



## บันทึกข้อความ

ส่วนราชการ.....คณะเทคโนโลยีอุตสาหกรรม.....

ที่..... วันที่.....๑๗ มกราคม ๒๕๖๒.....

เรื่อง รายงานผลการไปประชุม/การอบรม/การสัมมนา/การศึกษาดูงาน  
เรียน คณบดี

ตามคำสั่ง/หนังสือ/บันทึกข้อความ ที่.....๒๙๕๐/๒๕๖๑..ลงวันที่...๒๑.พฤศจิกายน.๒๕๖๑...  
ให้ข้าพเจ้า.....นางสาวนุชรรัตน์ นุชประยูร.....พร้อมด้วย.....-.....  
เดินทางไปประชุม/การอบรม/การสัมมนา/การศึกษาดูงานที่.....เมืองโตเกียว.....ประเทศญี่ปุ่น.....  
เรื่อง..... Study of adoption the E-commerce for small and Medium Enterprises in Phra  
Nakhon Si Ayutthaya...ระหว่างวันที่...๙.....เดือน..มกราคม.....พ.ศ. ...๒๕๖๒... ถึงวันที่...๑๒.....เดือน...  
มกราคม...พ.ศ...๒๕๖๒.....จัดโดย..... Society of Interdisciplinary Business Research.....รวมเป็น  
เวลา.....๔.....วัน

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 ใช้งบประมาณส่วนตัว

บัดนี้ การปฏิบัติหน้าที่ราชการที่ได้รับมอบหมายได้เสร็จเรียบร้อยแล้ว ข้าพเจ้าขอรายงาน  
ผลการไปประชุม/การอบรม/การสัมมนา/การศึกษาดูงาน ดังต่อไปนี้

วันที่ ๙ มกราคม ๒๕๖๒ เดินทางจากประเทศไทยถึงเมืองโตเกียว ประเทศญี่ปุ่น วันที่ ๑๐  
มกราคม ๒๕๖๒ เดินทางจากที่พักไป Hotel MyStays Ochanomizu ซึ่งเป็นสถานที่จัดงานเพื่อ  
ลงทะเบียนและเข้าร่วมพิธีเปิดการประชุมทางวิชาการระดับนานาชาติ โดยมี Dr.Bruno S. Sergi,  
Professor at University of Messina เป็น Keynote Speech จากนั้นเข้าฟังการนำเสนอผลงานทาง  
วิชาการใน Session ที่เกี่ยวข้องทางด้าน Knowledge Management & Technology ในวันที่ ๑๑  
มกราคม ๒๕๖๒ ข้าพเจ้านำเสนอผลงานวิชาการเรื่อง “Study of adoption the E-commerce for  
small and Medium Enterprises in Phra Nakhon Si Ayutthaya” หลังจากนั้นเข้าฟังการนำเสนอ  
ผลงานวิจัยในหัวข้อต่างๆที่สนใจ แล้วจึงเดินทางกลับที่พัก วันที่ ๑๒ มกราคม ๒๕๖๒ เดินทางจาก  
ประเทศญี่ปุ่นกลับประเทศไทย

ข้าพเจ้า จะนำความรู้ ความสามารถ ประสบการณ์ ทักษะ หรืออื่นๆ ที่ได้รับในการไปประชุม  
การอบรม/การสัมมนา/การศึกษาดูงานในครั้งนี้ มาเพื่อพัฒนางานของหน่วยงาน ดังนี้

แบ่งปันประสบการณ์ และความรู้ที่ได้จากการประชุมทางวิชาการมาต่อยอดในด้านงานวิจัย  
รูปแบบการเขียนบทความที่น่าสนใจ รวมทั้งหัวข้องานวิจัยที่น่าสนใจต่าง ๆ เพื่อนำมาปรับใช้และถ่ายทอด  
สู่นักศึกษา และบุคลากรในหน่วยงานที่สนใจ เพื่อเป็นการพัฒนาตนเอง ทางด้านวิชาการและสามารถ  
เผยแพร่ผลงานวิชาการในระดับนานาชาติให้มีคุณภาพต่อไป

เอกสารที่ได้รับจากการไปราชการ/การอบรมสัมมนา/การศึกษาดูงาน มีดังต่อไปนี้ คือ

การเผยแพร่ความรู้ ประสบการณ์ ทักษะ และอื่นๆ แก่ผู้ที่เกี่ยวข้อง คือ  
นักศึกษา นักวิจัย บุคลากรในมหาวิทยาลัยและผู้สนใจ

จึงเรียนมาเพื่อโปรดทราบและพิจารณาดำเนินการต่อไป

ลงชื่อ.....*Ami Z S*.....ผู้รายงาน  
(...นางสาวนุชรรัตน์ นุชประยูร.....)  
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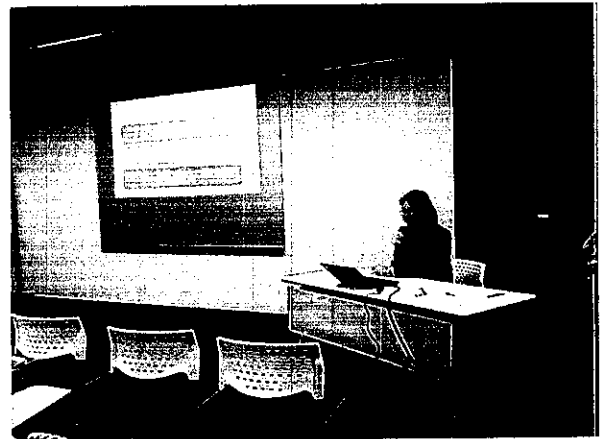
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ลงชื่อ.....  
(รองศาสตราจารย์ ดร.เบญจลักษณ์ เมืองมีศรี)  
รองอธิการบดี รักษาราชการแทน  
คณบดีคณะเทคโนโลยีอุตสาหกรรม

- หมายเหตุ
1. แนบสำเนาประกาศนียบัตร หนังสือสำคัญ หรือหนังสือรับรองการเข้ารับการฝึกอบรม  
สัมมนา/ประชุมทางวิชาการและเอกสารที่เกี่ยวข้องกับการฝึกอบรม/สัมมนา/ประชุมทาง  
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ภาพประกอบการเข้าร่วมนำเสนอผลงานทางวิชาการ  
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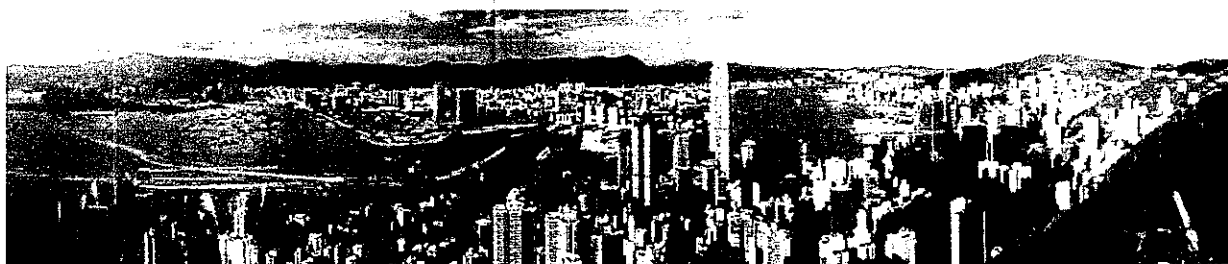
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**Michael K Fung**  
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## **Study of Adoption of E-commerce for Small and Medium Enterprises in Phra Nakhon Si Ayutthaya Province**

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This research aimed to study the perception of advantages and disadvantages of E-commerce for the small and medium enterprises in Phra Nakhon Si Ayutthaya Province and to study the opinion of adoption E-commerce for small and medium enterprises. Moreover, it is to compare the opinion of adoption the E-Commerce with different factors related to the characteristics of innovation, innovation recipients, and communication. The samples were 139 small and medium enterprises in manufacturing, wholesale trade, retailing and service sectors in Phra Nakhon Si Ayutthaya Province using convenience sampling method. The research instrument was a questionnaire. The methods of data analysis were frequency, percentage, means, standard deviation, t-test and F-test. The study found that the perception of the advantages of E-commerce for small and medium enterprises overall was good. Besides, the perception of disadvantages of E-commerce for small and medium enterprises overall was moderate. Furthermore, it presented that the opinion of adoption E-commerce for small and medium enterprises overall was moderate. Finally, the adoption of E-commerce for small and medium enterprises with different factors showed that factors related to the characteristics of innovation, innovation recipients, and communication revealed different opinions in five steps namely awareness, interest, evaluation, trial, and adoption at the statistical significance level of .05.

**Keywords:** Adoption, E-commerce, Small and Medium Enterprises

## **1. Introduction**

Internet technology playing a role in our daily lives is huge, such as information searching, data exchange, communications, and many other services. By its properties, it is quick and easy to use. The sale of products through the internet is another channel to create greater convenience and cost saving. It also saves time in getting to the store to shop. However, in the current online store service, business owners must pay for the cost of opening a shop, or if there is no cost, there will be limited use in terms of making a presentation or service not convenient and not as full as it should be. Especially the owners of small and medium enterprises have misunderstandings or fear to start using E-Commerce, whether it is a system security, reliability, and completeness of the system, which results in the decision to use electronic commerce, respectively.

This research thus studies the level of perceived benefits and limitations, the level of E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province in order to understand awareness behavior and adoption E-commerce, leading to the strategic planning, promotion, and development of E-commerce.

### **Objectives Research**

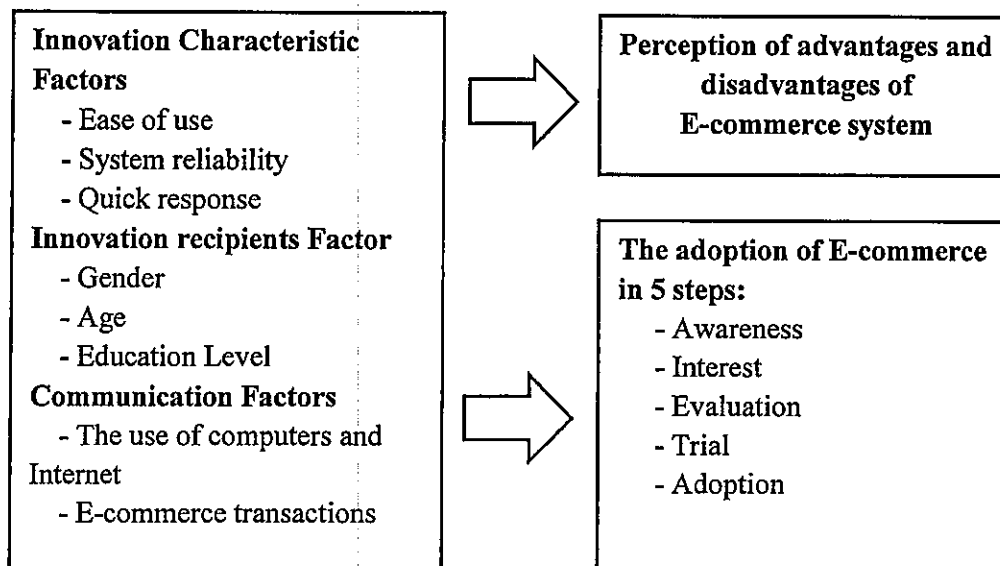
- 1) To study the perception of advantages and disadvantages of E-commerce for the small and medium enterprises in Phra Nakhon Si Ayutthaya Province.
- 2) To study the opinion of adoption e-commerce for small and medium enterprises.
- 3) To compare the opinion of adoption the e-commerce with different factors related to the characteristics of innovation, innovation recipients, and communication.

### **Assumptions of Research**

- 1) Entrepreneurs classified by different factors related to the characteristics of innovation, consist of ease of use, system reliability, and quick response are different in terms of adoption E-commerce for small and medium enterprises.
- 2) Entrepreneurs classified by different factors related to innovation recipients consisting of gender, age and education are different in terms of adoption E-commerce for small and medium enterprises.
- 3) Entrepreneurs classified by different factors related to communication comprising the use of computers and Internet are different in terms of adoption E-commerce for small and medium enterprises.

### **Conceptual Frameworks**

This research is a study on the adoption of E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province. It is classified by factors consisting of factors related to the characteristics of innovation, related to innovation recipients, and communication as shown in Figure 1.



**Figure 1: Conceptual Frameworks**

### **Related Research Documents**

Boon-Liang Pathumtong (2013: 317) mentioned that Rotor's Diffusion of Innovation is the process that occurs in society starting from innovators to recipients of information and to decision to utilize innovation. Deploying innovative is a process by which a person gets information about innovation until the deployment of innovation suits their context. There are 5 steps: Step 1 Awareness, the innovator recognizes the value and benefits of innovation, but not enough information. Step 2 Interest, interested and for more information. Step 3 Evaluation, learning to use theories in a comparable context. Step 4 trial, when the innovation is implemented, it must be confirmed that Innovation begin using it fully. And Step 5 Adoption, when the innovation is implemented, it must be confirmed that the decision to use the innovation is right and innovative to use them to the fullest. When the five steps have been achieved, it is considered that the diffusion of innovation is achieved.

Siriwon Saereerat (2007) explained the procedures for acceptance, namely that Awareness is getting innovative news and products. The acknowledgment is neutral, not interested enough to find more. Interest is developing interest in the product and find out how the product can benefit them. Evaluation is finding out about product information. If the evaluation is satisfactory, the consumer will try the product. And if consumers are dissatisfied with the information, they will refuse to try the product. Trial is about trying products, and from the experiences, the trial will give you important information whether to accept or reject the products. Adoption is a step that consumers decide to use the product due to the evaluation of the trial satisfaction.

## **2. Research Methodology**

### **Population and sample**

The population was small and medium enterprises in manufacturing, wholesale trade, retailing, and service sectors in Phra Nakhon Si Ayutthaya Province, and 621 registered commercial entities in Phra Nakhon Si Ayutthaya Province.

The samples were small and medium enterprises in manufacturing, wholesale trade, retailing and service sectors in Phra Nakhon Si Ayutthaya Province. There were 139 companies' registered commercial entities in Phra Nakhon Si Ayutthaya Province. The samples were randomly selected convenience sampling method that by means of Krejcie and Morgan.

### **Research Tool**

1) Relevant research papers were studied, and then the query was structured to cover the purpose of research. The questionnaire consists of 6 Parts, Part 1 Personal Information, Part 2 General Information about the characteristics of innovation, Part 3 General information about communication, Part 4 Perception of the benefits of e-Commerce, Part 5 Perception awareness e-Commerce, and Part 6 Adoption the e-Commerce.

2) The questionnaire was created for experts to check the quality of the questionnaire that 3 experts. Then, the data were updated and revised and tried out with 20 non-sample groups, to find the reliability of the questionnaire. Cronbach's alpha formula coefficient and the reliability was 0.97.

### **Data Collection and Analysis**

The researchers collected data from the questionnaire distributed to the samples and waited for the return. Then, the questionnaire was selected from the complete questionnaire of 139 entrepreneurs. The data were analyzed using computer software and divided into descriptive analysis and inferential analysis.

- 1) Descriptive analysis is about personal information, information and characteristics of entrepreneurs, general information about communication by using frequency and percentage, analysis of the perception of advantages and disadvantages of E-commerce and analysis adoption for E-commerce acceptance by using mean and standard deviation.
- 2) The research compared the opinion of adoption the E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province, classified by various factors, including factors related to the characteristics of innovation that consist of ease of use, system reliability and quick response, factors related to innovation recipients that consist of gender, age and education and communication factor that consist of the use of computers and Internet and E-commerce transactions by Bonferroni method using t-test and F-test.

### **3. The Research results**

**The results of the study on perceived advantages and disadvantages of E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province.**

This research studies the level of perceived advantages and disadvantages of E-commerce in Table 1 and Table 2.

**Table 1** Level of perceived advantages of E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province

Perceived advantages of E-commerce	X	S.D.	Level
1. Using e-commerce to create business opportunities.	4.28	0.80	high
2. Businesses can continually update customer service information.	4.09	0.83	high
3. E-commerce helps to create a modern and universal image of the business.	4.04	0.85	high
4. Businesses can better serve their customers.	4.11	0.81	high
5. Businesses can reduce the cost of advertising or public relations.	4.05	0.87	high
6. Businesses can add more marketing promotion.	4.02	0.82	high
7. Customers can conduct electronic commerce transactions 24 hours a day.	3.98	0.92	high
8. Electronic commerce has expanded the customer base both domestically and internationally.	3.89	0.87	high
9. E-commerce makes the business more competitive with its competitors.	3.94	0.85	high
10. Sales or revenue of the business more	3.92	0.71	high
<b>Total</b>	<b>4.03</b>	<b>0.83</b>	<b>high</b>

As shown in Table 1, it was found that the entrepreneurs had opinions about the perceived advantages of E-commerce at the high level ( $x = 4.03$ ,  $S.D. = 0.83$ ). Considering the item, it was found that entrepreneurs were more of the advantages than others, such as using e-commerce to create business opportunities and businesses can better serve their customers. In addition, it was found that the entrepreneurs were less aware of the advantages, such as E-commerce has expanded the customer base both domestically and internationally as well as more sales or revenue of the business.

**Table 2** Level of perceived disadvantages of E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province

Perceived disadvantages of E-commerce	X	S.D.	Level
1. Personnel are not skilled in using electronic commerce.	3.25	0.88	medium
2. The use of electronic commerce is more complex than the learning of technology.	3.06	0.85	medium
3. Electronic commerce requires high cost of development.	3.11	0.94	medium
4. Most customers do not have the skills to use electronic commerce.	3.34	0.87	medium
5. E-commerce does not affect the cost of other business operations.	2.98	0.92	medium
6. E-commerce legal regulations still have deficiencies.	3.19	0.83	medium
7. Electronic commerce is not suitable for business operations.	2.84	0.81	medium
8. Electronic commerce is not suitable for customers.	2.72	0.98	medium
<b>Total</b>	<b>3.06</b>	<b>0.88</b>	<b>medium</b>

As shown in Table 2, it was found that the entrepreneurs had opinions about the perceived disadvantages of E-commerce at the moderate level ( $x = 3.06$ ,  $S.D. = 0.88$ ). Considering the items, it was found that personnel are not skilled in using electronic commerce. In addition, it was found

that the entrepreneurs were less aware of the disadvantages, E-commerce was not suitable for customers.

### The Result of Electronic commerce acceptance level of small and medium enterprises in Phra Nakhon Si Ayutthaya province

**Table 3** Electronic commerce acceptance level of small and medium enterprises in Phra Nakhon Si Ayutthaya province

Electronic commerce acceptance level	X	S.D.	Level
1. Awareness	3.45	0.97	medium
2. Interest	4.02	0.82	high
3. Evaluation	3.65	1.05	high
4. Trial	3.32	0.89	medium
5. Adoption	3.17	0.71	medium
<b>Total</b>	<b>3.52</b>	<b>0.88</b>	<b>medium</b>

As shown in Table 3, it was found that the entrepreneurs had opinions about the acceptance of electronic commerce overall at the moderate level ( $x = 3.52$ , S.D. = 0.88). It was found that entrepreneurs accepted E-commerce in terms of Interest at the high level ( $x = 4.02$ , S.D. = 0.82). In contrast, it was found that entrepreneurs accepted electronic commerce in terms of Adoption at the medium level ( $x = 3.17$ , S.D. = 0.71).

The results of comparison adoption to E-commerce for small and medium enterprises in Phra Nakhon Si Ayutthaya Province classified by factors related to the nature of innovation, factors related to innovation recipients and communication factors.

This research compares the opinions of entrepreneurs regarding the acceptance of e-commerce of factors related to innovation recipients, including gender, age and education level. Factors related to the nature of innovation include Easy to Use, System reliability and Quick response. Factors related to communication include computer and Internet use and E-commerce transactions as shown in Table 4-6.

**Table 4** Acceptance E-commerce of factors related to innovation recipients classified by gender, age, and education level.

Acceptance E-Commerce	Gender		Age			Education background		
	Sig	Results	F	Sig	Results	F	Sig	Results
1. Awareness	0.04	Different	1.77	0.14	Not different	5.85	0.00	Different
2. Interest	0.49	Not different	1.98	0.11	Not different	6.36	0.00	Different
3. Evaluation	0.11	Not different	2.11	0.08	Not different	3.06	0.01	Different
4. Trial	0.04	Different	5.41	0.00	Different	4.20	0.00	Different
5. Adoption	0.18	Not different	3.84	0.01	Different	2.79	0.07	Not different

\* $p < 0.05$

The results from Table 4 can be summarized as follows:

Gender of employee in different entrepreneurs has different electronic commerce acceptance in awareness and trial. Except for interest, evaluation and adoption were not significantly different at 0.05.

Age of employee in different entrepreneurs has different electronic commerce acceptance in trial and adoption. Except for awareness, interest and evaluation were not significantly different at 0.05.

Education background of employee in different entrepreneurs has different electronic commerce acceptance in evaluation, awareness, interest and trial. Except for adoption were not significantly different at .05.

**Table 5 Acceptance E-Commerce of Factors related to the nature of innovation classified by Ease of Use, System reliability and Quick response**

Acceptance E-Commerce	Ease of Use			System reliability			Quick response		
	F	Sig	Results	F	Sig	Results	F	Sig	Results
1. Awareness	1.47	0.04	Different	1.71	0.16	No different	0.74	0.53	Not different
2. Interest	4.12	0.55	Not different	1.74	0.14	No different	2.18	0.07	Not different
3. Evaluation	1.98	0.49	Not different	2.46	0.07	No different	2.18	0.04	Different
4. Trial	2.10	0.04	Different	3.21	0.00	Different	2.21	0.11	Not different
5. Adoption	2.29	0.18	Not different	3.68	0.01	Different	1.79	0.15	Not different

\*p < 0.05

The results from Table 5 can be summarized as follows:

Ease of use of difference: there are different E-commerce acceptances in awareness and trial. Except for interest, evaluation and adoption were not significantly different at .05.

System reliability of difference: there are different E-commerce acceptances in trial and adoption. Except for awareness, interest and evaluation were not significantly different at .05.

Quick response of difference: there are different E-commerce acceptances in evaluation. Except for awareness, interest, trial and adoption were not significantly different at .05.



**Table 6** Acceptance E-Commerce of factors related to communication classified by computer and internet use and E-commerce transactions.

Acceptance E-commerce	Computer and Internet use		E-commerce transactions	
	Sig	Results	Sig	Results
1. Awareness	0.00	Different	0.44	Not different
2. Interest	0.04	Different	0.01	Different
3. Evaluation	0.01	Different	0.04	Different
4. Trial	0.00	Different	0.00	Different
5. Adoption	0.00	Different	0.01	Different

\*p < 0.05

The results from Table 6 can be summarized as follows:

The use of computers and the internet of different operators has different e-commerce acceptance in awareness, interest, evaluation, trial and adoption at the statistical significance level of 0.05.

E-commerce transactions of different operators have different e-commerce acceptance in interest, evaluation, trial and adoption at the statistical significance level of 0.05.

#### 4. Conclusion and Recommendation

Entrepreneurs have opinions on e-commerce perception. Overall, it was at a high level. For Electronic Constraint Recognition, the overall level was moderate. In accordance with the research of Yodsapong Sena-noi (2011), except the acceptance of electronic commerce, which overall was moderate. This point indicates that the e-commerce adoption of small and medium enterprises in Phra Nakhon Si Ayutthaya province has to be encouraged and developed in terms of entrepreneurship, acceptance, and continuous business development to keep up modern trade change.

The result of comparison to e-commerce acceptance of entrepreneurs by different factors found that the factors related to innovation recipients classified by Education level of difference are different electronic commerce acceptances in accordance with the research of Yodsapong Sena-noi (2011). It also found that the communication factors classified by computer and internet are different acceptances in line with the research of Kitwalee Jiraprasertpun (2010).

There are also other factors that affect the acceptance of e-commerce, such as the perceived benefits of e-commerce and Organizational Perception Factor Corresponding to the research by Sherah Kurniaa et al. (2015). Kittiwalee Jiraprasertpun (2010) said that factors of cultural differences are consistent with the research conducted by Chong et al. (2009) and Jongjin Jitjang (2009).

This research can be summarized as follows: Marketing should encourage entrepreneurs to use electronic commerce in order to increase distribution channel for entrepreneurs. At present, the telecommunication network in the country is constantly developing and growing. As a result, consumers' buying behavior has changed, bringing smart phones as a part of their lives. Therefore, operators should increase distribution channels to meet the needs of consumers. Suggestions in the next research are that other factors should be studied; that the effect of consumer electronic commerce should be investigated, and that the relationship between buyers and sellers in E-commerce applications should be explored.

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