Innovation Decision Making Process and Diffusion of Innovation toward Tourist Destination by Using Electronic Destination (eDestinations) Information of Thai Tourists

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Abstract

The development of information technology and communications (Information Communication Technology: ICTs) allows electronic diffusion of information and has developed into an electronic business (eBusiness), which is important for the overall economy of the country. (NECTEC, 2012). This study aims to identify types of adopter affecting use of eDestination, explore how each stage in the model of "eDestination Information's Innovation Decision Process" relates to each other and propose an appropriate web design for organizations which are involved with providing information about tourist destination. The results of this survey with Thai tourists indicate that time is diffusion of innovation's element related to types of adopters; up-to-date and completed information are important factors to create tourism website. The results of this study also identified 5 stages of "eDestination Information's Innovation Decision Making Process" had positive relation to each other. Therefore, (Rogers, 2003) innovation decision making process is an effective model to utilize and adapt for examining Thai tourists perceptions and their experiences of using eDestination information in each stage of the model.

Key words : E-Destinations, Thai tourists, Innovation decision process, Adopter categories

Introduction

Over the last decade, the world tourism business value has reached 6.5 trillion U.S. dollars of which seventy percent (70%) is from traditional business trading such as travel agents, tourism exhibition and the rest (30%) is from online business channels. In addition, there was a research survey of a sample of 15,000 tourists approximately from around the world about reasons for their decision to go to the tourist destination for their first visit. The results showed that the first three ranks were relatives or friends' suggestions (38%), they have been told that the destination is a place they must visit once of their lives (32%) and finding information from the website (22%) respectively. The rest (8%) made their decision to choose the tourist destination from travel magazines and travel agencies etc (Manoharn, 2012). Considering only the tourists who found the information from websites (22%), this study focuses on using eDestination information concept (Buhalis, 2003) of tourists (only Thais) towards innovation decision making process, diffusion of innovation (Rogers, 2003) and the adopter categories concept (Moven,1994) for the decision making of the tourists when they start searching information to choose their destinations for travelling. This study aims to:

1) identify types of adopter affecting use of eDestination information
2) find out elements of diffusion of innovation related to tourists' decision
3) explore how each stage in the model of "eDestination Information's Innovation Decision Making Process" relates to each other
4) propose an appropriate web design for organizations which are involved with providing information about tourist destination.

It is expected that this study would:

1) provide useful information for tourism destination organizations in order to improve their information for target markets
2) prepare diffusion of innovation planning about eDestination information searching for each adopter categories
3) increase better understanding for tourism destination organizations about relations on each stage in the model of "eDestination Information's Innovation Decision Making Process" in order to persuade tourists to adopt eDestination innovation
4) suggest appropriate eDestination information searching planning strategy for tourism destination organizations

Literature Review

The concept of eDestinaiton management is a part of eTourism management, which includes some business functions for example, marketing, finance, human resources, supply chain etc. Moreover, this also includes components of tourism business namely, transportation, hospitality and other related services. Indeed, eTourism is also an electronic communication tool to contact stakeholders in tourism business by using Information Communication Technology (ICTs) and Destinations Management System (DMSs) to support tourism business system. ICT is one of marketing tools and is part of an important communication network for entrepreneurs to enhance growth of tourism business. It is also one of the valuable channels for tourists to search information for travelling (Goeldner and Ritchie, 2006). Organizations involved with tourism destination management consider using ICTs and DMSs to send information to market targets around the world (Buhalis, 2003). ICTs and DMMs provide not only tourism destination information, but also allow tourists make online transaction for their travel. These all support tourism destination become popular and compete with other destination. However, activities might be different in each destination depending on target market and the objective for traveling.

Diffusion of innovation is used in this research to explore the elements influencing tourists searching for information about travel destination. Four main elements of diffusion of innovation are the innovation, communication channels, time and social system. Diffusion of innovation would succeed if time is appropriate (Viriyakijpattana and Asawasittithavorn, 2007) which is supported by research results of Sinha and Noble (2008) and Scaglione, Schrgg and Murphy (2009). Moreover, the research results of Soffer, Nachmias and Ram (2010) found that using technology to support lecture of university lecturers was growing regularly by time. This research project also uses the innovation decision process to test relation of each stage in the model of “eDestination Information’s Innovation Decision Process”. The model of this study is adapted from Innovation and Diffusion of Innovation by five stages of this model are knowledge stage, persuasion stage, decision stage, implementation stage and confirmation stage which are related to each other. Nevertheless, there are not many previous studies on tourism Information Technology using this model as a research methodology. This is supported by Hjalager 2010) who stated lack of previous research about adoption of electronic tourism innovation despite the fact it is one of important roles for tourism business survival.

Consumers will adopt an innovation when they find it is useful or gives them more benefit than an existing product or service they used. There are two main factors involved that influence the

adoption of an innovation: consumers' socioeconomic status and their personality (Rogers, 2003). Adopter categories of consumers can be related to their characteristics in making decisions to use a new product or service. Moven (1994) indicated that consumer groups can be categorized based on the level of adoption in five groups: innovator, early adopter, early majority, late majority and laggards. Regarding to time and product life cycle (PLC), the innovator is more likely to be the first group to use a product or service at the introduction stage of PLC. Early adopters tend to use it at the growth stage, early majority and late majority tend to use it at the maturity stage and laggards use it at the decline stage (Assael, 1998). This is also supported by the research results of Droge, Stanko and Pollitte (2010) which showed that innovator and early adopter tend to adopt website and blog technology more than other groups. Foxal, et al (1998) also confirmed that the innovator more likely to adopt new product or service than other groups. In order to measure trend to adopt new product or service. Foxal, et al (1998) also suggested that consumer innovativeness measurement developed by Goldsmith and Hofacker (1991) is an appropriate measurement to identify the consumer categories which adopt products or services. Roehirich (2004) also confirmed that Goldsmith and Hofacker's measurement concept is sufficiently flexible to measure trends of adoption of products or services.

eDestination is defined as electronic communication tool by using Information Communication Technology (ICTs) and Destinations Management System (DMSs). Therefore, website design is an important aspect of the communication channel for all organisation which are involved with tourism destination. Designing the tourism destination homepage as the first attractive page allowing searching of information. Thus website elements namely logo, main menu, banner, picture etc. should be considered (Rachatawan, 2004 and thaisolution, 2012). Moreover, Nielsen and Pernice (2010) conducted the survey with 232 participants to look for a thousand webpage indicated that users' behavior to look at webpage was likely "F", "E" or "L" letter depended on website usage. Website design concept is an essential concept to organizations involving tourism destination. If a tourism destination website is attractive, it increases the chances of consumers (tourists) to adopt it as a tool for searching information. From the review of literature the conceptual model and hypotheses are proposed as follows:

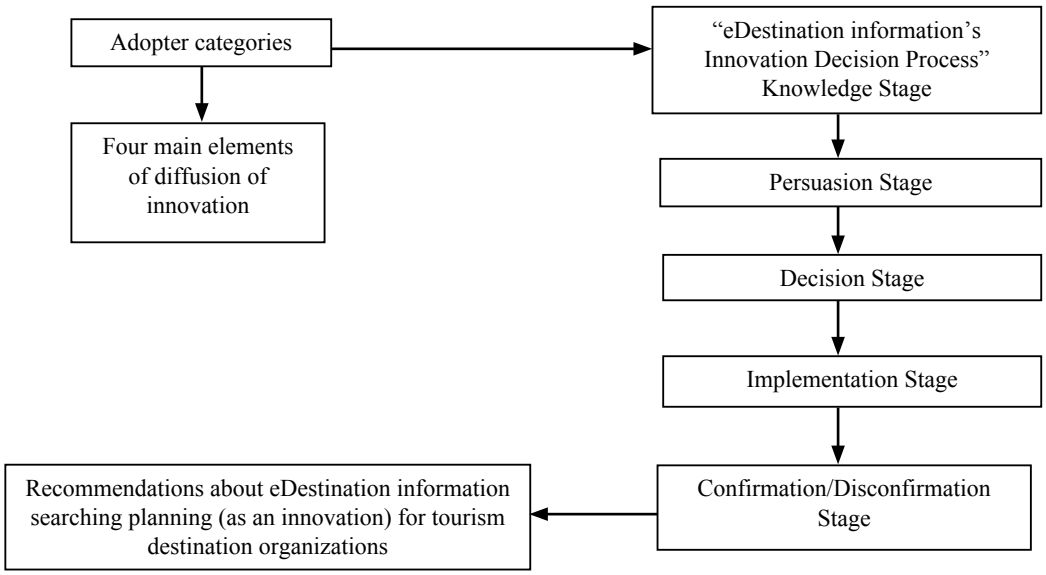

Figure 1 The model of "eDestination Information's Innovation Decision Making Process"

Source: Adapted from Moven (1994), Rogers (2003) and Buhalis (2003)

Three hypotheses are proposed for this research:

Hypothesis 1 Different adopter categories effects elements of diffusion of innovation

1.1 Different adopter categories effects elements of diffusion of innovation (the innovation)

1.2 Different adopter categories effects elements of diffusion of innovation (social system)

1.3 Different adopter categories effects elements of diffusion of innovation (communication channel)

1.4 Different adopter categories effects elements of diffusion of innovation (time)

Hypothesis 2 Different adopter categories effects knowledge stage in the model of "eDestination Information's Innovation Decision Process"

Hypothesis 3 Stages in the model of "eDestination Information's Innovation Decision Making Process" has positive relationship to each other

Methodology

Quantitative research was conducted in this research by using cluster sampling technique. 700 questionnaires were distributed and total of 688 were used for data analysis, which is a 98% response rate. Purposive sampling technique was used to choose a sample of Thai people who have travelled in Thailand at least once from 2012 onward. Self-administrative method was applied to collect data in this project. The questionnaire was divided into four parts: 1) Questions related to demography, personal characteristics and ICT usage behavior, 2) Questions about elements of diffusion of innovation, 3) Questions based on eDestination Information's Innovation Decision Process. These questions were assessed with a five-point Likert scale ranging from strongly disagree "1" to strongly agree "5" and 4) Questions based on website elements. These were rated with a five-point scale ranging from the least important "1" to the most important "5".

In order to gain confidence in the ability of the questions to get reliable answers, a pre-test of the questionnaire was conducted with 30 participants. The reliability of the answers was estimated using "Cronbach's alpha" reliability coefficient of internal consistency. Cronbach's alpha value is considered to be acceptable if $\alpha > .7$ (Hair et al., 2006. Questions in the questionnaire yielded a Cronbach alpha value at 0.892 and 0.901 respectively are considered to be high reliability values. The questionnaire was also approved by one expertise in tourism business and one expertise on webpage design in order to check content validity of questions. Therefore a number of factors have been used to gain confidence in the reliability of the research. Before conducting the main survey, the research proposal and the questionnaire were submitted to the Ethics Committee of Huachiew Chalermprakiet University. Approval of the project had to be granted by the Ethics Committee of Huachiew Chalermprakiet to ensure the safety, liberty and rights of participants before conducting the survey. That approval was granted on 4th May 2012.

Results and Discussion

The data was analyzed and reported into to two parts; descriptive and inferential statistics for hypotheses testing. The results from descriptive statistics analysis were reported as below:

Demographic information

From demographic information analysis showed that more than 50 % of respondents are female, with the majority of respondents aged between 21 and 30 years. The results also indicated that

more than 60 % of respondents finished a bachelor degree or equivalent with the majority employed by private companies. Half of the respondents earned approximately 15,000 per month.

Adopter categories based on travel behaviors

The analysis of the adopter categories classification based on travel behaviors showed that more than 60% of respondents were in the late majority category. Only 1.7% were early adopter and none of respondents were innovator. The finding was shown in table 1.

Table 1 Adopter Categories based on Travel Behaviors

Adopter Categories	Frequency	Percentage
Laggards	145	21.1
Late majority	423	61.5
Early majority	108	15.7
Early adopter	12	1.7
Innovator	0	0
Total	688	100

Importance of website elements affecting tourism destination search

The rank of the first three website elements affecting tourism destination search which respondents rated were: general elements, content and information and other options respectively. The results were represented on table 2.

Table 2 Importance of website design affecting tourism destination search

Website elements	Details of each element	Mean
General elements	Up-to-date, completed and fact of tourism destination information	3.74
Content and information	Clear topics, quick and easy to search information	3.68
Other options	Be able to connect to other electronic devices	3.55

Hypotheses Testing

One of objectives of this research is to investigate three main hypotheses using inferential statistics. The methods and finding were reported as below:

Hypothesis 1 There is a relationship between adopter category and the different elements of the diffusion of innovation

1.1 There is a correlation between adopter category and the innovation element.

1.2 There is a correlation between adopter category and the social system element

1.3 There is a correlation between adopter category and the communication channel element

1.4 There is a correlation between adopter category and the time taken to adopt the innovation.

Pearson's chi-square (χ^2) test, also known as the chi-square goodness-of-fit test or chi-square test for independence. A chi-square test of independence was performed to examine the relation between adopter categories and elements of diffusion of innovation. The relation between these variables was not significant except between adopter categories and time, (12, N = 688) = 34.50, $p < .05$. The hypothesis 1.4 is supported and shows as below:

Table 3 The goodness-of-fit test between adopter categories and elements of diffusion of innovation

elements of diffusion of innovation	Adopter categories
Innovation	
Social system	
Communication channel	
time	√ (P =.001)

√ The level significance at .05

Regarding hypothesis 1, the relation between adopter categories and time as an element of diffusion of innovation, the results comply with the study of Sinha and Noble (2008). Likewise, Soffer, Nachmias and Ram (2010) confirmed that using technology to support lecture of university lecturers was growing regularly by time. However, the result does not support the theory of diffusion of innovation by Rogers (2003) which stated that diffusion of innovation consists of four main elements of diffusion of innovation are the innovation, communication channel, time and social system.

Hypothesis 2 There is a relationship between the adopter categories and their knowledge of the "eDestination Information's Innovation Decision Process"

An analysis of variance showed that the effect of Knowledge through diffusion of innovation on eDestination was significant, P-value = .000. Post hoc analyses using the LSD post hoc criterion for significance indicated that the average number of errors was significantly lower in the Laggards group (Mean = 2.85, 2.74, 2.82 and 2.92 in knowledge through diffusion of innovation on eDestination) than in other three adopter categories (Mean between 2.82 and 4.58, P-value between .000 and .030), thus the hypothesis 2 is supported and presents as below:

Table 4 F test for a one-way ANOVA between adopter categories and knowledge stage in the model of "eDestination Information's Innovation Decision Process"

Knowledge through diffusion of innovation on eDestination	**Adopter categories**				
	P-value (Post hoc analysis)	Early adopter	Early majority	Late majority	Laggards
Knowledge about safety to use	√(.000 -.030)	4.58	4.04	3.50	2.85
Knowledge to link eDestination information to other websites	√(.000 - .023)	4.42	3.80	3.26	2.74
Knowledge about online tourism transaction	√(.000 - .007)	4.58	3.81	3.21	2.82
Knowledge about working support to smartphone and tablet	√(.000 - .027)	4.42	3.94	3.46	2.92

√ The level significance at .05

The result of hypothesis 2 indicate that laggards have less knowledge through diffusion of innovation on the eDestination process than the other three adopter categories. This is supported. Assael (1998) who proposed that regarding to time and product life cycle (PLC), the innovator more likely to be the first group to use product or service at the introduction stage of PLC, early adopter use it at the growth stage, early majority, late majority use it at the maturity stage and laggards use it at the decline stage. Similarly, this was also suggested by the research results conducted by Droge, Stanko

and Pollitte (2010) which showed that innovator and early adopter seem adopt using website and blog technology than other groups. In addition, Foxal, et al (1998) also confirmed that the innovator more likely to adopt new product or service than other groups.

Hypothesis 3 Stages in the model of "eDestination Information's Innovation Decision Making Process" has positive relationship to each other

After the data regarding the model was entered, the results show that at each stage in the model of "eDestination Information's Innovation Decision Making Process" has a positive relationship to the next stage. The Pearson Correlation between knowledge and persuasion stage shows a moderate positive correlation and was more than 95 percent confident, $r_{(688)}$ =.421-.454, P-value < .000. The Pearson Correlation between persuasion and decision stage shows weak to moderate positive correlation and was more than 95 percent confident, $r_{(688)}$ =.269 -.416, P-value < .000.

The relation between the decision stage and the implementation stage was tested and the result was a moderate positive correlation, $r_{(688)}$ =.565 -.637, P-value < .000. Finally, the relation between the implementation and confirmation stage was tested and the result was also a moderate positive correlation, $r_{(688)}$ =.512 -.625, P-value < .000, hence H3 is supported and presents as below:

Table 5 The relation of Stages in the model of "eDestination Information's Innovation Decision Process"

	Knowledge Stage	Persuasion Stage	Decision Stage	Implementation Stage	Confirmation Stage
Knowledge Stage (4 factors)		√ P=.000 (r =.421-.454)			
Persuasion Stage (3 factors)			√ P=.000 (r =.269-.416)		
Decision Stage (4 factors)				√ P=.000 (r =.565-.637)	
Implementation Stage (3 factors)					√ P=.000 (r =.512-.625)

√ The level significance at .05

The results of hypothesis showed that each stage in the model of "eDestination Information's Innovation Decision Making Process" has a positive relationship to the next stage. The results of this research paper was supported the theory of innovation decision making process proposed by Rogers (2003) who indicated that there are five stages of this model: the knowledge stage, the persuasion stage, the decision stage, the implementation stage and a confirmation stage which are related to each other.

Conclusions and Recommendations

Conclusions and recommendations from this research investigation are discussed as follow:

Conclusions

Results of the survey indicates that types of adopters do not correlate with different elements of diffusion of innovation except the time element. The innovator group seem to use less time to adopt eDestination information technology than the other groups. Findings of the survey with Thai tourists identified 5 stages of "eDestination Information's Innovation Decision Making Process":

- Knowledge Stage: building up the knowledge base.
- Persuasion Stage: assessment solutions.
- Decision Stage: decision activities.
- Implementation Stage: reassessment activities.
- Confirmation Stage: confirmation/disconfirmation decision.

Rogers' (2003) innovation decision making process is an effective model to utilise and adapt for examining Thai tourists perceptions and their experiences of using eDestination information in each stage of the model. Moreover this model is also expected to be helpful for future researchers who are interested in conducting research in similar areas, particularly for researchers in countries which expect to gain increased benefits from tourism business.

Recommendations

In order to promote the use of electronic destination as an information tool for travelling offensive communication channel strategy should be considered. Especially, for the late majority and laggards because these two adopter categories were likely to spend more time to peruse an eDestintion than others. Online communication channel might be one of effective channels because Thai tourists

tend to use this channel for receiving information, but not for searching information on tourism destinations.

Up-to-date, reliable and completed information are improved by originations or entrepreneurs involved with tourism business because they are three most important factors which tourists require when they started searching information for their travel. In addition, extras such as weather forecast, clip VDO and other tourists review should be considered when the website is developed.

Diffusion an innovation toward innovation decision making process should be made stage by stage because each stage is related to each other and has a positive relationship. Therefore, stakeholders who involved in providing information about the eDestination should understand the adopter categories and select the appropriate data transmission for them. For example, accurate and reliable information should be given to adopter categories in order to enhance a good attitude to an innovation which would lead to implementation and eventually to confirmation stage.

Limitation and Suggestions for Future Study

Firstly, this research focused on only Thai tourists during the time period of the research. Secondly, the research method was quantitative and restricted to the Bangkok metropolitan area. Thus future research could be conducted with a larger sample size and with non-Thai tourists. Future study could also be conducted with a qualitative method using focus group or interview in order to gain more in-depth information from tourists.

Acknowledgement

We would like to take this opportunity to express sincere appreciation to our sponsor, Huachiew Chalermprakiet University which gave us the opportunity and financial support to conduct this research. We also would like to express our gratefulness to Michael Jones, for his moral support and English grammar correction on this paper.

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