A Study of Influencing Traditional Travel Agencies' Decision Making to Introducing B2C E-commerce

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ABSTRACT

Before the emerging of Internet, traditional travel agencies had been an industry that adopted information technology greatly, and common for each travel agency to have Computerized Reservation System to connect with airlines and hotels through dedicated lines. This kind of inter-organizational information system has been adopted for years; while viewing the travel industry as a whole, the changes on value chain and competition and cooperation relation are caused by the commercial behavior of Internet, E-commerce (EC). Therefore, the objectives of this study are: to understand the influence of top managements' characteristics on introducing B2C EC, to understand the influence of travel agencies' attributes on introducing B2C EC, and to understand the decision-making factors travel agencies considered while introducing B2C EC. To the data analysis, we adopt scale reliability analysis, scale validity analysis, descriptive statistics, chi-square test, independent sample t-test, Pearson's correlation analysis, factor analysis and discriminated analysis, etc. According to the analysis results, this study found that "education level", "job position", "consuming experience in EC websites", and "viewpoint on EC prospective" of the top management's characteristics would directly influence the introduction of e-commerce and have positive correlation with the decision significantly; the travel agency's attributes of "type of travel agency", "company's age", "number of employees" and "participating in the promotion and assistance measure" would directly influence whether to introduce e-commerce or not, and the decision is positively correlated with significance of EC introduction. Decision factors are divided into six dimensions, "Product Competence", "Relationship of Investment Capital", "E-business' Level", "Consumers Demand", "E-commerce Environment", and "Management Knowledge Mode". Results show that the dimension "E-business' Level" affects the most and dimension "Relationship of Investment Capital" affects next the decision to introducing EC.

Keywords: E-commerce, decision-making, B2C EC, travel agencies

1. INTRODUCTION

The public has accepted travel industry as the biggest industry in 21st century which highly interrelated with each person. Traditional travel agency is the service industry that in charge of travel information brokered and management among all travel industry, and the major assets it possessed are customers. Before the emerging of Internet, traditional travel agencies in Taiwan had been an industry that adopted information technology greatly, and common for each travel agency to have Computerized Reservation System (CRS) to connect with airlines and hotels through dedicated lines. This kind of inter-organizational system (IOS) has been adopted for years. To view travel industry as a whole, changes on value chain, competition and cooperation relation are caused by the E-commerce (EC) behavior.

The increase in Internet users, growth in on-line order, open of Internet banking business's payment system operation, gradual mature of relevant environment for e-commerce and popular of on-line games, and markets for e-commerce will keep on growth, and Taiwan's on-line traveling market has been the biggest business among B2C EC now. However, it is true that Taiwan's traditional travel agencies are facing the same problems as most small and medium enterprises, namely, capital, technology, industrial standards and governmental promotion and assistance measures, which result in the stagnancy of e-business degree. Therefore, the motivation of this study is to discuss and realize how the domestic enterprises' top managers of traditional travel agency look upon B2C EC and what are the required features, and to understand the decision-making factors on introducing B2C EC into traditional travel agencies.

The issues of this research is "What are the top managers' characteristics, travel agencies' attributes, influences of relationship between suppliers and governmental promotion and assistance measures on the decision-making of introducing emerging information technology e-commerce by Taiwan traditional travel agencies?" Therefore, the objectives of this study are:
(1) To understand the influence of top managements' characteristics on introducing B2C EC.
(2) To understand the influence of travel agencies' attributes on introducing B2C EC.
(3) To understand the considered decision-making factors by travel agencies while introducing B2C EC.
(4) To provide suggestions and references for government's relevant unit, higher education research institutes, system providers and relevant software suppliers, travel product suppliers, travel associations and travel agencies, to construct a well digitalized travel operation ecological environment jointly.

We attempt to use questionnaire survey to discuss how the traditional travel agencies shall find out their ways under this trend and develop business opportunities, and catch the important factors considered under traditional travel agencies' decision-making process, and what their required assistance and help are.

According to business natures, Taiwan travel agencies could be divided into three types, namely, Consolidated, Class A and Class B travel agencies. This study focuses on and sampled from the travel agencies that join the Taoyuan County Travel Agent Association. The amount of travel agencies in Taoyuan area are ranked fourth in Taiwan, and most are the localized traditional travel agencies without on-line traveling operation. In addition, since we are concerning the travel agencies' decision-making to introducing e-commerce and only top management could make such decision, it is more reliable for us to take them as our research objects.

2. LITERATURE REVIEW

This section reviews relevant literatures concerning the decision-making factors that influence the introduction of e-commerce into travel agencies. The following discusses ten of such factors:

- Top Management's Characteristics: Subjective factor that influences decision-making rationality is the decision makers, that is, manager's personal intuition, experience and proficiency [3]; McNulin and Sprague [12] considered that a top management with operation styles of perspective, adventure and brave in accepting challenges, also have higher acceptance on the introduction of new information technology; in the research of critical factors that influence top managements' support of information technology from sixty domestic enterprises made by Lin [10], it is found that top managements with higher education background are tended to support information technology due to their higher opportunities to get in touch with information technology.

- Travel Agency's Attributes: Scale is also one of the major factors that influence organization's application of information technology; numerous researches believed that organization scale and new technology introduction have positive correlation [1,5,9].

- Policy Regulations: With more governmental promotion and assistance measures, the enterprise could even more facilitated to adopt new information technology [6,13].

- Consumer's Behaviors: Engel et al. [4] defined consumer behavior as the relevant activities made directly by personal to product, service obtain, consumption or dispose, including causes, practical activity and decision-making process that decide various behaviors.

- Construction Purpose: We thought that a success enterprise does not pursue fashion or follow the trend. It must have been driven by certain purpose, which means that enterprise must have profits to obtain and select most appropriate project or technology. Moreover, methods for enterprise to gain profits including improve operation efficiency to reduce operation costs, increase business incomes to accelerate investment return, and expand market to increase new business opportunities.

- Organization: Travel agencies' technology maturity, information department's scale and top managements' cognition and support are all the factors that influence the decision-making of adopt information technology into organization; and more formalized company will adopt information technology earlier [1,9,11,14]. There are other researches indicated that if the computerized degree is higher among industry, the organization would correspond with higher formalized organization structure [2,15].

- Supplier: Rockart and Short [13] considered that the development of information technology enables the enterprise to link consumers and upper suppliers, and cross-organization's process could closely integrated, which highly increased the interflow of information and obscure the organizational boundaries. The service quality of vertical integration between information system supplier and enterprise will affact enterprise's IT adoption, and more marketing supports and understanding customers' requirements will make products easier to be accepted [9,15].

- Environment: (1) Pressure from the adoption of same business: As indicated in Lee [9] and Tseng [14], competition between same businesses, computerized degree between same businesses, and influence degree by the same businesses have positive correlation with the effects of the introduction of information technology; (2) Pressure from customer's demand to adopt: Based on Hwang's research [8] on enterprise's adoption of EDI and its benefits, it is discovered that when more customers request to adopt new information technology, the enterprise could even more facilitated to adopt new information technology; (3) Sporadic environment: According to Grover and Goslar's research [5] of the factors that influence enterprise's application of communication technology in USA, it is discovered that environment uncertainty and heterology would facilitate the adoption of new technology.

- Internet Techniques: Include network construction, management and maintenance costs, transmission quality, confidential and safety, integration of various computer systems, network applicable software, and network supplier's service; while these factors have positive development, the enterprise could even more facilitated to adopt new information technology [6,7].

- Technological Recognition: (1) Characteristics of Internet: Lee [9] in his study of the Internet adoption decision factor referred that it has different openions on "whether to adopt or not" in terms of Internet risk; however, the negative factors of compatibility do not affect enterprises' willingness to adopt Internet; (2) Characteristics of enterprise product/service: Product and service characteristics are unique in travel industry that also reveal their importance. Thus, there are researches addressed factors like product's comparative profit, comparative risk, compatibility and cognition degree [8,15].

3. RESEARCH METHODOLOGY

This study proposes operational definitions of related variables in accordance with the research hypotheses. The conceptual framework of our research considers the influential factors such as the properties of the travel agency, travel products, environment, the Internet as well as the characteristics of the top management.

(1) Top Management's Characteristics: The six variables are gender, age, education level, job position, consuming experience in e-commerce websites, and viewpoint on e-commerce prospects.

(2) Travel Agency's Attributes: It includes type of travel agency, company's age, number of employees, and degree of participating in e-commerce promotion and assistance measures of government's relevant units or private organizations.

(3) Policy Regulations: This mainly focuses on the travel agency's participation in governmental promotion and assistance measures, which might influence the travel agency to introduce e-commerce.

(4) Decision Dimensions:
  - Consumer's Behaviors: This dimension highlights the behavior of the consumers to recognize the opinions of the top management of the travel agency toward what consumers think of e-commerce.
  - Construction Purposes: This includes the viewpoints of the top management toward the profit of e-commerce, marketing channel, market share rate and publicity of the company.
  - Organization: This includes decision factors such as the policy decision procedure, the document format, the e-business level of the enterprise, the e-commerce technicians, the participation and support of the top management and so on.
  - Suppliers: With the characteristics of the travel products and the property of the travel agency, the top management lays an emphasis on the behavior of the suppliers. This is because upstream suppliers are able to positively support the marketing activity and networking supply by sending technicians to assist or providing reasonable preferential prices.

- Environment: This includes adoptive pressure from the competitors, customer's requests, the recognition and viewpoints of the top management on the domestic EC environment, and the consideration of the SARS impact on e-commerce.
- Internet Techniques: This aims at the EC establishment costs (implementation, management, maintenance, etc.) and the EC on-line transaction security problems.
- Technological Recognition: Whether the Internet is able to sustain marketing, reduce the enterprise operating cost, promote company's competency, and extend the service district, and e-business is a commercial trend in the future.

The evaluative item of each variable in our research questionnaire is based on the theoretic basis of the literature review and related research subjects, further combined with the research objectives and conceptual framework. This mainly consits of two parts:

(1) Questionnaire Design
  - Pretest Part: Having done effective analysis of the questionnaire pretest and deleted questions that don't meet the criteria, a formal questionnaire is gained.
  - Formal Questionnaire: The content of the formal questionnaire altogether is divided into three parts— Basic Information, Operating Status, and Decision Making Factors on E-commerce Introduction.

(2) Survey
  - Questionnaire Duration: The survey duration of this research is from June 25th to July 31st, 2003.
  - Sampling Method: The research adopts purposive sampling method. The population includes 19 branches of consolidated travel agencies, 95 head offices of Class-A travel agencies, 30 branches of Class-A travel agencies and 7 head offices of Class-B travel agencies, totally 151 travel agencies.

This research adopts SPSS for Windows as a tool for analysis. The flowchart of analysis is shown in Figure 1.

4. DATA ANALYSIS

We now proceed to present data analysis, including chi-square test, independent sample t-test, Pearson's correlation analysis, factor analysis and discriminated analysis, etc. and explains the results in detail. For this study, 151 questionnaires were sent out and 88 were returned. The response rate was 55.63%. Among those received, 4 were incomplete and treated as invalid.

This study used the Cronbach's a value to analyze the reliability of scale in part of the questionnaire that concerns the decision-making factors of introducing EC in traditional travel agency. After measuring, the Cronbach's a value is above 0.94 which satisfies the internal consistency requirement and is highly reliable.
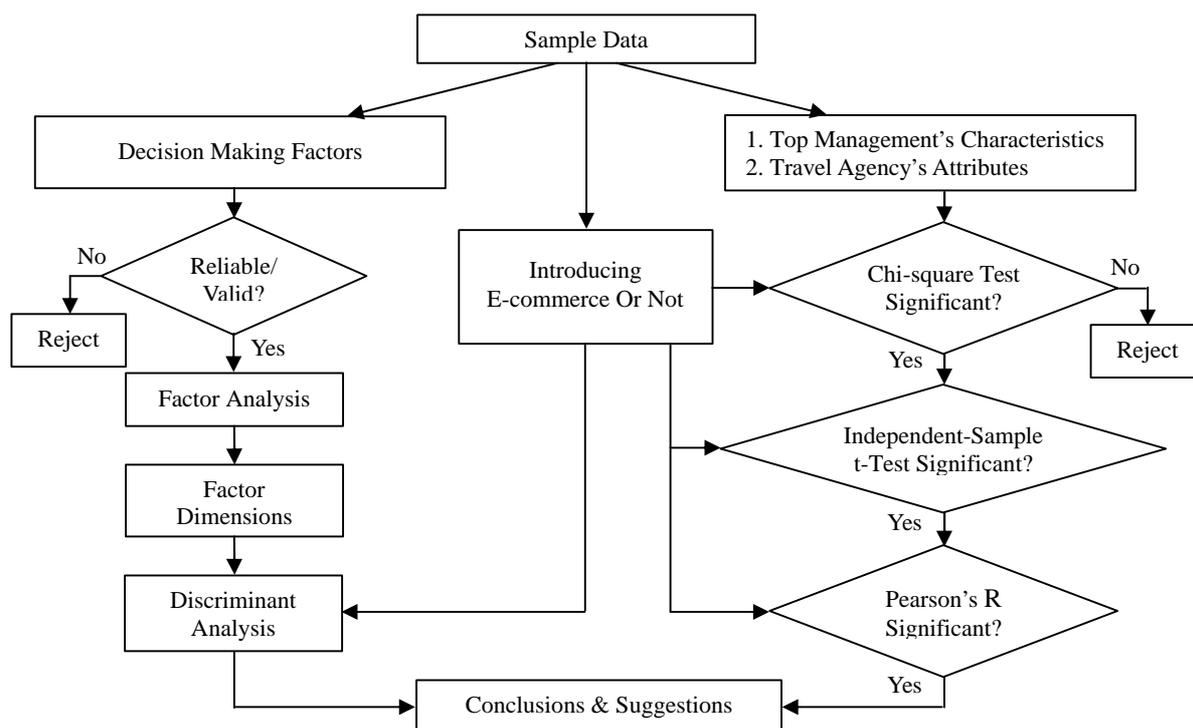
Figure 1. The flowchart of analysis

As shown in Table 1 and Table 2, the education level (Pearson R= .259, p<.01), job position (Pearson R= .254, p<.01), consuming experience (Pearson R= .243, p<.05), and the viewpoint on e-commerce prospective (Pearson R= .222, p<.05) of the top management in the travel agency would have significantly positive influence on the decision making of EC introduction; but the gender ($\chi^2(1)=3.385$, p>.05) and age ($\chi^2(1)=1.911$, p>.05) did not reach significance of confidence interval, so we can say that the gender and age of the top management will not influence the decision making of introducing EC.

Table 3 shows the correlations between travel agency's attributes and introducing EC or not are significant at 99% of confidence interval; so the type of travel agency (Pearson R= .337, p< .01), company's history (Pearson R= .338, p< .01), the number of employees (Pearson R= .369, p< .01) and participating in the promotion and assistance measure (Pearson R= .391, p< .01) of the travel agency's attributes would influence the decision making of introducing EC significantly and positively.

Before analyzing, we first check the correlation matrix between each variance to make sure that the factor analysis is representative. Results show that most related coefficient between variance of each dimension appeared as significance. Then after the KMO and Bartlett's test (KMO statistical value = 0.762 > 0.6; p=0.00 < 0.05), it shows the significance and hence is suitable to do the factor analysis. Clearly, the 26 questions against factor loading are all over 0.5, which is at the acceptable region. For the extracted 6 factor dimensions which has characteristic value bigger than 1, total variance explained is about 75.1%.

Table 1. Chi-Square tests for top management's characteristics on whether to introduce EC

Variables		84 Valid Cases			Significant (p<.05)	Insignificant (p>.05)
Top Management's Characteristics (6 Factors)		Value	Df	p-value		
Education level	Pearson Chi-Square	5.631	1	.018	?	
	Likelihood Ratio	5.581	1	.018		
	Linear-by-Linear Association	5.564	1	.018		
Job position	Pearson Chi-Square	5.427	1	.020	?	
	Likelihood Ratio	5.571	1	.018		
	Linear-by-Linear Association	5.362	1	.021		
Consuming experience in EC websites	Pearson Chi-Square	4.941	1	.026	?	
	Likelihood Ratio	4.999	1	.025		
	Linear-by-Linear Association	4.882	1	.027		
Viewpoint on e-commerce prospective	Pearson Chi-Square	4.153	1	.042	?	
	Likelihood Ratio	4.095	1	.043		
	Linear-by-Linear Association	4.104	1	.043		
Gender	Pearson Chi-Square	3.385	1	.066		?
	Likelihood Ratio	3.344	1	.067		
	Linear-by-Linear Association	3.344	1	.067		
Age	Pearson Chi-Square	1.911	4	.752		?
	Likelihood Ratio	2.248	4	.690		
	Linear-by-Linear Association	.140	1	.708		

Source: This study

Table 2. Correlations between top management's characteristics and whether to introduce EC

Variables (4 Factors) Top Management's Characteristics		Introducing e-commerce or not
Education level	Pearson Correlation	.259
	Sig. (2-tailed)	.017*
	Sig. (1-tailed)	.009**
Job position	Pearson Correlation	.254
	Sig. (2-tailed)	.020*
	Sig. (1-tailed)	.010**
Consuming experience in EC websites	Pearson Correlation	.243
	Sig. (2-tailed)	.026*
	Sig. (1-tailed)	.013*
Viewpoint on e-commerce prospective	Pearson Correlation	.222
	Sig. (2-tailed)	.042*
	Sig. (1-tailed)	.021*

Note: *$p<.05$; **$p<.01$
Source: This study

Table 3. Correlations between travel agency's attributes and whether to introduce EC

Variables Travel Agency's Attributes (4 Factors)		Introducing e-commerce or not
Type of travel agency	Pearson Correlation	.337
	Sig. (2-tailed)	. 002*
	Sig. (1-tailed)	.001*
Company's Age	Pearson Correlation	.338
	Sig. (2-tailed)	.002*
	Sig. (1-tailed)	.001*
The number of employees	Pearson Correlation	.369
	Sig. (2-tailed)	.001*
	Sig. (1-tailed)	.000*
Participating in the promotion and assistance measure	Pearson Correlation	.391
	Sig. (2-tailed)	.000*
	Sig. (1-tailed)	.000*

Note: *Correlation is significant at the 0.01 level
Source: This study

The name of factors was based on variance on the factor loading of factor pattern, and extended to some other related variances. The higher variances, the more important the top management attach to themselves. Thus decision factors are named and classified to 6 dimensions as "Product Competence", "Relationship of Investment Capital", "E-business' Level", "Consumers Demand", "EC Environment", and "Management Knowledge Mode". Then, we implement Cronbach's a value to prove and measure the reliability of each dimension; if the Cronbach's a-coefficient is greater than 0.7, it means that the reliability is quite high and the questionnaire is well designed. After factor analysis, the reliability is as shown in Table 4.

This study uses Discriminant Analysis to analyze the effective decision dimension and whether travel agency is to introduce EC. We define "introducing e-commerce factor dimensions" as independent variables and "whether travel agency introducing e-commerce or not" as dependent variable. We shall discuss the decision on

each dimension affecting whether the travel agency introduces EC is significant in reality. Therefore, from the function test of discriminant analysis (Wilks' Lambda value = 0.772 and p= .000<0.05) which has reached statistical significance level, we can have a standardized canonical discriminant function: D=1.002* E-business' Level + 0.817*Relationship of Investment Capital – 0.640*Management Knowledge Mode – 0.538 *E-commerce Environment – 0.395*Consumer Demand – 0.078*Product Competence. Results (see Table 5) show that the dimension "E-business' Level" affects the most and dimension "Relationship of Investment Capital" affects next the decision to introducing EC. The positive and negative symbol shows the direction of relationship.

Table 4. Reliability scale of the factor dimensions

Factor Dimension	Question No.	a value
Product Competence	5, 6, 7, 8, 19, 20, 21, 23, 25	0.9071
Relationship of Investment Capital	9, 10, 17, 18	0.8746
E-business' Level	13, 14, 15, 16	0.8670
Consumer Demand	1, 2, 3, 4	0.8118
E-commerce Environment	22, 24	0.7431
Management Knowledge Mode	11, 12, 26	0.7007

Source: This study

Table 5. Standardized Canonical discriminant function coefficients

Factor Dimension	Function value (Wilks' Lambda= .722, p= .000)
Product Competence	-0.78
Relationship of Investment Capital	0.817
E-business' Level	1.002
Consumer Demand	-0.395
E-commerce Environment	-0.538
Management Knowledge Mode	-0.640

Source: This study

5. CONCLUSIONS

This paper finally summarizes and concludes as below:

(1) Structure of Respondents
According to the analysis, we understand that the decision-makers think EC would be a trend in the future that 76.2% of the sample think EC's future is good and keep on investing it; while 73.8% actively participate in government's or private organization's B2B2C EC promotion and assistance measure. In the characteristics of travel agencies, it appears that the scale and history of travel agencies in Taoyuan County is smaller and shorter. The head office of

Class A travel agency is the majority, mainly by regional business, which locally services customers.

(2) Operating Status Analysis of Travel Agencies

- The Internet connection rate of travel agencies in Taoyuan County is beyond 80%, and the best is consolidated travel agencies. In the private website constitution rate, excluding members of "Travel Industry's Data Base System Program" is only 35.1% and it means the pressure of adopting EC is lower in this area. The rate of Class A (27.2%) and B (14.3%) travel agencies' self-own website is low.

- 84 respondents applied EC (including the travel agencies which plan to introduce EC) that takes 59.5%; among them 31% apply EC by self. In the investigation of travel agency's application of EC, most (62%) lack of IT professionals; while 28% of the travel agencies, which don't apply EC, take strategy on internal staff training. On the other hand, 74% of the managers are from internal who generally accept new technology and are familiar with computer. In the application of IT, beyond 90% of respondents use CRS for trading.

(3) Relationships of Whether to Introduce E-Commerce

- In the education level, job position, consuming experience in EC websites, and the viewpoint on EC prospective of the personal characteristics would directly influence whether to introduce EC or not, and their decisions have positive correlation and are significant. But the gender and age of the top management have no related significant correlation.

- The travel agency's attributes of "type of travel agency", "the company's age", "the number of employees" and "participating in the promotion and assistance measure" would directly influence whether to introduce EC or not, and the decision is positively correlated and significant. Travel agencies which participate in promotion and assistance measures of government's relevant unit or private organization's B2B2C e-commerce are much more active in applying e-commerce.

(4) Decision Factors Analysis of Affecting E-commerce Introduction

- To the opinions of the top management in the travel agency, the top 5 important effects on introducing EC ordered by average are: E-commerce is an inevitable business trend in the future, increase company's fame through customer's visit on the EC website, the company is able to understand customers' preferred habitual behavior, increase the interaction between the company and customer, and the additional EC's channel will increase company's market share.

- After the factor analysis, 26 applications for introducing e-commerce decision factors are divided into six dimensions; they are: "Product Competence", "Relationship of Investment Capital", "E-business' Level", "Consumers Demand", "E-commerce Environment", and "Management Knowledge Mode". And after the cross validation, the total

predicted rate is beyond 71%.

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