EFFECT OF USING 7 WASTES INCREASE EFFICIENCY OF THE PICKING PROCESS A CASE STUDY OF ABC COMPANY LIMITED.

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ABSTRACT

This research will optimize the picking, case studies ABC Company Limited aims: 1.To study the processes in the warehouse of ABC Company Limited 2.to analyze the problems of working in a warehouse ABC Company Limited 3. Guidelines for the optimization of the picking. ABC Limited. The study found that there is a problem picking delay.

As a result, the cost of logistics and product delivery delays ensue. The researcher analyzed using theories Fish Bone (diagram) and the results of the analysis to invent a solution. The researchers selected a solution by modifying the position for the picking list and expand the concept to complement its disposal loss 7 Waste to optimize the picking in the warehouse. The data from the study to guide the development and improvement of quality warehousing.

The study found that the placement of new areas, for use in the contents, it can reduce the cost of staff salaries go 30,240 baht/year/person, reduce time in step 5 minutes picking/picking cycle and the rate of delivery of the goods on time increased 2%.

Keywords: The 7 Waste, Optimization, Picking Process, Tote Box

INTRODUCTION

Increasing efficiency in picking products in the logistics business is quite significant which leads to a rather high competition. Organizations have developed to maximize efficiency of their organizations to meet the needs of consumers or customers as much as possible. Both in the matter of management within their own organization as well as providing the best service and able to meet the needs of most customers. Organizations are trying to look for marketing gaps and their own gaps in which they have problems or weaknesses in order to be developed to their organizations as efficiently as possible.

At present, ABC Company Limited is a retail leader in Thailand with many branches and operating on behalf of ABC Company which has 4 types. The company has 4 distribution centers in Wang Noi District. Bang Bua Thong District, Sam Khok District and Lam Luk Ka District. In the case of the case, the distribution center of Bang Bua Thong branch is a general consumer product distribution center that distribute products to stores nationwide. Bang Bua Thong branch has work process starting from receiving products, storage picking, and shipping. Due to the increase in number of branches and diverse products that cause delays in the picking process. Loss of various aspects in the work process, resulting in the late delivery

of goods. It can be seen that management of goods picking is very important. Researcher uses the concept of 7 Wastes to eliminate losses in order to increase efficiency in the picking process. Consistent with the research of Panat Thamchaisopit. (2016). Efficiency enhancement of production process for elecronic industry by using lean manufacturing. Researcher selected the concept of 7 Wastes as part of the research. Resulting in being able to reduce production lines from 3 lines to 2 lines because of unnecessary waste reduction during production.

OBJECTIVE

1) To study the processes in the warehouse of ABC Company Limited

2) to analyze the problems of working in a warehouse ABC Company Limited

3) Guidelines for the optimization of the picking. ABC Limited. The study found that there is a problem picking delay.

METHODOLOGY

1. Population and sample

Population is warehouse staff, ABC Company Limited, Bang Bua Thong Branch. The research sample consisted of 5 people, including head officers and officers in the Bang Bua Thong warehouse.

2. The research process

Qualitative research that has collected data in ABC Company Limited has the research process as follows 1. Study the work process in the warehouse. 2. Survey and collect data for use as analytical data. 3. Bring data to analyze work problems. 4. Analyze to increase warehouse efficiency. 5. Planning the space in the warehouse. 6. Put the layout of the area into practice. 7. Summary of research results. 8. Prepare the manuscript of the research. 9. Submit research articles for publication. Consistent with the research of Tiyada.j. (2015). Optimizing Warehouse Management Case Study 2 warehouse Burana Bangkok Pubwarehouse Organization. Purpose is to study ways to increase storage efficiency in the warehouse and improve operational procedures to be effective. By collecting data from processes and work process in the warehouse to increase efficiency.

3. Data collection

Researcher collected data of work in the warehouse of ABC Company Limited, Bang Bua Thong Branch. Collecting qualitative data from observation Information inquiry. And quantitative data collection. Consistent with the research of Chaiyaporn Preechawong. (2013). Increasing efficiency of automated warehouse by allocating the storage area. In the research, data has been collected from those responsible for warehouse management. And from the monthly summary report of the warehouse for 1 year and consistent with the research of Mathinee Srikan and Chumpol Monthatipkul. (2013). Efficiency Improvement of Location Assignment of Products in a Warehouse: A case Study of Srithai Superware Public Company Limited. Research has been done to improve the area of the company's product placement in order to have an efficient operation and more suitable area placement. In terms of product placement in an appropriate location in order to reduce the time of product movement. The research has the process which is to study the warehouse information and the storage model of the company and study the process of the warehouse management of the company, there are 4 processes respectively as follows: 1) Receiving process 2) Storage process 3) Picking process 4) Pick products process

RESULTS

Part 1: Results from studies and analysis of warehouse operations

ABC Company Limited has working process since receipt, storage, and picking, By picking the products divided into 2 cases which are picking up products to box and picking up products to pieces. The final process is shipping. Picking management uses the ORWMS system and Pick to Light in the picking up products to pieces process. Researcher went to collect data from ABC Company Limited in the part of picking process in pieces. In the process of picking products in pieces, the steps are as follows that 1.Demand information from other branches was sent to the distribution center. 2. Warehouse manager sends a request to the heads departments in the warehouse for product preparation. 3. Send the information to the pick-up system in Pick to Light system in order to pick up the products in separate boxes according to the shipping branch.

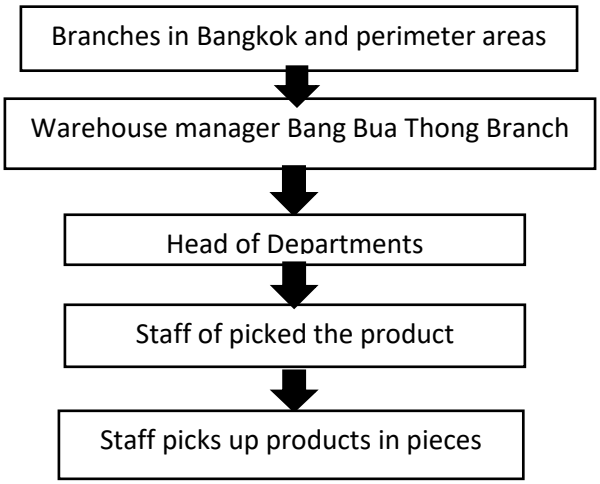
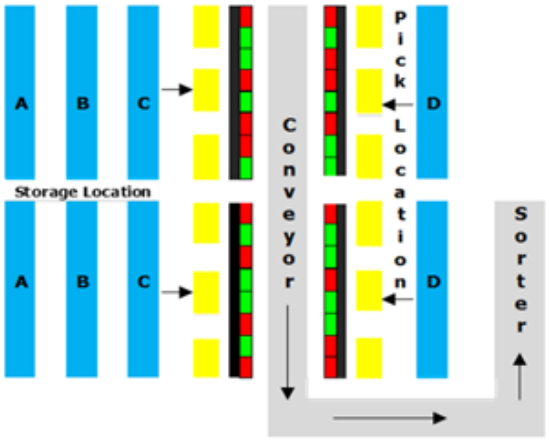


Figure 1: The process of picking products into pieces by the Pick To Light system.

Chart of work in the area of picking products by Pick To Light system that the area is divided into 3 major categories, Large products storage space is storage dozen of products, Smaller product storage space is storage piece of products, And Product fill area is Products that are waiting to be refilled in the Pick To Light system, as shown in Figure 2.



Large products Smaller product Product replenishment area

Figure 2: Flowchart in the Pick To Light section

From the fishbone diagram, it can be explained that the factors affecting the product picking delay are from 3 factors.

Factor 1: Employees, The reason is that employees lack skills in picking products and lack of attention Neglecting work duties.

Factor 2: Machine, The reason is that the Conveyor system crashes causing the picking process to stop.

Factor 3: Working Procedure, The reason is a lot of Tote Box use. Employees do not have products arranged in the Tote Box, leaving space inside the Tote Box and need to use multiple Tote Boxes to pick up products in 1 round. And another reason is Wait for the product to be filled. Because the space to fill the product is not enough and the staff couldn't find the product, causing a wait for goods to be picked up

From figure 2, Product positioning for product picking are no planned layouts with guidelines. Large products and small products are placed together. It's not easy to sort products in Tote Box, resulting in too much space in the Tote Box. Employees need to use multiple Tote Boxes to pick up 1 product per round. There is not enough space to fill the product causing the product to wait while picking up the goods, resulting in the delay in picking up the goods.

Part 2: Increase product picking efficiency

Researcher has applied the concept of 7 Waste to increase efficiency, by grouping large types of products into the lock front of the shelves and group the smaller products at the end of the shelves. This makes it easier to arrange products within the Tote Box, which helps to reduce the space in the Tote Box. Increase the space for product replenishment by increasing the shelf for placing products from 1 layer to 2 layers, allowing more products to be laid out, as in Figure 4.

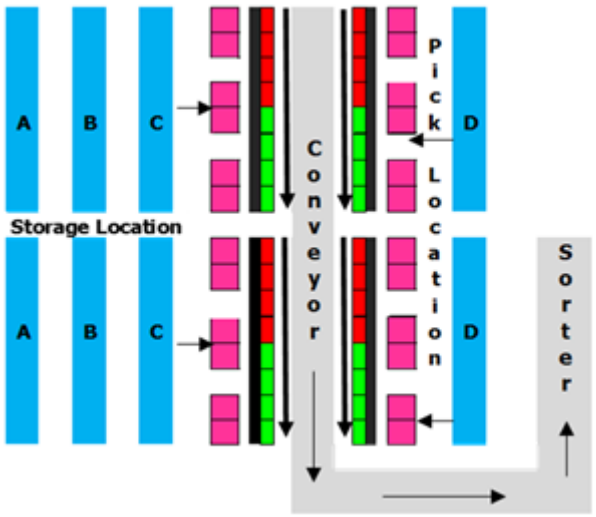


Figure 4. Flowchart in the Pick To Light section (After improvement)

Performance comparison before-after adjustment

Researchers took the time to pick up the product from scanning the barcode at Tote Box to start picking up the product. As well as picking the finished products and separating the Tote Box according to the branch number.

Table 1 Table of performance comparison before - after adjustment

Round	Quantity	Time (before)	Time (after)	Performance difference before and after adjustment	%
1	30 pcs	10 min	8 min	2 min	6.67
2	119 pcs	35 min	26 min	9 min	7.56
3	96 pcs	32 min	25 min	7 min	7.29
4	52 pcs	20 min	16 min	4 min	7.69
5	72 pcs	26 min	23 min	3 min	4.17
Mean				5 min	**6.68**

From the table, it is found that the period for picking products after adjustment has decreased. Show as follows that:

Picking up 30 pieces, when reformatting takes less than 2 minutes, accounting for 6.67%.

Picking up 119 pieces, when reformatting takes less than 9 minutes, accounting for 7.56%.

Picking up 96 pieces, when reformatting takes less than 7 minutes, accounting for 7.29%.

Picking up 52 pieces, when reformatting takes less than 4 minutes, accounting for 7.69%.

Picking up 72 pieces, when reformatting takes less than 3 minutes, accounting for 4.17%.

It can reduce the average picking time of 5 minutes per round, accounting for 6.68%

DISCUSSION

Delay picking is caused by the space management inside the box for inefficient loading and waiting for product refills. There is not enough space to fill the product in each cycle, which is a hidden loss in the work process. The flow of the process is interrupted and the delay of picking which results in the delay of delivery. Therefore, the concept of 7 Wastes is applied to eliminate the hidden loss in the picking process by increasing the area of product replenishment and adjusting the position of products to facilitate the arrangement of products. This makes the picking process smooth and able to pick up the product efficiently. Consistent with the research of Thanida Sunarak. (2009). Basic conceptual design for storage and picking systems in warehouse situations: case study of a private company warehouse. Found that there is no storage system. Which is not consistent with the picking system which is a picking one by one item and then proceed from start to finish (Picking to Order). Resulting in

the time and distance of the forklift for search of goods. Especially the goods picking activity is higher than usual. Therefore, it has proposed guidelines for system improvement to increase warehouse efficiency in accordance with warehouse management principles. In the warehouse area with fast turnover cycle should choose to use product storage systems (Product type) and Wave picking system. In the warehouse area with slow turnover cycle should choose to use product storage systems (Product type) and the batch picking system.

CONCLUSIONS

After studying the work process model and warehouse layout, Researcher was analyzed to study the working process and find ways to increase product picking efficiency. Researcher has chosen the problem of delay product picking for study. Theories that the researcher analyzed to plan the layout of the picking area are (7 Waste) to reduce losses in the picking process. There is a study of the picking process after adjusting to analyze the efficiency from the results that have changed. The result of the research shows that the placement of new areas for picking products can reduce the salary of employees by 30,240 baht / year / person. This can reduce time in the picking process by 5 minutes / 1 picking cycle and on-time product delivery rates increased by 2%. Prayong.C (2012). Improving the efficiency of transportation and product distribution: Case study of C-Pro Logistics and Distribution Co.Ltd Objective is to improve the efficiency of transportation and product distribution by calculating service needs from customers. Reduce the opportunity cost of service caused by insufficient number of cars and unable to provide full service. And to increase the efficiency of transportation and product distribution. From research, it is found that the company has many opportunity cost in providing services. Therefore proposing solutions to the said problem by investing more in the purchase of transportation vehicles, find more partners, create incentives for reducing accidents, and improve the efficiency of maintenance, which can reduce the cost of opportunity sales. When analyzing freight transportation data before updating and after the improvement, found that opportunity cost of service from the previous 95,178,112 or 40.55 percent of the total revenue. The procurement of partners with similar service standards for 10 years will result in the Company With a total increase of 119,128,395 baht. The net present value of total income was 73,840,328 baht or 12.52 percent of the total opportunity cost. Resulting in a 10-year period, the company will have a total return of 25,087565 baht or 2.64 percent of the total opportunity cost. It is found that the present value of the net return is 17,046,892 baht, the payback period is 0.29.

SUGGESTION

This research is to study the factors of the product layout management method that affect the products picked only. In the next research, all factors affecting the product pick-up delay should be analyzed and searched for ways to increase efficiency to enable the company to pick up the right products, fast, and cost effective causing the company to continue to increase profits

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