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The Model of Modern Management of Agriculture Chemical Business and Organizational Sustainability

Alisa Lertdetdecha

Ph.D. (Business Administration) Candidate, California University, Los Angeles, California, USA

Dr. Ornpapha Chutikorntaweasin

Associate Professor, California University, Los Angeles, California, USA

Dr. Thuchapon Yodthong

Associate Professor, California University, Los Angeles, California, USA

Dr. Veera Ladnongkhun

Associate Professor, California University, Los Angeles, California, USA

Dr. Pol. Col. Athiwit Kamolrat

Assistant Professor, California University, Los Angeles, California, USA

Abstract:

The purposes of this research were (1) to study the components of modern management of the agriculture chemical business, (2) to study the components of the corporate sustainability of the agriculture chemical business, and (3) to study the model of modern management of the agriculture chemical business influencing corporate sustainability. The researcher used the quantitative research in conducting this study.

The research results showed that with regard to the components of the modern management of the agriculture chemical business, all samples always practice strategic management and the transformational leadership, and often practice the learning organization and the total quality management. In addition, the samples always practice the corporate sustainability.

The results of hypothesis testing showed that with regard to the correlation between the components of the modern management of the agriculture chemical business and the corporate sustainability, which is the highest correlation, is the relationship between the transformational leadership and corporate sustainability. The analysis of the relationship of the modern management model of the agriculture chemical business and the corporate sustainability is that the component weight of the variables of the learning organization and the transformational leadership has the statistical significance at the level of .01, which is relevant to the set hypothesis. It showed that the variables of the learning organization and the transformational leadership are the variables that have causal relationship indicating corporate sustainability. To top it, the relationship of the model of modern management of the agriculture chemical business and the corporate sustainability is relevant to the empirical data.

Keywords: *Modern management, Agriculture chemical business, Corporate sustainability, Transformational sustainability*

1. Introduction

The world economic has to encounter many challenging factors in the future because of new world order and globalization. This change decreases the role of the superpowers like USA and European Union; while many new-born countries are expanding their role in international politics and economy and may become important economic drivers. Besides, there are other trends which are supposed to have a huge effect on occasion and business growth (in 2013 – 2023), such as the change of the strategy to focus more on the regional and local level instead of the world-class level. At the same time, the development of technology will be advanced and expanded with decreased price and will become more user friendly. There will be more green business because of the realization in saving the world and environment. The consumers will have more bargaining power, and that the middle-class people in the society will have more buying power. It is already observed that consuming behavior is changing with expectations of a better quality of life. The approach to the products and services are various; and the news system is greatly changing. Thus, the competition will be more aggressive and there will be the dispersion of innovation (Wongkusolkij, 2014).

In the midst of the change wave, any business has to be prepared to cope with the change, to improve, to always upgrade itself to keep up with the change in the world, and also to have a wider vision, and to dare to willingly change, before it will be forced to change (Prakobkij, 2010). The business world is wide open for the occasion of expanding market or the customer base. Therefore, the business executive should have a wide vision, flexibility and should prioritize the sustainability of business, society and environment

including risk management in order to strengthen the organization. Most important of all, the leader alone cannot create success, but the personnel should also develop to give more performance to be able to work under aggressive competition (Punchakethikul, 2009).

One of the criteria of sustainable business is the capability in creating profit. To maintain the capability in creating long-term profit requires a strategy for conquering the competition in the industry with these four competitive impulses; sensible customers, influential supplier, new ambitious competitor, and substitute product and service (Porter, 1980). In addition, Thongthanakul (2014) said that sustainable developing process of the organization begins with the head of the business possessing value and established ideal or the leader who can create good value to set an organizational culture to seek for goodness, correctness, fairness, and social care. He should also create vision, mission, policy, and organizational strategy. At the same time, every managing process, from the policy level to the operation level, should include the personnel to realize the problems and threats in order to adapt the operation plan and to support the strong points, and to improve the weak points for sustainable success.

Considering the summary report of the chemical industrial economy in 2013, the export tended to increase in the ASEAN market, especially CLMV countries: Cambodia, Laos, Myanmar, and Vietnam, including the GCC (Gulf Cooperation Council) in the Middle East; which is supposed to have increased demand of importing the chemical from Thailand (The Office of the Industrial Economic, 2013). In Thailand, the market of agriculture chemical is increasingly expanding, which means the need of this type of business, but there are also the problems from the feedback of using agriculture chemical. Even though it helps reducing the risk of the damage of the product, and increases agricultural productivity, it has negative impact on health of the agriculturist and the consumer, on environment, and on the country's economy (Srimook, 2013). Moreover, the operation of the agriculture chemical business is under control of the government because its product is a harmful chemical; every product must be registered at the Department of Agricultural Extension and also must be acceptably allowed to trade under the law enforcement (Adulkaewphluk, 2011).

From this information, the organization of agriculture chemical business can be stably, wealthily and sustainably advanced in the future, in the midst of an economic situation which can be both a platform and threat from many varying factors. The organization management and the consumer behavior have changed because technology is quickly developing. Any business management nowadays should adapt itself for survival and sustainability. Hence, the researcher, as the executive of the agriculture chemical business in the agricultural industry, which is the main industry of Thailand and ASEAN, was interested in studying the modern management model influencing the sustainability of agriculture chemical business. He expects to use the research results in defining the direction and strategy in order to develop the organization to be sustainable in future and to provide useful knowledge to the entrepreneur of the agriculture chemical business.

1.1. Purposes of Research

1. To study the components of the modern management of the agriculture chemical business.
2. To study the components of the corporate sustainability of the agriculture chemical business.
3. To study the model of modern management of the agriculture chemical business influencing corporate sustainability.

1.2. Hypothesis of Research

- H₀1 The component of the modern management in the aspect of strategic planning does not have the causal relationship with the corporate sustainability.
- H₁1 The component of the modern management in the aspect of strategic planning has the causal relationship with the corporate sustainability.
- H₀2 The component of the modern management in the aspect of learning organization does not have the causal relationship with the corporate sustainability.
- H₁2 The component of the modern management in the aspect of learning organization has the causal relationship with the corporate sustainability.
- H₀3 The component of the modern management in the aspect of transformational leadership does not have the causal relationship with the corporate sustainability.
- H₁3 The component of the modern management in the aspect of transformational leadership has the causal relationship with the corporate sustainability.
- H₀4 The component of the modern management in the aspect of total quality management does not have the causal relationship with the corporate sustainability.
- H₁4 The component of the modern management in the aspect of total quality management has the causal relationship with the corporate sustainability.

2. Literature survey

2.1. Concept about Corporate Sustainability

Elkington (1994) presented the concept that sustainable development is concerned about the dimension of economic, society, and environment, which is related and can be compared to the sustainable operation in the organization level with the viewpoint of Triple Bottom Line or Profit-People-Planet. The sustainable development can be divided in three principles; (1) Economic: it means the economic value of the business organization and operation described by the economic indicator of the organization, including

the indicator reflecting the solution and investment method for preventing the environmental damage and for conserving the environment and the natural resources. It also includes sustainable social creativity. The examples of the economic indicator are the financial turnovers, the investment budget on research and development, compensating fines, capital expenditures, share value, and the annual returns. (2) Environment: it consists of the impact on the environment about the activity, product and service of the organization. The indicator of the environmental impact should manifest itself in every period of business circle because it is useful in the follow-up of the environmental advancement of the business organization. It is the information to support the policy about environment, to reveal to the public about the subject matter of the environment of the organization. The examples of the indicator of environment are the use of energy and water resources, air pollution, and the quantity of the waste production. (3) Social: It is concerned about the responsibility to the community around the organization and also to the wider society nowadays and the next generation in the future. Because of the fact that social responsibility and business ethics is continually important, as the social responsibility is one of the important and indispensable components expected by the community and society. Many international organizations define the standards about social responsibility and the business ethics of the organization.

2.2. Concept about Strategic Management

David (2011), Rothaermel (2012), and Thompson and Martin (2010) presented 5 processes of the strategic planning; (1) Mission determination: it is the process of mission definition to answer the question why this organization is founded, or to demonstrate the necessary reason for the existence of the organization, or to show the attempt of the organization to show what it wants to happen. (2) Environment scanning: by analyzing two parts of the environment:—first, the external environment, which is the general environmental scanning, and second is the internal environment. (3) Purpose determination: after studying the mission and scanning the environment of the organization, the operation purposes will be defined to be relevant to the organizational mission. The purposes must be specific, measurable, agreeable, realistic, and reliable on time—frame, challenging but attainable, and documented. (4) Strategic determination: it comes from the situation analysis, consisting of 3 levels of planning: corporate level, business level, and operational level. Each level of strategic plan should be related towards the same direction to connect the target and action method. (5) To practice the strategy in the working process of the organization in various dimensions, such as organizational structure, organizational lead system, communication and internal control of the organization. These variables are held as important factors of the organizational operation.

2.3. Concept about Learning Organization

Marquardt (2002) described that the subsystem of organization, people, knowledge, and technology as necessary in supporting and expanding the learning, while the learning subsystem is absorbed in other 4 subsystems. All these subsystems are the components in creating and maintaining the learning organization. (1) Learning subsystem: learning is the main subsystem of the learning organization. It must be operated at the individual level, group level, and organization level. The important characteristics of learning subsystem are systematic thinking, mental models, personal master, self-directed learning, and dialogue. (2) Organization subsystem: it is to determine the group to methodically work together following the process, with 4 important components: vision, culture, strategy, and structure. (3) People subsystem; consisting of manager and leader, officer, customer, partner and business ally, supplier and trader, including the surrounding community. Every group has to support one another so that it will be fully useful to the learning organization. (4) Knowledge subsystem: it is the knowledge management of the organization, consisting of knowledge acquisition, knowledge creation, knowledge storage, analysis and data mining, knowledge transfer and dissemination, including knowledge application and validation. The successful learning organization will systematically use the knowledge and relevantly use technology. (5) Technology subsystem: it is the technology connection and information tool to support the personnel to approach knowledge and exchange the information and learning from each other, which leads to the skills in coordinating, coaching, and also the skills in using electronic devices and advancing learning. The important components of technology subsystem are technology for knowledge management, and technology for increasing knowledge.

2.4. Concept about Transformational Leadership

Avolio and Bass (1991) presented the full model of leadership, which consists of 1) transformational leadership. This type requires a specific behavior of “Four I’s”, idealized influence or Charisma Leadership, inspiration motivation, intellectual stimulation, and individualized consideration. 2) Transactional leadership: the leader will reward or punish the follower depending on the work result, and 3) laissez-faire leadership or non leadership behavior. The transformational leadership is the process by which the leader has an influence on the colleague and follower to increase their effort to rise above expectations, to develop their performance above expectations and to guide them to further their interest to the advantage of the team or the organization or the society. This process requires the specific behavior of “Four I’s”, consisting of idealized influence or charisma leadership, inspiration motivation, intellectual stimulation, and individualized consideration.

2.5. Concept about Total Quality Management

Thailand Quality Award (TQA) was firstly established on 5th September, 1996. Thailand Quality Award is considered a world-class award. The fundamentals of the technical and decision-making processes are identical to the Malcolm Baldrige National Quality Award (MBNQA) of the United States of America, as the MBNQA is being adopted by many countries around the world. The objective of Thailand Quality Award (TQA) are (1) Encouraging organizations to implement TQA criteria to improve organizations’

competitiveness; (2) Providing recognition to the TQA winners who attain world-class standards; (3) Stimulating organizational learning and sharing of best practices; and (4) Demonstrating the country's commitment to pursue world-class management and performance excellence. The criteria of Thailand Quality Award (TQA) are (1) leadership, (2) strategic planning, (3) customer and market focus, (4) measurement, analysis, and knowledge management, (5) workforce focus, (6) operation focus, and (7) results.

3. Research Methodology

The researcher used the quantitative research in conducting this study, retrieved the secondary data by reviewing concept, theory from the documents and related research, and collected the primary data by distributing the questionnaires which had details covering strategic management, learning organization, transformational leadership, total quality management, and corporate sustainability. The questionnaire was considered and improved, then passed through the try-out process with a sample group of 30 persons to finding the reliability level with the method of Alpha Coefficient of Cronbach, whose reliability coefficient is .894. This demonstrated that this questionnaire was reliable and could be really used in collecting data. The samples of this research are 315 entrepreneurs of chemical agricultural business in Chachoengsao, Rayong, Suphanburi, Chainat, Kanchanaburi, Nakhonpathom, and Ratchaburi Province. The statistics used in this research are Frequency, Percentage, Mean, Standard Deviation, Confirm Factors Analysis, Pearson Correlation, and Structural Equation Model (SEM). The period of this study was from September to December 2014 (4 months).

4. Research Results

4.1. Demographic Profiles

The results show that 51.40% of entrepreneurs of chemical agricultural business are males and 48.60% are females. As for age, 44.40% are aged 31 – 40 years old. As for education level, 34.60% graduated with the Bachelor's degree and high school. As for period of entrepreneurship, 29.80% have operated business for 5 – 10 years. As for position status, 44.13% are the business founders. As for the future of business in 5 years, 30.79% will increase the trading technology for reducing the cost.

4.2. The Analysis of the Components of Strategic Management

With regard to the components of strategic management, all the samples always practice the strategic management. In particular, strategy formulation has the highest mean, followed by situation analysis and strategic direction setting respectively (see table 1).

Components	\bar{X}	S.D.	Translation	Ranking
1. Strategic direction setting	4.25	.566	always	3
2. Situation analysis	4.28	.532	always	2
3. Strategy formulation	4.30	.543	always	1
Total	4.28	.446	always	

Table 1: Mean and standard deviation of the components of strategic management in total and in particular

4.3. The Analysis of the Components of Learning Organization

With regard to the components of learning organization, all the samples often practice the learning organization. In particular, knowledge has the highest mean, followed by people, learning, and technology respectively (see table 2).

Components	\bar{X}	S.D.	Translation	Ranking
1Learning	3.91	.611	often	3
2People	4.38	.605	always	2
3Knowledge	4.38	.551	always	1
4Technology	3.83	.711	often	4
Total	4.11	.430	often	

Table 2: Mean and standard deviation of the components of learning organization in total and in particular

4.4. The Analysis of the Components of Transformational Leadership

With regard to the components of transformational leadership, all the samples always practice the transformational leadership. In particular, idealized influence has the highest mean, followed by inspiration motivation, and intellectual stimulation respectively (see table 3).

Components	\bar{X}	S.D.	Translation	Ranking
1. Idealized influence	4.43	.564	always	1
2. Inspiration motivation	4.34	.575	always	2
3. Intellectual stimulation	4.17	.605	often	3
Total	4.31	.437	always	

Table 3: Mean and standard deviation of the components of transformational leadership in total and in particular

4.5. The Analysis of the Components of Total Quality Management

With regard to the components of total quality management, the samples in total often practice the total quality management. In particular, process management has the highest mean, followed by leadership, customer and market focus, and workforce focus respectively (see table 4).

Components	\bar{X}	S.D.	Translation	Ranking
1. Leadership	4.20	.581	often	2
2. Customer and market focus	4.13	.513	often	3
3. Workforce focus	4.04	.636	often	4
4. Process management	4.29	.649	always	1
Total	4.15	.458	often	

Table 4: Mean and standard deviation of the components of total quality management in total and in particular

4.6. The Analysis of the Components of Corporate Sustainability

With regard to the components of corporate sustainability, the samples in total always practice the corporate sustainability. In particular, environmental development has the highest mean, followed by economic development and the social development respectively (see table 5).

Components	\bar{X}	S.D.	Translation	Ranking
1. Social development	4.28	.672	always	3
2. Economic development	4.33	.611	always	2
3. Environmental development	4.38	.661	always	1
Total	4.32	.591	always	

Table 5: Mean and standard deviation of the components of corporate sustainability in total and in particular

4.7. The Correlation Analysis of the Components of Modern Management of the Agriculture Chemical Business and the Corporate Sustainability

The correlation between the components of modern management of the agriculture chemical business and the corporate sustainability; all 5 variables have the relationship in the same direction with the statistical significance at the level of .01, which proves that these variables are relevant to the research paradigm of the relationship between the components of modern management of the agriculture chemical business and the corporate sustainability, created by the researcher. In this regard the internal correlation between the component variables of modern management of the agriculture chemical business is between .239 - .409. The highest internal correlation is the relationship between strategic management (STM) and learning organization (LEO). The highest correlation is the relationship between the transformational leadership (TFL) and the corporate sustainability (COS) (see table 6).

Variables	STM	LEO	TFL	TQM	COS
STM	1	.409**	.292**	.247**	.236**
LEO		1	.333**	.239**	.255**
TFL			1	.364**	.308**
TQM				1	.185**
COS					1

Table 6: The correlation between the components of modern management of the agriculture chemical business and the corporate sustainability

**Statistical significance at the level of .01

4.8. Causal Relationship Analysis

The researcher analyzed and verified the concordance of the relationship of the model of modern management of agriculture chemical business and organizational sustainability. the researcher adjusted the model and obtained the standard index of relevance of the model: -in which $\chi^2 = 149.54$; $df = 104$; $p\text{-value} = 0.002$; $RMSEA = 0.037$; $**p < .01$, which shows that the relationship of the model of modern management of agriculture chemical business and organizational sustainability, adjusted by the researcher to be relevant to the empirical data that χ^2 / df is not exceeded by $2\chi^2 / df = 1.99$, and $RMSEA$ is less than 05. ($RMSEA = 0.037$). Thus, the relationship of the model of modern management of agriculture chemical business and organizational sustainability is relevant to the empirical data, which can be presented in the relationship model (see figure 1).

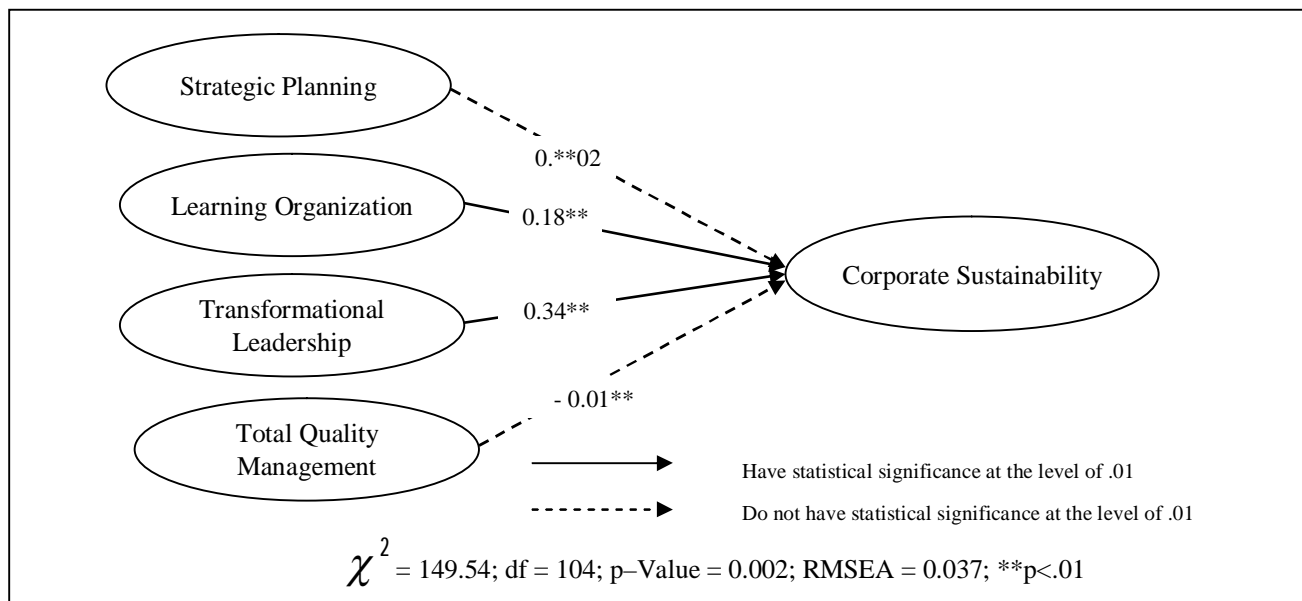


Figure 1: the model of modern management of agriculture chemical business and organizational sustainability

5. Conclusion and Discussion

With regard to the correlation analysis between the components of modern management of the agriculture chemical business and the corporate sustainability, in which the highest correlation is the relationship between the transformational leadership and the corporate sustainability, it is relevant to the causal relationship analysis between the components of modern management of the agriculture chemical business and the corporate sustainability. The variables of learning organization and transformational leadership have the statistical significance at the level of .01, signifying corporate sustainability, which shows that the entrepreneurs of the agriculture chemical business who want corporate sustainability in the future should possess transformational leadership, consisting of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. In addition, the organization should be developed to be a learning organization, consisting of learning subsystem, organization subsystem, people subsystem, knowledge subsystem, and technology subsystem. This is relevant to the concept of Ross et al. (1994) who said that the learning organization always has experience testing, changing the experience to be useful knowledge and satisfying the main goal of the organization. Bennett and O'Brien (1994) also said that the learning organization is the needed ability of every organization to reach the success nowadays. The learning organization should be thoroughly operated and should be verified. In addition, Marquardt (2002) also had the concept that globalization and technologies cause economic change. Therefore each company ought to reform itself for survival. The present organization should have the ability in quickly learning and adapting to the changes in order to create and keep the competitive advantage. The organization also has the thinking pattern about working and learning by prioritizing the learning process which is the by-product of working. There are generally the occasions to develop the skills, knowledge, and attitude in the organization, but both personnel and organization should continually find more knowledge. Hyunkee and Richard (2011) indicated that the business sustainability required Triple Bottom Line (TBL), consisting of environment, economic and society, which are the important components of sustainable development. The business organization which can reach sustainable business operation should not only understand these three components, but they should also combine them in formulating the policy and strategy, and the decision making process of the business activities.

With regard to the transformational leadership, this is relevant to the concept of Avolio and Bass (1991) who presented that there are 3 styles of the leadership; and transformational leadership is one of these three styles. It is the process of the leader influencing the colleagues and followers to rise above expectations and developing their capability, which leads to the recognition in the mission and vision of team and the organization. The leader also motivates the colleagues and followers to further their interest to the advantage of team or the organization or the society. The process of the leader influencing the colleagues and followers is the full model of leadership, which consists of 1) transformational leadership which requires the specific behavior "Four I's", consisting of idealized influence or charisma leadership, inspiration motivation, intellectual stimulation, and individualized consideration. There are the studies about creating long-term value to the shareholders which explicitly reflected that the business which prioritized the corporate sustainability will have better operational result than others (Dow Jones Sustainability Indicators in Collaboration with SAM, 2012). The business will have more support and sustainable development in operating this complexity of the change in the world.

With regard to the components of the modern management of the agriculture chemical business, strategic planning and total quality management do not have the statistical significance at the level of .01, which can be presented that these two variables do not have the causal relationship signifying the corporate sustainability because the agriculture chemical business is a store where the managing structure is not complicated, as it is a family business or single-owned, and the products are directly sold to the agriculturists or to the local subagent who has the commitment and a good relationship. Thereby, they do not emphasize the analysis of the surrounding, the formulation of the strategies, and the setting of the direction of the organization, including the operation process of each department of the organization.

6. Recommendations

- The research results should be practically used in developing the organization to be the learning organization, whereby:
 1. There should be the integration in the aspect of knowledge; the information about products, customers, and competitors. In addition, there should be support to find new knowledge by setting the system that the officers can easily learn in order to work more quickly, safely, and effectively.
 2. In the aspect of people, the officers should be supported to cooperatively formulate working plan, to develop the working skills from every departments in order to increase the working performance, including cultivating the loyalty and sincerity towards the company and the customers.
 3. In the aspect of learning, the officers should be supported in learning from various styles of working, from exchanging the knowledge from the colleagues, and from training and responsibility.
 4. In the aspect of technology, the officers should be supported to use computer and internet in working and communicating, including using the multimedia in learning about the new product, which can help reduce management cost.
- The research results should be practically used in creating the transformational leadership to the personnel at the executive level, whereby:
 1. The personnel in the executive level should be supported to have idealized influence to create the reliability and faith of the officers in every situation, including taking care of the officers, the customers, and the partners with the morality and ethics. Moreover, the high executives should have a wide vision in speculating the change before it really happens.
 2. The personnel in the executive level should be supported to create inspiration by motivating the officers to have encouragement in working, to have good attitudes towards working, including having unity in cooperatively creating success.
 3. The personnel in the executive level should be supported about intellectual stimulation by stimulating the officers to create new styles of working, such as new selling technique, approach to the new customers, taking care of customers by analyzing the problems from experience and facts. The solutions offered by the officers should be supported and actually be used to develop the organization.
- In next 5 years, the trend of the entrepreneurs of the chemical agricultural business :-
 1. The entrepreneurs prioritize the use of trading technology for reducing the cost. Thus, there should be more study about the components of using technology, which is the method to increase the competitiveness to create sustainability of the agriculture chemical business in future. A qualitative research should be carried out for studying the in-depth data to support the quantitative data.
 2. Secondly, the entrepreneurs prioritize business transmission to the heir. As such, there should be more study about the components of the business heir influencing the sustainability of the agriculture chemical business, and use the qualitative research in order to formulate a trading policy and plan in creating relationship, approach and care in future.

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