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MAJORS FACTORS FOR EFFECTIVE WAREHOUSE MANAGEMENT: EASTERN PART OF THAILAND PERSPECTIVE

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Abstracts: *Effective warehouse management is becoming important for new supply chain management performance evaluation as it directly effects to organization business performance and customer satisfaction level. The objective of this study is to examine the direct relationship of effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management have direct influence on effective warehouse management and competitive advantage. The survey was conducted on 53 entrepreneurs who are doing the warehousing business by using the questionnaires. After the data were analyzed then the observations of workers have been done to confirm the results finding. The results confirm that effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management have influence on effective warehouse management and competitive advantage.*

Keywords*: Effective warehouse management; Effective inventory management; Warehouse space utilization; Optimum inventory level; Customer service improvement; Competitive advantage*

INTRODUCTION

Warehouses are playing a key important role for modern supply chain management of business today. Even though many organizations have evaluated the possibilities of synchronizing direct supply to customers, they are still having many factors for effective warehouse management.

Currently, Thai entrepreneurs of logistics business are facing many challenge problems such as ineffective purchasing planning, high production cost, high

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transportation cost and ineffective warehouse management which decrease Thai entrepreneurs' competitiveness.

Since the competition in supply chain management is highly increasing due to many foreign companies are coming and doing logistics businesses then it has directly effect on Thai entrepreneurs businesses. Two parts of the competitive advantage of warehouse management are optimum inventory management and customer service improvement which enhances Thai entrepreneurs' capabilities.

Effective warehouse management has many dimensions which depend on business types, size of the business or competition environments then the study of Thai entrepreneurs' effective warehouse management variables will provide competitive advantage for their optimum inventory management and customer service improvement in the future.

This study focuses on Thai entrepreneurs' effective warehouse management parameters which separately study on public warehouse and private warehouse. The finding of this study will benefits Thai entrepreneurs more for their effective warehouse management which enhanced their competitive advantage.

LITERATURE REVIEWS

The advance logistics planning is very important for facilitates the optimal warehouse space utilization for maximize material procurement and inventory management cost. The available sufficient warehouse space enables the storage of large inventory deliveries which results in lower ordering costs, effective utilization of delivery trucks and minimize stock-out risks (Said and El-Rayes 2013).The effective understand of SKUs number and pallets number of each SKUs is very important to optimizing warehouse design for economy space utilizations. Product movement needs the suitable lift trucks and storage systems which creates space utilization usage.

Traditional warehouse currently has more pressures in all functions since the traditional warehouse needs to be flexible and has high possibility to adjust their operations when demand changed. The key advantage of warehouse is ready for change under economic trends and seasonality. The key challenge for warehouse operation is keeping competitive advantage under recent business environment(Burinskiene 2011).

Determining the appropriate product storage locations for potentially thousands of products is the main major challenge for warehouse manager during the new design of warehouse or the refurbishment of existing warehouse. They have many factors which effect on storage assignment such as order picking method, size and lay out of space, materials handling system, product

characteristics, demand changes, product turnover rates and space requirements (Felix and Chan 2011).

Effective warehouse design provides the maximization of space using, equipment allocations and the accessibility to all items. Generally, they have four types of tactical and operational decision problems for warehouse manager, they are warehouse layout design, picking policies, storage assignment policies and warehouse routing policies. Layout design concerns both the layout of facility containing the order-picking system and layout within picking system(De Koster, Le-Duc and Roodbergen 2006).

Warehouse operations have a directly impact on customer service levels, logistics costs and the business performance. Warehouse must be well designed so it will provide cost effectively and improve customer service. Warehouses are critical to the wide ranges of customer service levels and warehouses are also significant from operation cost perspective. The warehouse operation cost represents about 22% of total logistics costs (Baker and Canessa 2009)

MATERIALS AND METHODS

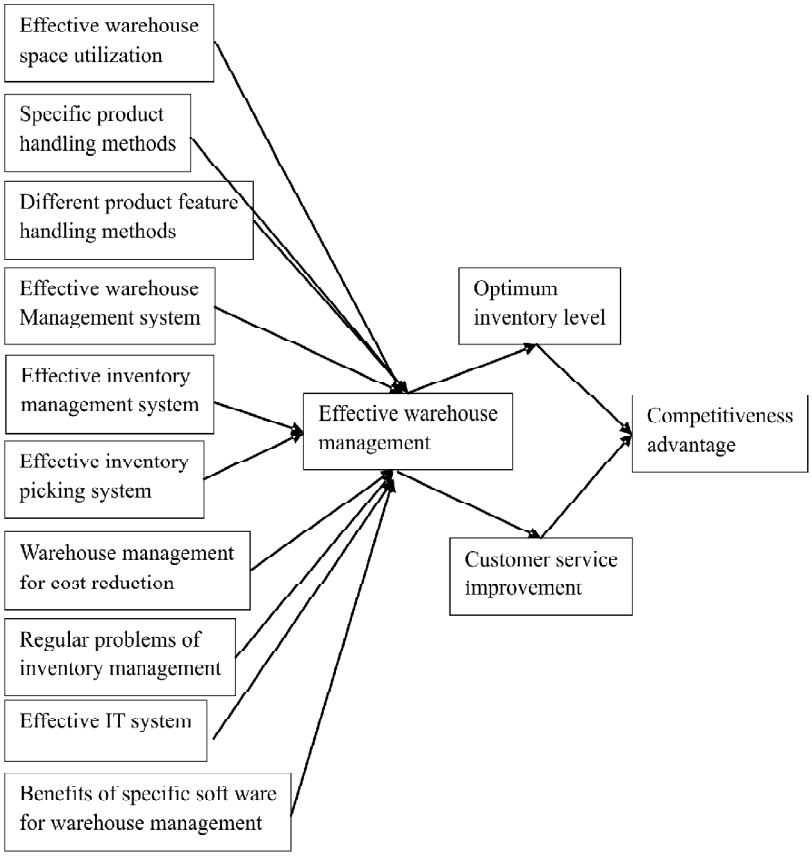
This is an exploratory research which focuses on new factors that affected on effective inventory management factors in Thai's logistics business. The research also explores the degree to which each effective warehouse management factors have an impact on their warehousing competitiveness advantage.

The research has been applied quantitative methods by using questionnaires. Qualitative contextual tools have been used as first parameter identification. A secondary data were taken on literature's review and confirmation of research finding.

The research process has been started with a literature review. Based on the literature review, a parameters' measurements of worker related issues were created, which was used to consult with supervisors and experts, before conducting the pilot surveys with the entrepreneurs. The measures were certainly applied to the results of the survey final version. The survey results have been analyzed by using a mean and SD model. The conclusions have been drawn from the study's findings.

The exploratory research was focus on 53 entrepreneurs who are doing the warehousing business by using the questionnaires. After the data were analyzed then the observations of workers have been done to confirm the results finding.

Conceptual Framework of This Study



RESULTS

Table 1
The effective warehouse management factors from public warehouses

Variables	*mean*	*S.D*
Effective warehouse space utilization	4.25	0.73
Specific product handling methods	3.78	0.91
Different product feature handling methods	3.59	0.84
Effective warehouse management system	3.42	0.57
Effective inventory management system	3.39	0.92
Effective inventory picking system	3.32	0.89
Warehouse management for cost reduction	2.95	0.92
Regular problems of inventory management	2.53	0.88
Effective IT system	2.51	0.97
Benefits of specific soft ware for warehouse management	2.50	0.87
Average	2.97	0.85

Table 1 shows the mean and S.D results for these variables: effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management. The results found that the firm responses were in the agreed level in which the mean=2.97 and S.D=0.85. Mean of effective warehouse space utilization is 4.25. Mean of specific product handling methods is 3.78. Mean of different product feature handling methods is 3.59. Mean of effective warehouse management system is 3.42. Mean of effective inventory management system is 3.39. Mean of effective inventory picking system is 3.32.Mean of warehouse management for cost reduction is 2.95. Mean of regular problems of inventory management is 2.53. Mean of effective IT system is 2.51 and Mean of benefits of specific soft ware for warehouse management is 2.50.

Table 2
Theeffective warehouse management factors from private warehouses

Variables	*mean*	*S.D*
Benefits of specific soft ware for warehouse management	4.17	0.89
Effective IT system	3.86	0.95
Effective warehouse management system	3.72	0.86
Effective inventory management system	3.67	0.93
Regular problems of inventory management	3.56	0.91
Different product feature handling methods	3.42	0.87
Warehouse management for cost reduction	3.41	0.84
Specific product handling methods	3.37	0.93
Effective warehouse space utilization	2.79	0.92
Effective inventory picking system	2.65	0.95
Average	3.46	0.90

Table 2 shows the mean and S.D results for these variables: effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management. The results found that the firm responses were in the agreed level in which the mean=3.46 and S.D=0.90. Mean of benefits of specific soft ware for warehouse management is 4.17. Mean of effective IT system is 3.86. Mean of effective warehouse management system is 3.72. Mean of effective inventory management system is 3.67. Mean of regular problems of inventory management is 3.56. Mean of different product feature handling methods is 3.42.Mean of warehouse management for cost

reduction is 3.41. Mean of specific product handling methods is 3.37. Mean of effective warehouse space utilization is 2.79 and Mean of effective inventory picking system is 2.65.

Table 3
The average of effective warehouse management factors

Variables	*mean*	*S.D*
Different product feature handling methods	3.50	0.85
Effective warehouse management system	3.57	0.71
Specific product handling methods	3.57	0.92
Effective inventory picking system	2.98	0.92
Effective warehouse space utilization	3.52	0.82
Warehouse management for cost reduction	3.18	0.88
Benefits of specific soft ware for warehouse management	3.33	0.88
Effective inventory management system	3.53	0.75
Effective IT system	3.18	0.96
Regular problems of inventory management	3.04	0.89
Average	3.34	0.85

Table 3 shows the mean and S.D results for these variables: effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management. The results found that the firm responses were in the agreed level in which the mean=3.34 and S.D=0.85. Mean of different product feature handling methods is 3.50. Mean of effective warehouse management system is 3.57. Mean of specific product handling methods is 3.57. Mean of effective inventory picking system is 2.98. Mean of effective warehouse space utilization is 3.52. Mean of warehouse management for cost reduction is 3.18.Mean of benefits of specific soft ware for warehouse management is 3.33. Mean of effective inventory management is 3.53. Mean of effective IT system is 3.18 and Mean of is regular problems of inventory management 3.04.

CONCLUSION AND DISCUSSION

Based on the literature and responses fromentrepreneurs who are doing the warehousing business, they appear to be some consensus on the overall factors on effective warehouse management. Warehouse space utilization is always different from manufacturing practice. The manufacturing materials continuously come, however it directly affects on warehouse space planning. Warehouse planning must be adjusted according to the changing of material flow planning (Frazalle 2002). Rack design for materials or products is very important since it has an

influential on warehouse space utilization both vertical and horizon dimensions. Focused on gaining efficiencies, maximizing available warehouse space and keeping safety environment, the organizations are integrated more rack, shelving and storage into their warehouse facilities(McCrea 2016). Unused pallets need to have the specific storage areas. The unused pallets will be immediately needed when the products without pallets arrived the warehouse. In some case, customers do not want pallets, customers need only product containers then specific areas for pallets collection are very important. In food processing plants, sanitation is always priority then pallet handling conveyors must not be located in the location of food processes. They need to have specific areas for pallets location(McMahon 2012). The new computer program helps support effective warehouse management and improves storage equipment inside warehouse such as console shelving and pallets. Working with the computer system must be simple for workers since new computer system currently involves both new warehouse building and warehouse renovation.

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