FACTORS AFFECTING THE MANAGEMENT SUCCESS OF SMALL AND MEDIUM ENTERPRISES IN THE ELECTRICAL AND ELECTRONIC INDUSTRY IN THAILAND

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ABSTRACT

Aim: *This research purpose to study factors affecting the management success of small and medium enterprises, electrical and electronic industry.*

Methodology*: The sample group includes 293 entrepreneurs. The instrument was a questionnaire. Statistics used stepwise multiple regressions.*

Finding: *The results showed that the factors that affect the success of the management consisted of the following main factors and sub-factors: The main factors in terms of strategy formulation consist of sub factors: 1) establishing business goals, 2) production cost management and 3) have a different perspective on the business. All three factors that can predict the success of the management was 76.6% (R^2=0.766). The main factors in terms of production management consist of sub factors: 1) modern production process and innovations, 2) understand the needs of customers, 3) create a network to do business, and 4) keep pace with changing technology. All four factors that can predict the success of the management was 48.6% (R^2=0.486). The main factors in terms of technology and innovation consist of sub factors: 1) receiving information from after-sales service, 2) development of new technologies and innovations and 3) different products from competitions. All three factors that can predict the success of the management was 80.8% (R^2=0.808) And the main factors in terms of the entrepreneurship consists of sub factors: 1) creativity of the executive and 2) have knowledge in business. All two factors that can predict the success of the management was 18.9% (R^2=0.189).*

Conclusion*: Management is a good practice to achieve success. But in the process, there are many factors that contribute to the success of management. So business entrepreneurs need to focus and learn. Summary of factors that affect the success of management consists of 4 main factors and 12 sub-factors.*

Keywords: Factors, Advantage, Entrepreneur, Electrical and Electronic Industry, Business, Competition, Management.

INTRODUCTION

Small and Medium Enterprises is a large group of businesses in Thailand and most of them are engaged in the business of selling products, production or services. Thailand defined the characteristics of small and medium enterprises as groups as: 1) Manufacturing group is a manufacturing enterprise in the agricultural sector and production in the manufacturing sector and business that relate to mining Industrial production 2) trade group as wholesale and retail trade and 3) service business group (Revenue Department, 2018).

Presently, the world is entering digital economy era, digital technology is widely applied to support and operate business and services, and it tends to steadily grow worldwide. This economy change greatly affects lifestyle of the world population. People tend to rely more on the Internet of things or intelligent environment where everything is interconnected *via* digital technology. The concept of the Internet of things is challenging to human lifestyle economically and socially (Mckinsey Global Institute, 2013).

According to the situation mentioned above, Thailand has adjusted herself to meet the world economy change. New development policy or a so-called Thailand 4.0 was formulated. This visionary policy is targeted at applying digital economy innovations and intelligent industry to drive the economy of the country. Industrial automation and intelligent robots are encouraged to be used in production process. Digital societies are spreading. The Internet will connect everything together. Low skilled workers need to be changed into manpower with knowledge, expertise, and to be more skillful or smart employees to increase production efficiency and competitive potential for Thai industrial business. The industry, therefore, is restructured to get out of the moderate income trap and to step forward to be a high income country. Industry restructure is focused on developing industry by using high technology in production. Industrial groups need to act as a mechanic driving Thai economy in the first phase to develop the existing 5 potential industries of Thailand; namely, 1) modern automotive industry, 2) intelligent electronics industry, 3) high income tourism industry and health tourism, 4) agriculture industry, and 5) biotechnology and food processing industry (Chanintorn, 2017).

Electrical and electronic industry is considered as major industry of the country economy because electronic merchandises are important export goods of Thailand. According to the Department of International Trade, Ministry of Commerce, the total value of electronic merchandise export, specifically, computers, electronic equipment and parts was 2,896,8840.90 THB from years 2012-2016 and consecutively ranked the second, taking 16% of the total value of the country exports of 17,717,529.20 THB of 10 major industries. Electronics industry is one of the 10 targeted industries to be promoted in the National Industrial Development Plan of Thailand. Intelligent electronics merchandises including: 1) new products such as SSD, OLED/flat panel display, chip on board LED, sensors, RFID, electronic controlling devices, Internet of things/smart home, CCTV, wearable devices, and communication equipment, 2) existing potential products such as HDD, IC, diode, transistor, multilayer PCB and flexible printed circuit, and 3) electronics design group such as microelectronics design, embedded system design, IC design (Ministry of Commerce, 2016).

Based on the assessment of the Kasikorn Research Office, it was found that the competitors in the electrical and electronic industries of Thailand are Vietnam which is growing a lot among ASEAN countries. Part of the reason is Vietnam compete with low production costs. Many countries has interested in moving their investment base to Vietnam. This Cause foreign investment in Vietnam (Foreign Direct Investment: FDI) surpass Thailand. In the result, Vietnam became the largest exporter of electrical and electronic parts that shipped to the United States, surpassed even Malaysia and Thailand. That made Vietnam to be a leader in the export of electrical and electronic parts among ASEAN countries. In addition, Vietnam has an opportunity to grow at an average of 15% per year. Which exports of electrical and electronic parts of Vietnam in 2019 may reach US $100,000 while exports of electrical and electronic parts of Thailand grew only slightly by 2.0% per year to US $51,000 (Kasikorn Thai Research Center, 2017)?

The situation of businesses in the electrical and electronic industry of Thailand is likely to slow down. From the value of import and export of Thai electrical and electronic parts products contracted by -2.15%. And the industrial production index of the electrical and electronic industry group decreased by -4.77% (Attasit, 2016). The contraction of the electrical and electronic industry directly affects the business of the country. As can be seen from the employment data of five major industries in December 2015, the electronics industry had 6,398 unemployed people and 2,897 employees were layoffs. In terms of employment, there was a slowdown in the amount of hard disk drive exports that has been shrinking. In electronics industry, there were 408,779 people employed. According to comparing between data of December 2015 with November 2015, It was found that in the electronics industry, the employment rate were slowdown as in the same month of last year (December, 2014) accounted for -0.62% due to the export of electronic products, especially in hard disk drives section are still shrinking and tend to slow down as the demand for personal computers which has declined.

Small and medium sized businesses in the electrical and electronics industries often have more problems when compared to a large industry. In particular, the problems in Thailand's industry are: production problems, management problems, funding problems, marketing problems, labour problems, quality problems, technology issues and lacking of knowledge in business administration. The business does not have a good management system and lack of continuous training and development. From the above mentioned, it could be seen that the main problem is the efficient management system of the entrepreneur (Department of Skill Development, 2016).

Due to the significance of the electrical and electronics industry to the country economy, and the problems caused by the restructuring of the world economy as well as changing dynamics of the mentioned industry, it is crucial for Thai entrepreneurs especially in the small and medium enterprises to adjust themselves, to keep pace with the changing environment, and to improve their knowledge of and ability in organization and technology management. So the enterprise can be more sustainably efficient and meet the demand of the present and future world. Good management system is very important to conduct business today but there are many factors that contribute to effective management. In this research, the researcher wanted to study the factors that affect the success of the management of small and medium enterprises in electrical and electronic industry.

This research results, entrepreneurs in the electrical and electronic industry can use as a guideline for managing the business to grow and survive in the current situation in which business has intense competition and technology is continuously developed.

LITERATURE REVIEW

Electrical and Electronic Industry

Electrical and electronic industry is an important industry in Thailand. The structure of the business in the electrical and electronic industry of Thailand can be divided into 3 main parts as: (National Industrial Development Board, Ministry of Industry, 1998).

1. Part 1: Upstream Industry: This industry is considered an industry that is the basic stage of manufacturing electrical and electronic parts of the country. This part relates to the invention, development and design electrical and electronic products such as the design of electrical and computer circuit plans. This upstream industry is considered as the industry with the highest value. At present, Thailand has not produced much upstream industry. Because this industry requires high technology and high knowledge and skilled

personnel as well. Most of Thailand industry still uses the low level technology and most of the workers in the industry are still unskilled workers, mostly just work following orders.

2. Part 2: Midstream Industry: This industry related to the production of parts and components of electrical and electronic products. Thailand has encouraged this industry most because it has considered as very high investment section both from domestic and oversea investor. So this section has been large industrial business but 80 percent of entrepreneurs in this industry that belong to Thai people are small and medium industries which produce the parts for larger company. Their production process is not complicated and the mostly operate by workers Products, parts and equipment in this industry has high export value because it is one of the main export products of Thailand.
3. Part 3: Downstream Industry: It is an industry that deals with the production of final electrical and electronic products, such as television, computers and mobile phones, which Thailand does not produce much because it can produce only products that use not too complicated technology, such as radio and television receivers. However, the using domestic parts of this downstream industry are relatively low.

Adaptation of Thai Electrical and Electronic Industry in the Future

The problems and obstacles that the Thai electrical and electronics industry had encountered are the electrical and electronic industries are constantly and fast changing. Whether supply side, such as technology and innovation changes or in the demand side (demand side), such as the trend of consumption or consumer behavior that changes rapidly, limited Thai electricity and electronics industry. Currently, there are many risks in both production and international trade, the electricity and electronics industry in Thailand is experiencing problems as follows:

1. Most of the production is only intermediate productions and downstream products. They do not have productions in the design stage or upstream stage. So, it is difficult to create more value able product.
2. The export structure of Thai electronic products mainly relies on computers equipment and parts ,such as hard disk drives, which the demand has decreased because computers and notebooks are being replaced by high-performance, intelligent mobile devices that has been gaining popularity. The situation may cause Thailand to not be able to compete with other countries that have products that emphasizes on innovation and advanced technology.
3. Consumer behavior in the Internet era or the intelligent environment that is linked by technology and the internet, influence everything in their daily lives. This change affects the needs of consumers as the demand for advanced electronic components to support the production of more intelligent electronic products that the products has outstanding ability to connect to the Internet and it is convenient to use, also they have lower prices when compare with computer or notebook.
4. Industrial labor shortages and the imbalance of labor skills in Thailand because the market requires higher skilled workers due to the transition to advanced technology to support the advanced electronic components production.

Adaptation of Entrepreneurs in the Electrical and Electronic Industry

Here are guidelines for the adjustment of entrepreneurs in the electrical and electronic industry of Thailand to adapt and develop their potential.

1. Promptly and quickly adapt to keep up with changes of consumer behavior and changes in various technologies.
2. Focus on the original design manufacturing to produce high value-added products and innovation. Emphasize on customers' needs more than on advance production.
3. Develop more upstream industries through the development of new technologies and innovations by themselves.

4. Improve the skills and abilities of workers in the industrial sector. Focus on having a variety of skills to enable the Thai electronics and electronics industry develop sustainably and have more competitive ability in the world market.

Business Entrepreneur

Definition of Entrepreneur: Many scholars gave meaning of "*entrepreneur*" as follows:

Kuratko & Hodgetts (1998) gave the meaning of entrepreneurs as '*Those who try to profit from risk and initiative by themselves' 'the person who established the business by accepting the risk to hope for profit*' or '*those who set up the organization and develop the management and can accept business risks for possible profits*'.

Catlin & Matthews (2001) concluded that entrepreneurs are people who have confidence in themselves to be able to fulfill their thoughts or dilemma to be true and when faced with failure, they can find a solution to make what they want to be true.

Schumpeter (1961) gave the meaning that entrepreneurs are people who drive the development and creation beyond any technology and process. They push for change with the innovation that made business more valuable. Entrepreneurs means those who initiated using the process of classifying existing products and services to develop new products and services which consists of: 1) offering new quality products, 2) using new methods and production processes, 3) opening new businesses in the market and 4) establishment of new businesses.

Therefore, it can be concluded that the entrepreneur refers to the person who established the organization as the owner or partner and proceeds by accepting the risks that may arise in the business operation to benefit the business and generate profits for the business. They have a role as an organization leader with careful planning, systematic decision-making process. In addition entrepreneurs must be creative workers and have new perspectives in the business. They always seek for business opportunities in order to create competitive advantages and new innovation to the market.

Characteristics of Successful Entrepreneurs

Characteristics of successful entrepreneurs in every industry (Walter, 2002) may be as follows:

1. Entrepreneurs should be flexible in order to get what they want such as capital, talented staff or anything that lead to the desired result.
2. Entrepreneurs should not afraid and ready to face of business competitors.
3. Entrepreneurs should have patience because starting a business usually starts from a small business, giving entrepreneurs the opportunity to do experiment and adjust business ideas before they fully grow.
4. Entrepreneurs should be ready to change strategies quickly because the needs of the customers are constantly changing and the competitors are more intense. Entrepreneurs must be able to adjust the strategy to correspond to that change.

Wannee (2009) who will succeed in small and medium-sized businesses must have the following qualifications: good knowledge of the business, understand the principles of business management as well knowledge of production, marketing, finance, accounting and human resource management. Entrepreneurs will have to dare to fight hard, not discouraged and discouraged by problems, daring to risk using knowledge, experience; trial and error for future success is considered a challenge.

Problems and Obstacles of Entrepreneurs

At present, new entrepreneurs especially small and medium enterprises often encounter various problems can be easily compared to the major operators, which can be summarized as follows:

1. Lack of technology and innovation capability.
2. Lack of the ability to develop new products.
3. Lack of modern information technology capabilities.
4. Lack of ability to conduct aggressive marketing activities.
5. The potential of labor and human resources is still low labor skills, lack of technology expertise.
6. There are restrictions on funding and access to funding sources.

METHODOLOGY

This research was designed as a survey research with the purposes to study factors affecting the management success of small and medium enterprises in electrical and electronic industry.

Research methods can be presented as follow:

1. The populations in this study were 1,098 entrepreneurs of small and medium electrical and electronic enterprises (registered under the Factory Act 1992).
2. The sample of this study was the entrepreneurs of small and medium electrical and electronic enterprises registered under the Factory Act 1992. The sample size was formulated according to Yamane (1973). The confidence level was 95%. The samples were 293 entrepreneurs. The data were collected though questionnaire which had been conducted between July 2017 to July 2018 (12 months).
3. Instruments of the study: A questionnaire on factors affecting management success of small and medium enterprises, electrical and electronic industry was created based on the related literature and the in-depth interview. The questionnaire was divided into 4 parts as: Part 1: General demographic data: asking for entrepreneurs' gender, age, educational background, management experiences, and duration of their establishment. Part 2: Opinions on entrepreneurs' current operation conditions of electrical and electronic enterprise. This part was of Likert 5-point rating scale type, consisted of 50 questions. Part 3: Opinions on significance level of the factors affecting management success of small and medium enterprises, electrical and electronic industry. This part comprised of 24 items of 5-point rating scale type.
4. Data analysis: Part 1: Frequency and percentage were used to analyze the data on general demographic data; namely, entrepreneurs' gender, age, educational background, management experiences, duration of informants' establishment. Part 2: Arithmetic mean and standard deviation were used to analyze the entrepreneurs' opinions on current operation conditions of electrical and electronic enterprise based on their competency. Part 3: Stepwise multiple regression analysis was used to analyze opinions on the significance level of the factors affecting management success of small and medium enterprises, electrical and electronic industry.

RESULTS

Level of Important of Management Elements which was analyzed from the Data is Present in Figure 1.

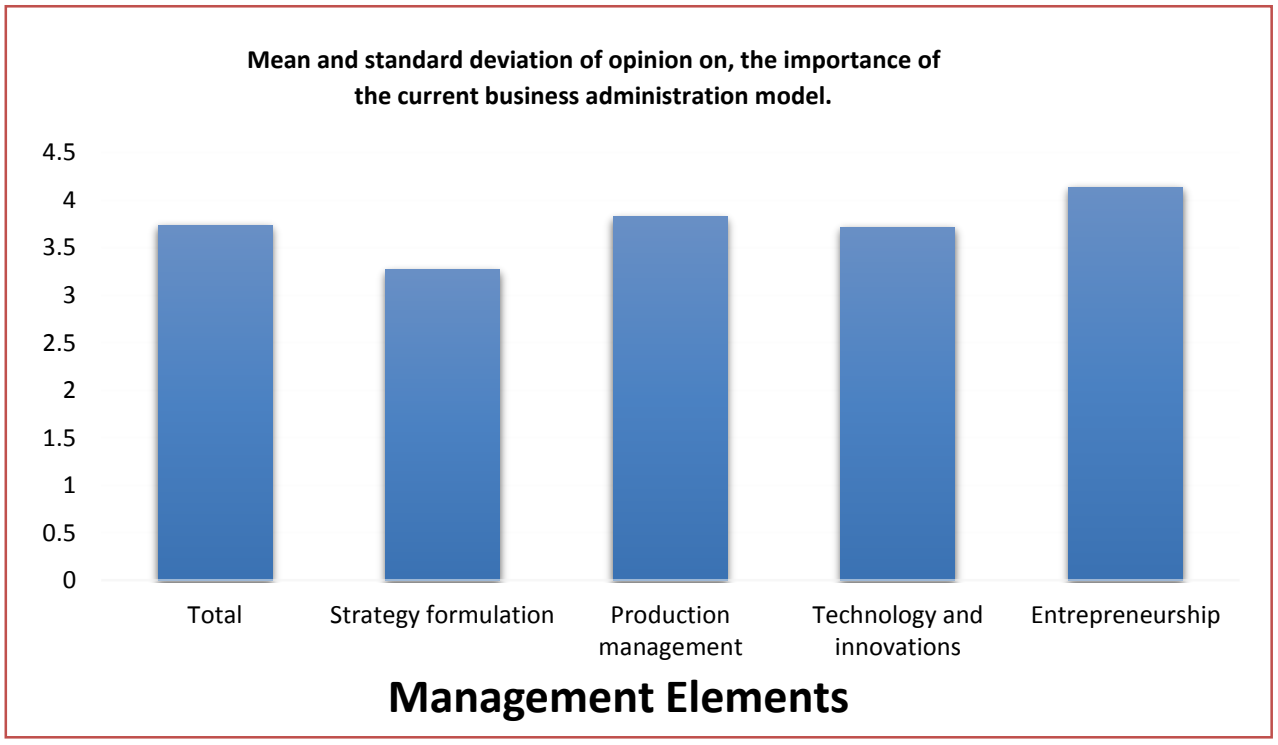

FIGURE 1
MEAN AND STANDARD DEVIATION OF OPINION ON, THE IMPORTANCE OF THE CURRENT BUSINESS ADMINISTRATION MODEL

From Figure 1, the samples focus on the components of business administration. The overall level is very high ($\overline{X}$ =3.74). When considering each side, found that the mean score at the high level consisted of: Entrepreneurship ($\overline{X}$ =4.14) Production management ($\overline{X}$ =3.83) and Production management ($\overline{X}$ =3.72) and the mean score was moderate, strategy formulation ($\overline{X}$ =3.27).

The importance level of factors that affect the success of small and medium sized electric business entrepreneur is presented in Table 1.

Table 1
MEAN AND STANDARD DEVIATION, THE LEVEL OF IMPORTANCE, THE FACTORS THAT AFFECT SUCCESS IN MANAGEMENT BUSINESS, ELECTRIC AND ELECTRONIC, SMALL AND MEDIUM BUSINESSES

Factors	$\overline{X}$	S.D	Level of importance
1. Establishing Business Goals	4.27	0.66	High
2. Compact and agile working process	3.80	0.89	High
3. Understand the needs of customers.	3.62	0.81	High

Table 1
MEAN AND STANDARD DEVIATION, THE LEVEL OF IMPORTANCE, THE FACTORS THAT AFFECT SUCCESS IN MANAGEMENT BUSINESS, ELECTRIC AND ELECTRONIC, SMALL AND MEDIUM BUSINESSES

Factors	$\overline{X}$	S.D	Level of importance
4. Receiving information from after-sales service	3.72	0.82	High
5. Products can add value to the organization.	4.00	0.65	High
6. Create a network to do business.	3.81	0.74	High
7. Good relationship with customer	3.50	0.73	High
8. Employees with diverse skills	3.63	0.80	High
9. Building morale, good for employees.	3.76	0.64	High
10. Safety at work	3.95	0.92	High
11. Good environment to work	3.64	0.89	High
12. Product quality control system	4.10	0.76	High
13. Integrity in the business.	3.52	0.93	High
14. Delivery on time.	3.95	0.87	High
15. Production cost management	4.13	0.75	High
16. Modern production process and innovations	3.87	0.81	High
17. Keep pace with changing technology	3.59	0.64	High
18. Development of new technologies and innovations.	3.70	0.76	High
19. Different products from competitors.	3.66	0.92	High
20. Commitment to business success	4.18	0.75	High
21. Have knowledge in business.	4.54	0.55	Very High
22. Have a different perspective on the business.	3.68	0.86	High
23. The Vision of Organizational Leadership.	4.20	0.36	High
24. Creativity of the Executive	3.80	0.81	High

Table 1 shows that management factor the top 5 priorities are: 1) Have knowledge in business ($\overline{X}$=4.35) 2) Establishing business goals ($\overline{X}$=4.27) 3) The vision of organizational leadership ($\overline{X}$=4.20) 4) Commitment to business success ($\overline{X}$=4.18) and 5) Production cost management ($\overline{X}$=4.13).

The Result of the Analysis of factors affecting the Success of the Management of SMES Entrepreneurs in Electrical and Electronic Industrial Business was reached by Stepwise Multiple Regression Analysis. The Factors were classified in to Four Domains as Following Details

1. The factor affecting on the success of the management of SMEs entrepreneurs in electrical and electronic industrial business in management element of the strategy formulation. Details are shown in Tables 2 and 3 (A_1=Establishing business goals, A_2=production cost management and A_3=Have a different perspective on the business).

Table 2
SHOW MULTIPLE CORRELATIONS (R) AND FORECASTING (R^2) WHEN ADDED TO THE FACTORS ONE BY ONE

Predictor variable	R	R^2	SE_{est}	Adjust R^2	b	Std. Error (b)	β	T	Sig
A_1	0.814	0.663	0.325	0.662	0.279	0.037	0.378	7.465	0.000*
A_1,A_2	0.862	0.743	0.284	0.741	0.176	0.027	0.291	6.522	0.000*
A_1,A_2,A_3	0.875	0.766	0.272	0.763	0.180	0.034	0.288	5.235	0.000*

Note: *p≤.05

R=The relationship between the groups of all independent variables in the equation with the dependent variable.
$R^{2=}$The influence of all independent variables on the equation for the dependent variable.
$SE_{est=}$The values show the degree of discrepancies caused by the use of all independent variables.
Adjust R^2=Is the value that shows the influence of all independent variables on the equation for the modified variable.
b=The coefficient of regression in the form of raw scores.
Std. Error (b)=Standard error of predictive variables.
β=The coefficient of the predictor, which is predicted in the form of standard scores.
T=Test statistics; statistics used to test which independent variables can be used to forecast variables.
a=Constants of predictive equations in the form of raw scores.

Table 2, the finding yielded that three factors in the strategy formulation domain highly affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 76.6% (R^2=0.766) and estimated standard error of (SE_{est}) 0.272.

Table 3
MULTIPLE REGRESSION ANALYSIS RESULTS OF FORECASTING VARIABLES IN STRATEGY FORMULATION DOMAIN

Predictive variables	b	Std. Error(b)	β	t	Sig
1. Establishing Business Goals (A_1)	.279	.037	.378	7.465	.000*
2. Production cost management (A_2)	.176	.027	.291	6.522	.000*
3. have a different perspective on the business (A_3)	.180	.034	.288	5.235	.000*
a=1.347, SE_{est}=.272					

Note: *p<.05

Table 3, shown that '*establishing business goals*' (A_1) was the highest score predictive variable of success of management. The regression coefficients in raw score and regression coefficients in standard score (b,β) were 0.279, 0.378 respectively. The lowest score predictable factor was '*have a different perspective on the business*'. There was statistically significant at 0.05 levels. The regression coefficients in raw score and regression coefficients in standard score (b,β) were 0.180 and 0.288 respectively. The values show the degree of discrepancies caused by the use of all independent variables was 0.272.

From Tables 2 and 3 the results of the data analysis can be used as predictive equations. The prediction equation in raw score form:

$$\hat{Y}_{1=}1.347+0.279\ (\text{establishing business goals})+0.176\ (\text{production cost management})+0.180\ (\text{have a different perspective on the business})$$

A predictive equation in the form of standard scores:

$$\hat{Z}_{y1=}0.378Z\ (\text{establishing business goals})+0.291Z\ (\text{production cost management})+0.2Z\ (\text{have a different perspective on the business})$$

2. The factor affecting on the success of the management of SMEs entrepreneurs in electrical and electronic industrial business in management element of production management. Details are shown in Tables 4 and 5 (B_1=modern production process and innovations, $B_{2=}$understand the needs of customers, $B_{3=}$create a network to do business and B_4=keep pace with changing technology).

Table 4
SHOW MULTIPLE CORRELATION (R) AND FORECASTING (R^2) WHEN ADDED TO THE FACTORS ONE BY ONE

Predictor variable	R	R^2	SE_{est}	Adjust R^2	b	Std. Error (b)	β	T	Sig
B_1	0.588	0.345	0.363	0.343	0.299	0.024	0.542	12.56	0.000*
B_1,B_2	0.665	0.443	0.335	0.439	0.180	0.024	0.327	7.60	0.000*
B_1,B_2,B_3	0.691	0.478	0.325	0.472	0.113	0.026	0.187	4.34	0.000*
B_1,B_2,B_3,B_4	0.697	0.486	0.323	0.478	0.036	0.017	0.088	2.05	0.041*

Note: * $p \leq .05$

In Table 4, there are four factors in production management domain that affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 48.6 per cent (R^2=0.486) and estimated standard error of (SE_{est}) 0.323.

Table 5
MULTIPLE REGRESSION ANALYSIS RESULTS OF FORECASTING VARIABLES IN PRODUCTION MANAGEMENT DOMAIN

Predictive variables	b	Std. Error (b)	β	t	Sig
1. Modern production process and innovations (B_1)	0.299	0.024	0.542	12.56	0.000*
2. Understand the needs of customers (B_2)	0.180	0.024	0.327	7.60	0.000*
3. Create a network to do business (B_3)	0.113	0.026	0.187	4.34	0.000*
4. Keep pace with changing technology (B_4)	0.036	0.017	0.088	2.05	0.041*
a=1.469, SE_{est}=0.323					

Note: * $p \leq .05$

Table 5 show that '*modern production process and innovations'* was the most powerful predict variable for the success of management. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.299, 0.542. The lowest score predictable factor was '*keep pace with changing technology*'. There was statistically significant at 0.05 levels. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.036 and 0.088. The values show the degree of discrepancies caused by the use of all independent variables was 0.323.

From Tables 4 and 5 the results of the data analysis can be used as predictive equations. The prediction equation in raw score form:

$$\hat{Y}_{1=}1.469+0.299 \text{ (modern production process and innovations)}+0.180 \text{ (understand the needs of customers)}+0.113 \text{ (create a network to do business)}+0.036 \text{ (keep pace with changing technology)}$$

A predictive equation in the form of standard scores:

$$\hat{Z}_{y1=}0.542Z \text{ (modern production process and innovations)}+0.327Z \text{ (understand the needs of customers)}+0.187Z \text{ (create a network to do business)}+0.088Z \text{ (keep pace with changing technology)}$$

3. The factor affecting on the success of the management of SMEs entrepreneurs in electrical and electronic industrial business in management element of technology and innovation. Details are shown in Tables 6 and

7. (C_1=receiving information from after-sales service, C_2=development of new technologies and innovations and C_3=different products from competitions).

Table 6
SHOW MULTIPLE CORRELATION(R) AND FORECASTING (R^2) WHEN ADDED TO THE FACTORS ONE BY ONE

Predictor variable	R	R^2	SE_{est}	Adjust R^2	b	Std. Error (b)	β	T	Sig
C_1	0.869	0.756	0.209	0.755	0.255	0.029	0.498	8.733	0.000*
C_1,C_2	0.889	0.790	0.194	0.789	0.228	0.032	0.411	7.212	0.000*
C_1,C_2,C_3	0.899	0.808	0.185	0.806	0.061	0.012	0.134	5.137	0.000*

Note: *P≤ .05

In Table 6, there are three factors in this domain affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 80.8% (R^2=0.808) and estimated standard error of (SE_{est}) 0.185.

Table 7
MULTIPLE REGRESSION ANALYSIS RESULTS OF FORECASTING VARIABLES IN TECHNOLOGY AND INNOVATION DOMAIN

Predictive variables	b	Std. Error(b)	β	t	Sig
1. receiving information from after-sales service (C_1)	0.255	0.029	0.498	8.733	0.000*
2. development of new technologies and innovations (C_2)	0.228	0.032	0.411	7.212	0.000*
3. different products from competitions (C_3)	0.061	0.012	0.134	5.137	0.000*
a=1.702, SE_{est}=0.185					

Note *p ≤.05

Table 7 shows that '*receiving information from after-sales service*' was the best predictive variable for the success of management. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.255, 0.498. The lowest score predictable factor is '*different products from competitions*'.There was statistically significant at 0.05 level. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.061 and 0.134. The values show the degree of discrepancies caused by the use of all independent variables was 0.185.

From the Tables 6 and 7 results of the data analysis can be used as predictive equations. The prediction equation in raw score form:

$$\hat{Y}_{1=}1.702+0.255 \text{ (receiving information from after-sales service)}+0.228 \text{ (development of new technologies and innovations)}+0.061 \text{ (different products from competitions)}$$

A predictive equation in the form of standard scores:

$$\hat{Z}_{y1=}0.498Z \text{ (receiving information from after-sales service)}+0.411Z \text{ (development of new technologies and innovations)}+0.134Z \text{ (different products from competitions).}$$

4. The factor affecting on the success of the management of SMEs entrepreneurs in electrical and electronic industrial business in management element of entrepreneurship. Details are shown in Table 8. Show

multiple correlation coefficients (R) and forecasting coefficients (R^2). When added to the factors one by one. (D_1=creativity of the executive and D_2=have knowledge in business).

Table 8
SHOW MULTIPLE CORRELATION (R) AND FORECASTING (R^2) WHEN ADDED TO THE FACTORS ONE BY ONE

Predictor variable	R	R^2	SE_{est}	Adjust R^2	b	Std. Error (b)	β	T	Sig
D_1	0.403	0.163	0.272	0.160	0.142	0.020	0.389	7.263	0.000*
D_1,D_2	0.435	0.189	0.268	0.183	0.056	0.018	0.163	3.048	0.003*

Note: *p≤ .05.

Table 8 shows the finding of this study to entrepreneurship. the factors affecting the success of the management of SMEs entrepreneurs in electrical and electronic industrial business that there are 2 factors affecting on the management of SMEs entrepreneurs in electrical and electronic industrial business. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 18.9% (R^2=0.189) and estimated standard error of (SE_{est}) 0.268.

Table 9
MULTIPLE REGRESSION ANALYSIS RESULTS OF FORECASTING VARIABLES IN ENTREPRENEURSHIP DOMAIN

Predictive variables	b	Std. Error(b)	β	t	Sig
1. Creativity of the executive (D_1)	0.142	0.020	0.389	7.263	0.000*
2. Have knowledge in business. (D_2)	0.056	0.018	0.163	3.048	0.003*
a=3.583, SE_{est}=0.268					

Note: *p<.05

Table 9 shows as that '*creativity of the executive*' was the highest score predictive factor. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.142, 0.3898. The secondary predictable factor was '*different products from competitions*'. There was statistically significant at 0.05 levels. The regression coefficients in raw score and regression coefficients in standard score (b,β) be 0.056 and 0.163. The values show the degree of discrepancies caused by the use of all independent variables was 0.268.

From Tables 8 and 9 the results of the data analysis can be used as predictive equations. The prediction equation in raw score form:

$$\hat{Y}_{1=}3.583+0.142 \text{ (creativity of the executive)}+0.056 \text{ (have knowledge in business)}$$

A predictive equation in the form of standard scores:

$$\hat{Z}_{y1=}0.389Z \text{ (creativity of the executive)}+0.163Z \text{ (have knowledge in business)}$$

DISCUSSION

The results of the study in relation to the factors affecting management success of small and medium enterprises, electrical and electronic industry could be further discussed as follows:

1. **Strategy formulation:** The finding yielded that three factors in the strategy formulation domain highly affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business (Table 3 and Table 4). '*Establishing business goals*' was the first variable that can predict the success of the management, the second and third were '*production cost management*' and '*have a different perspective on the businesses*' respectively. The multiple regression coefficients of correlation (R) were 0.875 at the 0.05 level of significance. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 76.6 per cent (R^2 =0.766) and estimated standard error of (SE_{est}) 0.272. In accordance with the research results and the concepts of academics as: Under various and complex conditions, it is necessary for enterprises to operate with compactness and agility to meet the customers' need and increase competitive capability. This corresponded with the research results of, Hashim et al. (2001) which found that corporate policies and business strategies affecti business operations. The study indicated that having an effective strategy influenced the success of the organization. The research also indicated that strategies that affect the success of the organization were: 1) Low cost strategy, 2) Distinct strategy, and 3) Target market and niche target. These strategies affected the growth rate of return on sales and return on total assets as well as return on investment. Chaiyod (2013) studied about developing new entrepreneurial competencies in the food industry, the desired performance of new entrants in the food industry were production management, marketing, business strategy planning, principles of purchasing ,communications human relations in business, ethics and code of conduct. Suteera (2012) conducted a study on characteristics of entrepreneurship affecting the growth of small and medium enterprises in Thailand. The results of the study found that the key features that contribute to success were: proactive, strategic innovative and innovative.
2. **Production management:** There are four factors in production management domain that affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business (Tables 5 and 6). The '*modern production process and innovations*' is the most influence variable that can predict the success of the management.the Second and third were '*understand the needs of customers, create a network to do business*' and '*keep pace with changing technology*', respectively. The multiple regression coefficients of correlation (R) were 0.697 at the 0.05 level of significance. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 48.6% (R^2=0.486) and estimated standard error of (SE_{est}) 0.323. Presently, modern technology and innovations are used to develop and improve production process for efficiency. Network of business is created to increase business opportunities. Understanding customers' needs able the firms to produce the goods that meet those needs and to satisfy the customer. Creativity helps to develop new products. Technology and innovation are introduced to production process. All of these can be successful only when entrepreneurs place the importance on personnel development so that their employees have varieties of skills and can do many jobs. The findings were corresponded with the study by USA (2002) who found that entrepreneurs' important management characteristics should include management ability for efficient production, ability to control expenditure and to manage finance and investment cost. Moreover, the findings were similar to the study by Man et al. (2002) which also found that entrepreneurship competency affected SMEs business performance depended on ability to produce quality products and services since it yielded better image of the product itself and the organization, and also depended on efficient cost management to control the expenditure and to gain maximum profits. Raduan et al. (2006) similarly found, in their study, that factors vividly affected the success of SMEs business and entrepreneurs were creativity to initiate new things, understanding market and customers' need. These could help to formulate strategic plan for the success of organizations. New generation entrepreneurs and top administrators should have knowledge in marketing and skills in communication with people, to build trade alliance network, and to use modern technology so that they could become successful.

3. **Technology and innovation:** There are three factor in this domain affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business (Table 7 and Table 8). The '*receiving information from after-sales service*' was the first variable that can predict the success of the management, the second and third were '*development of new technologies and innovations*' and '*different products from competitions*', respectively. The multiple regression coefficients of correlation (R) were 0.899 at the .05 level of significance. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of 0.05, with 80.8% (R^2=0.808) and estimated standard error of (SE_{est}) 0.185. Efficient after-sales service can help to satisfy customers. Development of innovations to be different from competitors can create competitive advantages. Modern technology and innovations can encourage development and improvement of products and services to be different from competitors which can lead to success in business. Technology and innovations are considered so important for digital economy that the National Economic and Social Development Plan of Thailand emphasizes on using innovations to drive economy. They, however, change very rapidly. Javed et al. (2011) similarly found that a significant factor affecting success of SMEs entrepreneurs was application of modern technology to business so as to develop and improve the products and services for the competition. Having good technology not only boosts competitive advantage but also helps to develop new products and services including after-sales service that lead to customers' utmost satisfaction and business success. Ferreira & Azevedo (2007) studied the characteristics of entrepreneurship and the ability of small business growth in entrepreneurial qualities, resources, and networks. The research found that the strategies that affected the success of entrepreneurs were: 1) innovation, 2) risk management and 3) Proactive. New technology should be used in working process to increase production efficiency and merchandise quality so that they can create more value to the organization. Safety at work is also important matter. Accidents must be prevented. Modern technology and innovations should be introduced. Merchandise delivery must be on time and safe and its status can be checked conveniently. Used innovation must be different from competitors' to create strategic trade and competitive advantages. Production cost must be well managed, i.e. production process waste should not be made, and unnecessary expenditure should be reduced so that the production cost is reduced too. Entrepreneurs should have different perspectives from competitors. The study by Gary (2001) also found that important strategies affecting success were new different technology and innovations as well as creation of products that meet the customers' need. Such strategies affected the efficiency of production too.

4. **Entrepreneurship:** In domain of entrepreneurship It was found that there were two factors affected the success of the management of SMEs entrepreneurs in electrical and electronic industrial business The '*creativity of the executive*' is the highest score predictive variable for success of the management and the second was '*have knowledge in business*'. The multiple regression coefficients of correlation (R) were 0.403 at the 0.05 level of significance. And these factors could predict success of the management of SMEs entrepreneurs in electrical and electronic industrial business at the statistically significant level of .05, with 18.9 per cent (R^2=0.189) and estimated standard error of (SE_{est}) 0.268. With creativity, new products and innovations can certainly be created to add more value to the organization. Having different perspectives and knowledge help entrepreneurs to understand their business more and they, therefore, develop and improve their products and service frequently. This finding corresponded with study of Sirisak's (2016) who found that organizational creativity and innovations had positive influence on SMEs performance; and with study of Jasra et al. (2012) who found that entrepreneurs had to acquire skills of entrepreneurship. They had to able been to initiate new things that different from the others, and to understand their own business well. Understanding market, business environment and customers can lead entrepreneurs and their business to success. Wannee (2009) mentioned that those who are successful in small and medium businesses must possess the following qualities: Good knowledge in business and consistent with the ideas of the academic as follows: Gallup (1986) defined the characteristics of key entrepreneurs, consisting of: Creativity or ability to draw o talent from the talented. Ability to make people understand clearly, promptly. Boredom may come from experience. Many people get on a particular subject. Ryan et al. (1998) summarized the factors that contribute to success of entrepreneurs was having a clear idea of their business. Frese (2000) defined entrepreneurial characteristics as key to innovation. Innovativeness is a new initiative for new products, services and technologies. Hatten (2006) defined entrepreneurial behavior as creativity, new business initiatives and innovations, new products are produced, including business processes, marketing and organizational management with new processes can be initiated by the creativity Lumpkin & Dess (2008) summarized the characteristics of entrepreneurship was being creative, which lead to

innovative products, new services and technologies. Entrialgo (2002) studied the impact of successful strategies and management practices on entrepreneurship. The results showed that. Entrepreneurs with high entrepreneurial skills can contribute to the success of the business. The skills were: 1) knowledge of the business, 2) ability to use new technologies, and 3) Of sales and marketing.

CONCLUSION

The results yielded the factors that affected success in management business electric and electronic, small and medium businesses. The small and medium business owners of the electrical and electronic industry should develop knowledge and skills based on the following main factors and sub-factors:

There were three main factors in domain of **strategy formulation** as:

1. Establishing business goals.
2. Production cost management.
3. Have a different perspective on the business.

There were four main factors in domain of **production management** as:

1. Modern production process and innovations.
2. Understand the needs of customers.
3. Create a network to do business.
4. Keep pace with changing technology.

There were three main factors in domain of **technology and innovation** as:

1. Receiving information from after-sales service.
2. Development of new technologies and innovations.
3. Different products from competitions.

There were two main factors in domain of **entrepreneurship** as:

1. Creativity of the executive.
2. Have knowledge in business.

The main and the sub factors affecting the success in management business, electric and electronic, small and medium businesses could be portrayed into the Figure 2. In summary, good entrepreneur must have feature qualifications and skills of being a comprehensive entrepreneur in all aspects. They must have basic knowledge about small and medium business administration including having the ability to use information and business knowledge that affect business operations in making effective decisions. In addition, they must have knowledge about technology and innovation in order to develop their business from competitors and the knowledge can be used to plan business operations to be efficient and effective in the future.

The results of this research show that to management business successfully, especially small business owners and the medium in the electrical and electronics industries, there were many factors that affected success. This was essential for business entrepreneurs to learn and deployed to manage the organization successfully and suitably adapted to the organization.

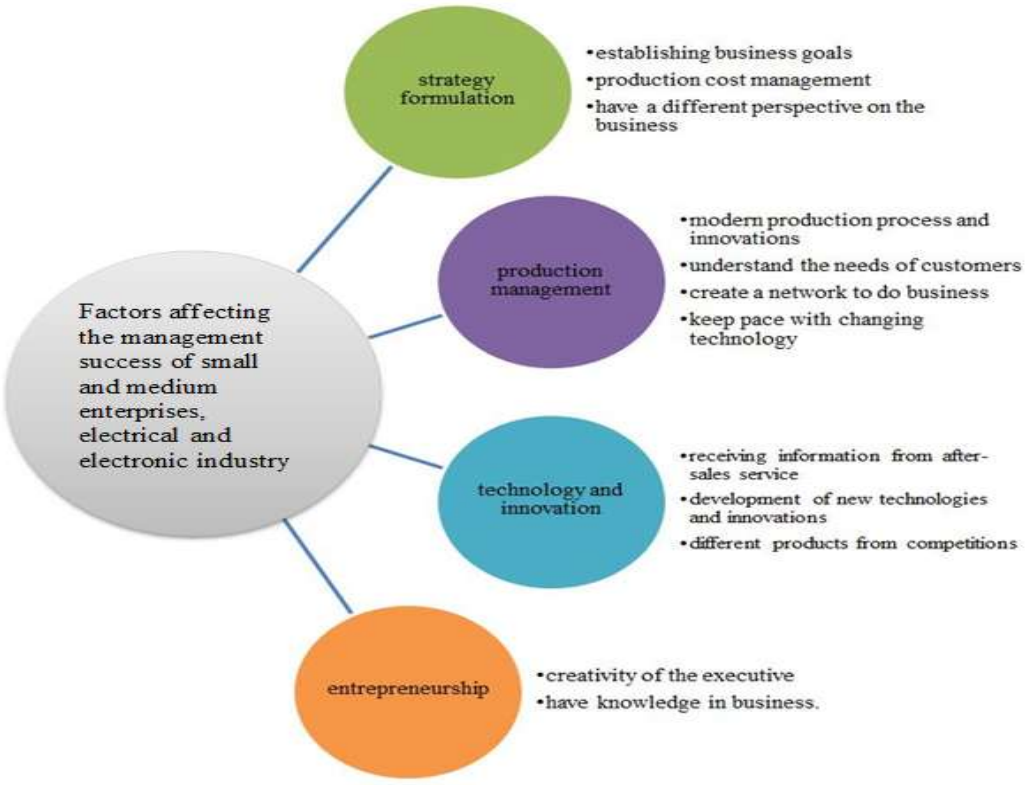

FIGURE 2
FACTORS AFFECTING THE MANAGEMENT SUCCESS OF SMALL AND MEDIUM ENTERPRISES
IN THE ELECTRICAL AND ELECTRONIC INDUSTRY IN THAILAND

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