

A FEASIBILITY STUDY OF ESTABLISHING A NEW WAREHOUSE : CASE STUDY OF THE BANGKOK BRANCH OF ABC COMPANY

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ABSTRACT

Abstract— The objectives of this research were to study possibility of establishing a Maintenance Repair and Operations (MRO) Warehouse new warehouse of the ABC Company. For information and guidelines to be used in the decision to establish a new warehouse. The Center of gravity technique was used analyze for determine new location of warehouse in the center of distribution for the most economy of cost transport. The result of study found that a new location of warehouse is Bang Khun Thian Road-Chai Talay, Samae Dam Subdistrict, Bang Khun Thian District, Bangkok (Latitude 13.64869 Longitude 100.43188). And then we made model in 2 cases for compared between lead time transport of old warehouse and lead times transport of a new warehouse which study in second case can reduce lead times transport to average 30 minutes and reduce fuel cost to average 200 baht per day or 5,200 baht per month. For analysis of finance by concepts of the criteria in the decision to invest the payback period (Payback Period: PB), NPV (Net Present Value: NPV) and internal rate of return real (Internal Rate of Return: IRR) found that there was no possibility of invest. This project has a payback period of 23 years and 346 days is equal to the present value -41,550,000 baht and internal rate of return real equal to 2 percentage.

Keywords— MRO Warehouse, Center of gravity, Supply Chain

INTRODUCTION

ABC Co., Ltd. has its head office located in the area. Bang Khun Thian District Bangkok, Thailand, southwest of Bangkok, about 210 kilometers from Laem Chabang Port. which is the gateway to the south of Thailand It is best known for its frozen seafood processing industry and cold storage facilities. The majority of seafood exports in central Thailand come from ABC Co., Ltd. ABC Co., Ltd.'s reefer container yard is located where it can reach key customers of the company. The location of ABC Co., Ltd. is ideal for container access from the yard to southern Thailand. This makes the company the perfect service provider for the southern part of Thailand. It is an organization that sells spare parts and maintenance of trucks to a wide range of customers. ABC Co., Ltd. is the only company that does 'packaging'. service provider refrigerated container Providing complete cold storage services for delivering goods to the port. Company trucks pick up empty refrigerated containers from the port and are towed back to the company yard. for inspection before departure cleaned and stored in the company yard When we receive reservations from customers We will have a truck to haul the containers to the factory within 1 hour. After loading the containers, the company will have the trucks to haul the packed containers to the destination station.

because customer demand is uncertain As a result, a large number of products and spare parts must be stored in the warehouse. The limited space of the company is insufficient for the amount of product storage. As a result, the products are stored outside the temperature controlled warehouse. thereby deteriorating of the product is high from the above problem. The researcher saw that Setting up a warehouse in a suitable location will help make product distribution. It can be done quickly and has space to store more products. Because each business is unable to produce products and manage work. from the factory and directly delivered to all customers Businesses therefore still need to store inventory. to wait for transportation And ready to accept risks that may arise from market volatility. It is one of the important strategic planning to be able to meet customer satisfaction. The research team therefore conducted a feasibility study to establish a new warehouse by using the technique of finding the center of transportation. Determine the point where the new warehouse will be established. to reduce the distance and time of transportation and cost.

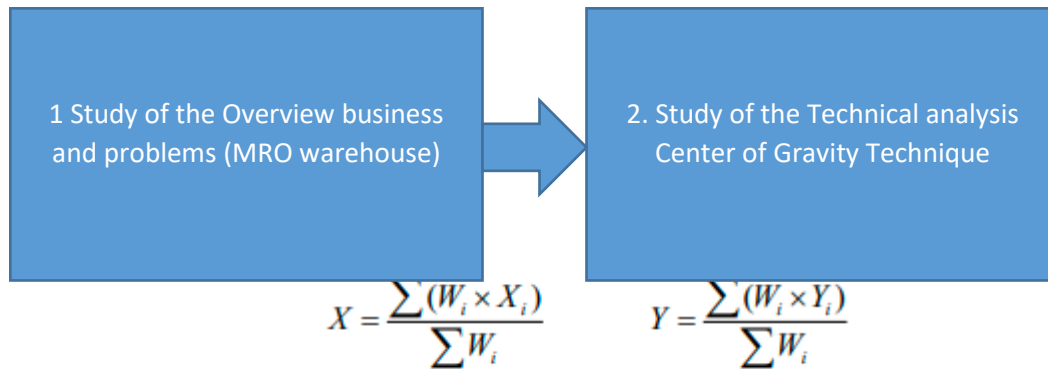
LITERATURE REVIEWS

Basically, SCM involves collaboration, co-ordination and integration across internal departments, external organizations and throughout the supply chain (Christopher, 1998). A supply chain is a network of processes and facilities that performs the functions of procurement of materials, transformation of these materials into products, and the distribution of these finished products to customers (Ganeshan and Harrison, 1999). Further, Christopher (1988) defined SCM as “the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole”. The theory of supply chain management is governed by the belief that value must be added to a process faster than cost, for the product or services to be advantageous to the organizations involved in its creation (Lamming, 1996). To improve performance, organizations have to adopt SCM approach and consider the supply chain as a whole. SCM has the potential to assist the organization in achieving both cost and profit maximization (Agus, 2011). Supplier development can be considered as an indicator of a cooperative buyer-supplier relationship (Watts and Hahn, 1993; Krause and Ellram, 1997; Krause, 1997, 1999; Whipple and Frankel, 2000; Humphreys et al., 2004). Buyer-supplier relationships have started to be researched but have not been linked to supplier development specifically. The effect of an improved relationship needs to be studied for achieving CAs (Langfield-Smith and Greenwood, 1998; Cannon and Perreault, 1999; Carr and Pearson, 1999; Hald et al., 2009; Feng et al., 2010) Walailak Atthirawong and Siwanee Ponglangka (January – June 2020). Location Selection of Warehouse and Distribution Centers: A Case Study of Thailand Post Distribution Co., Ltd. Location of warehouse and distribution center is a major factor affecting transportation cost. Locating warehouse or distribution center proximity to final customers will help in efficient flow to transport products to customers more convenient and faster. However, it might affect total transportation cost if there are too many distribution centers. Currently, Thailand Post Distribution Co. Ltd., a third party company, is responsibility to send drugs and medical supplies to final customers which situated in various provinces around the country. The company has one warehouse locating in Samut Prakan province and nine distribution centers locating in several regions. In the past, the company does not have any investigation about where to locate a warehouse location and distribution centers and the number of optimal number of those facilities. As a result, the objective of this research is to find suitable locations of a warehouse and distribution centers for this company in order to transport products to final customers with the lowest transportation costs using mathematical model. Analysis results via processing with LINGO software revealed that the company should have one warehouse locating in Samut Prakan province and twelve distribution centers which will reduce transportation cost by 1,343,170 baht per month or 6.1%. Anchalee Hiranphaet (2 July - December 2016). Transportation management process ABC Dye Products Co., Ltd. : Case study on transportation procedures. The study result found that transportation management process met the problem as operation, human and internal and external environment for example ERP data system has not completed, lacking manual, no standard form, delay of revised security document, officers have no skill, knowledge of rule and regulation operation in term transporting of hazard goods, communication between internal unit and external organization This research applied knowledges and ideas involved to recommendation, solution to increase efficiency of transportation management process, create working standard, reduce miscommunication to reach objectives of this research. Warissara Supha and Khanittha Reankratok (2018). A decision on warehouse location selection for a chemical company. The result from using LOGWARE software with MULTI COG method and engineering economics to conclude three options which the old warehouse at Bangbuathong, Nonthaburi province, found that creating two new warehouses is best suited for investing in replacing the old warehouse. There should be located in Phra Nakhon Si Ayutthaya province and Chonburi province.

METHODS

1. Study of the overview of business characteristics and problems and obstacles of the case study By studying the general condition, problems and obstacles by using an open-ended interview with warehouse supervisors. and spare parts warehouse Transportation and warehouse staff To study the organization's policies, overall operational processes, customer groups, transportation costs. and to analyze the problems that arise and bring the important problems find a solution.

2. Technical analysis is An analysis of the potential and possibilities of what we are interested in, which is Analyze to demonstrate efficiency when a new warehouse is built in the location. new location, the research team operates Choose to use the technique to find the center of the transport (Center of Gravity Technique) because it is a way to find the center. of distribution that can save the total cost of transportation the most (Prediction, 2003) by using the calculation geographical location (latitude and longitude) to a single location according to distance and water weight of goods to be transported.



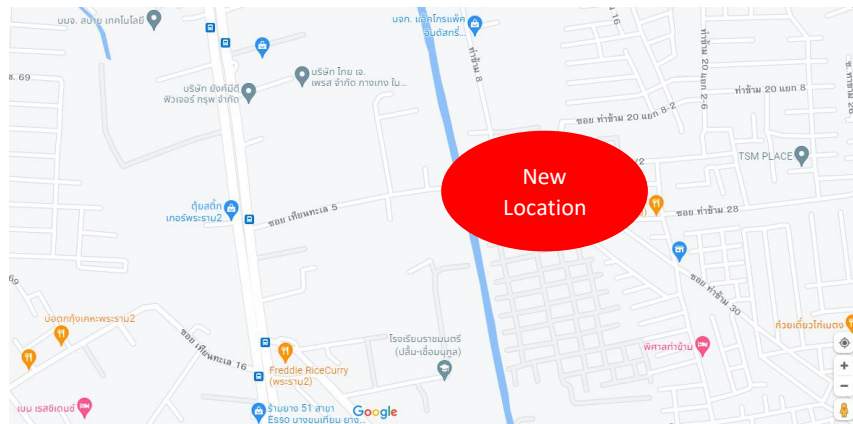
X= 13.64869

$$\begin{aligned} & (13.738385*73,036.8) + (13.744929*119,984.5) + (13.724106*156,154.2) + (13.777682*112,487.45) + \\ & (13.968719*36,772) + (13.910407*69,740) + (13.915156*114,722.3) + (13.838809*52,796.35) + \\ & (13.797761*215,674.12) + (13.988292*105,830.45) + (13.692524*167,166.78) + (13.745878*159,352.73) + \\ & (13.844747*108,176.25) \\ \hline & 73,036.8+119,984.5+156,154.2+112,487.45+36,772+69,740+114,722.3+52,796.35+ \\ & 215,674.12+105,830.45+167,166.78+159,352.73+108,176.25 \end{aligned}$$

Y= 100.143188

$$\begin{aligned} & (100.561503*73,036.8) + (100.538586*119,984.5) + (100.522024*156,154.2) + \\ & (100.674343*112,487.5) + (100.401203*36,772) + (100.594545*69,740) + \\ & (100.606871*114,722.3) + (100.550949*52,796.35) + (100.547002*215,674.12) + \\ & (100.617789*105,830.45) + (100.75044*167,166.78) + (100.500246*159,352.73) + \\ & (100.570723*108,176.25) \\ \hline & 73,036.8+119,984.5+156,154.2+112,487.45+36,772+69,740+114,722.3+52,796.35+ \\ & 215,674.12+105,830.45+167,166.78+159,352.73+108,176.25 \end{aligned}$$

The Center of gravity technique was used analyzefordetermine new location ofwarehouse in the center of distribution for the most economy of cost transport. The result ofstudy found thata new location of warehouse is Bang Khun Thian Road-Chai Talay, Samae Dam Subdistrict, Bang Khun Thian Districst, Bangkok (Latitude13.64869 Longitude100.43188). And then we made model in 2 cases for compared between lead timestransport of oldwarehouse and lead times transport of a new warehouse which study in second case can reduce lead times transport to average 30 minutes and reduce fuel cost to average 200 baht per day or 5,200 baht per month. The location of the original warehouse of the Company, the arrow star is



New warehouse location from Find a new warehouse location by using the Center of Gravity Technique. Found that the location of the new warehouse is suitable for distributing products to customers. Bangkok Located in the outer economic district There are convenient transportation routes. can distribute products in many ways The whole route can be connected in many directions. The company As a case study, it was decided to build a warehouse in a new location. Currently using the existing warehouse Therefore, the researcher created a model to demonstrate the efficiency of transporting goods to each customer in a manner that It can be possible to provide information for making investment decisions. by comparing the transportation time between locations Existing warehouse to customer source and new warehouse.

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