

## **A Study of Key Success Factors when Applying E-commerce to the Travel Industry**

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### **Abstract**

*The aim of this research was to study the key success factors of e-commerce in the travel industry. The tourism market demand is growing and nearly all tourism firms have invested in the construction of e-commerce. The study used the Delphic Hierarchy Process (DHP), to try to find out the key success factors of e-commerce in the travel industry and establish an index of these key success factors that are relevant to the tourism industry in Taiwan to ensure the efficient use of resources.*

**Keywords:** Key Success Factors, E-Commerce, Travel Industry, Delphic Hierarchy Process (DHP), Service Marketing

### **1. Introduction**

Since 1988, the travel industry in Taiwan has become a competitive market where marginal profits are very low because of the free license of the industry and price wars (Wang, 2011). Additionally, since 2008, the travel industry has faced the financial tsunami and the Cross-Straits Direct Transportation between mainland China and Taiwan, which has made the industry more competitive and changeable. The travel agencies now require more flexible countermeasures to survive. As the Internet has developed, more and more consumers can now find travel information or even purchase travel through the Internet due to its convenience and capacity for huge information, and this has led to many traditional travel agencies introducing e-commerce. The companies can combine technology and the characteristics of the travel industry well, and can make the best of the Internet and handle their relationship with consumers precisely, effectively enhancing the advantage of competition.

However, travel agencies face large-scale key success factors when developing e-commerce for the travel industry, which means the agencies can't focus on the important things, and this can cause disorder and inefficiency. Therefore, these key success factors should be classified in a proper way and an index of these factors should be established according to their importance. These can be referred to when a company draws up a plan, helping the company allocate their resources rationally, enabling them to meet their consumers' demands efficiently and increase profits.

Therefore, the study is going to: (1) Discuss the key success factors of e-commerce in the travel industry. (2) Evaluate the importance of these factors using DHP. (3) Show the results of the index and develop suggestions for the travel industry, helping companies to make effective plans.

### **2. Literature review**

#### **2.1 E-commerce**

E-commerce (Electronic Commerce/EC) means commercial activities that are finished fully or partly online, and the products sold on the Internet are physical goods, information or services. According to the literatures, the definition of e-commerce can be defined in two ways. (1) A business transaction through the Internet, including buying and selling (Cappel and Myerscough, 1997). This study defined e-commerce from the channel functions point as a purchase from the Internet, without the payment, conveyance or transfer of the possession of the goods.

(2) All the activities the companies perform, using the Internet, to improve the commercial processes. This is not only the business that yields profits, but also the accessories that help to fulfill the tasks (Kalakota and Whinston, 1996).

## **2.2 E-commerce to the travel industry**

According to the statistics from the MIC (Market Intelligence Center) in 2009, the e-commerce market in Taiwan reached 311.6 million NT, with travel accounting for 52%, most of which was air tickets sold. Overall, e-commerce for the travel industry is booming and more and more competitors have come into the field. According to the classification by Wang (2000), travel websites can be classified into three categories: e-commerce-driven that sells products such as services or air tickets online, content-provided, and travel SNS (social network service).

## **2.3 Key success factors of e-commerce in the travel industry**

Key success factors (KSF) were first developed by Daniel (1961), and the process was redefined and discussed systematically by Rockart (1981). Cheng, Chan, and Lin (2004) put forward nine key success factors for e-commerce in the travel industry, including enterprise culture, e-commerce team, increasing customer value, internal processes, information appliance, product planning, supplier system, website content planning, and physical and virtual channels. Lin and Tseng (2008) studied the success mode of online games from the rational and psychological dimensions, finding that the quality of the information and flow of the systems had little influence on the consumers, whereas the quality of service had most influence. In addition, promotions can have a short-term effect, such as attraction and purchases, and long-term effects, such as satisfaction and loyalty. Therefore, in the study, the key success factors include enterprise culture, e-commerce team, increasing customer value, internal processes, information appliance, product planning, supplier system, and website content planning.

## **3. Method**

### **3.1 Delphic Hierarchy Process (DHP)**

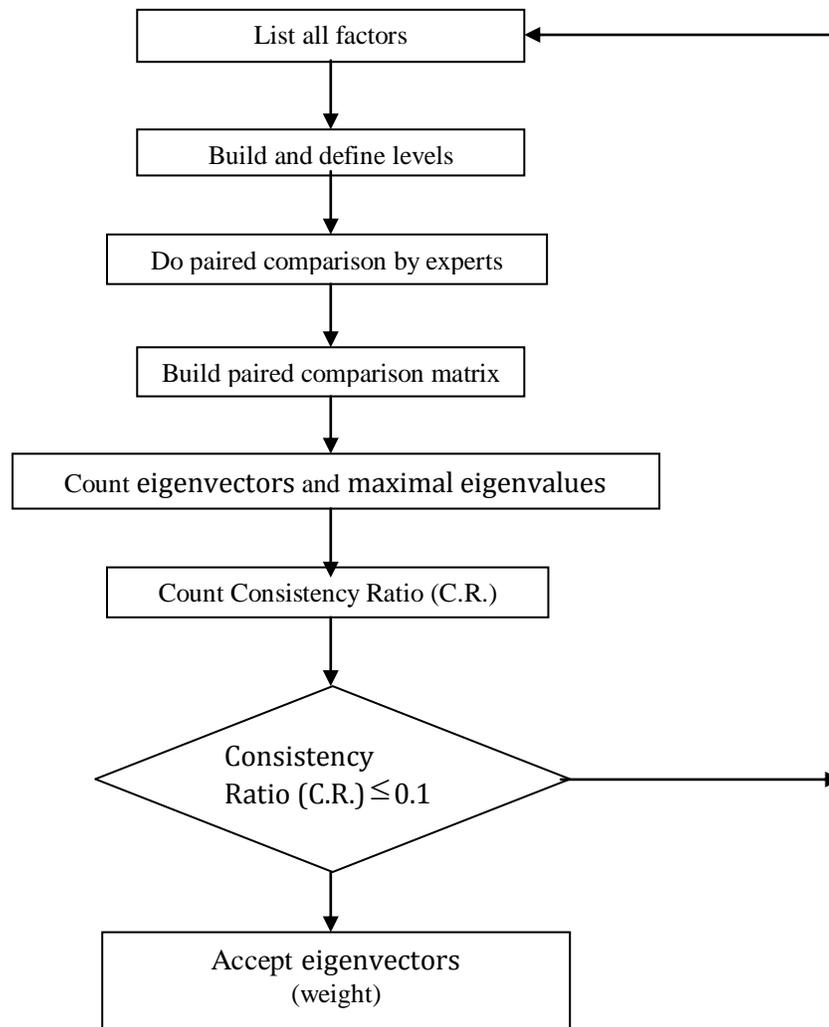
The Delphic Hierarchy Process (DHP) was developed by Khottamshahgol and Moustakis (1988), combining the advantages of Delphi and AHP.

#### **3.1.1 Delphi Method**

The Delphi method is a structural group communication, allowing every member to fully present their views on certain, complicated topic. The views will be thought of as equal in order to reach a consensus on the topic (Mai, 1981), especially on future trends and technology. Since the development of Delphi method by Dalkey & Helmer (1963) and Helmer (1966), the Delphi method has been used in various fields, such as system planning in urban areas, integration and planning of public policy, marketing and product development. The purpose of the Delphi method is to obtain the most certain consensus by sending out questionnaires, recycling questionnaires and then analyzing the data again and again. In this study, the group members contain relevant managers, consultants and professors from the travel industry field.

#### **3.1.2 Analytical Hierarchy Process (AHP)**

The Analytical Hierarchy Process (AHP) was developed to try and evaluate several evaluation criteria, in order to systemize complex problems. It divides different factors into several dimensions and these are then evaluated to provide abundant information for the decision makers and decrease the risks of decision-making mistakes (Saaty, 1977). The operation of AHP is easy and objective, with the figuring out of the weight of every factor from the lower level to the higher level. The study structure is shown in Figure 1.



**Figure 1. The structure of AHP**

### 3.1.3 Delphic Hierarchy Process (DHP)

The DHP extends the AHP, using Delphi to build a paired comparison matrix, which takes a group decision and decreases the risks of biased subjective cognition when a member or the group build and define dimensions and undertake a paired comparison (Yang, Chen, and Yeh, 2005). Therefore, this study took the DHP to gather opinions of experts. Firstly, the study established the factors of the key success factors of e-commerce in the travel industry and then used the AHP to calculate the weights of the factors.

### 3.2 Research framework

The research framework was developed as follows: (1) gather and analyze the literature, then build the structure of the study; (2) ascertain the key success factors of e-commerce in the travel industry; (3) in the 1<sup>st</sup> and 2<sup>nd</sup> round, ask the experts to define the key factors and build the dimensions; (4) in the 3<sup>rd</sup> round, do paired comparisons by the experts using AHP to find out the relative advantages of the different variables, and count relative weight and check C.R.; and (5) make conclusions and suggestions.

### 3.3 Participants

The participants were experts who had a high level of professional knowledge of the travel industry, including 60 relevant managers, 15 consultants and 10 university professors.

#### 4. Data analysis and results

##### 4.1 The key success factors of e-commerce in the travel industry

The first round of the study was investigated with a half-open questionnaire, which included eight key success factors from the literatures and these were judged by the experts. Experts used Important (1 grade) and Unimportant (0 grade) to evaluate these factors and added any unlisted ones that were also judged important to e-commerce in the travel industry. 85 questionnaires were sent out and 60 were sent back. The results are shown in Table 1.

**Table 1. The count of the 1<sup>st</sup> round**

Key success factors	Importance grade	SD	Importance percentage (%)
Enterprise culture	1.87	1.17	81
Team of e-commerce	2.57	1.42	92
Increasing customer value	2.88	1.91	87
Internal process	1.03	1.99	81
Information appliance	1.65	2.14	83
Product planning	2.3	2.04	91
Supplier system	2.28	1.11	90
Website plan	0.42	1.24	76

The fluency of browsing, convenience of use, product update and human resources were the additional factors. The second round contained 12 factors and this was also evaluated by the same experts. 25 questionnaires were sent out and 19 were sent back (recovery rate=76%). The results are shown in Table 2.

**Table 2. The count of the 2<sup>nd</sup> round**

Key success factors	Average rank	Importance percentage (%)
Enterprise culture	8.42	68.42
Team of e-commerce	5.58	89.47
Increasing customers' value	7.89	84.21
Internal process	9.58	83.16
Information appliance	7.53	68.42
Product planning	5.26	89.47
Supplier system	5.89	94.74
Website content planning	5.79	89.47
The fluency of browsing	5.11	89.47
Convenience to use	5.68	100.00
Product update	4.79	94.74
Human resources	6.47	94.74

Information appliance (68.42%) and Enterprise culture (68.42%) were eliminated because less than 80% of the experts agreed on their importance to the travel industry (Chung, 2003). Therefore, 10 variables were concluded as the key success factors for e-commerce in the travel industry.

##### 4.2 The weights analysis of the key success factors

The 10 factors were discussed and classified into three dimensions: internal operations and resources (e-commerce team, internal process, and human resources), content and value of product (supplier system, product planning, product update, increasing customer value), and website content and application (website content planning, the fluency of browsing, convenience of use).

In the third round, 25 questionnaires were sent out and 18 were sent back (recovery rate of 72%), but 17 questionnaires were under qualified (C.R. > 0.1). In the fourth round, 17 questionnaires were sent out again after revision. 16 were then returned (recovery rate of 94%), but 14 questionnaires were under qualified. In the fifth round, The 14 questionnaires were then sent out again after revision and all were returned (recovery rate of 100%), but 5 questionnaires were under qualified. These 5 questionnaires were sent out again after revision and all were returned and qualified (recovery rate of 100%). It took four rounds to finish the questionnaire. The results are shown in Tables 3, 4, 5, and 6.

**Table 3. The weight of the three dimensions**

	Internal operations and resources	Content and value of product	Website content and application	Geometric mean	Weight	CR
Internal operations and resources	1	1/2	2/9	3.002	0.1275	0.00416
Content and value of product	2	1	3/8	3.004	0.2471	
Website content and application	9/2	8/3	1	3.009	0.6254	
Total				9.014	1.0000	

**Table 4. The weight of internal operations and resources dimension**

	Team of e-commerce	Internal process	Human resources	Geometric mean	Weight	CR
Team of e-commerce	1	5/2	1/5	3.065	0.2016	0.08231
Internal process	2/5	1	1/5	3.025	0.1099	
Human resources	5	5	1	3.196	0.6885	
Total				9.286	1.0000	

**Table 5. The weight of content and value of product dimension**

	Product planning	Product update	Increasing customers' value	Supplier system	Geometric mean	Weight	CR
Product planning	1	3/8	2/3	1/4	4.023	0.1111	0.01320
Product update	8/3	1	1	1/2	4.045	0.2348	
Increasing customers' value	3/2	1	1	1/2	4.038	0.2120	
Supplier system	4	2	2	1	4.036	0.4420	
Total					16.143	1.0000	

**Table 6. The weight of web site content and application dimension**

	Website content planning	The fluency of browsing	Convenient to use	Geometric mean	weight	CR
Website content planning	1	1	1/3	3.017	0.1844	0.02995
The fluency of browsing	1	1	1/5	3.018	0.1631	
Convenient to use	3	5	1	3.069	0.6525	
Total				9.104	1.0000	

## 5. Conclusion and suggestions

### 5.1 Conclusion

The study concluded that 10 factors were critical to the e-commerce travel industry and these could be classified into three dimensions; content and value of product, website content and application, and internal operations and resources, sorted by importance. When a travel company makes a plan related to e-commerce, they should consider their product planning in relation to favorable content and value of the product, helping the customers to understand the content and value of the product as customers expect. The companies should understand how to transfer virtual commodities into first-rate service.

In the content and value of the product dimension, supplier system was ranked first, followed by product update, increasing customer value and product planning. This is because supplier system provides the specific measures for selling products and determines the satisfaction of the customers. Meanwhile, the needs of customers change fast and the product update should be instant and attractive in order to meet the customer demands. In addition, the product update should be accompanied by increasing customer value and product planning to promote sales.

In the website content and application dimension, convenient to use was ranked first, followed by website content planning and the fluency of browsing. When companies design their websites, they should ensure the websites are easy to use, have rich content, and provide a smooth browsing experience.

In the internal operations and resources dimension, human resources ranked first, followed by e-commerce team and internal processes. Human resources determine the product, services and the website.

## **5.2 Suggestion**

The study constructed three dimensions of key success factors for e-commerce in the travel industry. In the content and value of product dimension, travel companies should establish a qualified supplier system in the middle and lower reaches and ensure the stability of the supplier system in the long run. Today is an era that requires speed, which stresses efficiency, so it is important to have an instant update for any new products and information. Furthermore, companies should build an index system to monitor the suitability of the product to the market and to be a reference to the update.

In the website content and application dimension, companies should process any customer comments and complaints as soon as possible and evaluate the function and convenience of the website at regular intervals.

In the internal operations and resources dimension, companies should make models of human resources and evaluate the effect of staffing and operation procedures in order to avoid unnecessary waste.

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