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Competitive Capability of Supply Chain Management in Case of Automotive Parts Industry

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ABSTRACT

Abstract—The objectives of this research were to study the influence of market orientation and supply chain management on competitive capability in case of the automotive parts industry in Thailand. This study employed by survey research and questionnaire was used to collect the data from 400 entrepreneurs in the automotive parts industry in Thailand. The descriptive statistics and multiple regression analysis were used to analyze data. The results revealed that the overall dimensions of marketing orientation, namely, responsiveness, intelligence generation, and intelligence dissemination were rated at the high level. As well, the overall dimensions of supply chain management, namely, collaboration, communication, trust, and commitment were also rated at the high level. Furthermore, the hypothesis testing results showed that supply chain management and market orientation affected competitive capability of the automotive parts industry in Thailand which these two variables could be combined to predict competitive capability of the automotive parts industry in Thailand by 31.5 percent.

Keywords—Automotive parts industry, Competitive capability, Supply chain management

INTRODUCTION

Thailand is making progress comparable to the western countries in many directions. Despite, there are criticism from some sectors of society that a stronger focus on economic development and industry will have negative impact on the natural environment and the ethical behavior of most people. However, the development of technology is something that cannot be denied If Thailand still needs such developments. The best thing to do is to develop and promote domestic industries coupled with social responsibility (Pollution Control Department, 2021; Ittner et al., 2003; Henri & Journeault, 2008). Thai government has given priority to the promotion and development of the industry continually, it has resulted in several advantages. Empirical data shows that since the first economic and social development plans up until now, Thailand's middle class has been increasing shows that an income distribution has been improved and the infrastructure has been developed significantly. One of the industries as a result of the success of the government in promoting and developing is automotive parts assembly industry that the majority of the investors are foreign investors especially from Japan. This shows the confidence of foreign investors on the potential of Thai manpower, political system and existing infrastructure (Thailand Automotive Institute, 2019).

The growth of the automotive industry in Thailand has relationships with employment and there is no stability in the investment as they should be. Investment continues to be volatile with the market environment and the countries politic obviously. To make Thailand the strong hub of investment in the region, this industry also needs constant support from the public sector. For the survey results in the year 2010, Thailand has the potential to produce car as number one of ASEAN but is ranked 7th in Asia and is ranked 20th in the world market. Such information clearly shows that Thailand is still facing severe competition from major competitors in many other countries. Most of all, however, are the most developed countries. Therefore, if Thailand wants to be the center of the world in automotive industry, the technological development and labor potential of Thailand, both at the operational level and higher level must be continually developed (Thailand Automotive Institute, 2019)

Thai automotive parts industry has faced more intense competition situation especially from foreign competitors at a lower competitive cost such as China, India, Vietnam and Indonesia. It was necessary for Thai manufacturers of automotive parts to adjust their operations by creating business networks and innovative use of design and development production process, improving the quality of production as well as reduction the loss of production by upgrading production technology. Thailand also needs to develop personnel at all levels of the organization in order to increase the competitiveness of Thailand's automotive parts manufacturers from upstream

to downstream in the long run (Cachon & Lariviere, 2005). Moreover, the standards of automobiles and auto parts are likely to increase in the future including the safety standards of road user and environmental standards. The automotive industry and automotive components industry need to focus more on standards and production technologies. There is a high possibility of the introduction of machinery production with high technology to replace workers, such as automotive production system and mechatronics in order to improve quality and expand production volume also to offset the labor shortage situation in the future together. Hence, the future workforce must possess the skills needed to operate equipment and technology to produce advanced and more complex products. The data shows that the automotive industry assembly of Thailand is facing intense competition both from the domestic environment and competition from global markets. As a result, all relevant sectors as well as government as policy maker and the private sector must continue to develop and improve the organization's ability to increase competitive advantage, not just waiting for help from the government agencies which could not contribute to the sustainable development of the organization.

From the trend of increasing severe problems relating to competition in the automotive components assembly industry, the researchers are interested to study the concept of the customer's needs and supply chain management used in the development of the competitiveness of Thai automotive parts assembly industry. The findings could be an important information to the government and entrepreneurs in the private sector to develop the automotive parts assembly industry of Thailand to compete with the competitors in foreign countries.

LITERATURE REVIEWS

From related theories and research works, the researcher used them to define the concept and conduct questionnaire design as follows.

A. The Concept of Market Orientation

There are two approaches of the concept on market orientation that has been trusted and used as a guide to conduct the research widely. The first one is the study of Kohli & Jaworski (1990), which defined market orientation as the introduction of marketing concepts into practice with three basic elements included gathering market intelligence generation, intelligence dissemination and bringing that knowledge to responsiveness at the business unit level. To collect market intelligence across the organization was to gather information about the needs and preferences of customers and working environment in the organization. Then, the company must communicate, disseminate and extend marketing knowledge to related departments and individuals within the organization. Finally, the business which focus on market orientation, must respond to the needs of customers through disseminating the received wisdom in the organization. The second approach is the concept of Narver & Slater (1990) that studied market orientation on cultural perspectives and defined market orientation that is the organization culture that can create required behavior effectively and efficiently to develop superior value for buyers. Therefore, the market orientation is creating superior results of business operation.

B. The Concept of Supply Chain Management

Supply chain management is to manage the flow of three main things that is the flow of material, the flow of information and the flow of finance (Cachon & Lariviere, 2005) by the material flow to the movement of goods and services to the market with the authenticity of place and time. The unit will also include procurement, production, maintenance, recycling, transportation, and inventory replenishment. Part of controlling the flow of information will focus on orders and information dissemination thoroughly in the chain (Neely, 2007). For financial flows management, it is the working together among partners by reducing the time to perform but can be implemented effectively (Kaplan, & Norton, 2005). In other words, the supply chain is a network of organizations to coordinate upstream to downstream, in terms of operating systems to achieve the goal of delivering product value to customers which is the characteristic of the materials and information flows within and between enterprises (Kerdpitak et al., 2022). The general form of the supply chain includes suppliers, manufacturers, distributors and customers.

C. The Concept of Competitive Ability

The rapidly changing and fiercely competitive environment of globalization causes the increasing complexity and uncertainty of market mechanisms. The resulting changes client demand by having the expectations in goods and services that are new, valuable with higher quality. Therefore, in order to maintain their ability to compete, the organization must have a clear strategy to retain existing customers and find new ones. The organization must

be aware of the strengths that will create a competitive advantage over the competitor. The concept of Porter (1998) noted that it was the ability to compete that the organization created position on the competitive advantage over the competitors.

METHODS

This research is a quantitative research. The samples used in the research were 206 entrepreneurs of Thai automotive parts assembly industry selected by stratified random sampling. Data collection questionnaire was employed for data collection with each question was the application of measures of related research. The content validity test of the questionnaires with the IOC and reliability questionnaire test with the Cronbach's alpha was conducted before doing the field survey. Monitoring questionnaire used in this research was conducted by Cronbach's Alpha. Testing the reliability, internal consistency of each element of the measure in the question found that Cronbach's alpha coefficient value is greater than 0.7. According to established criteria, the questions have sufficient quality to collect the data.

Data analysis Data were analyzed using descriptive statistics including percentage, mean and standard deviation to meet the first objective of the research. Also, to study variable on market orientation and supply chain management affect the competitiveness of the automotive parts assembly industry in response to the second objective of the research. Collected data has been processed with statistical software, analysis and interpreted with logical connections to the conclusion. Data were analyzed by using statistical analysis consist of descriptive statistics to enumerate the properties of the studied population including all variables and the measurement used in research. Including hypothesis testing used Multiple regression analysis aimed to investigate the relationship of the variables in the research framework.

RESULTS

Descriptive results

Demographic data of 200 samples shows that most of the respondents were male, age ranged between 31-40 years with work experiences between 11-20 years and holding Bachelor Degree.

The overall market orientation and each aspect included the ability to respond, the ability to create awareness and the ability to disseminate awareness were at a high level. The overall supply chain management and each aspect included working together, communication, trust and commitments were at a high level. Lastly, the overall competitive ability and each aspect included delivery, product innovation, flexibility in production, Product quality and production cost were at a high level.

Hypothesis testing results

The hypothesis testing, the researcher used multiple regression analysis and the null hypothesis is rejected when the Sig. is less than 0.05. By using multiple regression analysis, the results show the value of the coefficient influence (b), standard error (SE) and testing the statistical significance of T-test.

The hypothesis testing result found that supply chain management and market orientation affect the competitiveness of the automotive parts assembly industry at the significance level of .01. The variable of supply chain management and market orientation has influenced the competitiveness of the automotive with regression coefficients equal .276 and .273, respectively. The two variables could predict the competitiveness of the automotive parts assembly industry of 31.5 percent as shown in Table 3.

Table 3
The Analysis of the Competitive Capability of Supply Chain Management in Case of Automotive Parts Industry

Variable	B	SE	t	Sig.
Constant	1.965	.241	8.162**	.000
Supply chain management (x ₂)	.276	.048	5.820**	.000
market orientation (x ₁)	.273	.054	5.075**	.000
$r = .567, \text{Adjusted } R^2 = .315, R^2 = .322, SE = .35871$				

*Statistical significant at 0.01 level

CONCLUSION AND FUTURE WORK

Conclusion and discussion

For discussion on the first objective, the results of the quantitative analysis found that the overall market orientation and each aspect included the ability to respond, the ability to create awareness and the ability to disseminate awareness were at a high level. It is because automotive parts assembly industry in Thailand is an important industry. Also, on the subject of the parts production base Thailand seeks to be a leader in the manufacturing base in the region, allowing operators to focus on the importance of market orientation. Similarly, on the issue of overall supply chain management and each aspect such as working together, communication, trust and commitments were at a high level. It is because Thai automotive parts assembly industry has faced more intense competition situation especially from foreign competitors at a lower competitive cost such as China, India, Vietnam and Indonesia to compete for market share.

Therefore, the manufacturers of automotive parts assembly in Thailand have to do the adaptation on capacity building by creating business networks and innovative use of design and development and production process. Also, improving the quality of production as well as reducing the loss of production by upgrading production technology and developing personnel at all levels of the organization to be able to meet the demand of this industry. Thus, the entrepreneurs should put more focus on supply chain management [6].

For discussion on the second objective, the results showed that supply chain management and market orientation affected the competitiveness of Thai automotive parts assembly which have tested market orientation in supply chain management that focuses on the market. The results indicated that market orientation and supply chain management were highly correlated with the competitive ability of the organization and also complied with the research work of Stephen et al. (2009) which studied the relationship of the market orientation from the concept of Kohli & Jaworski (1990) which included the realization of the ability to learn, dissemination of awareness of ability and the ability to respond to the performance of SMEs would be measured by the acceptance of large retailers. The results of the study showed that the SMEs business strategy to focus on markets could predict the acceptance of a large retailer affecting before and after new products launching. It indicated that the market orientation has a positive impact on the performance of the organization.

Recommendations and future work

The market orientation is including the decision to do better understanding of customers, competitors and the distribution channels. To know about the changing needs of the market in order to be aware of all the alternatives that should be considered, learn about the competitors, seek new technology and then apply to the needs of the market. All the knowledge gained from the customers and competitors is a valuable asset that helps strengthen the organization to compete with the competitors and improve the supply chain management of the organization to meet the needs of their clients. In order to respond to the needs of the market, the organization must not only focus on the outside customers but also treat nicely to internal clients or employees who deliver value to customers, received a reprimand, listen to the demands of new services and products.

Innovation management on the dimension of innovation within the organization, the executives should find a new solution, use brainstorming regularly, provide support for the teams to do the experiment with new ways of working and provide opportunities for every worker involved in the initiative to develop new methods and new products. When the competition takes place, the management should actively respond to changes and improvements, and new ways to meet the needs of customers including stimulating the use of new technologies in the production process to increase productivity to meet customer demand.

Competitiveness to increase the competitiveness of Thai automotive parts assembly industry, the manufacturer of automotive parts in Thailand should conduct investment plans for research for three years or five years, invest in human resource development in the agency responsible for the development of products to customers. In addition, doing the benchmarking compared to the same parts of several customers to develop products/ parts provide better quality and lower cost in terms of cooperation of the manufacturers' organization. There should be a brainstorming session together with manufacturers and operators to improve the quality of manufactured parts / components. This should bring technology of partner applied to the production process and should send people in the organization to join in developing new parts to their customers, which can bring knowledge and technology transfer of further existing technology with partners.

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