**LSCM --- MODULE 5 UNIT 5.1**

**WAREHOUSE AND WAREHOUSING**

Warehouse is a place where goods are stored for future use whereas; warehousing is an arrangement of goods.  Warehouse is to hold goods for storing purpose only.

Warehousing is when you purchase goods from a manufacturer and store them before they are shipped to another location for fulfillment. In other words Warehousing is the process of storing physical inventory for sale or distribution. Warehouses are used by all different types of businesses that need to temporarily store products in bulk before either shipping them to other locations or individually to end consumers. Warehousing is an essential part of the supply chain for most types of businesses that deal in physical goods. This could be consumer businesses holding a product that eventually makes its way to an end retail customer, or it could be business to business (B2B) companies storing products that eventually make it to business customers. Warehousing is a very important part of the logistics management system. In ecommerce warehousing, products are stored until an order is placed online, which triggers  the order to be  shipped directly to the consumer from the warehouse facility. In retail stores, inventory may be temporarily stored in a warehouse before it’s shipped to a brick and mortar store. Warehousing is important for businesses that import, export, transport and manufacture goods. Having a central location for the products gives control over the products and helps to ensure that the customers receive their orders on time. Keeping everything organized in one place can also save money and boost productivity.

While a small, home-based business might be warehousing products in a spare room, basement, or garage, larger businesses typically own or rent space in a building that is specifically designed for storage. Warehousing also involves the movement and storage of inventory in and out of the warehouse, as well as the tracking of goods and inventory.

Warehouse examples include retail stores, distribution centers, cold storage facilities, and manufacturing plants. In retail stores, items are stored and organized in a warehouse and shipped to customers or other stores. Distribution centers are used to store and distribute goods to multiple locations. Cold storage facilities are used to store temperature-sensitive items such as food and pharmaceuticals. Manufacturing plants may have warehouses to store raw materials, finished products, and other materials.

**ROLE / FUNCTIONS OF WAREHOUSING**

To understand its role, it is better to look at the different functions of warehousing:

 **1.    Storage**

A primary function of a warehouse is offering storage space for inventory, equipment or other items. This provides a facility where businesses can store their goods when they do not need them. It also prevents stock wastage and ensures that their stock is protected and safe. In a warehouse, you can store goods from when they are produced or purchased until their use or consumption. There are two kinds of storage; planned and extended storage. Planned storage is carefully estimated storage intended to meet steady customer demand.

Extended storage is caused by various factors such as promotional campaigns, demand seasonality, or speculative purchases. Promotional campaigns include sales promotions where extra stock must be stored to satisfy the expected higher demand for products. Demand seasonality is when demand rises during different seasons, and additional storage is required for that specific period. Lastly, speculative purchases are sometimes when goods are purchased in bulk due to higher price or lower price expectations in the future, which calls for more storage space.

**2.    Safeguarding Goods**

Warehousing protects stock from theft, loss, or damage due to unfavourable weather conditions, such as wind, dust, moisture and heat, etc. Warehouses can cater for different products and make arrangements to do so. For example, the warehouse can hire security guards to prevent theft, use insecticides to preserve goods, and arrange cold storage facilities for perishable goods. Since warehouse spaces consider all the risks and address them, it will significantly reduce losses due to wastage and spoilage of goods during storage.

**3.    Moving Goods**

The movement of goods consists of inbound activity where goods are unloaded and received by the warehouse. Secondly, there is transfer to storage when goods are transferred from the inbound area to the area for storage. Thirdly, there is order selection when items in the warehouse are chosen corresponding to the order that needs to be shipped and moved to the shipping area. Lastly, outbound activity refers to inspecting and loading goods for shipment. Moving goods inside a warehouse must be seamless as possible as this ensures uninterrupted orders. Therefore, the infrastructure of warehouses and the software systems used must be upgraded regularly.

**4.    Financing**

Financing is another function of a warehouse, and it is a type of inventory financing which involves loans being provided by a financial institution to a company, processor, or manufacturer. Commodities, inventory, or goods are deposited in a warehouse and used as loan collateral. When merchandise is transferred to the warehouse, the depositor will receive a receipt which serves as evidence for the deposit of goods. The warehouses issue a certificate in favour of the owner of the goods, called “Warehouse-keeper’s-warrant”. The warrant can be passed on by simple endorsement and delivery. When the warehouse-keeper is storing goods, the owner can receive loans from financial institutions, and the certificate can be pledged as security. There are instances where warehouses can give money advances to the depositors for a short term where they can retain their goods as security.

**5.    Price Stabilisation**

Warehouses play an essential role in price stabilisation as they assist in controlling violent price fluctuations. They help by storing goods whenever supply exceeds market demand and then releasing the inventory when demand gains pace. Warehouses guarantee a regular supply of goods in the market as they help match supply with demand which is essential for price stabilisation. Whenever there is excess demand in the market, having too much stock flowing may decrease their prices, leading to losses for business owners. Therefore, warehouses would need to hold stock until the demand for the goods rises again.

**6.    Information Management**

Warehouse track and record information about materials and goods being sent into the warehouse and when they are stored and shipped out. The data maintained by the warehouse’s information system must be timely, precise and error-free. This enables warehouse managers and staff to generate accurate insights to ensure stock availability, stock replenishment, and stock processing requirements. The data generated can also be presented to higher management to make better and more informed decisions.

**7. Quality Inspections**

Quality inspections take place in warehouses. Warehouse staff are responsible for ensuring that inventory quality matches the quality that customers and buyers expect. This involves checking goods they receive against the packing list to ensure they align and inspecting goods to ensure they're free of damage from knocks and bumps on the journey. The warehouse offers the perfect space to carry out essential quality control checks and to ensure that the process shown on deliveries is accurate and matches up with the price paid by the company.

**8. Stock Counts**

The warehouse is where most stock counts take place. Most organisations conduct regular stock counts to manually check the amount of inventory in the warehouse at any given time. Warehouse staff sometimes combine these counts with perpetual inventory management systems to provide an accurate view of the company's inventory. Warehouse staff carry out manual stock counts and check whether these line up with existing estimates to identify potential losses from theft, damage and other causes as soon as possible. Annual stock counts are a legal requirement for some businesses, while regular stock counts are logistically useful.

**9. Documentation**

When logistics teams remove goods from the warehouse to dispatch them to their final destination, they also fill out paperwork, including invoices, packing lists and shipping documents to support the removal of the products. Documentation might also include acquiring clearance from transport authorities depending on the route that drivers are due to take. Warehouse staff ensure that all of this documentation is accurate and complete before delivering goods, and the warehouse provides the ideal setting to carry out these checks and complete all paperwork.

**10. Cross-docking**

Cross-docking is the process of transferring goods from inbound to outbound vehicles without storing them in the warehouse in between. This allows for a reduction in inventory costs and an improvement in customer service by reducing the time it takes for products to reach their end consumers. Cross-docking is an essential function of most warehouses because it allows organisations to fulfil customer orders more quickly and reduces storage costs in the long term. Warehouse staff usually carry it out from the warehouse marshalling area, which is where they assemble or unpack goods during receipt or dispatch.

**11. Risk Bearing:**

When the goods are stored in warehouses they are exposed to many risks in the form of theft, deterioration, exploration, fire etc. Warehouses are constructed in such a way as to minimise these risks. Contract of bailment operates when the goods are stored in wave-houses.

**12. Grading and Packing:**

Warehouses nowadays provide the facilities of packing, processing and grading of goods. Goods can be packed in convenient sizes as per the instructions of the owner.

**Conclusion**

When looking at warehousing functions, it can be stated that warehousing plays a crucial role in the success of a business. Monitoring these functions is essential in guaranteeing that all warehouse operations become more efficient.

**TYPE OF WAREHOUSES**

1. **Private Warehouses:** The private warehouses are owned and operated by big manufacturers and merchants to fulfill their own storage needs. The goods manufactured or purchased by the owner of the warehouses have a limited value or utility as businessmen in general cannot make use of them because of the heavy investment required in the construction of a warehouse, some big business firms which need large storage capacity on a regular basis and who can afford money, construct and maintain their private warehouses. A big manufacturer or wholesaler may have a network of his own warehouses in different parts of the country.

Private warehousing, **also known as Proprietary Warehousing**, requires capital investments by the owner. Hence, it’s best for well-established companies. Although it warrants investment in the start, it turns out to be quite cost-effective in the long run.

PROS OF PRIVATE WAREHOUSES

* A higher degree of control over inventory management, such as space utilization, inventory tracking, and team management
* More insight into inventory levels and better control over goods
* Provides a higher return on investment (ROI) for companies that need long-term storage compared to leasing warehousing space
* Less product damage and better brand experience for customers because there’s no intermingling between one company's goods and another's

CONS OF PRIVATE WAREHOUSES

* High capital and operating costs make private warehouses a realistic option only for large, established businesses
* Owners/operators are responsible for the full setup and operation, including building design and construction, registration, hiring, and ongoing maintenance
* Less-than-ideal for businesses with cash flow issues since achieving a positive ROI can take a long time
* Difficult and expensive to create more space to account for spikes in demand, seasonal changes, supply chain disruptions, or handling multiple SKUs(Stock Keeping Unit)
1. **Public Warehouses:** A public warehouse is a specialised business establishment that provides storage facilities to the general public for a certain charge. It may be owned and operated by an individual or a cooperative society. It has to work under a license from the government in accordance with the prescribed rules and regulations. Public warehouses are very important in the marketing of agricultural products and therefore the government is encouraging the establishment of public warehouses in the cooperative sector. A public warehouse is **also known as Duty-Paid Warehouse**. Public warehouses are very useful to the business community. Most of the business enterprises cannot afford to maintain their own warehouses due to huge capital Investment. In many cases the storage facilities required by a business enterprise do not warrant the maintenance of a private warehouse. Such enterprises can meet their storage needs easily and economically by making use of the public warehouses, without heavy investment.

Public warehouses provide storage facilities to small manufacturers and traders at low cost. These warehouses are well constructed and guarded round the clock to ensure safe custody of goods. Public warehouses are generally located near the junctions of railways, highways and waterways.

They provide excellent facilities for the easy receipt, dispatch, loading and unloading of goods. They also use mechanical devices for the handling of heavy and bulky goods. A public warehouse enables a businessman to serve his customers quickly and economically by carrying regional stocks near the important trading centres or markets of two countries.

Public warehouses provide facilities for the inspection of goods by prospective buyers. They also permit packaging and grading of goods. The public warehouses receipts are good collateral securities for borrowings.

1. **Bonded Warehouses:** Bonded warehouses are licensed by the government to accept imported goods for storage until the payment of custom duty. They are located near the ports. These warehouses are either operated by the government or work under the control of custom authorities.

The warehouse is required to give an undertaking or ‘Bond’ that it will not allow the goods to be removed without the consent of the custom authorities. The goods are held in bond and cannot be withdrawn without paying the custom duty. The goods stored in bonded warehouses cannot be interfered by the owner without the permission of customs authorities. Hence the name bonded warehouse.

Bonded warehouses are very helpful to importers and exporters. If an importer is unable or unwilling to pay customs duty immediately after the arrival of goods he can store the goods in a bonded warehouse. He can withdraw the goods in installments by paying the customs duty proportionately. In case he wishes to export the goods, he need not pay customs duty. Moreover, a bonded warehouse provides all services which are provided by public warehouses. Goods lying in a bonded warehouse can be packaged, graded and branded for the purpose of sale.

The private agencies that run bonded warehouses must obtain a government license before getting into this business. Through this mechanism, the government ensures that importers pay their taxes on time. Such warehouses play a crucial role in cross-border trade, making them ideal for [eCommerce businesses](https://www.shiprocket.in/blog/what-is-ecommerce-how-it-operates/) involved in international trade.

Here’s how bonded service warehouses work:

* A business contracts with the bonded warehouse proprietor to store their goods
* The liability for the stored, bonded goods transfers to the warehouse proprietor
* The proprietor pays the duties when the goods are sold from the warehouse
* If the goods or items are not sold or end up being distributed internationally, the proprietor liability and duty tax don’t apply
1. **Field Warehouse**

Field warehouse means a building or other protected enclosure which has been leased or licenced by a person for the purpose of operating a warehouse and issuing warehouse receipts in respect of goods owned by the owner of the premises or third persons. Field warehousing is cost effective alternative rather than owning and operating a facility by the company itself, especially when the need for the warehouse is temporary. A company can choose to rent the warehouse from another company for short term storage needs rather than expending money on construction. A field warehousing arrangement uses a company's inventory as collateral for a loan. The inventory to be used as collateral is segregated from the rest of the inventory by a fence, and all inventory movements into and out of this area are tightly controlled.

Field warehouses are typically used for storing perishable goods, such as food products or flowers, that need to be kept in a controlled environment. A field warehouse may **also be referred to as a Satellite Warehouse.**

Advantages of having a Field Warehouse:

* Allows businesses to store goods closer to their customer base, which can save on shipping costs.
* The owner still has control over their goods, as opposed to renting space in a traditional public warehouse.

Disadvantages of having a Field Warehouse:

* Requires more land than a traditional public warehouse.
* May require special permits or zoning approval.
* The owner is responsible for the maintenance and security of the property.

**FACTORS TO BE CONSIDERED BEFORE PLANNING A WAREHOUSE**

Warehouses are no longer merely places for storing products; they are now focused on providing service and support facilities to companies of all kinds.

To fulfil this new role, they must be properly planned so that it compiles as much information as possible, and its installation fulfills its function and can even adapt to any future needs that may arise. Following are the factors that should be considered before planning a new warehouse:

1. **Product:** Warehouses are used for storing goods, as part of the supply chain. It is essential that we clearly understand all the characteristics of these goods: the load unit used, its dimensions and minimum/maximum weights. The amounts, types and references of each one of them, their sensitivity to different temperatures, and so on, all determine issues as crucial as the storage system to be used, the required dimensions of the shelves and the installation work areas, among others. So, while planning a new warehouse give due consideration to the products and its types.
2. **Space:** The dimensions and characteristics of the warehouse infrastructure are essential and must be very accurate information. They are required for the design of shelves, to calculate the capacity of the installations and the distribution of the goods inside the warehouse. There are also limitations that must be taken into account: access, floors, windows, columns, boxes, lines and power lines are all examples of parts of an installation that influence its planning. Furthermore, there are the building regulations that directly affect the calculations of metal storage structures. These factors are to be taken into account while planning a new warehouse.
3. **Equipment:** Contrary to what one might think, in many cases the planning of a new warehouse does not begin with an empty space. Any such elements as racks, lifts or transport equipment must be taken into account and their characteristics analysed. These components influence the planning proposal. They make it possible to evaluate which planning design best adapts to project needs, any limitations present and/or the need to integrate new equipment.
4. **Flow and rotation:** By flow it means the movements performed in logistical operations, such as dispatch, receipt and order preparation processes. By product rotation it means how often the goods are renewed; that is, a high-rotation product is one that has a high rate of inputs and outputs. Moving loads involves costs, and therefore movements must be minimised, provided that the company operational procedure admits it. Detecting these flows is very important as they contribute to defining the needs of the project and to planning the most efficient installations.
5. **Personnel:** The staff is one of the most important assets of any company. Knowing the number of employees, their level of training, how they are organised, the shifts they work, and other factors, can help refine the proposed planning of the warehouse. The introduction of automated components, warehouse management software and health and safety standards mean that nowadays operators are much more specialised than before.
6. **Management and company policy:** Good warehouse management means that the necessary stock is available; the warehouse provides the best possible service, has a high level of occupancy and optimises internal operation times, among many other things. It is therefore a basic factor. Understanding how installations are managed allows assessing their effectiveness and defining which processes can be optimised during their design and planning. For example, a change in the way the shelves are distributed can simplify the picking processes. Today, the trend is increasingly geared towards professional facilities using warehouse management software (WMS) to ensure the control of all these processes.
7. **Handling equipment and machinery:** It is necessary to analyse the types and quantity of each tool that will be needed for efficient operation in the work area. The loading, transport and management capacity of the technical resources must be considered before finalising the layout of the warehouse. Sometimes the storage system chosen will necessitate the specific use of a type of handling equipment.
8. **Human resources:** Material resources should not be the only factor considered when designing the warehouse layout. An ambitious space distribution proposal is of little use if the organisation does not have sufficient capacity to count on the necessary personnel and also carry out its activity in maximum safety and in the appropriate facilities.
9. **Electrical Requirements:** This is an often-overlooked aspect of a new building. If you have a fleet of lift trucks and stock pickers, you want to ensure the facility has enough capacity to support the charging requirements. Even small to mid-sized facilities can present challenges. Often times, lifts require 480V 3Phase, but not every facility handles this capacity. One solution is running new service, which requires permitting and could take at least two months. A quicker potential solution is asking if your lift truck manufacturer offers an alternate charger.
10. **Working Environment:** For most companies, warehouses are not conditioned spaces. However, sufficient airflow and ventilation is critical. Companies should consider the functions being performed, such as pick zones and assembly, and the working conditions in these spaces. For companies requiring climate controlled or humidity-controlled space, you may need to outfit a pre-existing facility. It is important to accurately determine the current and long-term needs for the facility.
11. **Picking:** Order picking is the most labour intensive operation in the warehouse. The objective is to get the correct product to the customer in the shortest time while maintaining high productivity. Regardless of the method you choose, order picking is simply the process of pulling out the right products from a warehouse for an order. It's the first step in an order fulfillment process, so if a warehouse gets the order picking process right, then they're one step closer to reaching customer satisfaction.
12. **Layout:** A warehouse layout is the planned design of a warehouse to streamline overall operations. The right layout should help to improve the flow of production and distribution.

Each of these factors influences the planning to a greater or lesser extent, in accordance with the needs and characteristics of each business.