\text{Economic Order Quantity} = \sqrt{\frac{2AB}{CS}}$$

Where :

A = Annual Consumption
B = Buying Cost per order
C = Cost per unit of material
S = Storage and Carrying cost

$$EOQ = \sqrt{\frac{2AB}{CS}}$$

$$= \sqrt{\frac{2 \times 16000 \times 18}{1 \times 20\%}} = \sqrt{\frac{2 \times 16000 \times 18}{1 \times \frac{20}{100}}}$$

$$= 1700 \text{ units}$$

Safety Stock

- Safety stock is the stock held by a company in excess of its requirement for the lead time. Companies hold safety stock to guard against stock-out.

Safety Stock = (Maximum Daily Usage – Average Daily Usage) × Lead Time

Example

ABC Ltd. is engaged in production of tires. It purchases rims from DEL Ltd. an external supplier. DEL Ltd. takes 10 days in manufacturing and delivering an order. ABC's requires 10,000 units of rims. Its ordering cost is $1,000 per order and its carrying costs are $3 per unit per year. The maximum usage per day could be 50 per day. Calculate economic order quantity, reorder level and safety stock.

<u>Solution</u>

EOQ = SQRT (2 × Annual Demand × Ordering Cost Per Unit / Carrying Cost Per Unit)

Maximum daily usage is 50 units and average daily usage is 27.4 (10,000 annual demand ÷ 365 days).

- Safety Stock = (50-27.4) × 10 = 226 units.
- Reorder Level = Safety Stock + Average Daily Usage × Lead Time
- Reorder Level = 226 units + 27.4 units × 10 = 500 units.

http://accountingexplained.com/managerial/inventory-management/safety-stock

Lead time

- A **lead time** is the latency (delay) between the initiation and execution of a process. For example, the lead time between the placement of an order and delivery of a new car from a manufacturer may be anywhere from 2 weeks to 6 months.

Lead time is made of:

- **Preprocessing Lead Time** (also known as "planning time" or "paperwork"): It represents the time required to release a purchase order.
- **Processing Lead Time**: It is the time required to procure or manufacture an item.
- **Postprocessing Lead Time**: It represents the time to make a purchased item available in inventory from the time you receive it.