

A TEXT BOOK OF

WAREHOUSE BINNER



NEST

NIDAN EDUCATION & SKILL TRAINING

(A Division of Nidan Technologies Pvt. Ltd.)

NIDAN TECHNOLOGIES PVT LTD

A Text book of Warehouse Binner

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Warehouse Binner

Introduction & Overview

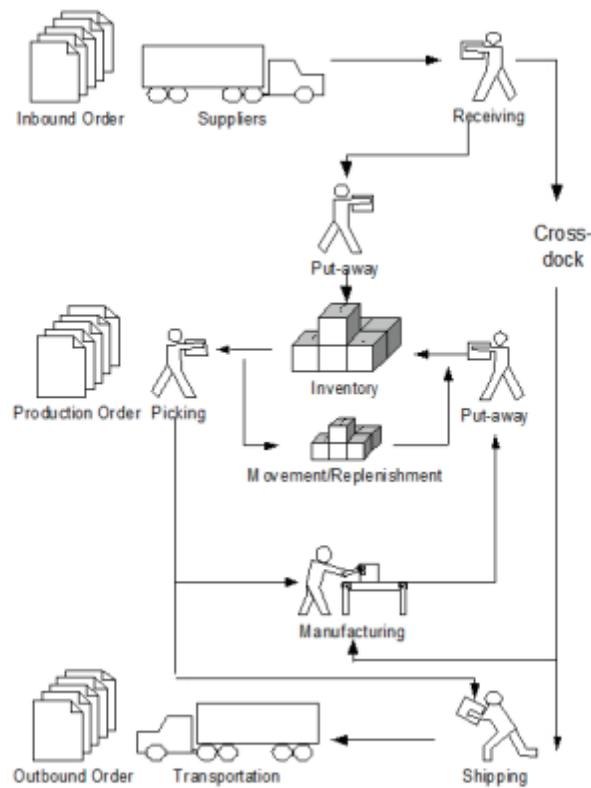
A warehouse management system (WMS) is a key part of the supply chain and primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, put away and picking. The systems also direct and optimize stock put away based on real-time information about the status of bin utilization. A WMS monitors the progress of products through the warehouse. It involves the physical warehouse infrastructure, tracking systems, and communication between product stations.



The flow of inventory through the warehouse can be divided into three basic processes:

- Receiving items at the warehouse and making them available.

- Handling items for internal distribution/movement/production.
- Picking and shipping items to customers or other locations.



NEED FOR THE WAREHOUSE

Warehousing is necessary due to the following reasons.

- Seasonal Production-** You know that agricultural commodities are harvested during certain seasons, but their consumption or use takes place throughout the year. Therefore, there is a need for proper storage or warehousing for these commodities, from where they can be supplied as and when required.
- Seasonal Demand-** There are certain goods, which are demanded seasonally, like woolen garments in winters or umbrellas in the rainy season. The production of these goods takes place throughout the year to meet the seasonal demand. So there is a need to store these goods in a warehouse to make them available at the time of need.

- (iii) Large-scale Production - In case of manufactured goods, now-a-days production takes place to meet the existing as well as future demand of the products. Manufacturers also produce goods in huge quantity to enjoy the benefits of large-scale production, which is more economical. So the finished products, which are produced on a large scale, need to be stored properly till they are cleared by sales.
- (iv) Quick Supply - Both industrial as well as agricultural goods are produced at some specific places but consumed throughout the country. Therefore, it is essential to stock these goods near the place of consumption, so that without making any delay these goods are made available to the consumers at the time of their need.
- (v) Continuous Production- Continuous production of goods in factories requires adequate supply of raw materials. So there is a need to keep sufficient quantity of stock of raw material in the warehouse to ensure continuous production.
- (vi) Price Stabilization- To maintain a reasonable level of the price of the goods in the market there is a need to keep sufficient stock in the warehouses. Scarcity in supply of goods may increase their price in the market. Again, excess production and supply may also lead to fall in prices of the product by maintaining a balance of supply of goods, warehousing leads to price stabilization.

ISSUES AFFECTING THE WAREHOUSE

Since warehouses, stores and distribution centers have to operate as essential component elements within supply chains net work, key decisions when setting up such facilities must be determined by the overall supply chain strategies for service and cost. The factors that should be considered include the following.

Market and product base stability Long –term market potential for growth and for how the product range may expand will influence decisions on the size and location of a warehouse facility, including space for prospective expansion. These considerations will also impact on the perceived need for potential flexibility, which in turn can influence decisions on the type of warehouse and the level of technology to be used. Type of materials to be handled: Materials handled can include raw materials, WIP, OEM Auto spare parts, packaging materials and

finished goods in a span of material types, sizes, weights, products lives and other characteristics. The units to be handled can range from individual small items through carton boxes, special storage containers for liquids, drums, sacks, and palletized loads. Special requirements for temperature and humidity may also have to be met in the case of perishables and all of these will impact on the type of warehouses and technology level.

Warehouse Facility: type, size and location. The type of operation, the design capacity and size of a warehouse and its location will all be influenced if not directly determined by its exact role and position in the supply chain network, and the role, capacity and location of any other facilities in the supply chain. The customer base, level of inventory, the need for optimization of inventory, time compression in the supply chain and the overall customer service levels should also be considered when deciding on type, size and location. A further consideration here is whether the warehouse facility should be an own-account operation run by the company or outsourced and run by a 3PL. Inventory and Inventory Location: Within a supply chain network there is an issue not only of what materials to stock and in what quantities, but also in what locations. Options can include distribution centers devoted to specific markets or parts of the product range distribution centers dedicated to serving specific geographic areas, or regional distribution centers that hold for example the fast moving product lines, with the slower lines held only in a Regional distribution centre (RDC). The option depends on such factors as customer base, product range and service levels required. The options on the level of technology have already been noted, and the range can go from very basic installations with high manual input and least mechanization to fully automated and robotic installations. The decision can be influenced by

- 1 Company-wide strategic marketing or employment policies,
- 2 Financial considerations,
- 3 Ability to achieve specified degree of throughput, and
- 4 Required customer service level.

Other factors can include the need for flexible operation to meet important demand fluctuations such as seasonal variations, and the perceived future stability and growth of the market and product range. The level of technology adopted in any particular application should be chosen

because it almost nearly matches the given requirements and objectives. It is not true that automation or similar technologies are accurate in every case. It is true that good, probably computer-based, communication and information systems are vital in every application, irrespective of the technology level. Choice of Unit load: The option of unit load or loads – pallets, roll or cage pallets, tote bins - will be determined by the nature and characteristics of the materials passing through the supply chain, and this clearly encompasses an enormously wide range of goods, unit quantities, and pack types and sizes This may appear as a very important factor more subject to basic operation than to strategic influences. However, within the warehouse it can influence the option of handling equipment and the types of storage systems. In the wider context it will affect transport operations in terms of vehicle loading and unloading and vehicle utilization.

TYPES OF WAREHOUSE

After getting an idea about the need for warehousing, let us identify the different types of warehouses. In order to meet their requirement various types of warehouses came into existence, which may be classified as follows.

- i. Private Warehouses
- ii. Public Warehouses
- iii. Government Warehouses
- iv. Bonded Warehouses
- v. Co-operative Warehouses

Private Warehouses

The warehouses which are owned and managed by the manufacturers or traders to store, exclusively, their own stock of goods are known as private warehouses. Generally these warehouses are constructed by the farmers near their fields, by wholesalers and retailers near their business centres and by manufacturers near their factories. The design and the facilities provided therein are according to the nature of products to be stored.

Public Warehouses

The warehouses which are run to store goods of the general public are known as public warehouses. Any one can store his goods in these warehouses on payment of rent. An individual, a partnership firm or a company may own these warehouses. To start such warehouses a license from the government is required. The government also regulates the functions and operations of these warehouses. Mostly these warehouses are used by manufacturers, wholesalers, exporters, importers, government agencies, etc.

Government Warehouses

These warehouses are owned, managed and controlled by central or state governments or public corporations or local authorities. Both government and private enterprises may use these warehouses to store their goods. Central Warehousing Corporation of India, State Warehousing Corporation and Food Corporation of India are examples of agencies maintaining government warehouses. iv. Bonded Warehouses - These warehouses are owned, managed and controlled by government as well as private agencies. Private bonded warehouses have to obtain license from the government. Bonded warehouses are used to store imported goods for which import duty is yet to be paid. In case of imported goods the importers are not allowed to take away the goods from the ports till such duty is paid. These warehouses are generally owned by dock authorities and found near the ports.

Co-operative Warehouses

These warehouses are owned, managed and controlled by co-operative societies. They provide warehousing facilities at the most economical rates to the members of their society.

FUNCTIONS OF WAREHOUSE

1. Receiving-This includes the physical unloading of incoming transport, checking, recording of receipts, and deciding where the received goods are to be put away in the warehouse. It can also include such activities as unpacking and repackaging, quality control checks and temporary quarantine storage for goods awaiting clearance by quality control
2. Inspection- Quality and quantity check of the incoming goods for their required characteristics

3. Repackaging- Incoming lot may be having non-standard packaging which may not be stored as it is in the respective location. In those cases these materials have to be pre packed in unit loads/pallet loads suitable for storage.
4. Put away – Binning and storing the goods in their respective locations including the temp locations from the receiving docking area.
5. Storage – Binning the approved material in their respective locations.
6. Order-Order picking / selection –Goods are selected from order picking stock in the required quantities and at the required time to meet customer orders. Picking often involves break bulk operations, when goods are received from suppliers in, say, whole pallet quantities, but ordered by customers in less than pallet quantity .order picking is important for achieving high levels of customer service; it traditionally also takes a high proportion of the total warehouse staff complement and is expensive. The good design and management of picking systems and operations are consequently vital to effective warehouse performance
7. Sortation – This enable goods coming into a warehouse to be sorted into specific customer orders immediately on arrival. The goods then go directly to order collation.
8. Packing and shipping – Picked goods as per the customer order are consolidated and packed according to customer order requirement. It is shipped according to customer orders and respective destinations.
9. Cross-docking –Move products directly from receiving to the shipping dock – these products are not at all stored in the specific locations.
10. Replenishing – This is the movement of goods in larger order quantities, for example a whole pallet at a time , from reserve storage to order picking, to ensure that order picking locations do not become empty. Maintaining stock availability for order picking is important for achieving high levels of order fill.

WAREHOUSE STRUCTURE

Warehouse Structure Without WMS