DEVELOPING LOGISTICS COMPETITIVENESS OF AGRICULTURAL AND FOOD TRANSPORT OPERATORS IN UDON THANI

Akradet NAMSATHIEN[1], Suda SUWANNAPIROM[1] and Suntorn PHAJON[1]
[1] Development Administration, Suan Sunandha Rajabhat University, Thailand;
akradet113@gmail.com (A. N.); sudaronnawat@gmail.com (S. S.);
suntorn.ph@ssru.ac.th (S. P.)

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ABSTRACT
The agricultural sector plays a role in creating food security and generating income for the country. It is also an important source of employment. The development of the agricultural sector to have potential and competitiveness will be an important success factor in achieving the objectives of the national strategy in various fields target. The objectives of this research were to study the level of competitiveness development in logistics for agricultural and food transport operators in Udon Thani, and to study factors affecting the competitiveness development logistics of agricultural and food transport operators in Udon Thani using a questionnaire as a tool to collect information from 316 operators in the agricultural and food transport system in Udon Than. The statistics used to analyze the data were the mean, standard deviation, and multiple regression analysis. The results of the research revealed that: the development of competitiveness in logistics among agricultural and food transport entrepreneurs in Udon Thani was found to be at a high level. When considering each side, it was found that investment potential had the highest average, followed by service standards and personnel development, respectively. The organizational management factor, the development of logistics and transportation operations, and the ability to connect transportation can affect the development of logistics competitiveness for agricultural and food transport operators in Udon Thani 66 percent. The results obtained from this study will be used as a guideline for formulating policies to improve the competitiveness of logistics operators for greater efficiency.
Keywords: Competitiveness Development, Logistics, Transportation of Agricultural, Food Products

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INTRODUCTION

Thailand has a great need to develop the transportation system for the agricultural sector. It was found that Thailand has a population of up to 25 million people in the agricultural sector, or 40 percent of the total population. The agricultural sector can still generate income for the country's economy, about 9 percent of GDP, with important agricultural products such as rice, rubber, sugar cane, cassava, and oil palm, which are agricultural products and have a total export value of 80 percent of GDP in the agricultural sector, especially rice and rubber that Thailand is the leader in production and export, the highest in the world. (National Statistical Office, 2021) In addition, in 2020, Thailand was ranked as the world's 11th food producer and exporter, in line with the government's efforts to develop logistics competitiveness development. of the agricultural sector There is an action plan for the development of logistics in the agricultural sector (2020-2022) in line with the 20-year national strategic framework (2018-2037) in capacity building. In competition and the master plan under the national strategy is issue 7, logistics and digital infrastructure. It has two important goals: 1) Increase the efficiency of agricultural logistics management throughout the supply chain. 2) Encourage farmer institutes to be the main mechanism for agricultural logistics management, linking with entrepreneurs throughout the supply chain. (Bureau of Agricultural Economics, 2022)

The agricultural sector is a production sector that is important to the economy of Thailand, involving approximately 24 million people (Kobkul Modana, 2016), maintaining product price stability, and improving quality standards, as well as improving the quality of life of farmers Under the 20-year national development strategy that aims to raise the country from the middle-income trap to a developed country, the agricultural sector is necessary. That must focus on enhancing competitiveness along with creating food security and generating income for the country through the uniqueness and outstanding agricultural products, including taking advantage of the diversity of Thailand's biological resources along with the application of technology and innovation, and wisdom in developing and creating value for agricultural products as well as managing the ecosystem throughout the production chain. from production, processing, marketing, and consumption, including logistics and links to other manufacturing sectors (Wilairat Sirisoponsilp, 2018).

The agricultural sector plays a role in creating food security and generating income for the country, as well as being an important source of employment. Developing the agricultural sector to have potential and competitiveness will be a critical success factor in achieving the objectives of national strategies in various fields. especially in terms of building competitiveness by raising productivity and creating added value for products and agricultural products, and in terms of creating opportunities and social equality by distributing income to communities and reducing inequality. Building growth on the quality of life that is friendly to the environment by creating growth that takes into account the sustainability of natural resources and the environment and balancing and developing the public management system (Logistics Development Strategy Division, 2021)

The government has given importance to basic transportation and reduced logistics costs to increase the country's competitiveness. Cheaper transportation was achieved by investing under the action plan for urgent transportation (Action Plan) from 2016-2018 with a total amount of 3,026,408.99 million baht (Jittichai Rutkanoknart, 2018). Regarding transportation in each form, it was found that the government had invested in transportation through the rail system. The majority of the total investment amount is 74.44 percent, with the remaining 22.06 percent, 2.18 percent, and 1.32 percent invested in road, air, and water transportation, respectively (Sunanta Charoenpanying, 2016). Comparison of transportation situations and problems in each form of the country, as well as plans at the policy level related to transportation in the country (Ministry of Transport, 2015).

Development goals according to the national strategy National Strategy on Building Competitiveness 2 . 1 Thailand is a developed country. Economic growth is stable and sustainable. 2.2 Thailand has higher competitiveness. Since the development of the country's logistics system is important to increase the competitiveness of the country and the Thai business sector as a whole. The freight and logistics sector plays an important role in the economic development of the Greater Mekong Sub-region (GMS). (Office of the National Economic and Social Development Board, 2017)

Therefore, energy efficiency, environmental conditions, and dangerous goods transportation safety are important factors to ensure that the country continues to grow, can increase the welfare of personnel, has the potential to compete in the country's economy, and can help reduce the impact on the environment and society. Research on the freight sector, conducted under the Asian Development Bank's (ADB) Master Program on Environmental Action in the Greater Mekong Sub-region (GMS CEP), indicates that the movement of goods in the sub-region is increasing. Mekong river trade increased by 75% between 2002 and 2011, and exports of goods from the Greater Mekong Sub-region nearly tripled during the same period (Thailand Development Research Institute, 2013). The expansion of the transport infrastructure has also led to an increase in transport activity and traffic. Such expansion of transportation infrastructure has led to increased fuel consumption, resulting in higher greenhouse gas (GHG) emissions and oil imports. Surveys of freight forwarding companies show that fuel consumption costs typically account for 40 to 60 percent of total operating costs (Bhattia, Ferraris, & Couturier 2021). For logistics to develop sustainably, it is necessary to improve fuel efficiency and enhance safety. Department of Land Transport The Ministry of Transport, which is an agency with direct duties and responsibilities for the implementation and development of the international road transport system, has foreseen the problems and obstacles mentioned above. and for the implementation of the Department It is in line with the 20-year national strategy in Strategy 2 on building competitiveness, connecting with the region and the global economy, and creating development partnerships with other countries. and in line with the National Economic and Social Development Plan No. 12 in Strategy 7, Development of Infrastructure and Logistics Systems, Goal 3 on the Development of Logistics Systems, and Supporting Border Special Economic Zones Development Policy to ensure Thailand is competitive in logistics. and trade facilitation is more efficient. including border and cross-border trade where goods are transported in and out at important border checkpoints that are connected to the main road network more efficiently (Office of Transport and Traffic Policy and Planning, 2017). Thailand has a clustered population. The transport sector is located in Bangkok and major cities in the region according to geographical suitability and along the main transportation route. and the ASEAN Railway network that connects 8 countries bordering Thailand, and there are still 7 more that have the potential to be developed into main trading gateways in the future (Bag, Gupta, & Luo, 2020).

Problems encountered in the transportation system are legal/regulatory aspects, that is, entrepreneurs face legal problems, both customs regulations, and related laws. In international shipping, which is an obstacle to business operations, it is deemed appropriate to promote the use of electronic document systems. (E-Logistics) opening of customs services 24 hours/day, especially important trade checkpoints, developing a one-stop service system for customs clearance for goods release (single window), as well as sharing facilitation information. cross-border trade the problem of business privileges given by the government to Thai entrepreneurs or small entrepreneurs is not equal to that of large foreign investors. Large foreign investors can negotiate bilateral trade directly with the government or have privileges to use infrastructures, such as having their own warehouses, which is an advantageous point and increases the gap of Huge competitive potential and the problem of

access to logistics information/news Scattered on the website of each agency, lack of centralization, causes the operator's information to be delayed, not in time for the situation to affect opportunities and decisions including government agencies are unable to work integrated between each other as well as they should.

Increasing transportation costs, especially air freight (freight), have increased significantly as a result of the suspension of flights during the COVID-19 period. Although there are still freight flights (freighter flights), it is not enough to meet the demand (Demand) that is greater than the amount that the service provider (Supply) can support and adjustments to upgrade the use of logistics technology. The price is quite high. Some operators are inaccessible, affecting the ability to develop service potential. In addition, there is a problem with the lack of liquidity/inaccessibility of funding sources. The inability to take advantage of SMEs funds, for example, the soft loan issued by the Bank of Thailand to take care of the business sector, especially SMEs, with a total amount of 500,000 million baht, which will be released to commercial banks to extend credit to SMEs with no credit limit. More than 500 million baht, fried at a 2% annual interest rate, but the criteria are still out of reach for small SMEs because they are a group with high risk and a lack of collateral, so they are frequently overlooked and rejected in the first group from a commercial bank.

Due to the spread of the COVID-19 virus, consumers increasingly prefer to buy products through online channels. As a result, the demand for door-to-door and last-mile delivery has increased, resulting in the continued growth of the e-commerce business. The value of e-Commerce business in Thailand in 2019 is expected to be worth 4,027.28 billion baht, an increase of 6.91 percent, and in 2020, it is expected to be worth 4,923.83 billion baht, an increase of 22.26 percent. Entrepreneurs need to adapt to support business operations through online channels to accommodate changing consumer behavior and be more in line with the situation. In addition, the increase in oil prices affects the cost of logistics in Thailand. The Thai logistics industry is highly competitive. Especially from large foreign corporations that have absorbed Thai market share. Due to expertise in supply chain management and network strength. Having a technology-driven and innovation-driven business model and a willingness to sacrifice to expand market share makes it difficult for Thai entrepreneurs with limited capital to compete. Thai operators can only act as last-mile transporters (directly transporting goods from stores to customers) and face constant price competition. The researcher has set the target group as Udon Thani Province. Because the government has the policy to make Udon Thani Industrial Estate modern by using technology and attracting investors and businessmen from abroad, through cooperation between the public and private sectors, it promotes the creation of environmentally friendly industrial estates. Responding to the government's BCG economic policy with the goal of making Udon Thani Industrial Estate the first green industrial estate in the northeastern region. In addition, Udon Thani is the center of the region's growth. It has an advantage in terms of location, with a standardized transport network linking the provinces and the central region. Whether it is by car, by train, or by air, Udon Thani Airport has the highest utilization rate in the region due to the province's location in the transportation hub of the upper northeastern region. and is only 54 kilometers from the Thai-Lao Friendship Bridge. Udon Thani Province has the third highest economy in the northeastern region. Due to the aforementioned problems, the researcher is interested in studying the development of competitiveness in the logistics of agricultural and food transport operators and have Research Objectives to study the level of competitiveness development in logistics of agricultural and food transport operators in Udon Thani and to study factors affecting the development of logistics competitiveness of agricultural and food transport operators in Udon Thani.

LITERATURE REVIEWS

Concepts and theories about the development of writing competitiveness

Competitiveness is an important issue because it is one of the indicators indicating the progress of the country. Scholars have defined the meaning of competitiveness as follows Porter (2011) It is said that the country's competitiveness depends on the ability of the domestic industry to try to innovate and upgrade the industry's abilities. Enterprises can benefit from the competition by adjusting personnel costs. In operating, providing service standards, and exploiting competitive advantage, it is in line with Grahovac, J., & Miller, D (2 0 1 6) Competitiveness is the sustainability of extraordinary returns, and competitive advantage is the key to performance. How will entrepreneurs be able to create sustainable competitiveness, and how will the company be able to implement broader strategies? Therefore, competitiveness means having lower production costs can make a difference in a product or service, and Powell, G. B. (2016) stated that competitiveness is the difference between the benefits and costs of production used in the production of competitors. It can be concluded that competitiveness is the performance in relation to personnel, services, and investment potential of entrepreneurs above the efficiency that other companies can currently achieve and the use of resources. Good results from a good company or business strategy can have a big impact on building a competitive edge.

Developing the competitiveness of entrepreneurs with the goal of considering inputs, the efficiency of the organization's work processes (Process), and the outcomes of competition (Output) (Hamalainen, 2016). Elements of competitiveness development include personnel development, which is the development of manpower or human resource potential, and manpower planning in logistics in line with the needs of the business sector to be able to compete in logistics. Sticks to achieve learning and growth forward. The development of service standards is the responsibility of logistics warehouse management. Management of information systems and technology, information systems, procurement planning Production and delivery of goods, management of goods according to service standards, and customer satisfaction with the goods. Investment potential is the ability to integrate asset groups, and efficiently manage assets, resulting in financial liquidity and financial advantage. Taking the low cost of production into account and considering the use of resources for maximum value and creating added economic value.

The key factors contributing to the development of competitiveness include: (Foss, N. J., & Knudsen, C., 2013) Organizational management is the use of a variety of logistics management information technology systems to be applied in combination with industrial technology in the logistics business operation system because it requires speed of transportation, accuracy, and the exchange of information. Timely and accurate information systems will help businesses reduce inventory levels and increase warehouse volume utilization rates because the quality of service is the most important differentiator for a business. Outperform competitors' logistics development in transportation, which focuses on making the environment suitable for storing and transporting goods, controlling the internal temperature to be suitable for maintaining the quality according to the type of product, and not causing temperature changes. According to external conditions in order to be delivered to consumers on schedule, transportation operations are systems to help reduce risks, allowing people in the product supply chain to quickly identify the source of the problem effectively. It begins with the verification of the origin of the product as well as the components or parts of the product to know the origin, raw materials, components, manufacturing processes, and processes until the product reaches the consumer by operating in every part of the supply chain. and the ability to connect transportation The ability to conduct business in a systematic manner is required to connect the cargo. In the rules and regulations, follow international rules. There is a relationship between the public and private sectors to create cooperation in

transportation. Take responsibility for your performance. As a result, it can increase competitiveness.

From the review of the theoretical concepts related to the development of competitiveness in logistics, the hypothesis of this research is that factors in organizational management, logistics development, transportation operations, and transportation connectivity have an influence on the development of the logistics competitiveness of entrepreneurs in agricultural and food transport in Udon Thani and framework can be drawn as shown in Figure 1.

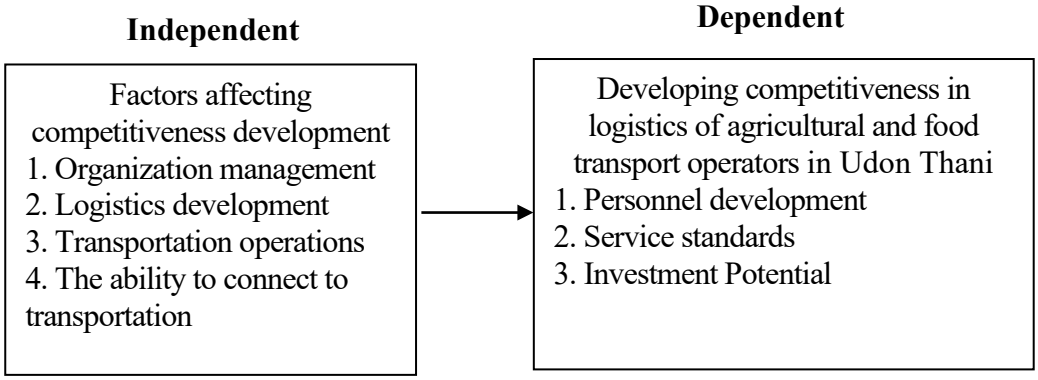

Figure 1

RESEARCH METHODOLOGY

Population and sample

The population in this research consisted of 1,498 operators in the agricultural and food in Udon Thani transportation system, and the sample group was 316 operators in the agricultural and food transportation system obtained from the sample calculation formula of Taro Yamane (Yamane, 1973) at 95% confidence.

Data collection and data analysis instrument

The instrument for collecting data in this research was a questionnaire consisting of 3 parts as follows: Part 1 Personal factors of the respondents were sex, age, education level, average monthly income, and length of business operation. The form of the questionnaire was multiple choice. Part 2: Factors affecting the development of competitiveness development Including organization management, logistics development, transportation operations and the ability to connect to transportation. The nature of the questionnaire is a rating scale of 5 levels, namely, the best, good, first, poor, the poorest, interpreted according to the criteria of Boonchom Srisa-at (2002) and Part 3, Development of Competitiveness in Logistics. of agricultural and food transport operators in Udon Thani, including personnel development, service standards, and investment potential the nature of the questionnaire is an estimation (rating scale) of 5 levels, namely, the best, good, first, poor, the poorest interpreted according to the criteria of Boonchom Srisa-ard (2002) and the researcher analyzed the data with statistics consisting of frequency, percentage, mean deviation. Standard and Multiple Regression Analysis.

RESEARCH RESULTS

Most of the respondents were male, accounting for 76.01 percent, aged 41-50 years, accounting for 52.10 percent, having a bachelor's degree, accounting for 79.10 percent, and having been in business for more than 3 years. accounted for 59.00 percent.

The development of competitiveness in logistics of agricultural and food transport operators in Udon Thani was found to be at a high level. ($\overline{X}$ = 3.99, S.D. = 0.53) When considering

each side, it was found that the investment potential side had the highest average. ($\overline{X}$ = 4.02, S.D. = 0.43) Followed by service standard ($\overline{X}$ = 4.00, S.D. = 0.48) and personnel development ($\overline{X}$ = 3.95, S.D. = 0.50) respectively, with details in Table 1.

Table 1 Mean and Standard Deviation of Logistics Competitiveness Development of Agricultural and Food Transport operators in Udon Thani.

Aspect	Name list	$\overline{X}$	SD.	Result
1.	Personnel development	4.02	0.43	good
2.	Service standards	3.95	0.50	good
3.	Investment Potential	4.00	0.48	good
Total		3.99	0.53	good

Organizational management factors, logistics development, transportation operations, and the ability to connect transport affect the development of competitiveness in logistics for agricultural and food transport operators in Udon Thani 66, details are given in Table 2.

Table 2 Multiple regression analysis of factors influencing the success of security business in Bangkok

Factor	**Unstandardized (b)**	**SE**	**Standardized (β)**	**t**	**Sig.**
(fixed rate)	0.983	0.111		8.822*	0.000
Organization management (X_1)	0.193	0.028	0.248	6.869*	0.000
Logistics development (X_2)	0.218	0.027	0.306	98.115*	0.000
Transportation operations (X_3)	0.068	0.027	0.097	2.501*	0.013
The ability to connect to transportation (X_4)	0.291	0.024	0.431	12.048*	0.000
R = 0.815	Adjusted R^2 = 0.661				
R^2 = 0.665	SE = 0.229				

* Statistical significance at the 0.05 level

DISCUSSION & CONCLUSION

The development of competitiveness in logistics among agricultural and food transport operators in Udon Thani was found to be at a high level. When considering each side, it was found that the investment potential side had the highest average, followed by service standards and personnel development, respectively. This is because entrepreneurs have developed their competitiveness. There is an adjustment in investment, service standards, and human development, which is the driving force of the organization, resulting in the development of competitiveness in logistics at a high level, which is in line with Phuwanat Fakket (2020) research findings. Study on the development of logistics systems for the import-export of Thai-Chinese agricultural products: a case study of the Yunnan-Thailand transport route along the Lam Khong and R3A transport routes. The findings revealed that work is being done to develop logistics systems for the import-export of Thai-Chinese agricultural products: a case study of transport routes between Yunnan Province and Thailand along the Lam Khong and R3A transport routes. on a large scale in every aspect.

Organizational management factors, logistics development, transportation operations, and the ability to connect transportation affect the development of competitiveness in logistics for

agricultural and food transport entrepreneurs in U d o n Thani by 66 percent. Factors in the good organization are the development of efficient logistics and transportation operations and the ability to connect transportation, thereby improving competitiveness in logistics. of agricultural and food transport operators, which is in line with the research results of Vittorio & Bruno (2017), studying the main sub-components of the global competitiveness index in terms of logistics efficiency indexes. The results of the research revealed that the factors of organizational management, logistics development, transport operations, and transport connection capabilities affect global competitiveness in terms of logistics performance indexes.

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