



# What is Inventory

## Learning Outcomes

**By the end of this unit the learner will be able to:**

- ✓ Understand what is inventory management
- ✓ Understand terms that are frequently used in warehouse management .

# What is Inventory

## Definitions

### What is Inventory?

**Definition:** “A catalogue or schedule of property of a person, organization or estate; hence an account of goods and their worth.” (From Webster’s Dictionary)

**Specifically:** A regularly scheduled (typically annually) account of stock taken by an organization.

An **INVENTORY** is generally described as goods and products businesses hold to resale them to end users.

Stocks are finished goods and products or sometimes raw material that businesses hold in order to sell to end customers. The procurement department is responsible for controlling flow of raw material into an organization but the purchase timing and quantity of material to be purchased are critical to decide. This section will try to explore these critical issues, which are the major part of inventory management policies. Although stock keeping is essential yet the delay in material flow also causes the formation of stock. Every organization keeps stock, no matter what the nature of business is.

### What is Inventory Management?

Inventory management is the direction or control of goods and materials stocked by an organization to provide continuity of production and customer satisfaction.

### Why Is Inventory Management Important?

Inventory is one of the most important assets of an organization, and is usually the largest investment. Inventory costs are one of the three major components for expressing Return on Investment (ROI).

Properly controlled inventories will ensure the appropriate amount of product is at the right place, at the right time, at an acceptable quality, in the right quantity, and at the least cost.

Inventory represents a huge component of any budget. Companies typically pay for the cost of the good themselves and interest gets paid or lost. As well, there are factors like insurance, storage, breakage, theft, obsolescence, and the money it takes to manage and track the inventory. Typically, the cost of carrying inventory is estimated to be about 20 to 25% of the value of that same inventory.

Effective inventory management requires that we minimize the costs and also carefully consider what products to keep in stock, minimizing having products that become obsolete or that have a “sell by” or “best before” date.

Typically, inventory is managed by the operations area of the business. This can create some problems with marketing and sales if the inventory isn't kept at the level needed to funnel through sales to a customer. There are plenty of systems to help manage inventory, although no matter how sophisticated they become, there isn't one that can replace the need for strong communication skills between departments. At the simplest level, the sales team needs access to products on time and in large enough quantities to meet the needs of their customers.

### **Goals of Inventory Management**

- To effectively serve external and internal customers
- To maximize the potential to generate revenue and limit costs from inventory transactions
- To manage and control inventory
- To carry appropriate stock levels
- To reduce inventory carrying costs
- To minimize stock-out costs (for example, loss of sales when you run out of an item, or the cost of rush-delivering items when you run out unexpectedly)
- To improve ordering costs
- To achieve and maintain stock accuracy

## **Glossary**

### **Backorder**

An incomplete order. Goods are yet to be received from supplier or unavailable for completion of order.

### **Cross-Docking**

The processes of pre-defining inventory for shipment to customers (internal or external).

### **Distribution**

The function of moving various products from one location to another as defined by individual requests (orders), either for raw materials (in a manufacturing environment) or finished goods (in a resale environment).

### **FIFO**

Stands for First In, First Out. Describes a type of inventory management where the oldest inventory is distributed first.

### **Lead Time**

The time needed to prepare and process requests through the normal process. Lead time will have an effect on all processes within the facility.

### **LIFO**

Stands for Last In, First Out. Describes a type of inventory management where the newest inventory is distributed first.

**Loading**

The process of depositing goods to the desired transportation medium.

**Logistics**

Logistics encompasses all activities that are required to have controlled product and information flow between locations. The flow pattern has three basic areas: your vendor location and your warehouse, within the control of your organization, and finally the delivery to customers (internal or external).

**Order**

Request for goods to send to a specific location, either internal or external to the organization.

**Packing**

Process of preparation of picked goods for shipping.

**Picking**

The accumulation of requested goods either for distribution to a manufacturing facility or to a customer (internal or external).

**Product Number**

Internal or external identification number used to control storage, distribution, or manufacture of inventory.

**Put-Away**

The process of moving inventory to the picking, manufacturing, or outbound staging areas.

**Receiving**

The process of unloading, checking, and marking inbound merchandise for put-away. Also contains the process of validation of invoices.

**Re-Order Point**

A pre-determined inventory level where a replenishment order should be placed. This point will be the accumulation of the inventory needed to satisfy the normal order quantities for the delivery period plus safety stock.

**Returns**

Goods returned to facility due to various reasons: ordering, picking, and/or manufacturing error.

**Safety Stock**

Inventory quantity which is considered adequate to protect against stock-out caused by late deliveries by the supplier, unreliable lead time, and unexpected heavy usage.

**Shipping**

The process of tendering, manifesting, and signing over goods to a transportation provider (internal or external).

### Stock-Keeping Unit (SKU)

A unit of raw goods, product, and/or merchandise of value that the warehouse or distribution operation receives, stores, and or delivers to the customer or manufacturing department. In essence, the merchandise or product.

### Warehouse

A facility to store goods for distribution.

## Types of stock

Since everything is held as stock, whether it is in the form of raw materials in a manufacturing factory finished products in a shop or baked beans tins in a pantry, we can categorize these stocks as:

- Raw materials:** the materials, components and parts that organizations purchase for making finished products or reselling to end customers.
- Work in process:** material that is still in production phase. It is not finished.
- Finished goods:** These are finished products and are waiting to be delivered to end customers.

This is a quite arbitrary categorization, as one organization's finished goods are raw materials of some another company. Some organisations, mainly retailers and wholesalers, usually keep stocks of just finished goods, while most of the manufacturing businesses, and keep all three types in different quantities. Nationally, approximately 30% of stocks are raw materials, 40% work in progress and 30% finished goods. Some stock items do not fall simply into these categories, and we can classify two further types:

- **Spare parts** used in machinery, appliances, equipment, and so on
- **Consumables** like oil, chemicals, fuel, paper, and so on.

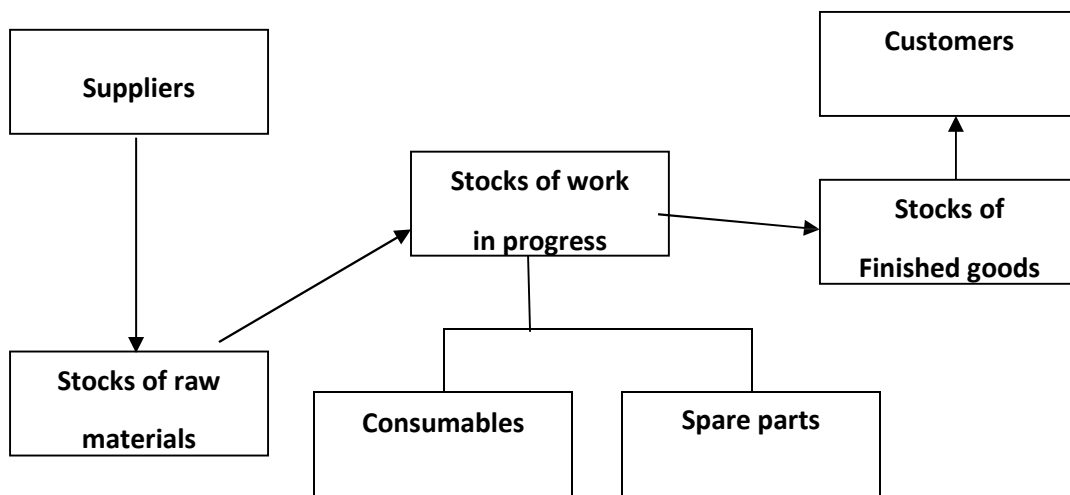


Figure 1.1 Types of stock

The overall demand in a market is consisted of lots of demands from individual customers. Independent demand systems regulate stocks by finding the finest balance between ranges of costs. In particular, they try to find answers to three basic questions:

1. *What items should we stock?* No item, though cheap, should be stocked without bearing in mind the costs and its benefits. It means businesses needs to stock unnecessary new items, and it should make appropriate searches to eliminate outdated or dead stock.
2. *When should we order for stock?* This depends on the system being used for inventory control, type of demand (high or low, stable or erratic, known accurately or estimated), worth of the item, lead time between order placement and its delivery supplier reliability, and some other factors.
3. *How to decide quantity to be ordered?* Large, occasional orders usually result in high average stock levels, but lower costs for placing and managing orders: small, recurrent orders result in low average stocks, but usually accompanied with high costs of placing and managing. The first of these questions is a matter of good maintenance, only avoiding stock that is not required. The next section will find answers to the last two questions.

### **Costs of carrying stock**

The average total cost of holding stock most of the businesses have to incur is estimated as twenty five percent a year. A reasonable goal is to reduce this cost as much as possible. You might think – particularly after the lessons of just-in-time – that reducing costs is the same as reducing stocks. But this is not essentially true. If a shop keeps zero stock, it certainly is not incurring any stock cost, but it also has no sales; it efficiently incurs another cost i.e. Losing its customers.

Lambert explains one approach which describes the costs of capital (for borrowing, opportunity, and so on), inventory service (insurance, taxes, and so on), storage (rent, heating, and so on) and risks associated with inventory (obsolescence, damage, and so on). We will use somewhat different approach that splits the entire stock cost into four individual components.

1. **Unit cost:** the price charged by the supplier for an item purchased, or the cost incurred by an organisation to purchase one unit of the item. It may be quite easy to find this by reviewing quotations or latest invoices from suppliers, but it is harder when there are a number of suppliers offering little different products, or offering diverse purchase conditions. If a business makes the product itself, it might be difficult to give a consistent production cost or decide a transfer price.
2. **Reorder cost:** the cost organisation incurs for placing repeat order. This might contain allowances for preparing an order, communication, receiving, delivery, checking, testing, utilization of equipment and follow-up. Sometimes, costs like quality control, transport, categorization and mobility of received goods are also included. In practice, the best approximation for a reorder cost usually comes from dividing the annual cost of the purchasing department by the number of orders sent out.

- 3. Holding cost:** It is the cost of keeping one unit of stock for a unit period of time – for instance, the cost incurred by Air France to hold a spare engine in stock for one year. The apparent cost is tied-up money. This is either borrowed (there are interest payments) or it is cash that could be used somewhere else (there are opportunity costs). Other holding costs result due to storage space, loss, handling, and special treatment, for example refrigeration, insurance and administration. Another problem is obsolete material. It is the stock that was kept so long that it lost value, like obsolete spare parts or expired food Products having shorter life cycles, may have faster obsolescence. On the other hand, if your materials are being moved much faster through supply chains, then in many conditions the amount of obsolescence is declining. It is complex to give distinctive values for these, but a rule for annual costs as a percentage of unit cost, has:

**% of unit cost**

Cost of money 10–15

Storage space 2–5

Loss and obsolescence 4–6

Handling 1–2

Administration 1–2

Insurance 1–5

**Total 19–35**

- 4. Shortage cost:** It occurs if a business is purchasing an item which is not available in stock anymore, or we can say, there is a shortage of that item. In the simplest case a retailer is unable to get direct profit from a sale. But the impacts of shortages are generally more widespread and may result in lost goodwill, loss of reputation, and loss of prospective future sales. Stock shortages can cause disturbance, rescheduling of production, re-timing of maintenance periods, and laying off workers. Shortage costs may also include payments for constructive action to remedy the scarcity, such as expediting orders, sending out urgent orders, paying for particular deliveries, storing partially finished goods or using more costly suppliers. It can be hard to get statistics for any inventory costs, but shortage costs are the major problem. These can also result in a number of intangible factors, like lost goodwill, that it is difficult to agree a rational value. Most organisations consider shortages expensive, and they generally like to avoid them. In other words, they are prepared to pay the comparatively lower costs of carrying costs to avoid the fairly higher costs of shortages. As you can see, this tends to increase the quantity of stock held, mainly when there is uncertainty.

