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Certified Warehouse Manager

Sample Material

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V-Skills

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1. ROLE OF A WAREHOUSE

1.1 Introduction

A distribution centre for a set of products is a warehouse or other specialized building, often with refrigeration or air conditioning, which is stocked with products /goods to be re-distributed to retailers, wholesalers or directly to the consumers. A distribution centre is a primary part, of the order processing element, of the entire order fulfillment process.

One of the key benefits of a distribution centre is the structure of supply network set up which allows a single location to stock a vast number of products. Some organizations operate both retail distribution and direct-to-consumer distribution out of a single facility, sharing space, equipment, labour resources and inventory as applicable. A typical way in which a retail distribution network operates is by setting up centres throughout a commercial market where each centre will then serve a number of stores. Large distribution centres for companies such as Wal-Mart serve 50-125 stores. How it works is? Supplier's ship truckload of products to the distribution centre and the distribution centre then stores the product until needed by the retail location and then ship the product quantity as required.

1.2 Benefits of Warehousing

The various benefits of having a warehouse are,

1.2.1 Consolidation

One of the economic benefits of warehousing is shipment consolidation. With the given arrangement, the consolidating warehouse receives and consolidates materials from a number of manufacturing units destined for a specific customer in a single transportation shipment. The principal benefit of a warehouse is the realization of the lowest possible transportation rate and reduced congestion at a customer's receiving dock which helps in logistical flow of several small shipments to a specific market area. Another benefit of consolidation warehousing is that it may be used by a single firm, or multiple firms may join together and use a for-hire consolidation service. Thus, each individua1 manufacturer or shipper enjoys lower total distribution cost than could be realized on a direct shipment basis individually.

1.2.2 Breaking the bulk

Breaking the bulk is a warehouse operation similar to consolidation in which no storage function is performed. A break bulk operation receives combined customer orders from manufacturers and ships them to individual customers. This function involves sorting or splitting of individual orders in a warehouse in order to arrange for local delivery since long-distance transportation movement of a large shipment involves lower transportation costs and less difficulty in tracking.

1.2.3 Processing (Postponement)

Another advantage of a warehouse is that it can also be used to postpone, or delay, production by performing processing and light manufacturing activities. A warehouse performing packaging or labeling activities have the capability to allow postponement of final production until actual demand is known. Postponement allows minimization of the risk as the final packaging is not completed until an order for a specific label and package has been received. Also, the required level of total inventory can be reduced by using the basic product for a variety of labeling and packaging configurations.

1.2.4 Stockpiling

An economic benefit of stockpiling arises from the need of seasonal storage. Stockpiling helps in maintaining inventory buffer, which allows production efficiencies within the constraints imposed by material sources and the customer.

1.2.5 Service Benefits of Warehousing

The various service benefits are,

Spot stocking

Under spot stocking a selected amount of a firm's product line is placed in a warehouse to fill customer orders during a critical marketing period. Instead of holding inventory in warehouse facilities on a year-round basis or shipping directly from manufacturing plants, delivery time can be substantially reduced by advanced inventory commitment to strategic markets. The utilization of warehouse facilities for stock spotting helps in placing the inventories in a variety of markets adjacent to key customers just preceding to a maximum period of seasonal sales.

Assortment

Assortment operation helps to stock product combinations in anticipation of customer orders. The assortments may require multiple products from different manufacturers or special assortments as specified by customers.

The basic difference between stock spotting and complete line assortment is the degree and duration of warehouse utilization.

- ✓ Stock spotting typically involves a narrow product assortment and place stocks in a large number of small warehouses dedicated to specific markets for a limited time period where on the other hand distribution assortment usually involves a broad product line, which is limited to a few strategic locations, and is functional year-round.
- ✓ The combined assortments also allow larger shipment quantities, which helps reduce the overall transportation cost.

Mixing

It involves truckloads of products being shipped from manufacturing plants to warehouses. In mixing situation each large shipment enjoys the lowest possible transportation rate such that upon arrival at the warehouse, factory shipments are unloaded and the preferred combination of each product for each customer or market is selected.

Production support

The function of a production support warehouse is to supply processed materials, components, and subassemblies into the assembly plant in time yet economically. Safety stocks on items purchased from outside vendors may be justified because of long lead times or significant variations in usage.

Market presence

Market presence factor is based on the belief that local warehouses can be more responsive to customer needs and offer faster delivery than more distant warehouses. This will enhance market share and potentially increase profitability.

1.3 Functions of Warehouses

Following are the various functions of a warehouse,

1.3.1 Warehouse Performs Storage Function

There are two types of storage actions performed,

Planned Storage: Planned storage is the storage required as planned to meet the regular customer demand. The inventory received in the warehouse requires storage for a certain period of time where the duration of storage may vary.

Extended Storage: Extended storage involves storage of inventory in excess of normal warehouse operation. Some of the reasons for extended storage requirements are seasonal demand, erratic demand, discounts, speculative purchases, product conditioning, etc.

- ✓ In order to meet the erratic or seasonality in demand an additional storage of goods in terms of safety stocks could be required.
- ✓ Some products such as food items may be stored for conditioning purposes.
- ✓ Sometimes a firm may buy bulk quantities to avail the discounts that are available or to purchase when the price is low. This is speculative purchases as the goods are bought at a higher quantity due to lower price or due to expectation of higher price in the future.
- ✓ Sometimes due to promotional campaigns such as sales promotion, additional stock may be required to be kept to meet the expected higher demand for the product.

1.3.2 Smooth Movement of Goods

Movement of goods involves inbound activity i.e., unloading of goods brought to warehouse, transfer to storage by transferring the goods from the inbound area to the storage area, order selection involves selection of good in the storage as per order to be shipped and transferring it to shipment area and outbound activity involving checking and loading the gods for shipment.

1.3.3 Managing Information

It helps in keeping a track of information regarding goods that have arrived at the warehouse, stored and shipped out of the warehouse. All the required information relating to the warehouse is stored. All the data is captured by the information system in

the warehouse is then passed on to the higher management in order to take better decisions.

1.3.4 Protection of Goods

Warehouse provides protection to goods from loss or damage due to heat, rain, dust, wind etc. It requires special arrangements for different types of products as per their respective nature. Warehouses help in cutting down losses due to spoilage and wastage during storage.

1.3.5 Bearing the Risk

Warehouses aids in taking over the risks incidental to storage of goods. When the goods are received in a warehouse then it is the responsibility of, these goods passes on to the warehouse-keeper. The risk of loss or damage to goods in storage is thus borne by the warehouse keeper. The warehouse is bound to return the goods in good condition and is responsible for any loss, theft or damage etc. Therefore, they take all precautions to prevent any kind of mishap.

1.3.6 Warehouse Financing

For goods deposited in any warehouse, the depositor gets a receipt, which acts as a proof about the deposit of goods. The warehouses can also issue a document in favour of the owner of the goods, which is called warehouse-keeper's warrant. This warrant is a document of title and can be transferred by simple endorsement and delivery. The businessmen can also obtain loans from banks and other financial institutions by keeping this warrant as security. In some cases, warehouses also give advances of money to the depositors for a short period keeping their goods as security.

1.3.7 Processing

There are certain commodities which are not consumed in the form they are produced. It requires some processing to make them consumable. Sometimes warehouses also undertake these activities on behalf of the owners.

1.3.8 Grading and Branding

Warehouses also perform the functions of grading and branding of goods on behalf of the manufacturer, wholesaler or the importer of goods. It also provides facilities for mixing, blending and packaging of goods for the convenience of handling and sale.

1.4 Need for Holding Stock

1.4.1 Meeting Unexpected Demands

Business must be ready to meet the requirements of the consumers for goods and services when they need them. Thus, businesses usually stock up their inventories to meet these unexpected demands. Consumer demands may result in overcrowding of inventories because it is not known when the consumers would flock to buy the items.

1.4.2 Smoothing of Seasonal Demands

With the changing seasons and comings and goings of major events, most businesses have inventories at hand to smoothen the seasonal demands.

1.4.3 Benefit from Price Discounts

When a business purchases goods in bulk from manufacturers or suppliers, they usually get price discounts if they buy in bigger bulks. Manufacturers and suppliers give these discounts to attract and maintain regular buyers. Taking advantage of price discounts is helpful at times but one must always remember not to overstock the inventory because inefficient buying may cause failure of the business.

1.4.4 Hedging against Price Rise

Businesses usually hold inventory to avoid from the ever fluctuating market price of inventories. Thus, by having efficient and good inventory system, businesses can control their inventory cost.

1.4.5 Getting Quality Discounts

When businesses have inventory in store, they can get quality discounts because they know which goods and services to buy from the suppliers and manufacturers. It helps to learn where to get better deals than no deal at all.

1.5 Characteristics of Warehouses

- ✓ **Location:** Warehouse should be located at a convenient place near highways, railway stations, airports and seaports where goods can be loaded and unloaded easily.
- ✓ **Handling Cost:** Mechanical appliances should be there to loading and unloading the goods. This reduces the wastages in handling and also minimizes handling costs.

- ✓ **Space:** Adequate space should be available inside the building to keep the goods in proper order.
- ✓ **Storage Facilities:** Warehouses meant for preservation of perishable items like fruits, vegetables, eggs and butter etc. should have cold storage facilities.
- ✓ **Protection:** Proper arrangement should be there to protect the goods from sunlight, rain, wind, dust, moisture and pests.
- ✓ **Loading/Unloading:** Sufficient parking space should be there inside the premises to facilitate easy and quick loading and unloading of goods.
- ✓ **Security:** Round the clock security arrangement should be there to avoid theft of goods.
- ✓ **Fire & Safety:** The building should be fitted with latest fire-fighting equipments to avoid loss of goods due to fire.

1.6 Warehousing Efficiency and Effectiveness

Continuing globalization and changes occurring in such areas as reverse logistics, environmental sustainability, information technology, and overall supply chain integration enforce to further evolve the strategies, roles, and responsibilities for warehouses. Recently the term Distribution Center (DC) is considered much more appropriate in representing the broad range of activities that now occur in modern warehouses that go beyond filling customer orders to provide an ever expanding array of value added services.

There may be number of situations where DC's simply would add cost to the supply chain rather than adding value. DC's add little or no value to products bought in bulk (e.g. raw materials, manufactured items) with little or no time sensitivity associated with their use. Products that are insensitive to transportation costs typically move directly to customers.

However, for other products DC's provide a dual value-added role making supply chains more efficient and more effective. DC's may add efficiency by consolidating products for shipment to customers, reducing transportation costs, and performing a broad range of value added services such as branding, labeling, assembly, packaging, kitting, reverse logistics. By strategically positioning the distribution centers, products and services get placed closer to major markets and customers. Optimization strategies are utilized for positioning the product availability and delivery as a competitive

advantage while also optimizing the cost trade-offs associated with transportation, facilities, equipment, workforce, and other critical cost variables.

Distribution centers also facilitate time utility by storing product until it is demanded. Product types often help in determining the need for and specific role of DC's in the supply chain. Characteristics to be considered include,

- ✓ Seasonality in either production or consumption
- ✓ Demand variability
- ✓ Manufacturing economics
- ✓ Marketing and promotional initiatives
- ✓ Transportation economics
- ✓ Service requirements
- ✓ Customizability and variants of product

Products which have extremely high service requirements from a time perspective, poses unique challenges as they may affect the efficiency, performance, and cost of customers' operations. When demand is unpredictable it is suggested to assemble and ship to order. Inventories remain generic providing more flexibility and thereby reducing costs. Company must be capable to determine the requirements of distribution channel such as location, design and operations, determining the information and technology requirements, and performance measurement in order to achieve successful networks and operations.

1.6.1 Location

In addition to transportation costs, the location of the distribution channel is determined based on the location of major markets and customers, the location of supply points, the volume of product moving to or from supply points and customers, transportation rates, the level of service required, and the product characteristics. Local conditions including access and cost of labor, land and buildings, IT/communications infrastructure, transportation infrastructure, and government policies (e.g. environment, incentives, taxes) also play a significant role in determining location.

1.6.2 Design & Operations

The primary determinants of design and operations of a distribution center are how the product is received, service levels, nature of customer orders, and transportation mode

etc. Product characteristics include weight and dimensions, packaging, shelf life, temperature and lot control requirements, and hazardous material requirements. How the product is received is critical to both inbound operations efficiency (dock to stock cycle time) and space utilization/storage efficiency.

In order to optimize the efficiency in inbound operations it is very important to receive material in an immediately storable conveyance such as a pallet, case or a box. Also the types and volumes of orders that are processed and the number of stock-keeping units (SKU's) in the distribution channels are important in determining layout, equipment selection, and business process requirements. Storage equipment selection should be matched to product characteristics, volume, and any additional unique requirements.

Note, considering automation in order to reduce transit time in the distribution center almost always represents an opportunity for improved efficiency. Automation of other processes such as receiving, locating/storage, order filling may become a critical constraint particularly if there is a significant variation in demand, change in product characteristics, or change in product mix.

1.7 Information and Technology Requirements

Information and technology is a critical driver for successfully handling operations in a distribution channel. Short term forecasts help in determining labor and space requirements over a short term planning horizon where on the other hand long term forecasts are used for capacity planning. Information technology is critical in achieving efficient performance. Warehouse Management Systems (WMS) direct where products should be stored and provide the necessary functionality for the completion and optimization of receiving, storing, and shipping operations, additional functionality may permit the use of hand held devices and bar coding to optimize efficiency and reduce errors. Most WMS systems also include inventory management functionality that permits the distribution channels to have real time information on the inventory status of all items in the distribution channels.

1.8 Measuring Performance

The key objectives of any distribution channel include providing the right product, at the right place, right time, and damage free at a competitive cost. Fundamental to achieving and sustaining these objectives is measuring performance. The most

common performance measures are handling productivity, space utilization, accuracy, damage, service, cost, and inventory.

- ✓ Handling productivity is often measured in units or lines picked per hour or total handling cost per unit.
- ✓ Space utilization is evaluated based on the percentage of total space available for storage, percentage of useable storage space actually used for storage, and storage cost per unit of product.
- ✓ Accuracy involves measures of location and record accuracy, the percentage of items picked correctly, and the percentage of orders picked correctly.
- ✓ To measure the damage, percentage of items picked that are undamaged when received by the customer are considered and the percentage of orders picked without damaged merchandise are considered.
- ✓ Service as a measures of performance include fill rate which is based on the number of orders that were filled completely.
- ✓ Cycle time is also a critical performance measure to determine service and efficiency where dock to stock cycle time is a critical measure of how long it takes to make material available following receipt and order cycle time measures the elapsed time from order receipt until order shipment. Order cycle time may also include transportation to measure the total elapsed time until the customer receives the product.
- ✓ Cost and inventory is a performance measure which includes total distribution centre cost per unit handled, distribution centre cost as a percentage of sales, and inventory turnover.