



# UNIT-3

## Functions of the Warehouse

### Learning Outcomes

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

- ✓ Understand the most important functions of the warehouse
- ✓ Discuss information transfer in a warehouse setting

## Unit 3

### Functions of the Warehouse

It can be set the warehousing provides three primary functions:

- Movement
- Storage
- Information transfer

#### The movement function of a warehouse:

1. **Receiving** - The receipt of goods involves the unloading of physical goods from delivery vehicles, ensuring the correct items have been delivered, checking their condition, confirmed their receipt and refusing/returning incorrect or damaged goods. Receipt processes may also include the unpacking and repacking of goods, quality control inspections and placing goods in temporary (or quarantine) storage while awaiting clearance.
2. **Transfer or Putaway** – This is the process of transferring the goods received to the appropriate storage locations across the warehouse, such as storage bins, shelving units and so on.
3. **Order picking / selection** – Order picking involves retrieving items stored within the warehouse in the required quantities and that the required time to fulfil customers' orders. The speed and efficiency of order picking processes can have a marked impact on the performance of the entire warehouse and the business as a whole. It is therefore important to drop and implement robust picking strategies and standards for all warehouse operatives to work by.
4. **Cross-docking** - An increasingly popular business model, cross-docking involves the transfer of goods directly from the incoming delivery vehicle to the outbound mode of transportations. The goods and items may move through the warehouse, but are not stored in the warehouse for any period of time. The vast majority of major supermarkets and retail food stores use cross-docking, which can be particularly useful when working with perishable goods.
5. **Shipping** – Shipping refers to the process of transporting the goods from the warehouse to the end user. Goods may be shipped from a warehouse using almost any form of transportation.

#### The storage functions of a warehouse:

1. **Temporary storage** – The storage of goods that are required for normal replenishment (i.e. to satisfy normal demand) fall within the category of temporary storage. The goods are only stored for as long as they need to be, prior to being shipped to the customer or moved elsewhere. Cross-docking is a business model that significantly reduces the amount of time products and materials have to be stored in a warehouse.

**2. Semi-permanent storage** – This applies to inventory that is stocked over and above the normal requirements of the business - also referred to as safety stock or buffer stock. Semi-permanent storage is considered necessary to cope with various common scenarios such as:

- Seasonal demand
- Erratic demand
- Conditioning of products such as fruits and meats
- Speculation or forward buying
- Special deals such as quantity discounts

## The information transfer functions of a warehouse:

Information transfer basically refers to the administrative aspects of warehouse management, wherein accurate and timely information must be shared at a variety of levels. Examples of which include current inventory levels, the quantities of products and items moving through the warehouse, delivery records, outbound shipments and so on. For the most part, modern warehouses (and businesses in general) have switched to computerised information transfer systems, as opposed to traditional paper-based reporting. Electronic data interchange (EDI) and bar coding in particular have revolutionised the way the modern warehouse operates.

### Warehouse Activity Profiling

To profile or warehouse is to use current and historical data to build a detailed and comprehensive image of its performance and its requirements. This can be useful in the development of a broad operational strategy for the warehouse, factoring in pick methods, system requirements, pick line requirements, slotting options, storage/handling alternatives and so on.

The more thorough the analysis, the easier it becomes to make accurate predictions and projections for the future of the facility.

Two main categories of profiles make up a basic warehouse profiling set:

- 1. Customer order profiles** - Customer order profiles represent the outbound activity, i.e., how the customers are ordering the products.
- 2. Item activity profiles** – Item activity profiles provide insight into viable storing and slotting options for each item within the warehouse.

**1. Customer Order Profiles** - The three most basic customer order profiles are defined below.

- a. Order Mix Distribution
- b. Order Increment Distribution
- c. Order Lines Distribution.

- a. **Order Mix Distribution:** These distributions answer warehouse zoning questions

such as —Should my fast, medium, and slow movers be zoned separately in the warehouse? To answer this question, a distribution of the orders for fast, medium, or slow movers is compared with any combination of the three. If the warehouse data indicates that most orders call for a mix of fast and slow movers, zoning the items by velocity will have order consolidation impacts that need to be considered. Order mix profiles are also used to analyse the percentage of order lines for full cartons, broken cartons, or a combination of the two. Analysis of this information provides options on storing full and broken cartons together. The goal is to determine what percentage of your customers is ordering full and broken carton quantities of the same item, before investing time and money in changing the current storage strategy.

- b. Order Increment Distribution:** The order line distribution of the percentage of a full carton ordered is beneficial when evaluating if the current packaging is in logical increments for the customer. For example, if results indicate that 90% of the customers are ordering carton quantities, the warehouse can consider effective alternatives. Options could involve first the supplier by changing the carton size, second the warehouse operations by breaking down cartons at receiving in order to save time during picking, and third, the marketing department by encouraging customers to order in full carton quantities.
  - c. Order Lines Distribution:** The distribution of the number of lines contained on each order is important when evaluating operating strategies. A warehouse with mainly one and two line orders would most likely have a very different picking strategy than a warehouse with many large multi-line orders. If your graph looks like figure 1 and you have a significant number of single-line piece-pick orders you may want to consider batch label picking these orders.
- 2. Item Activity Profile:** Primarily item activity profile is used to allocate each item in the warehouse.

Item activity profiles are beneficial when analysing products activities for the purposes of determining storage mode, product slotting, and facility layout options. There are several types of item profiles, the three most basic are defined next.

- a.** Popularity profile - is a ranking of the items based on how often they are ordered or picked (frequency).
- b.** Volume profile is a ranking of the items based on how much is ordered (cube movement).
- c.** Finally, the item order completion profile displays the items ranked from most to least popular against the order set. This profile reveals the percentage of the orders that will be completed by a subset of the items and

is valuable when conducting cost benefit analysis for improved productivity. The chart in figure 2 shows that 30% of the items complete 90% of all orders. This information is useful because it allows operations to make improvements, such as automation of a smaller area, yet still benefit 90% of all orders.

### Further Reading:

- ✓ *Highly Competitive Warehouse Management By Jeroen P. Van Den Berg*
- ✓ *The Definitive Guide To Warehousing by Scott B. Keller And Brian C. Keller*