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LOGISTICS MANAGEMENT IN WAREHOUSING

Warehousing is an important part of logistics chain. By understanding operations and sharing information with employees, the management improves warehouse operating procedures, reduces errors, maintains a good relationship with staff, and provides a reasonable cost level.

This contribution deals with logistics management in warehouse to provide excellent service through the warehouses as a result.

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1. THE MATURITY OF WAREHOUSING

To understand what is the warehousing we need to look in the history. The practice of logistics as a formal business management discipline is only a few decades old. Yet, even in this short time there has been a maturing process in the discipline, and this maturing process promises to continue and perhaps accelerate into twenty-first century. But the warehousing is not so young process as a logistics.

Our civilizations had gotten through three major periods:

- the age of agriculture,
- the industrial era,
- the age of information.

The use of computers and radio frequency is becoming usually in the last three decades. The warehouse in the beginning was build grainer's to store food. The industrial age was marked with the development of transportation system. In that time the warehousing was strongly connected to the transport of spices from orient to the Europe. This spices were used in the maritime discovers.

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When start the mass production the concept starts to change, start to appear the "terminal warehouses" and the storage in transit. In the middle of 20th century extensive use of storage in transit created heavy use of both private third - part (connected to the agriculture goods) warehousing in railroad junction towns in many inland states.

The many functions of this warehousing system was to provide some place, here they can store the goods temporarily between the origin and the destination. In the 1980's a deregulation occurred. With that deregulation, common carriers diversified into third - part warehousing and the logistics begin to integrate the warehousing in her services.

2 WHAT IS WAREHOUSING

For better understand what is warehousing we need to define some concept's:

Distribution: is defined as the function of moving goods from the origin to the manufacturing workstation (where the product was transformed), to the company where store the goods, picking the goods to the customers demand's and final delivery the goods to the customers.

Warehouse: is the function of storing a variety of goods [stock - keeping units (SKUs)] between the manufacturing workstation and the final consumer. It is the time that the product is stored between the workstation and the requirement of this product.

Logistics: the mean is similar to the distribution but with the difference that logistics have to control the product between two locations. The first location is the origin of the product and the warehousing; second location is between the warehousing and the consumer.

Storage: as defined in Webster's Dictionary, is the activity of placing or depositing a good in a store or warehouse for safe - keeping until the good is required at another location or workstation or by finally consumer.

Material handling: is the operation that involves the movement of the good (bulk, package and individual) in the warehouse or store.

Stock - Keeping Unit (SKU): is something of value that the warehouse or store receive for storage and after delivers to workstation or to the final consumer. Warehouse and distribution guaranties, that the company or the final consumer receives time - and - place value.

3. HOW IT WORKS

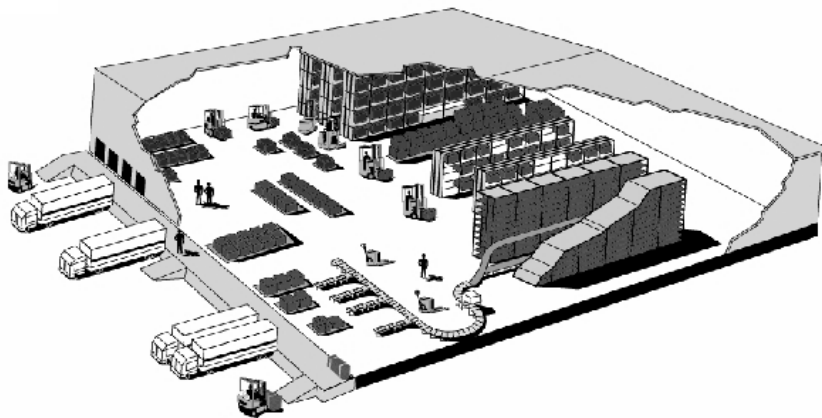
The functions that exist in the warehouse are movement - storage - pick operation or facility of any size no matter if the good is in bulk, package, individual, cartons or pallet.

The functions include:

- Unloading,
- Receiving,
- Checking,
- Marking inbound merchandise,

- Internal or horizontal product movement,
- Workstation or outbound staging area,
- Storage (deposit, withdrawal and replenishment),
- Order - pick (distribution),
- Segmentation and checking,
- Packing, sealing, weighing and manifesting,
- Shipping, preparation,
- Loading and shipping,
- Handling returns,
- Out - of - season product,
- Store transfers,
- Maintenance,
- Loss prevention,
- Inbound and outbound truck - yard control.

Pic. 1: Activities of the warehouse



In a simplify way we can establish five steps:

Stockpiling: is use as a reservoir to handle production overflow. Have two basic seasonal production and level demand.

Ex. when you are in the beginning of the spring season and your cloth company has to deliver the new collection to the stores. In the end of the season when the summer ends and the fall begins, the rest of the collection must come back.

Mixing products: is when a manufacturer has a serial of workstation spread in a country or region. Their consumer or vendor use a lot of different types of products that are produces in different places but by the same company. The mixing products are mixture and join all the goods in some warehouse and delivery to the consumer. With this function we save a lot of money, time and make the consumer happy.

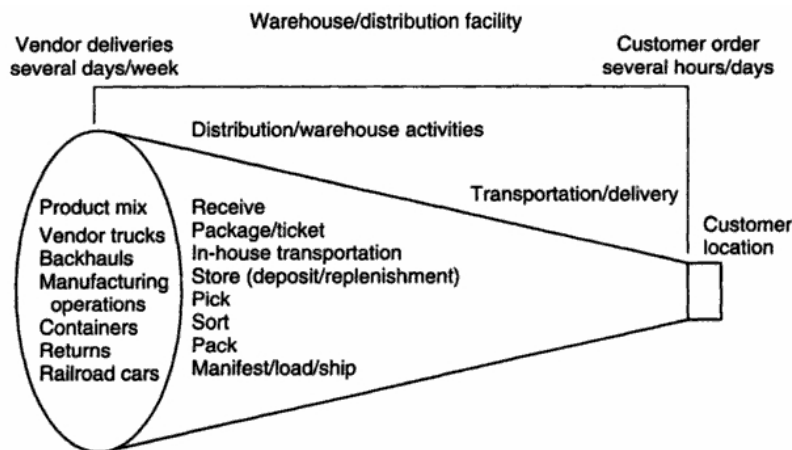
Production logistics: is when manufacturers need to stockpile semi finished products, use of warehousing in production logistics is the principle of "just - in - time". This requires a very well organized warehousing and well coordination between the logistics.

Consolidation: is to put a bulk of goods final goods in some warehouse ready to go to the final destination. With this technique we save a lot of money, time and satisfied the finally consumer with the right consumer.

Distribution: in some way it is equal to the consolidation. Distribution is, when the products go from the workstation for the market or warehouse.

Consumer satisfaction: the consumers are satisfied when the products arrive in time, perfect conditions, with a low cost and in the right amount. It is when all systems work for the same objective.

Pic. 2: Functions of warehousing



4. SYSTEMS OF WAREHOUSING

Every system of warehouse depends of three basic components. It is space, equipment and people. We need to have attention of one thing, the bad usage of one component can influence the performance and cost of the two others.

We can divide these three basic components in:

- New technologies of computer controls,
- Automatic identification,
- Replenishment and across - the - dock operations,
- Equipment and labor flexibility,
- Just - in - time (JIT),
- Smaller inventories with material requirement planning (MRP) and distribution requirements handling (DRP),
- Mechanized or automated machines.

Employee training gives the right formation to the employees, how to deal with machinery, make reports of the goods that go in and go out, organizing of the space, motivate them selves. Software replaces old computers with new computers faster and economic. The orders of the clients go much faster and can increase the velocity of transition of goods.

4.1. SYSTEMS OF SOFTWARE IN WAREHOUSING

WMS (Warehouse Management system) - a real time management and control operations system for warehouse that, as by - product, provides a base of data for all warehouse transaction.

WEIS (Warehouse Executive Information System) - is an hourly update summary of all warehouse performance and activities. It is a measure of warehouse performance.

VMS (Visual Management Systems) - is a communication and information center for all employees to understand the organizations strategic direction, performance (scoreboard) and the process of improving.

Automatic Identification: when is the automation full improves the identification of goods, product's storage - pick positions and assets. We can do this with fixed - position's scanning devices read bar - code labels, radio - frequency waves or voice waves with network systems that transmit data. These methods secure a reliable on time data.

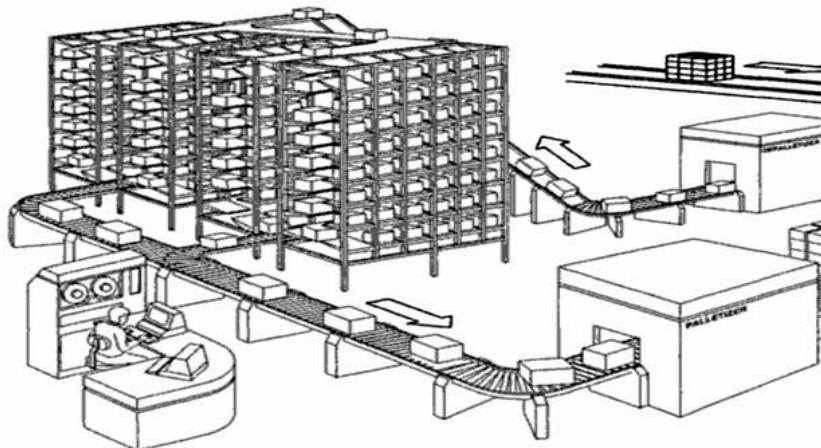
JIT and across - the - dock operations: these concepts guarantee that the goods arrive at the dock just in time to be sent to the workstation or to the warehouse. The goods entire in one door and can go out in another door, in the space of five minutes, and after to the customer delivery car. With this method you can reduce the required on - hand SKU safety stock inventory, the time required for the product to flow from your warehouse to vendor or your retail store.

MRP and DRP: these inventory and material handling equipment plan systems are based in sales and marketing forecasts. These techniques influenced the inventory size and the quantity. With this the building's size and to some degree the mechanization or automation of the warehouse or distribution operation can be reduce and simplify.

Pic. 3: Product and warehouse segmentation

| | | | |
|---------------------------------|-----------|--------------|-----------|
| <i>Temperature</i> | Ambient | Refrigerated | Frozen |
| <i>Chemical</i> | Regular | Flammable | Hazardous |
| <i>Value</i> | Regular | High | |
| <i>Storage Mode</i> | Unit Load | Case | Piece |
| <i>Access Frequency</i> | High | Medium | Low |
| <i>Equipment & Location</i> | | | |

Pic.4: Carton (full-case) handling



5. CONCLUSION

We can conclude that the warehousing is a technique to facilitated the movements of goods between the origin and the final consumer. It consists of four basic functions:

- Receiving the goods from a source,
- Storing the goods until they are required,
- Picking the goods when they are required,
- Shipping the goods to the appropriate user.

The systems of warehousing have three foundations, people, space and equipment. We need to have attention that one system when badly administrated can influenced the other two systems in the same way. The principle objective of warehousing is the satisfaction of the client

LITERATURA

- [1] Dvořák, Z., 2007. *Informácie v manažmente a ich špecifiká v logistických firmách*. In: Logistický monitor [elektronický zdroj]. ISSN 1336-5851. - Č. október (2007), 4 s.
- [2] Dvořák, Z., 2007: *Informácie, informačné systémy a bezpečnostný manažment*. ŽU v Žiline, 207 s. ISBN 978-80-8070-691-9
- [3] Sventeková, E., Koptáková, K., 2003: *Increasing Importance of Information Technology in Traffic Management*. In. Year-book of 5-th European Conference of Young Research and Science Workers in Transport and Telecommunications, Žilina, ŽU, ISBN 80-8070-079-6
- [4] http://books.google.com/books?id=sHzM4kaGTusC&pg=PA10&dq=warehousing+in+logistics&sig=uK6HMPb_d2kkZ9SAtdWnQfN3LpY#PPR10,M1;
- [5] <http://books.google.com/books?id=M0VB0gPVI58C&printsec=frontcover&dq=subject:%22Warehouses%22&sig=ljkapWItFVTVntILXB11j5nv4DU#PPT10,M1>;

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