

# PREDICTING THE INTENTION TO PURCHASE LEISURE TRAVEL OVER THE INTERNET: A REGRESSION ANALYSIS

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## ABSTRACT

Since the early stages of the development of the Internet there were claims that travel had the potential to become one of the most sold e-commerce products. The reality, however, is that in the first years of the twenty first century only a minority of travel purchasing is conducted over the Internet. This paper aims to contribute to a greater understanding of consumer adoption of e-commerce by evaluating the factors influencing the consumers' intention to adopt e-commerce in the purchasing of leisure travel. A number of variables are used to assess which factors influence the intention to adopt e-commerce, including (1) the attributes of purchasing over the Internet, (2) involvement, (3) travel consumption patterns, (4) the stage in the e-commerce adoption path and (5) demographic variables. Using a self-administered questionnaire, a representative sample of residents in the Borough of Cascais (Lisbon, Portugal) was asked to participate in the study, irrespective of their level of previous experience with technology and e-commerce. The results indicated that relative advantage, involvement, number of journeys abroad and stage in the e-commerce adoption path are significant predictors of the intention to purchase leisure travel over the Internet.

**Keywords:** Adoption, consumer, e-commerce, travel, attitudes, Portugal.

## 1. INTRODUCTION

Since the early stages of the development of the Internet there were claims that travel had the potential to become one of the most sold e-commerce products. Several reasons were advanced to support the assumption that travel would become one of the leading products purchased over the Internet. These include the high levels of adoption of Information and Communication Technologies by the tourism industry and the high

degree of suitability of the tourism product to e-commerce. Given these factors, one should expect a high level of adoption of e-commerce in the purchasing of travel products. The reality, however, is that in the first years of the twenty first century only a minority of travel purchasing is conducted over the Internet. In Portugal, the rate of adoption had been slow and by 2004 only a very small proportion of the travel purchases were undertaken over the Internet. Thus, a greater understanding of the reasons for the lower than anticipated rate of adoption of e-commerce in the purchasing of leisure travel is required. This paper advocates that greater levels of acceptance of the Internet as a means of purchasing leisure travel over the Internet is dependent on the willingness of consumers to use this novel means. Therefore, this paper aims to contribute to a better understanding of the influences on the adoption of e-commerce by evaluating the factors influencing the consumers' intention to adopt e-commerce in the purchasing of leisure travel.

## **2. LITERATURE REVIEW**

Research on the adoption of technology-based innovations has been informed by two main theories: Davis' (1989) Technology Acceptance Model (TAM) and Rogers' (1995) Diffusion of Innovations theory. The Technology Acceptance Model (TAM) was first introduced by Davis and colleagues (Davis 1989) for predicting user acceptance of information systems. Theoretically developed upon Fishbein and Ajzen's (1975) Theory of Reasoned Action, the model posits that two variables fundamentally determine user acceptance of the technology: perceived usefulness and ease of use. Perceived usefulness is the individual's perception that using the information system will improve his/her performance, whereas ease of use refers to the extent to which the individual expects the information system use to be free of effort (Davis 1989; Keen et al. 2004). The TAM has been the most widely used model to study consumer adoption of e-commerce. According to Pavlou (2003) this stems from the fact that e-commerce is heavily technologically-driven and thus researchers have hypothesised that the principles of the model can be applied to e-commerce.

The diffusion and adoption of innovations model concentrates on a specific type of behaviour – innovative behaviour. The decision process associated to the adoption of innovations has been characterised as a special type of hierarchy of effects. Rogers' adoption of innovations process comprises five stages (Rogers 1995): knowledge, persuasion, decision, implementation and confirmation. This process suggests that the adoption of innovation is a complex process, with many variables influencing the adoption decision. During the persuasion stage, the individual evaluates the characteristics of the innovation with a view to forming an attitude about its use. The more the innovation is evaluated as the best course of action, the more positive the attitude will be. In the study of the adoption of innovations, attitude has been assessed in terms of perceived innovation attributes, such as relative advantage, compatibility and complexity.

Given that purchasing over the Internet can be regarded as a new purchasing practice when compared to other modes of shopping (Vijayasarathy 2004), and bearing in mind that using e-commerce requires the use of other innovative technologies, it can be argued that the diffusion and adoption of innovations is an appropriate theory for studying the adoption of e-commerce. The effect of perceived innovation attributes on intention to use and actual usage of e-commerce is one important area of research using the DAI theory. Overall, the results suggest that the perceived characteristics of e-

commerce do affect its adoption (Eastlick and Lotz, 1999; Verhoef and Langerak, 2001; Eastin, 2002).

### **3. RESEARCH MODEL AND HYPOTHESES**

General human behaviour models (Fishbein and Ajzen 1975; Rogers 1995) and consumer behaviour models (Howard and Sheth 1969; Engel et al. 1995) regard intention as a critical variable influencing behaviour. Fishbein and Ajzen (1975) define intention as the subjective probability that beliefs and attitudes will be acted upon. In other words, intention refers to a predisposition to behave in accordance to the individual's beliefs and attitudes. While intention cannot be equated with behaviour, a person's behaviour is determined by his intention to perform the behaviour (Fishbein and Ajzen 1975). According to Rogers (1995), the verdict about adopting, rejecting or postponing adoption is translated into an intention to use the innovation.

When attempting to understand the determinants of intention to perform a behaviour, one of most important tasks is the identification of those variables that can potentially explain the acceptance of e-commerce. The literature is fertile in highlighting the aspects related to the use of e-commerce as a purchasing channel as a key determinant of the adoption of e-commerce. Virtually all studies attempting to understand the factors influencing the adoption of e-commerce contend that the factors pertaining to the act of purchasing over the Internet are a key determinant. These include attributes of e-commerce, as well as personal characteristics of the individual in relation to the adoption of e-commerce (e.g. level of involvement). However, the number of researchers have pinpointed other important of factors beyond those related to the act of purchasing over the Internet is growing. Two of such factors are the product-related behaviours and the factors related to the adoption of technology. The theoretical model tested in this paper is graphically presented in Figure 1. The rationale for the inclusion of the variables in the present study is the focus of the remainder of this section.

#### **INSERT FIGURE 1 HERE**

#### **3.1 Attributes of e-commerce**

Rogers (1995), following a thorough review of studies on the attributes of innovations, concluded that there would be a set of perceived characteristics of innovations, not a single one, which would have impact on the rate of adoption. While the number of attributes that have been show to influence the adoption of innovations is high, three of the most frequently used attributes were selected for inclusion in this paper: relative advantage (Childers et al. 2001; Eastin 2002; Worthy et al. 2004; Chang et al. 2005), complexity (Childers et al. 2001; Chen et al. 2002; Vijayasathy 2004) and perceived risk (Eastlick and Lotz 1999; Eastin 2002; Pavlou 2003; Chang et al. 2005). Overall, the higher the perceived relative advantage and the lower the complexity and the perceived risk, the greater the intention to purchase over the Internet.

H1: High levels of relative advantage are related to high levels of intention to use e-commerce

H2: Complexity is negatively related to the intention to use e-commerce

H3: The lower the perceived risk, the higher the level of intention to adopt e-commerce

### **3.2 Involvement**

Involvement is usually viewed as the degree to which the characteristics of the behaviour are associated to the needs, values and interests of the individual (Laaksonen 1994). In the case of innovations, a motivational state of involvement toward an innovation could markedly affect the outcomes of its diffusion (Kappelman 1995). Past research in the field of adoption of technology-based innovations suggests that involvement is an important determinant of adoption (Kappelman 1995; Salam et al. 2000). Therefore, the following hypothesis was investigated:

H4: The more involved an individual is, the higher the level of intention to purchase leisure travel over the Internet

### **3.3 Product-related behaviour**

Several authors have pointed out that the adoption of e-commerce is product specific, stressing the importance of considering the product-related behaviours when studying the influences on the adoption of e-commerce (e.g. Peterson et al. 1997; Liang and Huang 1998; Vijayasathy 2002; Chang et al. 2005; Moital 2006). The literature suggests several aspects related to the individual's shopping habits and preferences that can influence the adoption of e-commerce. One such aspect is the frequency of consumption of the product. Past studies have shown that the likelihood of using the Internet for purchasing a product category is associated with frequency of purchase of that product category (Goldsmith and Goldsmith 2002). The more frequent the purchase, the more likely the person is to purchase over the Internet. Based on the above argument, the following hypotheses were examined in relation to the travel consumption behaviour of the respondents:

H5: Greater frequency of travelling abroad will positively influence the intention to purchase leisure travel over the Internet

H6: Greater frequency of travelling will have a positive relationship with the intention to purchase leisure travel over the Internet

### **3.4 Stage in the e-commerce adoption path**

The adoption of e-commerce is supported upon the use of technology, notably computers and the Internet. While these can be used for e-commerce purposes, their usage is not restricted to this task. Computers can be used for many purposes, one of which is using the Internet. Similarly, the Internet can be used for several purposes, with e-commerce being one of them. Some users of the Internet go on and use this means to purchase. However, individuals may purchase other products than travel. Therefore, it is reasonable to assume that there is an e-commerce adoption path containing five stages: (1) never used computers, (2) used computers but never the Internet, (3) used the Internet but never purchased, (4) purchased over the Internet other products than travel and (5) purchased travel over the Internet. Given that past research has shown that the experience with computers and the Internet and past e-commerce experience are an importance determinant of adoption (Pavlou 2003; Efendioglu and Yip 2004; Chang et al. 2005), the following hypothesis is investigated:

H7: The further along in the e-commerce adoption path, the higher the level of intention to purchase leisure travel over the Internet

### 3.5 Demographics

The literature on consumer behaviour has also suggested that demographics have an important role in explaining consumer behaviour (Loudon and Della Bitta 1993; Engel et al. 1995). In a similar vein, the adoption of innovations model posits that the demographic characteristics of the individual have an influence on the adoption process (Rogers 1995), while Kardes (1999) argues that many buying habits and spending patterns are related with many different demographic variables. Several researchers have examined demographics in the context of the adoption of e-commerce. Examples of demographic variables include education (e.g. Verhoef and Langerak 2001; Vrechopoulos et al. 2001) and age (e.g. Bellman et al. 1999; Verhoef and Langerak 2001; Goldsmith and Goldsmith 2002). While results have been inconsistent, there appears to be a positive relationship between education and age and the adoption of e-commerce: the higher the age/educational level, the greater the likelihood of accepting e-commerce. Therefore, two additional hypotheses were formulated:

H8: The higher the age, the lower the intention to purchase leisure travel over the Internet

H9: The higher the level of formal education, the greater the intention to purchase leisure travel over the Internet

## 4. METHODOLOGY

### 4.1 Sample selection

A representative sample of residents in the Borough of Cascais (Lisbon, Portugal) were asked to answer a questionnaire covering a number of issues related to the adoption of e-commerce in the purchasing of leisure travel. The sample comprised individuals aged between 18 and 69, irrespective of their previous level of experience with computers, the Internet and e-commerce. Thus, the sample contains individuals who had never used computers, as well as individuals who had purchased travel over the Internet before. Randomly selected dwellings were visited and in each household, the individual whose birthday was nearest was selected to participate in the study. A self-addressed stamped envelop was left together with the questionnaire. A total of 745 residents accepted to participate in the study (i.e. at least provided personal details), from which 693 accepted the questionnaire. From the 303 questionnaires returned, 279 usable questionnaires were coded for data analysis. However, several respondents did not answer to the question focusing on their intention to purchase leisure travel over the Internet and were also removed from further analysis. A total of 244 usable questionnaires were used for testing the hypotheses formulated in this paper.

### 4.2 Study measures

As explained earlier, three perceived innovation characteristics were selected for inclusion in the model. Three statements assessed the *relative advantage* associated with using e-commerce in the purchasing leisure travel over the Internet: the extent to which using the innovation would reduce the use of resources (time), would improve support (quality) and would result in personal enhancement (quality of life). *Complexity* was measured by the means of two items: how complex/simple purchasing leisure travel over the Internet is and how hard/difficult is to learn how to do it. *Perceived risk* associated with using computers was covered by two statements: overall risk ('the probability of not doing the best deal is high') and financial risk ('can loose money').

*Involvement* was measured using a shorter version of the Personal Involvement Inventory (Zaichkowsky 1985). Eight pairs of words were selected based on their suitability for studying the adoption of e-commerce and on their similar meaning both in English and in Portuguese. Finally, intention was measured by one statement: ‘intention to purchase leisure travel over the Internet in the near future (Ajzen and Fishbein 1980). A summary of the variables used, their operationalisation and sources is provided in Table 1.

### **4.3 Data analysis**

Factor Analysis and regression analysis were performed on the 244 usable questionnaires. The attributes of e-commerce (relative advantage, perceived risk and complexity) as well involvement were factor analysed to gauge their convergence. However, since two types of scale were used, separate factor analyses had to be undertaken, one containing the Likert-scale items (relative advantage and perceived risk) and one containing the semantic differential items (complexity). The factor matrix, resulting from a varimax rotated principal axis extraction, indicated good convergent validity of each attribute. Items comprising each attribute loaded on the expected factor and all factors loading were greater than 0.5. The results of both the KMO and the Bartlett’s test of sphericity met the acceptability criteria (Tabacknick and Fidell 1996). Cronbach Alpha was used to test the reliability of the factors. With no exception, all values exceeded 0.6, suggesting acceptable reliability levels (Malhotra 2004).

**INSERT TABLE 1 HERE**

To determine the importance of each factor to the intention to purchase leisure travel over the Internet, a linear regression analysis was performed. Before analysing the results of the regression, the data was checked against several assumptions of regression analysis. All correlation coefficients were lower than 0.7, no VIF value was higher than 10 and tolerance values were all 0.4 or higher, ruling out multicollinearity (Tabacknick and Fidell 1996). Linearity was assessed through an analysis of the Normal Probability Plot. Given that all points lied around the straight line, the assumption of linearity was supported. Finally, there was not evidence of outliers in the data, since no standardise residual of more than 3.3 or less than -3.3 was found and all Mahalanobis distances were below the critical chi-square value of 27.88 (at the 0.001 level of significance).

### **4.4 Profile of the sample**

As far as the characteristics of the sample is concerned (Table 2), the respondents were relatively young (the majority were less than 40 years old). The educational level of the sample was varied, with around 30 percent having completed no more that year 9 and nearly 40 percent holding a university degree. The vast majority of the respondents had travelled in the past three years, however one third had not travelled abroad in the period. The sample also contained a diverse set of respondents in terms of their previous experience with Internet and e-commerce. Nearly 30 percent of the sample had never used the Internet and only a small proportion, comprising slightly more than 10 percent of the sample, had purchased travel over the Internet before.

**INSERT TABLE 2 HERE**

## 5. RESULTS OF THE REGRESSION ANALYSIS

The proposed hypotheses were tested using regression analysis, where intention to purchase leisure travel over the Internet was the dependent variable and nine determinant factors were the independent variables. The results (Table 3) show that, among the three attributes of e-commerce, only relative advantage impacted on intention ( $\beta = 0.288$ ;  $p < 0.001$ ). Complexity ( $\beta = -0.55$ ;  $p > 0.05$ ) and perceived risk ( $\beta = 0.25$ ;  $p > 0.05$ ) were not significant. Thus, while H1 is supported, H2 and H3 are not. The standardized coefficients indicated that the level of involvement had the most powerful influence on the intention to purchase leisure travel over the Internet ( $\beta = 0.369$ ;  $p < 0.001$ ). Therefore, H4 is supported. From the two variables related to travel frequency, total of journeys abroad was found to be an important determinant of intention ( $\beta = 0.153$ ;  $p < 0.05$ ), while total of journeys was not ( $\beta = -0.171$ ;  $p > 0.05$ ). Thus, H5 is accepted but H6 is not. The stage in the e-commerce adoption path was also significant in affecting the adoption of e-commerce in the purchasing of leisure travel ( $\beta = 0.138$ ;  $p < 0.05$ ) and thus H7 is accepted. Finally, the impact of the two demographic variables on the intention purchase leisure travel by the means of e-commerce was not substantial (age:  $\beta = 0.0.17$ ;  $p > 0.05$ ; education:  $\beta = -0.66$ ;  $p > 0.05$ ). Therefore, both H8 and H9 are not accepted. The Adjusted  $R^2$  was 0.404, indicating that the four variables explained about 40 percent of the variance in the intention to purchase leisure travel over the Internet ( $F=18.235$ ;  $p < 0.001$ ).

INSERT TABLE 3 HERE

## 6. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

E-commerce is in its early stages of development and knowledge about the adoption of e-commerce by consumers is still scarce. Greater levels of adoption of e-commerce require a detailed understanding of the factors leading consumers to adopt e-commerce. While travel is one of the most purchased products over the Internet, only a small proportion of the worldwide travel purchases are undertaken over the Internet. The importance of understanding those factors associated to adoption is even more relevant in countries like Portugal, where the levels of adoption of e-commerce in the purchasing of travel are very low. At present, only less than one percent of the population uses the Internet to do it. Using regression analysis, this paper examined the determinants of intention to purchase leisure travel over the Internet. Findings from this study suggest that the intention to purchase leisure travel over the Internet is determined by multiple factors, including the attributes of e-commerce, the consumption of the product category and the developmental stage in the adoption of e-commerce.

Consistent with previous research on the adoption of e-commerce (Eastin 2002; Efendioglu and Yip 2004; Chang et al. 2005), the extent to which consumers perceive e-commerce as encompassing benefits influences their intention to use it. However, the other two perceived innovation attributes, complexity and perceived risk, were not found to explain the residents' intention to purchase leisure travel over the Internet. This is in contrast to the results of past studies, who have found an inverse relationship between complexity (Childers et al. 2001; Verhoef and Langerak 2001; Chen et al. 2002; Vijayarathy 2004) and perceived risk (Liao and Cheung 2001), and intention to purchase by the means of e-commerce. Therefore, the travel industry needs to emphasise the benefits e-commerce before considering the reducing the risk and making

the process simple. The absence of an association between these two attributes and intention is surprising given the characteristics of the travel product. Purchasing travel can be regarded as a high cost purchase (both financially and emotionally) and hence an association between risk and intention was expected. Second, purchasing travel can be a complex process, since there are many products and suppliers available.

Among the four determinants of intention, involvement with purchasing leisure travel over the Internet was the most important predictor. Therefore, raising the level of involvement is an important pre-requisite for increasing the levels of adoption of e-commerce. This finding provides further evidence of the critical influence on involvement on consumer behaviour. Another influence on the residents' intention to purchase leisure travel over the Internet was the travelling experience of the respondents. This provides additional evidence of the relationship between frequency of consumption and intention to use e-commerce in the purchase of the product (Goldsmith and Goldsmith 2002; Girard et al. 2003) However, it was the number of journeys abroad, not the total of journeys, that impacted on the intention to purchase leisure travel over the Internet. Therefore, it appears that further developing the market for international holidays will lead to greater levels of adoption of e-commerce in the purchasing of leisure travel.

The results of this paper further suggest that travel managers need to monitor the experience of residents in relation to their stage in the e-commerce adoption path. It is clear that as more individuals reach stages further along in the path, the levels of intention to purchase leisure travel over the Internet are likely to increase. While travel providers can do little to earlier in the path, the industry should support national policies promoting greater levels of experience with computers and the Internet. The industry's has, however, a key role in moving consumers from the middle to the last stage of the path, through stimulating consumers to try the medium (those who have never used) and by maintaining those that reach the final stage satisfied with their experience.

The results of this paper indicated that age and education are not determinants of the intention to adopt e-commerce. One plausible explanation is related to the specific characteristics of the sample (representative sample of an affluent borough of a southern European country) as there have been suggestions that demographic differences could also be related to the sample being used (Yang and Lester 2005).

It is evident that the number of studies focusing on the adoption of e-commerce in travel is growing. However, most of these have studied intention to make purchases of specific travel products (Wong and Law 2005; Kim et al. 2006). Moreover, these studies have used consumers of a specific component of the tourism product (Kim et al. 2006) or travellers (Wong and Law 2005). Studies attempting to assess the potential of the Internet to be used as a means of purchasing leisure travel based on samples closer to the characteristics of the general population are virtually non-existent. This study is one of the first conducted in this area and provides an additional contribution to our understanding of the factors that determine a person's intention to purchase leisure travel over the Internet.

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Figure 1: Research model of intention to purchase leisure travel over the Internet

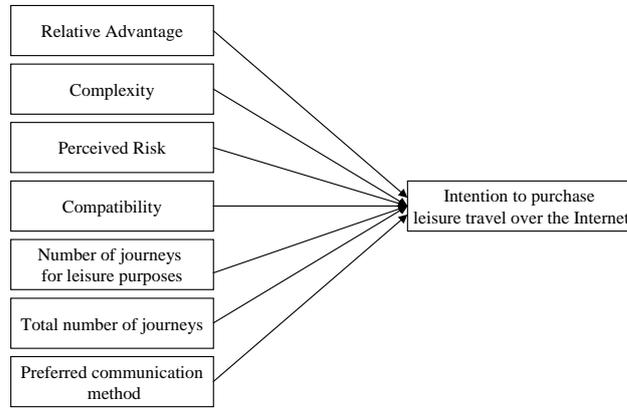


Table 1: Summary of study measures

Variable	Operationalisation	No of Items	Reference
Age	19-29, 30-39, 40-49, 50-59, 60-69	-	Author
Education	Highest education level completed: six years, nine years, A-levels, university degree	-	Author
Travel frequency	Number of journeys: total number of journeys and total number of journeys abroad	-	Author
Stage in the e-commerce adoption path	Four stages: never used the Internet, used the Internet but never purchased using e-commerce, purchased at least one product/service over the Internet but not travel-related and purchased travel over the Internet	-	Author
Relative advantage	Buy faster, buy with more quality, enhance quality of life.	3	Eason (1998)
Complexity	Complex/simple to use, Easy/difficult to learn how to use	2	Strutton et al. (1994)
Perceived risk	Financial risk, overall risk	2	Eastlick and Lotz (1999) Lim (2003)
Involvement	Involvement with purchasing leisure travel over the Internet.	8	Zaichkowsky (1985)
Intention	Intention to use in the short term	1	Fishbein and Ajzen (1975)

Table 2: Profile of the sample (N=244)

Variable	%	Mean (SD)	Variable	%
Age		39.6	Total of journeys abroad	
18-29	25.8		none	34.0
30-39	26.2		one journey	20.5
40-49	23.4		two to four	23.8
50-59	15.6		five or more	21.7
60-69	9.0		Total of journeys	
Education			none	7.0
6 years	12.7		one journey	8.2
9 years	17.6		two to four	28.3
A-Levels	31.6		five or more	56.6
University degree	38.1			
Stage in the e-commerce adoption path				
Never used the Internet				29.5
Used the Internet but never purchased using e-commerce				51.2
Purchased over the Internet but not travel				8.6
Purchased travel over the Internet				10.7

**Table 3: Factors influencing the intention to purchase leisure travel over the Internet (regression)**

Factor	Std. Beta	t	Sig.
Relative advantage	.288	4.081	.000
Complexity	-.055	-.902	.368
Perceived risk	-.025	-.417	.677
Involvement	.369	4.821	.000
Total of journeys	-.071	-1.150	.251
Total of journeys abroad	.153	2.192	.029
Stage in the e-commerce adoption path	.138	1.998	.047
Age	.017	.310	.757
Education	-.066	-1.092	.276

Adjusted R<sup>2</sup> = 0.404  
F=18.235 (p<0.001)