

The Influence of Innovation Usage on Small and Medium Enterprises' Performance in Sanuk Provincial Group
(Sakonnakhon, Nakhonphanom, Mukdahan)

Tanin Tirasawasdichai^{1,*}, Korakot Pookayaporn², Pattama Suriyakul Na Ayudhya³

^{1,3}Faculty of Liberal Arts and Management Science, Kasetsart University

²Special Branch, Royal Thai Police

Received: 18 April 2020

Revised: 11 January 2021

Accepted: 21 January 2021

Abstract

The aim of this research is to study the behaviors of innovation usage among the small and medium entrepreneurs or SMEs, including the influence of innovative behaviors on business competency. This research focuses on the entrepreneurs in Sanuk provincial group which consists of Sakon Nakhon, Nakhon Phanom and Mukdahan, using the members of YEC (Young Entrepreneurs Chamber of Commerce) as the population in this study. The questionnaire is a tool for data collection; there are totally 172 respondents from YEC in Sanuk provincial group. The statistics used for data analysis include descriptive statistics of percentage, mean, standard deviation; and inferential statistics of multiple regression analysis. Four explanatory variables in this research are the behavior of process innovation usage, marketing innovation usage, product and service innovation usage, administration innovation usage; while the dependent variable is business competency. The empirical results show that behavior of process and administration innovation usage are positively and significantly correlated with business competency; while behavior of marketing, and product and service innovation usage are not correlated.

Keywords: Behavior of innovation usage, Business competency, Small and medium enterprises

* Corresponding Author, E-mail: tanin.ti@ku.th

Introduction

Small and Medium Enterprises (SMEs) are considered as one of the most important parts of Thai economic system, and they are accounted for about 42 percent of Thai GDP. More than 80 percent of employments are in SMEs (Office of Small and Medium Enterprises Promotion, 2019). However, many small and medium enterprises have to face with the barriers that lead them to the stopping point, which is out of business. Moreover, on average, Thai SMEs can survive only 3-5 years in their life time (Posttoday, 2019). The solution that the government and authoritative sections try to support SMEs is creative economy policy, the adaptation and adjustment of using technology for business operation, which can help reducing cost, increasing efficiency and productivity. The creative economy policy is known as Thailand 4.0, which aims to create sustainability among Thai entrepreneurs via innovation, research and development.

Innovation is a big focus these days. Many successful business cases have their competency as innovation by using technology in the firms, which known as capital intensive in economics. However, Thai economy is labor intensive rather than capital intensive (Prachachat, 2019). So, a lot of firms still have to use human labor to drive an organization. Furthermore, when people talk about innovation or research and development in business, they will always think about high cost technology or those technologies that must be very expensive. For example, research and development must be a department in an organization that hires a team of experts with high wage, and then firms could stop thinking about adapting innovation into their organization if they have to face with high cost RandD investment and they will lose a chance to develop themselves. Besides, budget constraint and limitation to capital accession are the main barriers to Thai SMEs, which could make them, lose competitive advantage in market competition. Finally, many startup firms have to cease their operation because lacking of competitive advantage (Bank of Thailand, 2019). Still, business can create its own competency without using huge capital budget but effective by adaption innovation which actually is the development or adjustment itself to grasp novel and better strategies in operating business. In the end, we can see that innovation does not need to use a huge budget.

Accordingly, in order to understand the behavior of innovation usage among sustainable SMEs, this research study chooses the member of YEC (Young Entrepreneurs Chamber of Commerce) in Sanuk provincial group consisting of Sakonnakhon, Nakhonphanom and Mukdahan as population. The business being a member in YEC could be considered as sustainable because most of them are experienced entrepreneurs forwarding business operation to their heirs. These firms have been operated for many years, more than two or three generations of the family. Additionally, YEC, a business association gathered from members as SMEs in local area, it could be accounted for

business sector delegation to drive economy to better and feasible directions. SMEs in YEC are not only taking care of their firms operation but are also able to propose appropriate policies to public and government sector. Consequently, members of YEC are good cases for researching about SMEs. In other word, this research use members of YEC in Sanuk provincial group as population since YEC in Sanuk provincial group could be realized as cluster sampling for Thai SMEs.

Research Objectives

1. To study the behaviors of innovation usage among small and medium enterprises (SMEs) in Sanuk provincial group.
2. To study the influence of innovation usage in SMEs toward business competency in Sanuk provincial group.

Literature Review

Previously, size of business firm was very important, larger company is more ready to compete for markets and have more resources. Small company must face with disadvantage and was not able to compete in the dimension of company's resources. Yet, technology has been developed so fast, allowing business firm to adapt themselves to survive. Otherwise, they could face with bankruptcy or at least lost in market shares. Technological development brings many opportunities to business no matter what size it is. Consequently, adaption and adjustment become a main role to create business competency.

When we think about innovation usage among business organizations, some people may think of research and development department, which compose of many expert engineers or high-tech equipment with expensive cost. Nonetheless, in this era, innovation could be something very simple for the firms to adapt and adjust themselves to grasp business opportunity. Innovation usage can happen from dynamic business activity and development without spending any huge budget to create innovation for the firm.

Development of business activity can start from focusing on the product or strength of the companies. Mahmutaj (2014) studied the impact of innovation in the performance of SMEs in Kosovo with the aim to analyze the profile of entrepreneurship, and she found that SMEs have focused on the improvement of existing products as well as launching new product to the market. While, Kamariah et al. (2014) mentioned that although SMEs in product and service sector in Malaysia were not able to reach the competitive point from innovation usage in their firms, they are aware of the innovation and its relevance to organizational performance. So, we propose our first hypothesis (H1)

from these results as “The behavior of product and service innovation usage is positively related to business competency.”

The process of working system in the firm can also be improved. For example, Limkunnathammano et al. (2016) studied the effects of innovation usage to on multi-level marketing, and found that innovation in planning and innovation in training increases the effectiveness of team performance significantly. Moreover, business network and connection are also very important to create innovation in working system. According to the study of Haribin et al. (2016), having business network could help firm getting ready for external change by using internal resources of business. So, if the firm can connect external factors with internal resources, they will get a better performance. Similarly, the study of Bustinza et al. (2017) found that business partnership and external collaborative service development provide opportunity to downsize the firm and reduce operation cost that is redundant from excess process. Accordingly, we propose the second hypothesis (H2) as “The behavior of process innovation usage is positively related to business competency.”

Innovation usage not only increases performance in business that produces goods, but also in service business. Moreover, it plays an important role as a mediator in analysis. For example, the study about innovation usage in hotels and resorts industry conducted by Sukato and Lin (2014) found that marketing strategies of hotel business increase the competency via innovation usage within organization significantly. According to this result, we can propose the third hypothesis (H3) as “The behavior of marketing innovation usage is positively related to business competency.”

Innovation in an organization could be built not only from the executive level of the firm, but also from any other levels of workers. For example, the middle level of executive who has to convey vision from top manager plays important role to make the firm become innovative organization as reported by Suangsurattanakul (2016). Similarly, Miguel and Pedro (2012) studied about intellectual property and innovation system effects and found that Human resources are the valuable resources that bring growth and development to the firm as they are the mechanics transferring knowledge to the value of the firm. Corresponding to the study of Casalino et al. (2015), innovative human resource development such as remote training could support the competency in administration very well, so firms can train workers to get used to using automatic equipment better. We can see that administration can originate performance as well. Consequently, we can propose the forth hypothesis (H4) as “The behavior of administration innovation usage is positively related to business competency.”

Aforementioned studies focused mostly on innovation usage in the whole picture of the organization. Nevertheless, current study focuses on SMEs’ behaviors individually.

Research Hypotheses

Hypothesis 1 (H1): The behavior of product and service innovation usage is positively correlated to business competency.

Hypothesis 2 (H2): The behavior of process innovation usage is positively correlated to business competency.

Hypothesis 3 (H3): The behavior of marketing innovation usage is positively correlated to business competency.

Hypothesis 4 (H4): The behavior of administration innovation usage is positively correlated to business competency.

Research Framework

According to each hypothesis and variable proposed by the review of previous studies, the conceptual or research framework is shown below between independent variables and dependent variable.

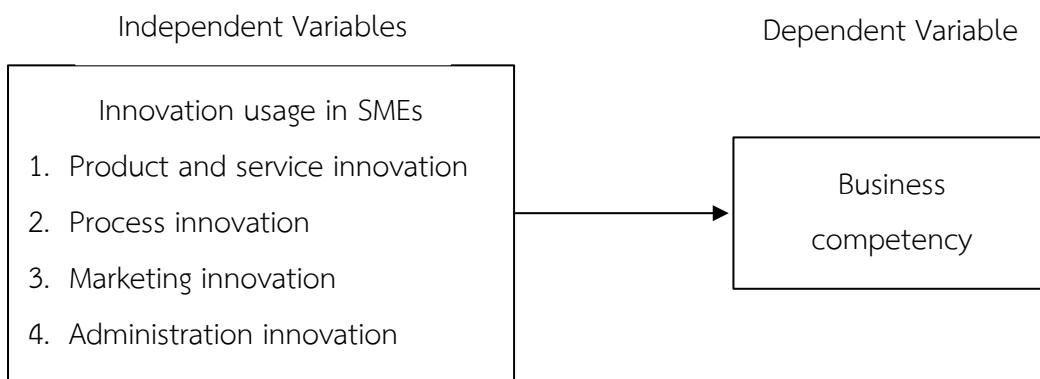


Figure 1: Research Framework

Operationalized Definition

1. Product and service innovation: The adaption or adjustment in product or service of the firm to satisfy customers and increase firm's income.

2. Process innovation: The adaption or adjustment in working system to decrease the cost and increase efficiency.

3. Marketing innovation: The adaption or adjustment in marketing strategies to stimulate income and new ways of marketing.

4. Administration innovation: The adaption or adjustment administrative positions to refresh and stimulate workers in the firm.

5. Business competency: The perceived satisfaction of business output by the owner.

Research Methodology

This research design uses quantitative method to find the behaviors of innovation usage among Thai SMEs. This research uses members of YEC in Sanuk provincial group as population. Since, the characters of member in YEC as a business association, each firm has prominent business competency along with sustainability in operation.

Population and Sample

As we have previously mentioned that population of this research study was members of YEC in Sanuk provincial group. At that time, there were 200 members. YEC, as a business association aiming to gather new generation of entrepreneurs, members of YEC do not only operate their firms for financial profits but they also care about the sustainability of the firm among society and locality. Thus, YEC is a good example or prototype of successful SMEs which is very worthy for others to study about. YEC also plays a crucial role in local development cooperation with public or government sector.

Research Instrument

Questionnaire was used as data collection tool, both in digital and paper formats. The questionnaire consists of 4 parts; (1) General data of respondents such as sex, age, education, working experience, numbers of employee, types of business and location. This part was used to calculate descriptive analysis. (2) The behavior of innovation usage divided into 4 variables. There are 4 questions regarding Product and service innovation, according to Mahmutaj (2014) mentioned that firm should pay attention to improvement of existing products as well as launching new product, the questions consist of; new product and service development, quality development activity, innovation in form of product and service and RandD activity, 3 questions regarding Process innovation, as Limkunnathammano et al. (2016) found that innovation in process training people, the questions consist of, the ratio of technology used, the ratio of software adapted to business system and the ratio of online channel adapted to business system, 5 questions regarding Marketing innovation as Sukato and Lin (2016) found that marketing strategies increase the competency via innovation usage, the questions consist of packaging development, creative promotion, creative form of advertisement, online channel adapted and consumers interactivity via social media, 5 questions regarding Administration innovation, Suangsuttanakul (2016) reported that administrative managers play key role to administration, the questions consist of, work rotation, support tool, brain storming incentive, business network knowledge sharing and work environment development. The questionnaire is 5-level Likert-Scale asking about the behavior of innovation usage from level 1 (rarely use) to level 5 (frequently use). (3) The competency of business has 5 questions consist of profit satisfaction, cost reduction, repetition of customers, new customers and satisfaction of workers.

The measurement is also 5-level Likert-Scale from level 1 (very low) to level 5 (very high). The last part of questionnaire is opinion or suggestion from respondents.

Data Collection

The questionnaires were sent to members via both Google doc. online questionnaires and hard-copy in the second-half of the year in 2017. However, in the case that some questionnaires contained error, mistakes, or missing some respondent accidentally, we removed outliers from total responding. We used Taro Yamane calculation formula with 95 percent confident level and allow only 0.05 relative error values. We were able to receive at least 134 workable questionnaires. After data collection process, we totally received 172 valid respondents which are higher than 134, the minimum number of 95 percent confident level according to Taro Yamane calculation. The reliability was test from those data with Cronbach's alpha; all variables are reliable with more than 0.90 value of Cronbach's alpha. Then, we moved to the next step, which is data analysis.

Data Analysis

The statistics that were used in this research study can be divided into 2 parts. First is descriptive statistics which are Mean, Percentage, Standard Deviation and Frequency. These are used to provide general information about total respondents. Next, inferential statistics, which is multiple regression analysis, were used and we tested hypotheses of this study to find the effect or influence from each independent variables or each behavior of innovation usage toward dependent variable, business competency. The regression model has shown below.

$$compet_i = \beta_0 + \beta_1 prodas_i + \beta_2 procinno_i + \beta_3 marinno_i + \beta_4 adminno_i + \varepsilon_i$$

Findings

In this part, we will show some descriptive statistics about overview respondents' information and behavior of innovation usage, following by inferential statistics to test hypotheses of this research study.

From total 172 respondents, there are 94 men (54.7 percent) and 78 women (45.3 percent), the age range is 24-39 years old since the age higher than 40 years old would be transferred to Chamber of commerce in the province. More than 90 percent of total have bachelor degree or higher. Experience of working is mostly ranged from 4 years to 6 years. Almost a half of all respondents have less than or equal to 10 employees. Groups of respondent are in Sakon Nakhon 79 persons (45.9 percent), Nakhon Phanom 45 persons (26.2 percent) and Mukdahan 48 persons (27.9 percent). The type of business is shown in below table.

Table 1 Type of business categorized by SMEs measurement

Type of Business	Number	Percentage
Producing	23	13.4
Service	63	36.6
Retail	66	38.4
Wholesale	20	11.6
Total	172	100.0

We can see in Table 1 that the highest number of business among respondents is in retail group 66 firms (38.4 percent) following by service group 63 firms (36.6 percent), number 3 and number 4 are producing and wholesale 23 firms (13.4 percent) and 20 firms (11.6 percent), respectively.

Table 2 Behaviors of innovation usage of respondents

Innovative Behavior	\bar{X}	S.D.	Level of use
Product and service innovation	3.415	.718	High
Process innovation	3.410	.835	High
Marketing Innovation	3.381	.849	Medium
Administration innovation	3.516	.726	High

Data in table 2 shows the value of innovation usage among population in the study. As we mentioned earlier that the questionnaire is 5-level Likert-Scale, which means level 1 showing barely used in that behavior to level 5 frequently used in that behavior. Consequently, we can see the score or the value of each innovation usage in different level from table 2.

According to table 2, the highest value of innovative behavior is administration innovation usage, which has Mean as 3.516 and Standard Deviation at 0.726 ($\bar{X} = 3.516$, S.D. = 0.726), which is considered as high level of usage. Following by the second behavior usage, product and service usage is also in high level with Mean of 3.415 and Standard Deviation 0.718 ($\bar{X} = 3.415$, S.D. = 0.718). While the behavior of process innovation is also in high level, the score of use is the third, with Mean value of 3.410 and Standard Deviation 0.835 ($\bar{X} = 3.410$, S.D. = 0.835). The last behavior used in this research study is marketing innovation, showing Mean value of 3.381 and Standard Deviation 0.849 ($\bar{X} = 3.381$, S.D. = 0.849). The score for this behavior is considered as medium level of usage.

Consequently, the descriptive statistics in table 1 and table 2 show us the overview information about the population of this research study and the behavior of innovation usage among SMEs. Table 2 answers the objective number 1 of this research, as this research aims to study the

behavior of innovation usage among SMEs, which we have YEC member as our population. So, we conclude that the behaviors of innovation usage of these businesses are in high level for product and service innovation, high level for process innovation, medium level for marketing innovation and finally, high level in administration innovation usage. These behaviors are considered as business adaption and adjustment, which do not need to use huge capital budget at all. Corresponding to the definition of innovation from Christensen's disruptive innovation theory that sticking in the old ways and strategies could be the origin of failure, firm can invent or innovate new ways of operating, which can change and bring the firm to sustainability (Christensen, 1997).

Table 3 Correlation Analysis

Correlation	Factors				
	Business Competency	Marketing Innovation	Process Innovation	Product and Service Innovation	Administration Innovation
1. Business Competency	1.000				
2. Marketing Innovation	0.460*	1.000			
3. Process Innovation	0.597*	0.515*	1.000		
4. Product and Service Innovation	0.546*	0.684*	0.690*	1.000	
5. Administration Innovation	0.583*	0.615*	0.659*	0.738*	1.000

*Statistically significant at 0.05 level

Table 3 shows all correlation of each variable to each other. The correlation values are ranged from -1 to 1. The value of correlation coefficient shows size of relationship between variables while the positive or negative signal depicted direction of relationship. We can see that all correlations are positive, which means variables are positively related to others. The sizes of correlation are 0.46 as the lowest and 0.738 as the highest value. According to Dennis E. Hinkle (1998), most of the sizes of correlation are in middle level of correlation (0.5-0.7) while the lowest 0.46 is counted as low correlation. On the other hand, the highest value is 0.738, which is counted as high correlation, but it is excess middle level by only small point.

There is no correlation higher than 0.90, which could bring the analysis to collinearity problem. Also none of correlation is lower than 0.30, which is not appropriate for inferential statistics analysis. As a result, we can say that the variables of this research study have no collinearity problem and they are suitable to be used in regression analysis which is shown in the next table.

Table 4 Regression Analysis

Factors	Unstandardized			Standardized		
	Coefficients		β	F/t	R^2	Sig.
	b	Std. Error				
Overall Model				31.117	.413	.000*
Constant	1.579	.194		8.127		.000*
Product and Service Innovation	.055	.090	.063	.613		.540
Process Innovation	.251	.063	.338	3.970		.000*
Marketing Innovation	.058	.060	.080	.966		.336
Administration Innovation	.227	.080	.265	2.838		.005*

*Statistically significant at 0.01 level.

In order to assess the influence of innovation usage toward business competency, we used multiple regression analysis to investigate the relationship. In table 4 we have unstandardized coefficients and standardized coefficients, which have similar meaning but different in terms of measurement of data collection. As in this research, we use questionnaire with 5-level Likert-Scale, so the measurement of all variables are interval, which is indifferent measurement, and then we can use unstandardized coefficients to interpret the analysis.

According to table 4, we can write the regression equation of this study from result table by putting each coefficient into each variable. The regression equation will be as follow:

$$compet_i = 1.579 + 0.251procinno_i + 0.227adminno_i + \varepsilon_i$$

In table 4, we see the constant term with coefficient 1.579. This data means that business competency has constant term at 1.579 without any behavior of innovation usage and standard error is 0.194 ($\beta=1.579$, S.E. =0.194, Sig=0.000). Product and service innovation has coefficient 0.055, which is quite small, and standard error is 0.090. This variable is not statistically significant at 0.1 or 0.05 or 0.01 level, which are acceptable in analysis of significance ($\beta=0.055$, S.E. =0.090, Sig=0.540). Thus we conclude that this variable is not related to dependent variable. In other word, the product and service innovation usage is not related to business competency. Accordingly, we reject hypothesis 1 (H1).

The next variable is process innovation. In order to test hypothesis 2 (H2), beta coefficient is 0.251, meaning that if the firm has an increase in the level of process innovation by one more unit, the competency of the firm will also increase by 0.251 unit. The coefficient is positive value, so it is related to competency in the same direction. If the firm decrease process innovation, the competency will also decrease, and the standard error is 0.063 ($\beta=0.251$, S.E. =0.063, Sig=0.000). We

can see that the process innovation is statistically significant at 0.01 level, suggesting that process innovation is related business competency. Consequently, we do not reject hypothesis 2 (H2).

Marketing innovation usage has coefficient 0.058, and standard error 0.060. This variable is not statically significant at 0.1 or 0.05 or 0.01 level as well ($\beta=0.058$, S.E. =0.060, Sig=0.336). Although, the coefficient value will be positive; however, it is not significant. Consequently we can say that marketing innovation usage has no influence to business competency. In this case we also reject hypothesis 3 (H3).

The last independent variable in this study is administration innovation usage. The value of coefficient for this factor is also positive, and the beta coefficient is 0.227, meaning that it has positive relation or in the same direction with competency. Standard error is 0.080 and it is significant at 0.01 level ($\beta=0.227$, S.E. =0.080, Sig=0.005). This data suggests that administration innovation usage is positively related to business competency statistically significant at 0.01 level. If the firm increases administration usage in its operation, business competency will increase 0.227 according to the influence of administration innovation and vice versa. Therefore, the hypothesis 4 (H4) is not rejected.

Discussion

Based on our results, there are positive relationships between behaviors of innovation usage and business competency in two dimensions: behavior of process innovation usage and administration innovation usage. In contrast, the other two of behaviors, product and service innovation and marketing innovation, are not significantly related to business competency. The populations of this research study are members of YEC, who have experience in business operation, and the two highest proportion of business category are retails and services, which accounted for more than 75 percent of population. Most of retail and service businesses are franchises. For example, dealers, agents, distributors, concession franchises, which already have had main products and services directly from the company headquarter. Although, the benefits are professional system with strong business alliance and any other good benefits, the owner or dealer will have less flexibility in adapting to new ways of operating. For instance, if a firm is a dealer, it has to sell only the product or service per contract with the main company, and it is unable to adapt to new strategies or local markets because the main company will lose standard. However, if the idea of adapting or adjusting in product or service is good, it may also increase business competency like other innovative usages as well. For these types of business, innovation in product and service mostly come from research and development department of the headquarter location. So, SMEs will have less flexibility in innovating their product and service.

Similarly, marketing innovation usage is quite alike to product and service innovation, because for franchise businesses, they could not adapt their own promotion or marketing strategies without permission from the Headquarter. In order to let the brand image of business stay in the same pattern and standard, SMEs will have less chance to adjust marketing strategies. Sometimes, the promotion was launched in different ways of each dealer, which could bring the Headquarter to the situation of cannibalization, which leads to the competition under the same company. Even though, most of respondents are franchises which could lead us to data selection bias, but as mentioned in the first part that as members of business association, respondents do not only take care of their firms. Social activities, social responsibilities, public cooperating with government sector are required. Current study chooses YEC as population because being members of business association can be good samples for researching.

On the other hand, the process innovation and administration innovation usage is quite personal or distinct in each firm behavior; company can improve their working process or working system to reduce cost and increase productivity and efficiency. For example, the same business may have different process of work. The traditional business may want their workers to come to workplace physically even though some job positions may be able to work remotely and still yield productive results. Traditional firm may switch their operation to rely more on technological equipment like online meeting, which are more flexible, easily, and convenient. Consequently, the adjustment of working process innovation can increase business competency in any firm. Also, since the administration innovation can be flexible in any firm, administration in an organization can increase internal competency for workers and by workers. For example, organization culture that promotes collaboration, cooperation, or sharing within the organization can make employees happy. Worker might have wider working skills in different positions, or firm can get the new idea or solution from specific workers directly so that they can solve the problem more accurately. Therefore, these influential factors are applicable to any organization. The findings in this study corresponded to some previous studies. For instance, Ruenkawee and Kultonbutr (2016) found that Return of Asset (ROA) is positively affected by internal knowledge sharing in an organization corresponding to the study by Sirisak (2016) found that creativity affects innovative creation directly in a positive way and indirectly affects the operation output via innovative creation of the firm, which increases effectiveness in operation.

Conclusion

The empirical results were used to answer two objectives of this study. First, we know that SMEs, which some are operated by the members of business association like YEC, deal with the

innovation usage in their firm. We can see that behaviors of product and service innovation, process innovation, marketing innovation, and administration innovation are in high, high, medium, and high level of usage. This information tells us that paying attention to innovative usage is important. Moreover, innovation does not require high budget, but it can be considered as an adaption to improve the business. Self-improvement of business is the key of innovation.

Second, we can see that each dimension of innovation usage related to business competency. Process innovation and administration innovation are two dimensions that can be done in any firm. Despite, franchise businesses, which have limitations in some dimensions of self-adjustment, they can still apply other dimensions to develop their firms. We see positive influences from innovation usage toward business competency, from process innovation and administration innovation usage, while product and service innovation and marketing innovation usage are not statistically significant.

Recommendations

1. Recommendation for Utilization

The empirical results illustrated that innovation behaviors in business do not need to always be high cost technology, expert RandD team or spending huge budget to create competency from innovation. The key solution for innovation is self-development which should have and promote to all firms. Organizations must always find and develop working style to improve results and reduce cost and waste. Adaption and adjustment are important to be innovative and to create business competency. This research contributes to the mind set of SMEs owners, leaders or even workers to stay active in life-time learning which actually is the intrinsic of innovation and competency origin.

2. Recommendation for Future Research

Creating business competency would help SMEs to become stronger, and this can lead to better economic system as well. However, only competency alone might not always be a good criterion in doing business. For future study, we would like to incorporate the aspect of business sustainability into our research as well because we believe that sustainability will be one of the solutions for future business.

Acknowledgement

This research study got a financial support from Faculty of Liberal Arts and Management Science, Kasetsart University Chalermprakiat Sakonnakorn Campus. Thank you all research mentors from Management program. We highly appreciated for their support.

References

Bank of Thailand. (2019). *Unlock Thai SMEs Adapt to growth*. [Online]. Retrieved April 12, 2020, from: https://www.bot.or.th/Thai/MonetaryPolicy/EconomicConditions/AAA/SMEs_paper.pdf. (in Thai)

Bustinza, O. F., Gomes, E., Vendrell-Herrero, F. and Baines, T. (2017). Product-service innovation and performance: the role of collaborative partnerships and RandD intensity. *RandD Management*, 49(1), 33-45.

Casalino, N., Cavallari, M., Marco, M. D., Ferrara, M., Gatti, M. and Rossignoli, C. (2015). Performance Management and Innovative Human Resource Training Through Flexible Production Systems Aimed at Enhancing the Competitiveness of SMEs. *The IUP Journal of Knowledge Management*, 13(4), 29-42.

Christensen, C. M. (1997). *The innovator's dilemma: when new technologies cause great firms to fail*. Boston, Massachusetts, USA: Harvard Business School Press.

Haribin, Y. and Auerjirapongpan, S. and Siangthai, S. (2016). The ability of network and innovation of Small and Medium Enterprises. *Executive Journal*, 36(2), 79-88. (in Thai)

Hinkle D. E. (1998). *Applied Statistics for the Behavioral Sciences*. Boston, USA: Houghton Mifflin.

Kamariah, I., Wan, Z., Khairiah, S., Aslan, S. and Chaudhry, A. (2014). Role of Innovation in SMEs Performance: A Case of Malaysian SMEs. *The Proceedings of the 2014 International Conference on Economics and Business Administration II (EBA '14)*, At Prague, Czech Republic, Volume: Mathematical Methods in Engineering and Economics, 145-149.

Limkunnathammano, S., Mekdee, K., Siriyo, B., Boonyapong, W., Chanprasert, S. and Sirinya, K., et al. (2016). Training process innovation influence toward operation performance in Multi-Level Marketing. *Modern Management Journal*, 14(1), 143-152. (in Thai)

Mahmutaj, L. R. (2014). *The impact of innovation in SME's performance*. Horizons / Horizonti, 12, 195-206.

Miguel, G. L. and Pedro, D. (2012). Intellectual capital and system of innovation: What really matters at innovative SMEs. *Intangible Capital*, 8, 239-274.

Office of Small and Medium Enterprises Promotion. (2019). *SME Speed Up*. [Online]. Retrieved April 14, 2020, from: https://www.sme.go.th/upload/mod_download/download-20190909060638.pdf. (in Thai)

Posttoday. (2019). *Dream of Thai SMEs Expand to Global Market*. [Online]. Retrieved April 14, 2020, from: <https://www.posttoday.com/life/healthy/578238>. (in Thai)

Prachachat. (2019). *A Decade of Thai Industry*. [Online]. Retrieved April 8, 2020, from: <https://www.prachachat.net/columns/news-398579>. (in Thai)

Ruenkawee, N. and Kultonbutr, C. (2016). The effects of innovation creation and concentration to learning toward performances of organization. *Suthiparitthat Journal*, 30(94), 68-82. (in Thai)

Sirisak P. (2016). The casual relation of change leadership creativity in organization innovation towrd organization performance: Small and Medium Enterprises. *Academic Services Journal*, 27(3), 11-23. (in Thai)

Suangsuttanakul, M. (2016). The effect of middle manager in organization development to be innovative organization: A case study of True corporation (PLC). *Veridian E-Journal Science and Technology*, 9(1), 283-297. (in Thai)

Sukato, N. and Lin, T. C. (2014). University Branding and Rural Tourism through the Interactive Information Kiosk System. *The Proceedings of Asian Conference on Business and Public Policy*, 2014, Osaka, Japan, 243-254.