



## Inventory models

### Introduction

Inventory is an idle stock of physical goods that contain economic value, and are held in various forms by an organization in its custody awaiting packing, processing, transformation, use or sale in a future point of time.

Any organization which is into production, trading, sale and service of a product will necessarily hold stock of various physical resources to aid in future consumption and sale.

While inventory is a necessary evil of any such business, it may be noted that the organizations hold inventories for various reasons, which include speculative purposes, functional purposes, physical necessities etc.

From the above definition the following points stand out with reference to inventory:

- All organizations engaged in production or sale of products hold inventory in one form or other.
- Inventory can be in complete state or incomplete state.
- Inventory is held to facilitate future consumption, sale or further processing/value addition.
- All inventoried resources have economic value and can be considered as assets of the organization.

### Inventory Models

Inventory management is based upon two basic models i.e independent demand inventory model and dependent demand inventory model.

- **Independent Demand Inventory Model** talks about raw material demand which is dependent upon prevailing market conditions and is not correlated to any raw material currently used by the organization. Finished goods is an appropriate example for independent demand inventory model.
- **Dependent Demand Inventory Model** talks about raw material demand which are integral parts of production and form important part of material resource planning. For example, demand for raw material can be established as the basis of demand of finished products.

### Inventory Costs



**Coimbatore.**

There are three broad categories of cost associated with inventory; holding cost, ordering cost and set up cost.

- Holding costs are carrying cost associated with inventory over a period of time. They include insurance, warehousing, interest, extra head-count, etc.
- Ordering costs are cost associated with purchasing of raw material and receiving raw materials. They include forms, order processing, office maintenance supplies and staff associated with ordering.
- Set Up Cost are cost associated with installation of machine for production. They include clean- up cost, re-tooling cost and adjustment cost.

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**Inventory management ensures that organizations are able to minimize cost and maximize profit.**

**Just In Time (JIT)**

Just In Time is set of strategic activities, which are formulated to achieve maximum production with minimal maintenance of inventory. JIT as philosophy is applicable to various types of organization but on implement side it is more relevant with manufacturing operations.

For JIT system to be successful, there are two critical elements, attitude of workers/management and practice.

**Fundamentals of JIT**

JIT is based on the following fundamentals:

- JIT manufacturing and ordering
- Elimination of waste
- Lean management
- Signal System (Kanban)
- Push-Pull System

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With the above fundamentals in place, JIT delivers the following:

- Continuous improvement of production and order processing.
  - Elimination of non-value added activities and procedures.
  - Simplification and advancement of the existing systems.
  - Creation of safety environment and ensuring total quality management.
  - Creation crossed skilled workers.
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## Types of Inventory by Function

INPUT	PROCESS	OUTPUT
<b>Raw Materials</b>	<b>Work In Process</b>	<b>Finished Goods</b>
Consumables required for processing. Eg : Fuel, Stationary, Bolts & Nuts etc. required in manufacturing	Semi-Finished Production in various stages, lying with various departments like Production, WIP Stores, QC, Final Assembly, Paint Shop, Packing, Outbound Store etc.	Finished Goods at Distribution Centers through out Supply Chain
Maintenance Items/Consumables	Production Waste and Scrap	Finished Goods in transit
Packing Materials	Rejections and Defectives	Finished Goods with Stockiest and Dealers
Local purchased Items required for production		Spare Parts Stocks & Bought Out items
		Defectives, Rejects and Sales Returns
		Repaired Stock and Parts
		Sales Promotion & Sample Stocks