

Material Handling Management in Third Party Logistics Warehouse

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ABSTRACT - Materials handling is essentially related with production and manufacturing flow. Thus, it has direct impact on transit time, resources usage, and service levels.. Logistics industry is identified to be competitive environment, connected to the globalization phenomena, requires from companies more agility, greater performance and the consistent search for cost reduction. Materials handling is one among the factors that made imperative contribution to the logistics and supply chain efficiency. The present study delineates the material handling operations at third party logistics warehouse. The main objective of this study is to identify the methods employed in material handling department at logistics warehouse.

Keywords – logistics, manufacturing, cost reduction, warehouse.

I. INTRODUCTION

A material handling system is constituted of methods using material handling equipments [1]. It could be a source of cost savings or excessive expenditure if it is not efficiently designed. Its design goes through material handling equipment selection. Many elements that contribute to progress a company's performance, Materials handling management is one among the significant elements. Material handling is defined as the movement, storage, control and protection of material, goods, and products throughout the process of manufacturing, distribution, consumption and disposal (The Materials Handling Industry of America). It is well agreed that material handling perfection may have affirmative influences over production. If material handling flaws lead to imbalance in production flows, and eventually it results in formation of extra stock or long transit time. This study is specifically details the material handling management of the logistic firm and focusing to fulfil the customers' needs and meet their expectations.

II. MATERIAL HANDLING

Materials handling enables production flow possible as it provides dynamism to static components such as materials, equipments, products, layout, and human resources [2], [3]. Production Function Mechanism was developed by Shingo (1996), focused to explain production phenomenon. That demonstrates the significance of material handling. Substantial percentage of manufacturing expenses can be attributed to material handling decisions and material flow patterns [4]. Around 25% of the manufacturing costs are related to material handling [5]. Handling and storage of goods are deemed to be an important activities in logistics [6]. Logistics has become an imperative for an organisation to achieve competitive advantages [7]. After the extensive

review of existing literature, we identified that "Material handling is the process and systems that transfer and manage the transfer of goods from one place to another" [8].

III. MATERIAL HANDLING EQUIPMENTS

The availability of material handling equipments in the market is continuously increasing. Scientific research articles categorise material handling equipments as follow

- Manual – operated by human resources rather than automatically [8].
- Hoist – machine used for lifting and lowering loads [8].
- Industrial truck – a vehicle mainly used to move the objects or materials, and generally related with manufacturing, processing, or warehousing [8].
- Pipe –which is used to circulate fluid [9].
- Robot – a man made, reprogrammable, multifunctional manipulator developed to move materials, tools, or specialised equipments through programmed motions [8].
- Automated guided vehicles system – a self-directed vehicle that follows defined paths to transfer material, tools, and specialised equipments. Recent advancement results in self guidance system that can control vehicle and plan path dynamically [8].
- Load conveyor – It has been used to moving or transporting bulk materials, packages or objects [8].

IV. MATERIAL HANDLING IN WAREHOUSE

Containers are one of the significant elements of logistics that are used to store and transport materials from one place to another according to the demand in the market. Table I depicts the various types of containers used in logistics industry.

Table 1: Container size

SIZE OF THE CONTAINER	Length	Width	Height	Capacity of the container
8 feet	8 feet	7 feet	7 feet	5000 kg
10 feet	9 feet	8 feet	8 feet	11300 kg
20 feet	20 feet	8 feet	8 feet 6 inch	22000 kg
32 feet	32 feet	8 feet	8 feet	30000 kg
40 feet	40 feet	8 feet	8 feet 6 inch	37200 kg

V. TYPES OF CONTAINER

Although its standardisation, containers have been distinguished by various categories such as sizes and types of containers. Still, all these different freight containers moved around the world are standardised based on the ISO 668 standard. The container size refers to its metrics in terms of length, width and height. The metrics are usually expressed in feet and inches. Other than its size, a container can also be categorized according to some other characteristics. Based on its cargo, a container can be divided into four main types, (a).dry container, (b).tank container, (c). open container, and (d). reefer container [11]. Dry container is a closed standard container with two doors, has long been used to carry solid cargo without any special requirements. Liquids and gases are carried by tank container. An open container have not fitted with roof and some walls. It is mainly designed to carry out of gauge cargo. A dry container is specially designed for carrying cargo that ought to be refrigerated [11].

VI. SAFETY MEASURES

Safety measures are affirmed to be significant for logistics organisations, thus it helps to reduce the damages and subsequent losses. Logistics cargo bars, cargo mat, cargo plank, and cargo net are commonly used equipments employed to handle materials in logistics company. Cargobar is a simple steel bar or wooden bar, fixed at the middle of the container. Cargo plank is wooden board attached at the bottom of the material. It is smoothing the loading and unloading process. Cargo net has been fixed to prevent the damages.

VII. CONCLUSION

Material handling equipments are significant components of the knowledge base of every expert system resolving material handling selection problem. The speed of the flow of material across the supply chain is depending upon the material handling equipment and the sophistication in the system. The material handling system is designed every processes of the warehouse in logistics operation. The efficiency of material handling enhances the performance level of the warehouse. The investment in the material handling system will be crucial to attain competitive advantage in logistics industry. There is an opportunity for labour reduction and enhancing productivity by employing advanced technology in material handling. A good material handling system will improve the speed and throughput of material movement through the supply chain.

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