

ENHANCING SUSTAINABLE COMPETITIVENESS TO THAI SME BY USING LOGISTICS AND SUPPLY CHAIN MANAGEMENT

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Introduction

Thai SME firms are a major driven to Thailand's economic growth in many decades. The questioning issue is how to sustainably create competitive advantage to Thai SME firms. Thai government continuously boosted Thailand's economic growth through many projects. One of dominant policy is how to improve logistics capacity building and efficiency of Thai SMEs. The government expected that the success of logistics projects would boost sustainable economic growth.

After launching the logistics project in Thai SME firms, there are problems and barriers associated with the implementation, especially, in the area of integrating marketing, production, and logistics. With other areas, the government put full efforts to use marketing and production strategies for developing and promoting SME products in world market. However, the role of logistics has been still ignored or at least seen as cost-generated activities. Therefore, the aim of the study is to examine the current status of logistics' implementation for Thailand's SME firms. It also examines factors affecting the implementation, including using logistics strategies for building competitive advantage. Finally, the effectiveness and efficiency of SME firms' logistics implementation will be examined.

Literature Review

The literature from four leading logistics journals between 2010 and 2014 (International Journal of Logistics Management, International Journal of Physical Distribution & Logistics Management, Journal of Business Logistics, Logistics, and Transports and Transportation Review) were reviewed to address issues related to implementation of logistics strategies in SMEs. The relationship between logistics implementation and its organizational effectiveness, especially focusing on the SMEs was also examined.

Logistics refers to the art of managing the flow of physical and information from a source to user (1). It encompasses all of the information and material flows throughout an organization and interorganisation (2). Logistics includes everything from movement of a product or from a service that needs to be rendered, through to management of incoming raw materials, production, storing of finished goods, its delivery to the customer and after sales service (3). The role of logistics function is a key determinant of business performance to ensure that there is smooth flow of material and information throughout a company's supply chains (4). Logistics has also become more prominent as a critical success factor in competitive advantage (5, 6) through reducing costs and improving service level or responsiveness to customers.

Problems arising in small firms include delayed and inaccurate information, incomplete services, slow and inefficient operation, and a high product damage rate (5). While the western small firms are developing and implementing quick response systems, efficient consumer response, cross docking and other areas of logistics management (3,4,5). These concepts are not yet well recognized by Thailand's SME firms. Normally, Thai SME

firms start their operations with simple business processes. The SMEs effectively lack strategic logistics formulation and implementation. The consequences are an inability to provide interlinked services, high operating costs and lack of flexibility in responding to changing demand.

Authors (4,5,and 6) identified the critical success factors in effective logistics management including not only good planning, close relationship with partners, effective warehouse and distribution management, and effective order processing, but awareness in logistics concept and mindset would be pervasive to all levels of an organization.

The literature review led to conclusion that logistics is power tool to drive and improve efficiency of operations and respond to customer satisfaction. Currently, SMEs are increasingly recognizing the role and importance of logistics management as a strategic tool for enhancing competitive advantage. It revealed that effective logistics adoption would be carefully considered associated with factors affecting physical and information flows. Further, it revealed that studies on SME firms in Thai context were few and very limited, especially in logistics management. Exploratory research found that SME firms have not given importance or priority to logistics management. Logistics activities (e.g. purchasing, transport and warehousing) are overlooked as potential areas for building competitive advantage.

Research Methodology

To achieve the research objective, this study developed its research data through two sources. First, secondary sources were conducting through *literature review* and *data analysis*. Secondly, primary data were collected by using *survey method*, *in-depth interviews* and *observation methods* for examining a relationship between variables and answering research questions. The literature reviewed was related to logistics management, logistics implementation and its effectiveness. Secondly, relevant data was collected by questionnaire surveys and in-depth interviews. This part of the research focused on exploring the current status of logistics implementation and its effectiveness in Thai SME firms. In-depth-interviews were used specifically to obtain deeper insight into the relevant opinions from 20 Thai SME owners.

The questionnaire was used for eliciting attitudes and perceptions of SME firms in Chonburi province, Thailand. First, pre-testing was carried out to forty five respondents, which found Cronbach's Alpha equaled 0.945. There were some minor changes in some items of questionnaires. Three weeks later, the second pre-testing was conducted on the same group of respondents, with Cronbach's Alpha equaling 0.9564. The result showed that the research instrument had a highly acceptable degree of reliability.

The key measures were based on assessing their perceptions related to roles and the importance of logistics, including implementation of logistics functions. Further, they also examined factors affecting implementation and effectiveness and efficiency after implementing logistics strategies in their operations. The questionnaires were randomly distributed to sampling targets by applying a five-point Likert-type scale. The 148 questionnaires were distributed in three major channels: *postal mail*, *face-to-face* and *electronic mail (e-mail)*. The total response rate generated was very good with 126 respondents or 85.1 percent. The span of time took four months. The data was processed with SPSS 14.0.0. Verifying dimensionality and reliability of each construct that included factor analysis, and item-to-total correlation and regression analysis were conducted.

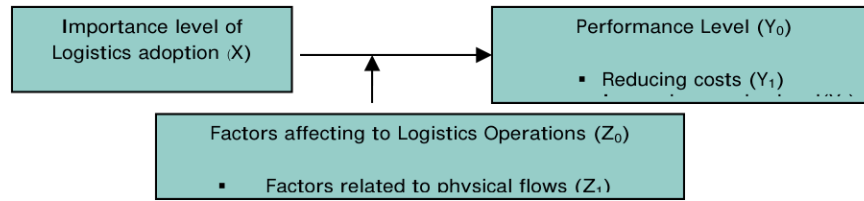


Figure 1 theoretical framework of the study

The literature review provides solid conceptual framework on relationship between importance level of logistics adoption and performance level (Y_0) by reducing costs (Y_1) and improving service level (Y_0). Performance-Importance Analysis (P-I analysis) is used model for testing hypothesis. Based on theoretical framework, variable X covers SME firms' implementation of logistics functions (i.e. purchasing, transport and warehouse). Variable Y_0 covers effectiveness from logistics implementation and building competitive advantage to firms. After having conducted factor analysis, the variable was grouped in 2 parts: Y_1 and Y_2 which were building competitive advantage through cost reduction and improving service level to customers respectively. Variable Z_0 included factors affecting logistics implementation and using logistics to build competitive advantage. The variable (Z_0) was divided in 2 parts: Z_1 and Z_2 were factors related to physical flows and information flows respectively

The model was based on two hypotheses of SME firms' behavior to logistics implementation and using logistics strategies for building competitive advantage:

1. There is a relationship between importance level of logistics adoption and performance level (Y_0).
2. There is a relationship between factors affecting logistics operations and effective logistics implementation. Identifying the factors would facilitate SME firms to develop carefully more integrated logistics strategies.

Research Finding

The results show that samplings are normal distribution, and it is significantly used as representative of the population. The results show that variable Y_0 , which means adoption of logistics to build competitive advantage can be divided in two groups: Y_1 and Y_2 which are creating competitive advantage through cost reduction (e.g. operating costs, logistics costs), and improving service level to customers (e.g. responsiveness, flexibility) respectively. Variable Z_0 includes factors affecting logistics implementation for building competitive advantage. The variable is also divided in two groups: Z_1 and Z_2 , which are factors related to physical flows (e.g. effective purchasing, warehouse, transport), and information flows (order processing, information technology for logistics and warehouse management system) respectively.

The study examines factors affecting SME firms' operations and business. The results show that most firms identify the following factors: lack of raw materials (80%), lack of skilled labors (72%), product quality (70%), intense competition (65%), economic conditions (63%), fuel prices (63%), customer demand (60%), funds for investment (50%), and support from government sectors (45%).

It also identifies factors influencing logistics implementation, as the result reveals as follows: warehouse management system (90%), after sale services (86%), fuel prices (83%), information technology (IT) for logistics (82%), order processing (80%), material management (76%), transport system (73%), logistics knowledge and management (74%), physical distribution management (62%).

Variable		Sig.	P-Value
Independent	Dependent		
X	Y ₁	0.001	-0.678
	Y ₂	0.000	0.620
Z ₁	X	0.000	0.804
Z ₂	X	0.000	0.840

Table 1 summary relationship between variables

After testing the hypotheses, the results show a significant relationship between tested variables in some degrees. It shows that there is a negative and moderate relationship between the adoption of logistics management (**X**) and building competitive advantage through reducing costs (**Y₁**). Furthermore logistics adoption is positive and moderate relationship with improving service level (**Y₂**). Further, it also found that there is strong relationship between these factors and effective logistics implementation. Importantly, the factors have influence in a higher degree on logistics operations and management, especially factors related to information flow. Physical flow (**Z₁**) has a relationship to a lesser degree with improving service levels to their customers.

Discussion and Research Implications

The results indicate significantly strong relationships between variables. The first hypothesis reflects that firms recognize the importance and need of logistics implementation for building and enhancing their competitive advantage. Although adoption of their logistics tends to reduce operating costs more than improve service levels, it also reflects that firms have an expectation of outcomes from logistics implementation to a high degree. Further, it found that resources have not been fully utilized. Many Losses of raw materials, for example, occurred in production and movement processes. Transporting finished goods to markets took several weeks, instead of a few days. The symptoms reflect that firms sufficiently lack essential skills and knowledge how to effectively implement the logistics strategies to utilize efficiently their resources to minimize costs and improve service levels to customers.

It also found that some factors using IT for logistics for example have a strong contribution and influence on logistics functions and operations. The question is why firms provide the factors related to information flow a priority. Mainly, the reason is that firms use the internet as importance channel for transaction and receiving orders from customers. However, the internet has been narrowly limited of using only the four and five star products'. Further, some factors related to physical flows influence logistics implementation. Poor warehouse and distribution management, for example, would influence to logistics implementation, in a negative way including their competitive advantage.

While the study covered a wide range of SME products, it only surveyed in a specific province. It uses an inductive method or inferential statistics. It studied a small group, but the results should tend to represent the whole population. Therefore, in a broad view, SME firms would recognize logistics' role and importance as a value-added tool for their operations, including considering as key driving for enhancing their competitive advantage. They would increasingly put more focus on adoption of logistics techniques and strategies with their

operations, especially in weak logistics functions (e.g. inventory, distribution and transport management).

Further, firms would seek an optimized way for managing logistics functions to reduce costs, in particular non-value added costs. Also, to improve the service level, they would understand importance of customer service, including how to effectively and efficiently manage physical and information flow with higher service quality to enhance customer satisfaction. Controlling is one of the major activities which have been ignored. They would adopt a performance measurement system to monitor and control logistics functions effectively and efficiently. The research implications reflect that building and adopting effective logistics and supply chain strategy offers opportunities to create sustainable competitive advantage. The role of support and assistance from government sectors is still needed, including seeking a way to build sustainable networks among SME stakeholders.

Conclusion and Recommendations

The paper examined issues related to logistics in the case of Thailand's SME products. The literature was reviewed in area of small and medium enterprises (SME), SME products, logistics and supply chain. The review provided a foundation for clearly developing a conceptual framework and research objectives. The rigorous methodology was conducted to generate a reliable and valid measurement instrument. Questionnaires and in-depth interviews were a major tool for collecting data. The sampling was randomly chosen to ensure that it represented characteristics and attributes of the population. The obtained data was analyzed using SPSS.

In conclusion, SME firms have been limited in understanding the role and importance of logistics affecting their operations. However, it found that firms have mostly low education, including low skills and knowledge related to logistics implementation. The importance of factors influencing logistics operations has been ignored. Further they lacked a creative system, process, and culture to support systematic adoption of logistics activities. In addition, they lacked efficient and effective integration of activities related to physical and information flows. Therefore, they urgently need to develop and improve understanding and knowledge of logistics to firms. It includes encouraging them for adopting new logistics techniques and management. Supports and assistances of government sectors still need with the aim are to building sustainable networks, including providing essential facilities and infrastructures.

Further Research

The study examines issues of Thailand's SME industry related to logistics implementation and its effectiveness, and it provides broad views of SME products (foods, cloths and gifts), but needs for focusing on logistics implementation on specific products are necessary so that the results can be effectively applied to specific SME firms.

Further, studies mostly use questionnaire survey to the respondents; it was found that it is difficult to make clearly understandable to firms, who have mostly low education, through all items of questionnaire. Future research would find an appropriate methodology to elicit their attitudes and opinions based on research objectives.

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