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MINISTRY OF SKILL DEVELOPMENT
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Transforming the skill landscape

LSC
Logistics Skill Council

Participant Handbook
Not for Sale - For Internal Circulation only

Sector
Logistics

Sub sector
Land Transportation

Occupation
Consignment Booking Assistant

Reference ID: **LSC/Q1120, Version 1.0**

NSQF Level 3

Consignment Booking Assistant

> " Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission. "

Shri Narendra Modi
Prime Minister of India

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Acknowledgements

We thank the following organizations for endorsing the contents of this Participant Handbook, thus contributing towards skilling based on the Qualification Pack (QP) and National Occupational Standards (NOSs).

About this book

This Participant Handbook is designed to facilitate training to the Consignment Booking Assistant Qualification Pack (QP). It provides learners with the necessary knowledge relating to major topics in booking of a consignment such as the operations involved in booking, paperwork to be prepared, the loading arrangements available, planning requirements for the LTL and FTL, vehicle audit, handling the customers on and off their presence, paper works required, post operations, human resource management in a warehouse environment. Its decision-making orientation provides a real-world approach focusing on large and small transportation companies.

The book elaborates how Individuals in this position interact with customers and by understanding Internal and external customer needs, performing booking on time and meeting the organization needs in working cordially within the team.

This handbook also provides the latest information on current advancements in technology and its impact on the industry. Many modules have been revised to capture the diversity, varied perspectives, and current spirit of transportation service.

The handbook is divided into 4 NOSs. NOSs are Occupational Standards which have been endorsed and agreed to by the Industry Leaders for various roles. The NOSs are based on the educational, training and other criteria required to perform the job/role of a trainee associate.

 Key characteristics of this handbook:

(i) It discusses the concept of booking operations in an easy to learn manner.
(ii) It presents concepts in the interactive and professional way.
(iii) It gives the opportunity to learners to visualize themselves in a professional booking set-up

Symbols Used

Key Learning Outcomes

The key learning outcomes are listed at the beginning of each module. These outline the focus areas that the learners will cover in every module.
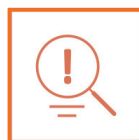
Tips

Wherever possible, tips are included in every module. They provide additional insight to learners on a particular topic being discussed.

Steps

These provide step-by-step instructions for a specific process.

Notes

Notes at the end of each module is a space for learners to list down their key points related to the topic.

Time

This refers to the time specified for the completion of each module. The time in number of hours is mentioned at the beginning of each module.

Unit Objectives

These are listed at the beginning of each unit under every module. They highlight the focus areas that the learners will cover in every unit.

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Logistics Skill Council

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Unit 1.4 - Roles of Consignment Booking Assistant

Key Learning Outcomes 💡

At the end of this module you will be able to:

1. Describe Supply Chain and Logistics Management

2. Explain transportation industry and opportunities in it

3. Define your job roles and responsibilities

4. Narrate the activities in warehouse

5. Explain the importance of warehouse

6. Describe the organizational structure in warehouse

7. Describe about the employment opportunities in the warehouse

8. Describe the functions involved

9. Know the pre requisites of joining the industry

UNIT 1.1 - Supply Chain Management

Unit Objectives 🎯

At the end of this unit you will be able to:

1. Define Supply Chain and Logistics management

2. Define Logistics Management

3. Explain the important flows in Supply Chain Management

1.1.1 What is Supply Chain Management?

Supply Chain Management envelops all activities starting from point of origin through point of consumption till End of Life of the Product or Service. It includes Planning and execution part of satisfying the customers' demand.

Supply Chain definition The movement of materials as they flow from their source to the end customer. Supply Chain includes purchasing, manufacturing, warehousing, transportation, customer service; demand planning, supply planning and Supply Chain management. (Source: CII-IL, SCM pro, Module 1)

Supply chain management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance, and information technology.

1.1.2 What is Logistics Management?

Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements. (Source: CSCMP)

Supply chain management essentially ensures three flows:

a. Product flow / Service Flow

b. Information Flow

c. Finance/Money Flow

Fig 1.1: Supply Chain Flow

The product flow is the movement of goods from supplier to customers and customer to manufacturer in case of any customer returns or service requirements.

The information flow covers updating the status of the delivery as well as sharing information between suppliers and manufacturers. Information flow is supposed to happen on a real time basis, without any distortion and delay to ensure demand is met with correct supplies. The information flow in the supply chain includes the market signaling amongst the supply chain members regarding end-user preferences.

The finance flow is the result of first two flows that encompasses credit terms, payment schedules and consignment and title ownership arrangements.

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1.1.3 Introduction to Supply Chain Management

A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply chains exist in both service and manufacturing organizations, although the complexity of the chain may vary greatly from industry to industry and firm to firm.

Supply chain management is typically viewed to lie between fully vertically integrated firms, where the entire material flow is owned by a single firm and those where each channel member operates independently. Therefore coordination between the various players in the chain is key in its effective management.

Below is an example of a very simple supply chain for a single product, where raw material is procured from suppliers, transformed into finished goods in a single step, and then transported to distribution centers, and ultimately, customers. Realistic supply chains have multiple end products with shared components, facilities and capacities.
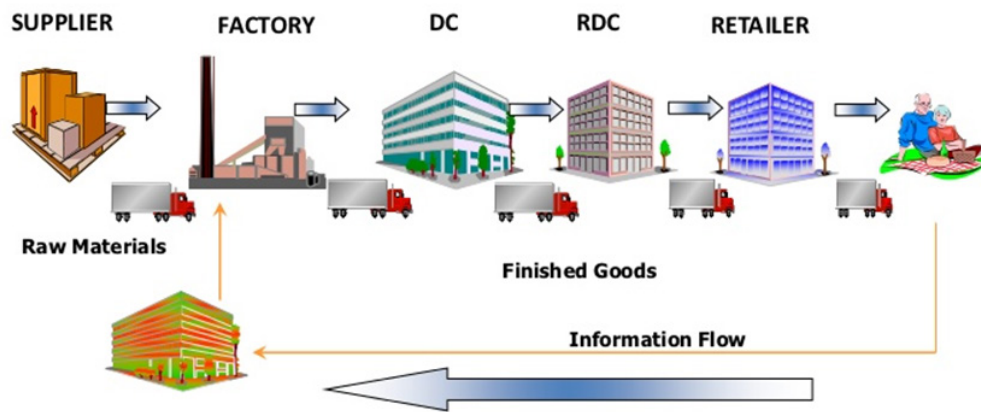
Fig 1.2: Supply Chain Flow

Components of Supply Chain Management

The following are the five basic components of Supply Chain Management:
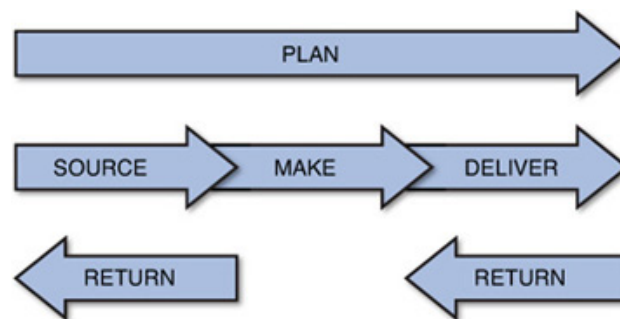
Fig 1.3: Supply Chain Flow

1. Plan:

This is the strategic portion of SCM. You need a strategy for managing all the resources that go toward meeting customer demand for your product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

2. Source:

Choose the suppliers that will deliver the goods and services you need to create your product. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And put together processes for managing the inventory of goods and services you receive from suppliers, including receiving shipments, verifying them, transferring them to your manufacturing facilities and authorizing supplier payments.

3. Make:

This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, measure quality levels, production output and worker productivity.

4. Deliver:

This is the part that many insiders refer to as logistics. Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

5. Return:

The problem part of the supply chain is returned to the supplier from customer. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

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UNIT 1.2 - About the Course

Unit Objectives 🎯

At the end of this unit you will be able to:

1. Describe organizational structure in Land Transportation

2. Explain what is a Consignment booking

1.2.1 Consignment Booking Executive

The Consignment booking is a core logistics activity, one that cannot be entirely automated away-at least not in the near future. Logistics employee's jobs are changing to incorporate more duties once associated with other logistics activities, especially purchasing, inventory control, and customer service. Specifically, a Consignment booking executive needs detailed knowledge of operating tasks along with significant management skills.

In this course we'll discuss the importance of logistics, consignment booking and the skills and techniques you can use to ensure safe operation and incident prevention.
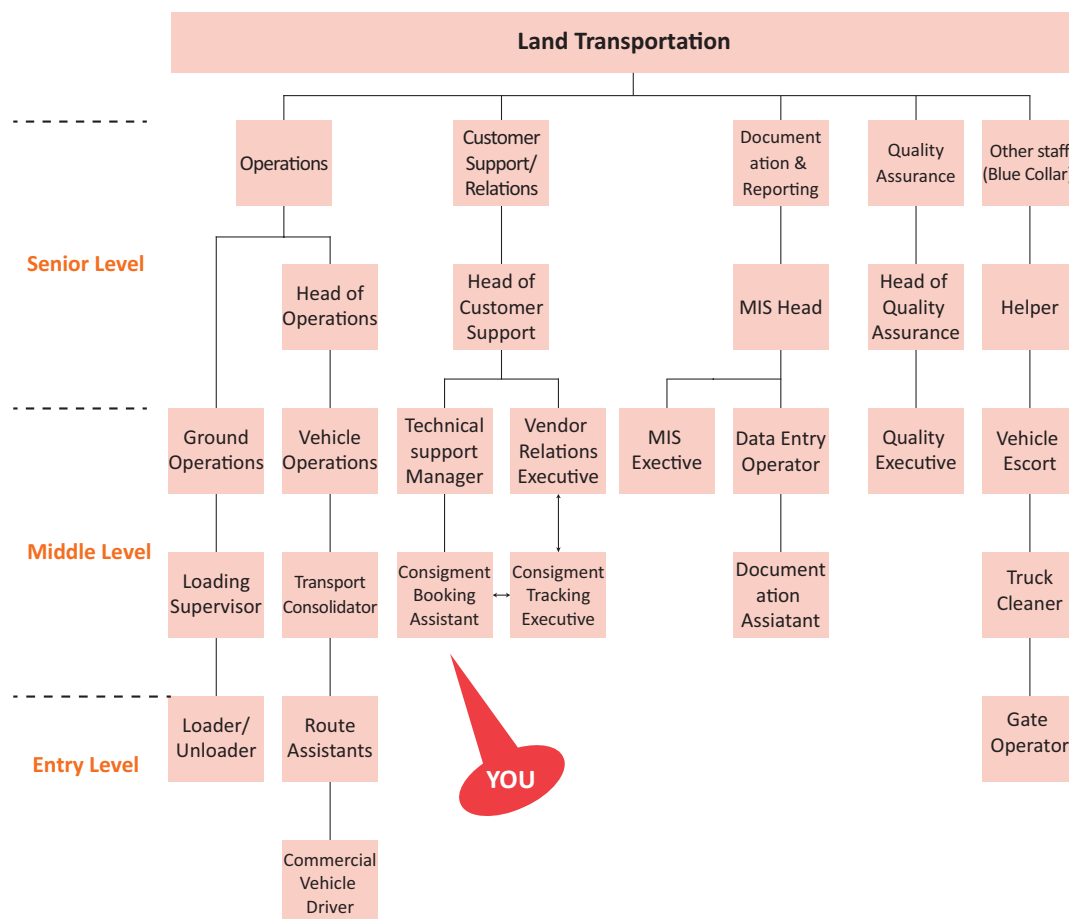

Chart 1: Organization Structure

1.2.2 Objective of the Course

The main objective of this course makes individuals to understand general concepts and procedures in Consignment booking in manufacturing and in warehousing industry.

Train them on the basic Workplace Requirements, Safe Operation of the machine and technology

Make individual to Perform booking the consignment for a facility/customer (warehouse or manufacturing plant), to re-schedule consignments, accessible globally in order to have a wide network coverage and increases customer confidence, truck availability & re-scheduling /merging which improves delivery efficiencies to the consignee.

The new booking executive will learn how to provide a solution to schedule, book, plan and organize consignment.

The individual in this role as a consignment booking executive will understand how booking of vehicles, and optimizing truck utilization helps reducing logistic costs, reducing manual checks, increasing productivity, increasing revenue, and saving valuable time

1.2.3 Warehouse processes

Of all warehouse processes, order picking tends to get the most attention. It's just the nature of distribution and fulfillment that you generally have more outbound transactions than inbound transactions, and the labor associated with the outbound transactions is likely a big piece of the total warehouse labor budget. Another reason for the high level of importance placed on order picking operations is its direct connection to customer satisfaction. The ability to quickly and accurately process customer orders has become an essential part of doing business.

The methods for order picking vary greatly and the level of difficulty in choosing the best method for your operation will depend on the type of operation you have. The characteristics of the product being handled, total number of transactions, total number of orders, picks per order, quantity per pick, picks per SKU, total number of SKUs, value-added processing such as private labeling, and whether you are handling piece pick, case pick, or full-pallet loads are all factors that will affect your decision on a method for order picking. Many times a combination of picking methods is needed to handle diverse product and order characteristics.

Key objectives in designing an order picking operation include increases in productivity, reduction of cycle time, and increases in accuracy. Often times these objectives may conflict with one another in that a method that focuses on productivity may not provide a short enough cycle time or a method that focuses on accuracy may sacrifice productivity.

- Productivity. Productivity in order picking is measured by the pick rate. Piece pick operations usually measure the pick rate in line items picked per hour while case pick operations may measure cases per hour and line items per hour. In pallet pick operations the best measure is actual pallets picked per hour. Since the actual amount of time it takes to physically remove the product from the location tends to be fixed regardless of the picking method used, productivity gains are usually in the form of reducing the travel time.

- Cycle Time. Cycle time is the amount of time it takes to get an order from order entry to the shipping dock. In recent years, customer's expectations of companies to provide same day shipment has put greater emphasis on reducing cycle times from days to hours or minutes. Immediate release of orders to the warehouse for picking and methods that provide concurrent picking of items within large orders are ways to reduce cycle times.

- Accuracy. Regardless of the type of operation you are running, accuracy will be a key objective. Virtually every decision you make in setting up a warehouse will have some impact on accuracy, from the product numbering scheme, to the design of product labels, product packaging, the design of picking documents, location numbering scheme, storage equipment, lighting conditions, and picking method used. Technologies that aide in picking accuracy include pick-to-light systems, counting scales, and bar code scanners. Beyond the design aspects of an order picking operation, employee training, accuracy tracking, and accountability are essential to achieving high levels of accuracy.

Notes

UNIT 1.3 - Importance of Warehouse in Supply Chain

Unit Objectives

At the end of this unit you will be able to:

1. Explain the importance of a Warehouse in supply chain

2. Describe the various activities carried inside a warehouse

3. Narrate the significance of policies and procedures

1.3.1 Why we need a warehouse?

A Warehouse is a place used for storage or collecting of goods, so as to make things available as and when required. There can be different types of goods stored inside a warehouse such as FG-Finished goods, WIP-Work in progress goods, RM-Raw materials etc. Below mentioned figure depicts the different types of goods stored inside a Warehouse and its forms
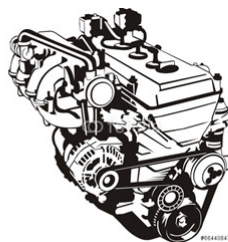
RM - Raw Material   WIP - Work in Progress   FG - Finished Goods
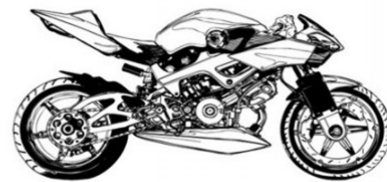
Fig 1.4: Inventory Types

Functions of warehousing includes Transportation consolidation, Product mixing, Docking, Service, Protection against contingencies etc.
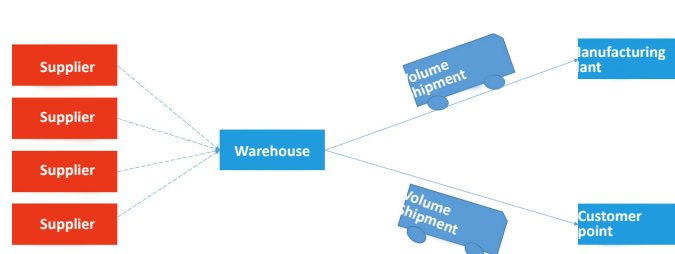
Fig 1.5: Transportation Consolidation

Fig 1.6: Docking Services

1.3.2 Warehouse Activities

After goods are received and before goods are shipped, a series of internal warehouse activities take place to ensure an effective flow of inventories (goods) throughout the warehouse and to organize and maintain company inventories. The following list includes the activities found in most of the warehouses;

1. **Receiving** - Schedule Carrier, Unload Vehicle, Inspect for damage

2. **Put Away** - Identify Product, Identify Product Location, Move Products, Update Records

3. **Storage** - Storage location by popularity, size, cube etc, equipment storage

4. **Order Picking** - Information, Walk & Pick, Batch Picking

5. **Shipping** - Schedule Carrier, Load Vehicle, Bill of Loading, Record Update
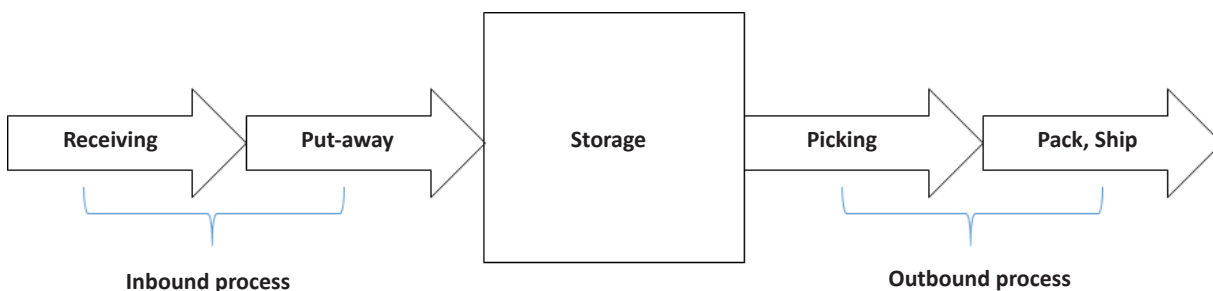
Fig 1.7: Warehouse Activities

1.3.3 Introduction to warehouse operations

A warehouse receives stores, reorganizes and repackages products. When products arrive at the warehouse, those will be in larger units such as pallets and when it shipped to customers has to be packed and sent in relatively smaller sizes as cases and individual units. So, the downstream activities are usually labor extensive. This is very true when the product is handled in individual units. For example, to move 10,000 individual boxes of paper clips, the involvement of labor force would be extensive. But, for moving 48 case boxes, the labor requirement is relatively low. It will be even lower for moving a pallet stacked with 24 cases. Ultimately warehouses receive bulk shipments, store them in order to facilitate faster retrieval and them picked, sorted and repacked to smaller units as per customer requirements.

The reorganization of a product involves the following processes.

1. Inbound Processes
   * Receiving
   * Put-away
2. Outbound processes
   * Processing customer orders
   * Order-picking
   * Checking
   * Packing
   * Shipping

1.3.4 Warehouse Management System - An Introduction

A Warehouse Management System is software used to manage and track the warehouse activities. The primary purpose of WMS is to control the movement and storage of goods and to process the transactions associated with the material movement. This is generally built around an industrial strength relational database product such as Oracle, Informix, DB2, Sybase or other. The activities of WMS includes but not limited to directed picking, directed replenishment and directed put away. The basic logic will use a combination of item, location, quantity, unit of measure and order information to determine where to stock and in what sequence to perform these operations.

Fig 1.8: Warehouse Management System
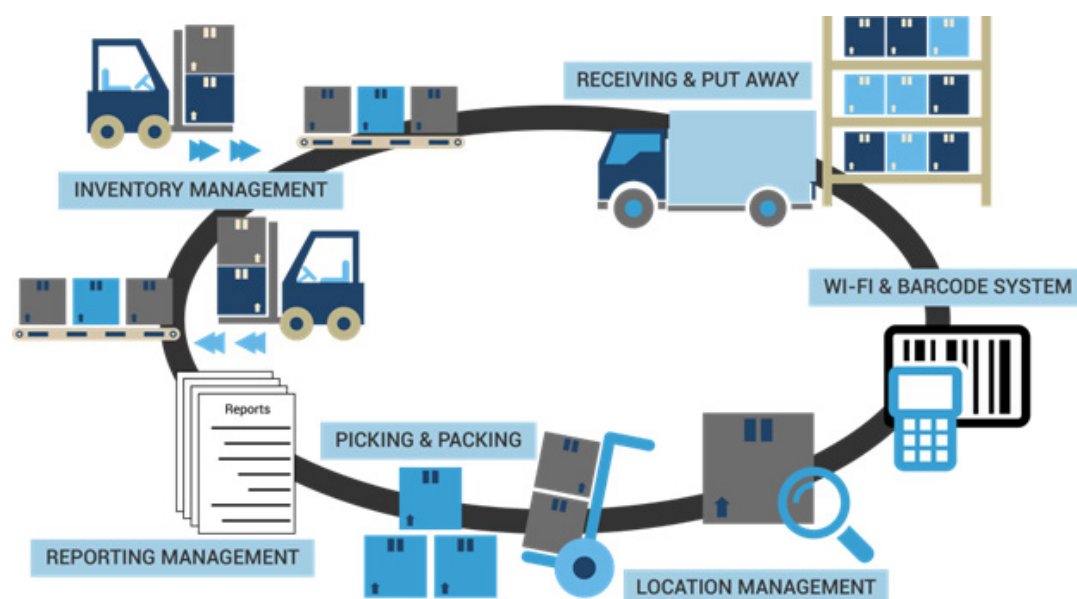
WMS helps in reducing inventory costs while increasing overall efficiencies. WMS includes

- Warehouse capacity management
- Load Planning
- Cross docking
- Picking optimization
- ABC Stratification

The benefits of WMS includes

- Higher space utilization
- Transparency in storage and accuracy
- Reduction of Inventory carrying cost
- Decrease in shipping errors and thereby cost.

1.3.5 Prerequisites for WMS Implementation

WMS requirements are quite extensive. The characteristics of each SKU and their location must be maintained either at the detailed level or by grouping similar items and locations into categories. For example, each SKU characteristics at detailed level includes the weight of an unit and unit measure in which the item is stocked (cases, pallets) and information such as the possibility of mixed storage with other SKU s, feasibility of racking, maximum stack height, maximum quantity per location, hazardous classification, nature of the item (raw material or finished good), popularity of the item etc. But, only some operations require individual item information as mentioned above and most other operations will benefit by creating groups of similar products.

System will decide on the location from which the items are to be picked, replenish into and put-away to. These have to follow a specific logic that has to be assigned to various combination of item/location/order that is likely to occur. Let us have a look at few of such logics below.

Location sequence:

The flow through the warehouse is defined and each location is assigned with a sequence number. In order picking, the sequence numbers will help the movement inside the warehouse. But, in put-away the logic would look for the first location in the sequence in which the product can be stored.

Zone Logic:

Direct picking, put-away and replenishment to and from specific areas can be done by breaking the storage locations in to various zones. This logic has to be combined with some other logic to determine the exact location within the zone as zone logic can specify the area alone.

Fixed location:

Determining fixed locations for specific items that facilitates direct picking, replenishment and put-away. Fixed locations are often used as primary picking locations in piece or case picking.

Random Location:

Random locations are referred as the fixed locations that are not assigned with any items. However, some other logic has to be combined to point out the exact location.

First-in-first-out:

Picking directed to older inventories first.

Last-in-first-out:

This is appropriate for handling perishable products for exports. This logic is the opposite of the previous one; picking from the latest inventory first.

Unit of measure or quantity:

Picking based on the quantity or unit-of-measure mentioned in the order. For example, if the order is for 20 items, pick from the fixed locations and for more than 20 go to reserve storage locations.

Fewest Locations:

This logic concerns much around the productivity. Pick-from-fewest needs quantity information to allocate least number of locations to store the items. Ultimately the logic finds the fewest possible locations to store the entire quantity of items. Even though, it is attempting to reduce the put-away time and increase the efficiency, it does not hold good in terms of space utilization. Pick-from-fewest will leave small quantities of items scattered in the warehouse and put-to-fewest leaves small locations empty.

Reserved locations:

In case of requirement of predetermined specific locations to put-away or pick-from, this logic can be used. While attempting to cross dock, reserved locations can be used to move the specified items to inbound shipping or staging or directly to an awaiting outbound trailer.

Nearest location:

This logic looks for the closest location required to put-away or pick from. During setup, it is better to test whether the logic is choosing the shortest route or closest location. The logic always chooses a straight line route for calculating the shortest distance. The logic may suggest the picker a location (straight line calculation) that is 30 feet away, for which the picker has to move 200 feet up and down the aisle while there might be another location available at just 50 feet away in the same aisle. But, for the logic 50 is greater than 30.

Maximum cube:

Cube logic uses unit dimensions to calculate cubic inches per unit and then compares it with the cube capacity of a location to determine how much can the location hold. If all units are of equal size and if they can be stacked one over the other, cube logic will work. As it is practically rare, this logic is not relevant to the practical world.

Consolidate:

If a location has the same SKU as it appears in a put-away list, the same location can be used, so as to keep the like items consolidated.

Lot sequence:

This logic will use lot number or lot date to determine the locations to pick from or replenish into. Combination of logics can fetch good results. For example, if a warehouse has multiple locations with same receipt date, then one may employ pick-to-clear logic with first-in-first-out.

Other Functionality and Considerations:

The following are some more considerations for WMS.

- Wave picking / zone picking / batch picking: For high- volume oriented operations picking logic is a critical factor that determines the choice of WMS. Support for various picking logics differs from one system to the other.

- Task Interleaving: Mixing picking and put-away tasks to obtain maximum productivity by reducing travel time, energy cost etc.

- Automated data collection: This can be implemented in the form of RF portable terminals and bar code scanners. ADC hardware choice and WMS software selection determines the savings in setup time.

- Integration with Material Handling Equipment: Automated Material Handling equipment include carousels, ASRS units, AGVs, Pick-to-light systems or sortation systems that can be integrated with the WMS system.

- Advanced Shipment Notification: This helps in automating the receiving process through WMS.

- Cycle counting

- Cross docking

- Pick-to-carton: Selecting the shipping carton prior to picking and then filling the carton. This eliminates the formal packing activity and works well if the products are all of similar size and weight.

- Slotting: Slotting software generally use item velocity, cube usage and minimum pick face dimensions to determine the best location.

- Yard management: The function of managing inventories inside the trailers parked outside the warehouse (the empty trailers too).

- Labor tracking / Capacity Planning: Criteria such as standard labor hours, machine hours per task, available labor are set; using which the WMS determines the capacity and load.

- Activity-based-costing / billing: This allows the third-party logistics operators to calculate the billable amount upon specific activities.

- Integration with existing accounting / ERP systems to reduce cost and to facilitate addition of more modules such as full financials, light manufacturing, transportation management, purchasing and sales order management.

Need for WMS:

Apart from introducing best practices in warehouse like improving warehouse layout and minimizing travel time by having fast moving items closer to the dispatch area, a software technology in warehouse is likely to improve the warehouse efficiency even more. Customers have become highly demanding nowadays and with the reach of electronic communication technologies, they have started expecting real time response to all their queries. Even Finance, Sales and Marketing teams needs real-time information for their smooth operations.

A stock-control system will manage the inventory at stock location and quantity level but not the productivity of the warehouse. A WMS can process data and coordinate movements within the warehouse thereby increasing the competitiveness and response towards customer demands. Therefore, WMS is an invaluable tool for improving an organization's productivity and customer focus.

1.3.6 Storage Systems or Equipment

Storage system means a region or part where the items are to be stored from which it has to be retrieved with the help of a handling equipment to serve the customer demand. The following are some basic storage modes that are widely used.

Pallet storage:

Generally in warehouses there are large sizes of packaging called pallets, which is a wooden or plastic base are generally 48 inches by 40 inches (1.22 meters by 1.02 meters). There are several other sizes also.

- 48 inches along one dimension (1.22 meters)

- 32 inches (0.81 meters) for pallets that go directly from the manufacturers to retail display.

- 42 inches (1.07 meters)

- 48 inches (1.22 meters) for transporting 55-gallon steel drums.

Pallet rack is used for bulk storage and to facilitate full-case picking. As the pallet length and width are reasonably uniform, the pallet rack provides approximately sized-slots. The height of the pallet can very well be adjusted as the pallets may vary in height. The advantage of rack storage is that we can access each of the columns and so it provides greater access. More common types of rack storage are

Fig 1.9: Pallet Rack

Fig 1.10: Rack storage

a) Selective rack or single-deep rack that stores in one deep. Each pallet becomes independently accessible because of the rack support and so the possibility of retrieving any pallet from any storage at any level of the rack. But, this requires more aisle space to access the pallets.

b) Double-deep racks have two single deep racks located one behind the other and so pallets can be stored two deep. Each two deep lane is independently accessible. It is always better to dedicate one lane for one SKU to avoid confusion and so it is common to see free spaces that are unoccupied. The disadvantage is that it requires slightly more work while storing and retrieving the items. The warehouse can hold more products as only less aisle space is required. But, it requires double reach trucks to reach the first pallet position.

c) Push-back rack is an extension of double deep that is extended 3-5 pallet positions. But, to access the pallets each lane can be pulled out like a drawer, so that all pallets get independently accessible.

d) Drive-in or drive-through rack allows the lift truck to drive within the rack frame to access the interior loads. Through drive-in the put-away and retrieval functions are performed from the same aisle. Drive-through rack facilitates the pallets to enter at one end and leave at the other end following the policy of First-In-First-Out.

e) Pallet flow rack is a deep lane rack in which shelving is slanted and lines with rollers. When a pallet is removed, the gravity pulls the remaining to the front. So storage and retrieval can happen at two different ends, so that they o not interfere with each other.

Bin-shelving:

This is nothing but simple and cost effective shelving mode which is also referred to as static rack. Shallow shelves of 18 to 24 inches are typical but for large cartons 36 inch deep shelf is also used. Since the shelves are shallow any significant amount of SKU can be spread across the pick face thereby increasing the travel time and reducing the SKU density, pick density and pick per person per hour.

A typical pick rate from the shelving system is 50-100 picks per person per hour. SKU s that occupy more than one shelf of bin-shelving can be shifted to some other storage system that results in high SKU density. As both picking and storing has to be done in the same pick face, it is highly recommended to allot different timing for these two activities which means working an additional shift.

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