

The Warehouse Management Efficiency of SFC Excellence Co., Ltd

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Abstract—This study aims to 1) compare warehouse management efficiency based on personal data and 2) analyze the impact of warehouse management on efficiency. Data from 200 employees of SFC Excellence Co., Ltd. were analyzed using percentages, means, t-tests, One-Way ANOVA, and Multiple Regression Analysis. Most respondents were male, aged 21–30, with undergraduate degrees, earning under 15,000 baht monthly, in staff positions, and with less than six years of experience. Differences in personal data, such as gender, age, education, and income, affect warehouse management performance different ways. Goods receipt, storage, picking, and delivery significantly influence performance at the 0.05 level.

Keywords— Efficiency, Warehouse management, SFC Excellence Co., Ltd.

I. INTRODUCTION

Nowadays, businesses realize the important of logistic cost management conceal in every business activity and industry. It results in the development and increasing complexity of logistics operations to be used as a strategy for driving business competitiveness. Therefore, this issue has resulted in a growing preference for utilizing Third-Party Logistics Providers, who are specialists in comprehensive logistics services. This trend has also led to the increasing use of premium goods businesses, offering products for rent, designed to support fully integrated logistics systems. Furthermore, some major retail operators with strong capabilities in logistics have expanded their operations to include the construction of premium warehouses for their own business activities. This has gradually transformed the structure of Thailand's warehouse industry, shifting toward premium warehouse operations. Consequently, competition in the goods business has intensified, particularly in management processes. Companies are now focused on improving and modernizing their operations by eliminating non-value-added processes to better meet customer demands (Chaimaikram, 2015).

Warehouse management is considered an important tool in helping manufacturers achieve their objectives. Therefore, the evaluation of effective and accurate warehouse operations leads to benefits in warehouse management, as it enables managers to identify the variables that influence warehouse effectiveness. (Kattathornsappakoon and colleagues, 2018)

Inventory management that every company should consider includes minimizing raw material storage. The products must be sufficient to meet production or export demands and must always be ready for production or export. Inventory management encompasses the processes of inventory procurement, control planning, production, inventory control, inventory storage, and inventory transportation. (Luesak, 2012)

Warehouse management planning is a crucial part of a strategic approach that helps businesses achieve success and compete effectively in the business environment. Warehouse management is considered one of the most important components of the logistics system. It requires several essential elements to work together, along with the ability to manage complexity through efficient administration. This involves implementing effective systems, employing professional personnel, and ensuring systematic and efficient operations. Therefore, warehouse management plays a vital role in the business sector. Its key responsibilities include the movement and storage of goods, warehouse layout planning, and selecting appropriate equipment for warehouse operations. (Keadtuam, 2012)

Inventory management activities involve holding stock, which accounts for approximately 47% of total logistics costs. It is one of the key logistics management activities, second only to transportation. The role of warehousing focuses on optimizing space utilization to achieve maximum efficiency relative to total costs. Inventory directly impacts a business's profitability and losses. Effective warehouse management involves keeping inventory to a minimum since it represents a significant cost, including financial investment, opportunity costs, product maintenance costs, and storage space costs for holding raw materials. Warehousing is an activity influenced by both supply and demand. The primary role of warehousing is to reduce delivery lead time or the waiting period for product manufacturing. Therefore, core activities include the movement of goods, maximizing space utilization, and responding to inventory and raw material storage needs. These activities should be managed using forms for receiving and issuing goods and controlling inventory levels through both physical and electronic documentation. Supply chain logistics management inevitably requires inventory. Maintaining an appropriate level of inventory creates a balance within the warehouse while keeping costs at their most economical. It also preserves the ability to deliver products promptly to meet customer demands,

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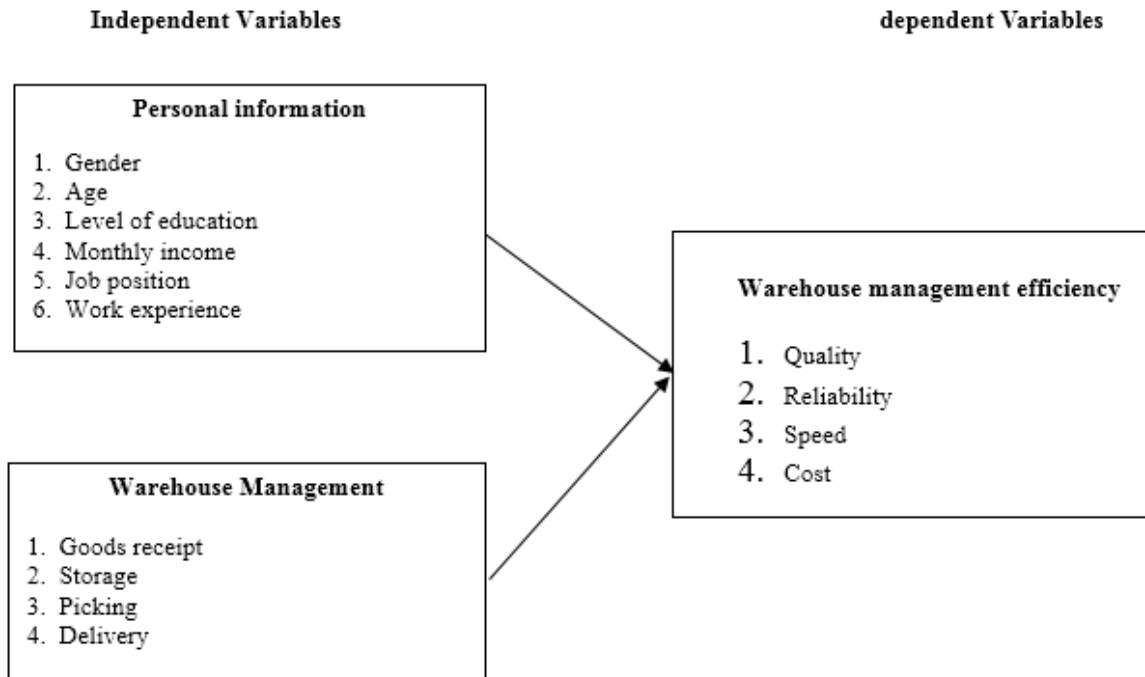
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adhering to a Just-In-Time (JIT) approach. (Kattathornsappakoon and colleagues, 2018)

From the above background, the researcher is interested in studying the warehouse management efficiency of SFC Excellence Co., Ltd. to gain insights that can serve as a guideline for improving warehouse management and ensuring sustained efficiency and effectiveness.

II. RESEARCH METHODOLOGY

Data from 200 employees of SFC Excellence Co., Ltd. were analyzed using percentages, means, t-tests, One-Way ANOVA, and Multiple Regression Analysis



C. Literature review

Warehouse management involves the management of receiving and storing goods refers to the delivery of goods to recipients for sale activities. The primary goal of warehouse management in business operations is to ensure systematic processes that maximize investment returns. This includes quality control in storage, order picking, and loss prevention, aiming to reduce operational losses. Effective warehouse management ensures the lowest operational costs while maximizing the utilization of available space. (จิตราวุฒ บปฤสสะโร, 2559)

Mainly, warehouses follow similar standard processes, including receiving goods, storage, picking, and delivery, with each process involving specific details of warehouse management (ณัฐนนท์ รุ่งเจริญ, 2561: 15) as follows:

1) The receiving process involves activities such as accepting goods from suppliers, counting their quantity, and assessing their quality based on the purchase order. The goods must meet the specified quantity, condition, and delivery timing requirements.

The process of receiving goods must align with the purchase order provided to the supplier. For large deliveries, a common

A. Objective of the Research

1. To compare warehouse management efficiency of SFC Excellence Co., Ltd based on personal data.
2. To analyze the impact of warehouse management on the efficiency of warehouse operations at SFC Excellence Co., Ltd.

B. Research Hypothesis

1. Different personal information influences the warehouse management efficiency of SFC Excellence Co., Ltd. Different.
2. Warehouse management affects the warehouse management efficiency of SFC Excellence Co., Ltd.

method for manual counting is random sampling, such as inspecting 10% of the delivered boxes or pallets to verify their quantity and quality. The results are then compared with the purchase order and delivery note to ensure consistency. The percentage of random checks depends on the level of trust the business has with the supplier. For new suppliers, businesses should count all delivered goods to ensure completeness and evaluate the supplier's quality for future purchasing decisions. Currently, technologies such as barcodes and RFID are widely used for inventory counting. Barcodes attached to boxes or pallets allow businesses to scan items conveniently using portable devices. RFID technology enables goods to pass through a radio frequency reader, which instantly captures the data, making inventory counting faster and more efficient. While these tools facilitate quantity verification, product quality inspections still rely on human assessment to ensure the goods meet required standards.

2) The put away process is the act of storing goods within the warehouse premises. Nowadays, warehouse management systems are used to help with this process, specifying appropriate storage locations for goods of each category. Whether using warehouse management system software or manual calculations, the necessary input data for storing goods

includes the following: dimensions (width x length x height), weight of the pallets, results from ABC inventory analysis (with fast-moving items being stored closer to the delivery point for customers), current customer orders, product categories, shelf size and weight capacity, and data on sales that frequently occur with other products.

The information used for consideration in storing goods in the warehouse helps analyze and decide how to organize inventory. For fast-moving items, in addition to being stored in areas close to the delivery point to reduce search and handling time, they should also be placed in locations that enable quicker delivery to customers. For slow-moving items, they should be stored in higher or farthest locations to free up front or central spaces for fast-moving items. Additionally, storing similar products together in the same area helps make it easier and quicker to locate the items.

3) The picking process, aimed at reducing time spent searching, moving, and delivering goods to customers, must be done accurately according to their requirements. This involves using specific techniques for picking goods, determining a schedule for picking, and utilizing machines in the picking process. The "picker to goods" strategy involves collecting goods by having the picker move to the items in the warehouse.

4) The delivery process is the final stage of the warehouse workflow. Once all items have been collected from their storage locations in accordance with the purchase order, the next step is to deliver the goods to the customer. Essential resources for the delivery process include loading and unloading areas, connection points, or designated warehouse entry and exit doors for transport vehicles. In some cases, the delivery location may be the same as the receiving location. To avoid confusion or congestion, scheduling separate timeframes for receiving and delivering goods can be beneficial. Generally, receiving goods occurs in the morning, while deliveries take place in the afternoon. This schedule allows the morning to be dedicated to gathering goods based on orders, enabling deliveries to be carried out efficiently in the afternoon.

Theories related to efficiency

Relying on a concept “Sand Cone Model”

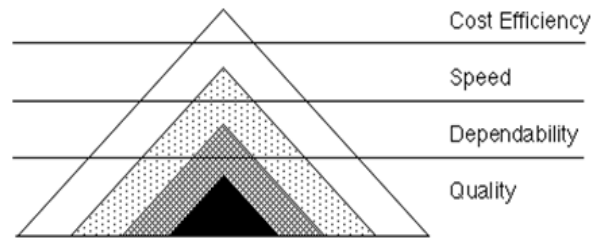


Fig. 1: The relationship of creating a sand cone model. Source: Ferdows and De Meyer (1990).

The image illustrates the creation of a sand cone by layering sand, starting from the base, which represents quality. Quality acts as the foundation, and then additional layers of sand are added to build different levels, representing dependability, speed, and cost. As the layers rise, the base of the cone expands, strengthening its structure. This model consists of Quality, Speed, Dependability, and Cost.

D. Data Research Results

The total of respondents were 200 people. The majority of them were male, aged 21–30, with undergraduate degrees, earning under 15,000 baht monthly, in staff positions, and with less than six years of experience.

1. Compare the warehouse management efficiency of SFC Excellence Co., Ltd. based on personal data.

TABLE I: COMPARISON OF EFFICIENCY BASED ON PERSONAL DATA

No.	Personal data	Efficiency		P-Value	Test results
		t	F		
1	Gender	- 3.972		0.000*	แตกต่างกัน
2	Age		22.266	0.000*	แตกต่างกัน
3	Level of education		10.529	0.26	แตกต่างกัน
4	Monthly income		12.352	0.000*	แตกต่างกัน
5	Job position		12.666	0.000*	แตกต่างกัน
6	Work experience		7.193	0.001*	แตกต่างกัน

* Statistically significant at the .05 level

From Table 1, the analysis results indicate that different personal data such as gender, age, education level, average monthly income, job position, and years of work experience significantly affect the warehouse management efficiency of SFC Excellence Co., Ltd. with statistical significance at the 0.05 level.

1. Warehouse management factors affecting the warehouse management efficiency of SFC Excellence Co., Ltd., in terms of receiving goods, storing items, picking, and delivery, in that order.

TABLE II: THE IMPACT OF WAREHOUSE MANAGEMENT ON EFFICIENCY OF SFC EXCELLENCE CO., LTD.

Warehouse management	B	Std. Error	Beta	t	Sig.	Test results
)Constant)	0.386	0.141		2.733	0.007	
Goods receipt	0.238	0.057	0.268	4.139	0.000*	๓
Storage	0.159	0.051	0.168	3.092	0.002*	๓
Picking	0.281	0.054	0.289	5.225	0.000*	๓
Delivery	0.234	0.058	0.255	4.014	0.000*	๓

*Statistically significant at the .05 level (2-tailed)

From Table 2, the analysis of warehouse management factors affecting the warehouse management efficiency of SFC Excellence Co., Ltd. reveals that receiving goods, storing items, picking, and delivery have a statistically significant effect on warehouse management efficiency at the 0.05 level.

III. CONCLUSION

The study showed that warehouse management in terms of goods receipt, storage, picking, and delivery affects the warehouse management efficiency of SFC Excellence Co., Ltd.

IV. DISCUSSION

The warehouse management of SFC Excellence Co., Ltd. is of high importance, which is consistent with the research by Chaojan, A. (2018), who studied efficiency increased of storage management at Summit Group Corporation. The results revealed that warehouse management is of high importance, aligning with the research by Kattathornsappakoon, P. (2018), who examined factors affecting warehouse management efficiency personnel of Access Multimedia Co., Ltd. It was found that the overall warehouse management is of importance.

The warehouse management efficiency of SFC Excellence Co., Ltd., according to the study, was found to be of high importance overall. This finding is consistent with the research by Chaojan, A. (2018), who studied efficiency increased of storage management at Summit Group Corporation. It was found that the overall warehouse management efficiency is of high importance. Similarly, the research by Yutthacharoenkij, R. (2023), which examined factors affecting logistic management efficiency in the 2019 Corona virus outbreak, also found that warehouse management efficiency is of high importance. Furthermore, the research by Kattathornsappakoon, P. (2018), which investigated factors affecting warehouse management efficiency personnel of Access Multimedia Co., Ltd, showing that warehouse management efficiency is of high importance.

A. Suggestion from the study

It is recommended to conduct in-depth research on each aspect of inventory management activities to identify problems and solutions that address them effectively.

The researcher has the following recommendations based on the study

1. Good Receipt: Executives of the organization should adopt technology to enhance the efficiency of goods receipt.

Barcodes can be used for scanning goods upon receipt to increase the speed of counting or inspecting the condition of goods. Additionally, RFID (Radio Frequency Identification) technology can be implemented by attaching RFID tags to various objects to provide unique identification or serial numbers. For example, RFID can replace labels or barcodes on products, helping to reduce errors in operations.

2. Storage: Executives of the organization should ensure the availability of sufficient facilities for storing goods, organize the workspace environment, and prepare storage or put-away procedures. Additionally, a storage system that aligns with the delivery process should be implemented to enable faster product dispatch.
3. Picking: The warehouse layout should be systematically optimized to facilitate efficient product picking and reduce working time.
4. Delivery: The organization's executives should provide material handling equipment to assist with the movement of goods, ensuring employee safety and reducing the risk of damage to goods during handling.

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