

A PLAN TO IMPROVE EFFICIENCY IN A DOLL FACTORY WAREHOUSE IN RATCHABURI PROVINCE

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Abstract

This is a plan to improve efficiency in a doll factory warehouse in Ratchaburi province by allocates storage area. ABC Analysis is a one model for storage area allocation by sort a group of an inventory. The collected factors to analyzing the result of this study are information of products, price of each products, amount of each product, and cycle of each product. Afterward, analyze income by give precedence to price of products that give a higher income to factory and calculate accumulate value, then average the percentage of an accumulate value to sort a group of product by value and storage area. The method to evaluate the efficiency of this study is calculating the moving distances of product from door to storage area by calculate the maximum distance of moving between previous model and the new model in this study. Maximum moving distance of previous model is 700,252 meters; the new model is 518,396 meters. The difference between previous and new model is 181,856 meters, or 25.97 percent from the totality of maximum distance of product storage.

Keyword: Warehouse, Inventory, ABC Analysis

Introduction

Doll factory is a one business that makes a high income in Ratchaburi. There are a billion export cost per year, employ more than 2,000 employers, and 70 factories in Pho-Tharam, Ratchaburi (ที่ชวราชนบุรี.com, n.d.). The factory operation also has a warehouse which support objective of the factory, such as raw materials handling and finish goods storing for deliver to customers (Apipratyasakul, 1994) Logistics is the efficiency of physical flow from raw materials until they are finish goods, by effectiveness operations for minimum cost of operating (Rushton, 2010). Warehouse management is a process of resource management for efficiency operations; storage area and facilities. The ABC Analysis or Pareto's law is a tool to sort the group of product by give priority to value of products, and decrease procedure of inventory counting (Apipratyasakul, 1994). A doll factory in this case study operates the warehouse without systematics, so it is appropriate to apply the warehouse management theory to this factory.

Methodology

Sampling

This is the study of a plan to improve efficiency of warehouse operation of A doll factory in Pho-Tharam, Ratchaburi. It specifies to the layout of storage area and inventory counting

method for decrease waste of moving distances. The sampling data is collected from April 2012 to June 2012 for analyzing the layout of storage area in warehouse.

Data Analysis

ABC Analysis was used to analyze the data from a list of product that include prices and amounts of the product for allocate new storage area. Moreover, SWOT Analysis was used to analyze the capability of the factory to improve efficiency by interviewing from key person to support the possibility to improve efficiency in the warehouse.

Result

The average amount of products from April 2012 to June 2012 is 887 units. The amount of products in group A is 259 units, Group B is 444 units, and Group C is 184 units. Then, the percentage of storage area using of Group A is 25.90%, Group B is 44.38%, and Group C is 18.40% of whole storage area.

Table 1 Amount of product in each group after ABC Analyzing

	Amount			Total
	Small	Medium	Large	
Group A	37	148	73	259
Group B	73	297	74	444
Group C	40	83	61	184
Overall				887

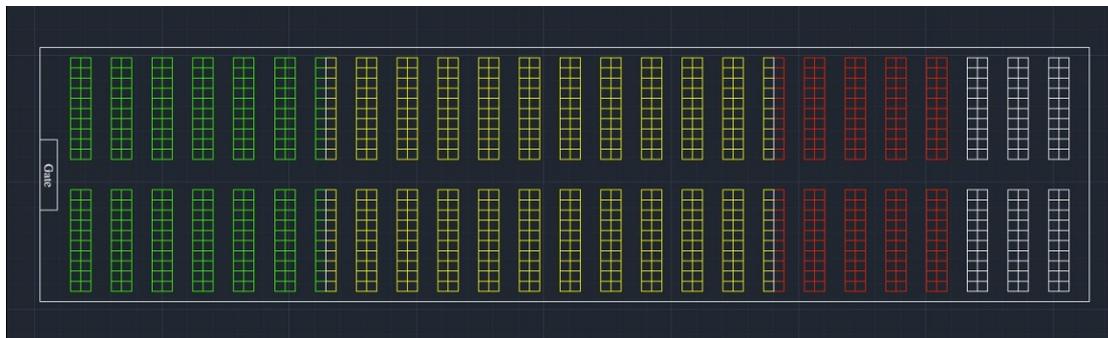
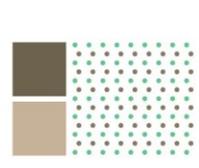


Figure 1 A doll factory warehouse layout analyzed by ABC Analysis

For the evaluation of efficiency, the maximum distance of moving between previous model and the new model were compared. Maximum moving distance of previous model is 700,252 meters; the new model is 518,396 meters. The difference between previous and new model is 181,856 meters, or 25.97% from the totality of maximum distance of product storage.

Table 2 Evaluation of inventory moving distance

Method	Distance (Meters)
Randomize Storage Area	700,252
ABC Storage Area	518,396
Decreasing Difference	181,856
Percent	25.97



Discussion and Conclusion

From the result, warehouse management by allocate the storage area by using ABC Analysis can decrease the distance from randomize storing 181,856 meters or 25.97%. It helps to decrease products moving cost and distances to storing. The result of this study is likely to Prasert Ladsuwan study (Ladsuwan, 2006). The research applies a concept of a storage location policy (SLP) to minimize the total material handling distance, and the subsequent cost in a finished goods warehouse. Finished goods are classified into 3 groups (A, B, and C) Storage areas are also separated into 3 zones for storing each group of finished goods. The total area in each zone is prepared for storing maximum quantity of products in a group. The total material handling distance is calculated by using an Excel Based program called Xquery. The quantitative comparison indicates that the ABC Analysis has led to 27,564 meters reduction in total handling distance (11.93%) compared to that of the randomized storage area.

In this study found that the result from ABC Analysis is bending from the theory. The others warehouse type may get the result that bend to the theory. Moreover, this study focus on the location of storing area, it is the initial method to manage warehouse, so the facilities can be applied to study in next research to improve more efficiency in a doll factory warehouse.

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