Factors Affecting the Employee Acceptance of E-Booking System Using Technology Acceptance Model (TAM) The Case Study: K Kingdom Co., Ltd.

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Abstract

Currently, many Thai service organizations are integrating more of e-service systems into the service operational or business transactional process of their business, i.e. e-banking, e-commerce, etc., most of which show very successful stories; and recently, a freight-forwarding company began to adopt and utilize e–booking system to accommodate the space booking process for both the clients and the involving staff. However, pioneering without any study may hurt the business operation if the result does not come out like the company expects. Therefore, this research was conducted in order to study factors affecting employees' acceptance of e-booking system by using Technology Acceptance Model (TAM) in "K Kingdom Co. Ltd.," the only freight-forwarding company in Thailand who plans to utilize electronic system for its clients when booking the container space.

The main objectives of this study are to study the employees' attitude on this e-booking system and to study the factors that affect system acceptance in order to help develop an effective e-booking system to be utilized in the company while making the staff ready and happy to adopt this innovative way of servicing their clients in order to improve the overall business performance of the company.

From "Technology Acceptance Model" or TAM developed by Davis (1989), which was used popularly in predicting the adoption behavior of the new technology users, together with the "Theory of Reasoned Action" or "TRA" developed by Ajzen and Fishbein (1975), the factors of interest include perceived usefulness (PU) and perceived ease of use (PEOU) expected to be related with attitude (AT) and behavioral intention (BI). The study is conveyed by a survey method conducted in a hundred and seventy one system-involving employees of "K Kingdom Co. Ltd.," the only freight-forwarding company adopting the e-booking system in Thailand in the year 2009. Data then was collected using self-administered questionnaires and analyzed by factor analysis and multiple regression analysis techniques.

The results revealed that when the employees perceive usefulness (PU) of the e-booking system--that is they thought that the system provides valuable and appropriate alternative way of working, can improve the quality of work and accelerate the working process--their attitude (AT) towards the system was significantly improved ($p<0.001$) and when they perceive the ease of use (PEOU) of the system—that is they thought that the system is so compatible and not too complicated to use and it is convenient for them to regularly use, the attitude towards the system usage was also improved ($p<0.001$).

Moreover, it was also found that the staff who have good attitude towards the system will show their willing intention (BI) to reuse it afterward. However, only with the employees' attitude towards the use itself would result in the staff's intention to use (BI) this e-booking system ($p<0.001$), not because of the enforcement from the company policy. Therefore, acceptance of the e-booking system resulted from perception of usefulness and the ease of use would bring in good employees' attitude and intention to use toward the system at the end.

The results while confirm what have been found in the previous research conducted in the western culture, also exhibit a distinctive idea when the company's policy cannot convince employees to have usage intention (Subramanian 1994; Lederer et al. 2000; Liao and Landry 2000). Therefore, in addition to the implications for the similar type of companies that want to adopt this kind of technology, this study also pinpoints the concern in cultural differences for academicians who want to apply TAM in their study for this type of service in Thailand where the culture is so different from those countries of which TAM is originally developed and retest.

Keywords: E-booking, Freight forwarder, Employee, Technology Acceptance Model (TAM).

1. INTRODUCTION

Freight forwarder is an intermediary between carriers and clients. Its major roles include:

1. selecting the appropriate carriers for shippers .
2. contacting consignee at the destination to confirm the shipping status.
3. delivering just-in-time goods to clients.

Therefore, freight forwarder is a service provider who needs to communicate or exchange the information with carriers and its clients regarding exporting or importing issues. Currently, some carriers begin to utilize the e-booking system to accommodate the space booking process via the companies' website, causing

freight forwarding companies to adapt their mode of reserving shipment space. However, there is no research studying about the employees' attitude towards this change, the researcher; therefore, is interested in applying "Technology Acceptance Model" or TAM in this study since this model was well developed in order to study how the user's attitude affects his or her technology acceptance in other situations, especially in the western organizations (Ajzen's and Fishbein 1975; Davis 1989; Davis and Venkatesh 1996; Legris et al. 2003).

2. OBJECTIVES AND SCOPE OF STUDY

Therefore, the objectives of this research are to:

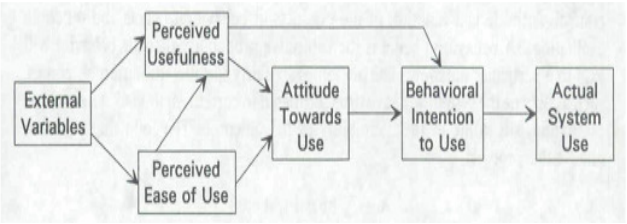
1. study the employees' attitude towards the usage of e-booking system.
2. study the factors affecting e-booking acceptance by the employees.
3. propose the guidelines for e-booking system development for the company and alike.

This study aims to use Technology Acceptance Model or TAM as the research model; therefore, will focus on four sets of variables: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude (AT), and Behavioral Intention (BI) to accept the system usage by conducting the questionnaire survey in 171employees of "K Kingdom Co. Ltd."—the only freight-forwarding company adopting the e-booking system in Thailand in the year 2009.

3. LITERATURE REVIEW

Technology Acceptance Model or TAM was developed by Davis, F.D. (1989) and was extended from Theory of Reasoned Action (TRA) by Ajzen's and Fishbein (1975), which believes that a person's behavior can be predicted by measuring his or her belief, attitude, and intention in order to explain the user's acceptance to utilize information technology.

Figure 1 Technology Acceptance Model (TAM) by Davis (1989).



From Figure 1, TAM explains the relationship between factors of the two structures—the first includes "Perceived Ease of Use" (PEOU) and "Perceived Usefulness" (PU), the second includes "Attitude towards Use" (AT), "Behavioral Intention to Use" (BI), and "Actual System Use."

"Perceived Ease of Use" (PEOU) is the key factor of TAM. It means the user's belief towards a newly developed information technology to be easy to learn for utilization independently from his or her experience.

"Perceived Usefulness" (PU) is another key factor of TAM which means the level of a person's belief that the newly developed information technology usage will improve working efficiency under a certain organizational circumstances.

"Attitude towards Use" (AT) is the feeling resulted from "Perceived Usefulness" and "Perceived Ease of Use." If the user perceives that the new technology is useful or easy to use, he or she will have good attitude towards that technology, which results in **"Behavioral Intention to Use" (BI)** that technology, and finally, the user will conduct the **"Actual System Use."**

Therefore, TAM indicates that PEOU and PU will be predictors of AT towards the system use, which means the ability to predict the user's needs towards the system use. In addition, PU will influence BI to use the system, which subsequently predicts the actual system use.

However, various research conducted using TAM, show both the same and different results of the relationship among these factors (Table1). For example, Subramanian (1994) studied the voice mail system acceptance in 75 officers and the customer dial-up system in 104 officers, which reveal the results that PEOU has no effect on PU and BI, but only PU that affects BI of the two systems. Lederer et al (2000) studied the World-Wide-Web acceptance in 163 users and found the congruent results that PEOU and PU influence BI of a certain website. Paul et al. (1999) used TAM to study the telemedicine technology acceptance by doctors and found that while PU has a direct effect on AT, PEOU has no effect.

Table 1 Results from Previous Studies

Researcher(s)	Year	Type of New Technology	Sample	Results
Davis F.D.	1989	Text-editor	U. Students	PU → Attitude PU → Usage PEOU → Attitude PEOU → PU
Davis F.D.	1993	E-mail, Text-editor	Managers, Specialists	PU → Attitude PEOU → Attitude PU → BI Attitude → BI BI → Usage
Subramanian G.H.	1994	Voice Mail & Customer Dial-up System	Office Workers	PU → BI PU → Usage
Davis & Venkatech	1995	WordPerfect	U. Students	PEOU → PU PEOU → BI PU → BI BI → Usage
Igbaria et al.	1995	Micro-computer	Computer Users	PEOU → PU PEOU → Usage PU → Usage
Szajna B.	1996	E-mail	U. Students	PEOU → PU PEOU → BI PU → BI BI → Usage
Hu et al.	1999	Telemedicine	Doctors	PU → Attitude PU → BI Attitude → BI
Paul et al.	1999	Telemedicine	Doctors	PU → Attitude PEOU → Attitude PU → BI Attitude → BI
Lederer et al.	2000	World-Wide-Web	Web Users	PU → Usage PEOU → Usage
Liao & Landry	2000	IT Organization	Banking Officers	PEOU → PU PEOU → Usage PU → Usage

Therefore, it can be concluded that both PEOU and PU factors will have the different effects on the technology users' AT and

BI under the different sets of research sample and types of technology used.

This research, then, will apply TAM under the different sample group and technology—e-booking system--to figure out whether PEOU and PU effects on AT and BI will confirm those found under the previous studies. The followings are the research hypotheses:

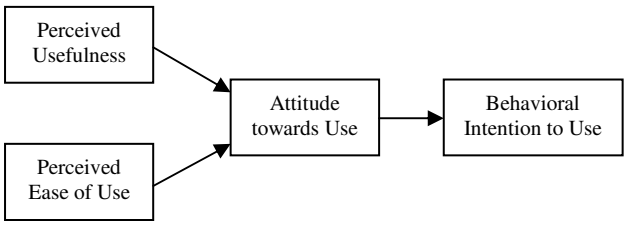
H1: "Perceived Usefulness" (PU) of the e-booking system has a significant effect on "Attitude" (AT) towards the system use.

H2: "Perceived Ease of Use" (PEOU) of the e-booking system has a significant effect on "Attitude" (AT) towards the system use.

H3: "Attitude towards Use" (AT) of the e-booking system has a significant effect on "Behavioral Intention to Use" (BI) the e-booking system.

The research framework, therefore, is shown in Figure 2.

Figure 2 Research Framework



4. RESEARCH METHODOLOGY

Self-administered questionnaire survey was used to conduct the pretest and collect data from 171 persons working for "K Kingdom Co. Ltd." These people were comprised of department heads, IT staff, and the operational staff involving with e-booking system usage. Then, factor analysis was utilized in order to group related items into the same factor and find reliability values for the constructs. Descriptive statistical analysis using frequency and mean values were furthermore conducted. Finally, multiple regression analysis technique was used to test the research hypotheses.

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5. RESULTS

As the Cronbach's Alpha values (Cronbach 1951) of all constructs are acceptable (more than 0.75), the questionnaire has acceptable reliability. The descriptive results show that 72.5 percent of all samples are female, more than 90 percent of them possess Bachelor's degree and aged below 40 years old, most of the sample or 82 percent are staff, and 92.4 percent of all samples have more than one-year experience.

Table 2 Sample's Profiles

Characteristics	Frequency	Percentage
Gender		
- Male	47	27.5
- Female	124	72.5
Characteristics	**Frequency**	**Percentage**
Age		
- 20-25	43	25.2
- 26-30	70	40.9
- 31-35	37	21.6
- 36-40	14	8.2
- 41-45	6	3.5
- >45	1	0.6
Monthly income		
- < 10,000 Baht*	9	5.2
- 10,001-20,000	126	73.7
- 20,001-30,000	29	17.0
- 30,001-40,000	3	1.8
- 40,001-50,001	4	2.3
Education		
- Below Bachelor's	8	4.7
- Bachelor's	158	92.4
- Master's	5	2.9
Working position		
- Manager	6	3.5
- Head	25	14.6
- Staff	140	81.9
Years of working		
- < 1 year	13	7.6
- 1-3	86	50.3
- 4-6	45	26.3
- 7-10	21	12.3
- >10	6	3.5

* US$ 1 = 30 Baht

In average, PU level of the system was perceived by the sample at the high level ($\bar{x}$ = 3.7 from 5-point scale) and PEOU level of the system was also perceived by the sample at the high level ($\bar{x}$ = 3.5). Level of the samples' attitude towards the system is also at the high level ($\bar{x}$ = 3.7) and they show a high level of agreement to use the e-booking system to accommodate the shipment space booking process. For the level of intention to use the system, it shows a high level of intention ($\bar{x}$ = 3.5) and the samples intend to use the system to accommodate the booking process whenever they have a chance at the high level as well ($\bar{x}$ = 3.8).

The results from regression analysis are as the followings:

Hypothesis 1, the result shows that there is a significant relationship between PU and the attitude towards the system use (AT) (β = .718, R^2 = .456, $p < 0.001$). Therefore PU of the system has a positive significant effect on attitude towards the system use.

Hypothesis 2, the result shows that there is a significant relationship between PEOU and the attitude towards the system use (AT) (β = .652, R^2 = .340, $p < 0.001$). Therefore PEOU of the system has a positive significant effect on attitude towards the system use.

Hypothesis 3, the result shows that there is a significant relationship between attitude towards the system use (AT) and the behavioral intention (BI) to use the system (β = .674, R^2 = .546, $p < 0.001$). Therefore attitude towards the system use (AT) has a positive significant effect on behavioral intention (BI) to use the system.

Furthermore, each sub-factor of BI—"BI to use the system due to the staff themselves" and "BI to use the system due to the company's policy"—was separately tested against the hypothesis 3. The results show that while attitude towards the system use (AT) has a positive significant effect on BI to use the system due to the staff themselves (β = .897, R^2 = .644, $p < 0.001$), attitude towards the system use (AT) has no significant

effect on BI to use the system due to the company's policy (β = .004, R^2 <.001, p = 0.971).

Moreover, furthered descriptive analysis shows that 97.7 percent of the samples think that e-booking application in the organization is appropriate and more than 90 percent agree that the system should be brought into the company within less than 2 years. While 70.8 percent of the samples think that the system should be applied firstly with the big account clients, 98.2 percent of them suggest that there should be a staff training session for the system usage and the system should also be pilot tested within a small group of staff.

6. CONCLUSIONS AND SUGGESTIONS

The results can be concluded that while the majority of the staff agree to accept the e-booking system by recognizing its ease of use and its usefulness, the process in bringing in this system must be careful conducted by preparing the staff well before the actual and full-scale utilization.

It is also confirmed that perceived ease of use of the e-booking system (PEOU) and the system's perceived usefulness (PU) significantly affect the users' attitude towards the system (AT), which then affects the intention to accept and use the system (BI). These results follow the same of those found by Davis (1989; 1993).

Therefore, it is very crucial for the company to show the system's usefulness clearly to their involving staff and make the system look very user-friendly by organizing the system training workshop or alike.

Furthermore, since the company's policy itself cannot convince the staff to have the intention to use the system, the administrative body and department leaders must ensure that there is an effective process to make the staff become a part of this new system application in order to make them feel participative, have positive attitude and be willing to utilize the system themselves. However, this finding is quite surprising to be seen in Thai culture, which is justified as being high-distance culture—tending to have the distinctive roles between supervisor and subordinate and the staff tend to give very high respect to their boss and rules. Nevertheless, this could be explained by the evidence that today, Thai people seem to adopt more of western culture where individualism plays more active role.

Therefore, while the results from this study confirm those found from the previous research, they also show some conflicts against those research. Researchers in this area of study must keep in mind for this facts when they want to conduct this kind of similar research under different situations and the practitioners or the business people must be aware when they want to apply the other people's research results in adopting new technology into their organization.

Future research therefore, should be conducted using different circumstances such as different kinds of technology and sample groups to ensure the validity and reliability of the results.

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