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ABSTRACT

This study develops and tests a model predicting travelers' intent to purchase tourism products and services online using data collected from travelers to Mauritius. Results from the structural equation modeling analysis indicate a good model fit and support four of the five proposed hypotheses. Findings suggest that travelers' perceived usefulness, trust and perceived risks are good determinants of their attitude to e-purchasing which in turn significantly influences e-purchase intent. Theoretically, our model provides a holistic view of the determinants of travelers' e-purchase intent by incorporating the effects of perceived risk and trust with the basic variables of the technology acceptance model in an integrated framework. The managerial implications of the research for online tourism and hospitality vendors are discussed, together with the study's limitations.

Key words: e-commerce; technology acceptance model; trust; risk; attitude; e-purchase intent

INTRODUCTION

Internet technology is one of the most important innovations of the past decades. Shankar, Smith, and Rangaswamy (2003) consider the travel industry as one of the largest industries online. The realization of the remarkable growth potential of tourism e-commerce is very much dependent on travelers' willingness to engage in online transactions to gather information and make purchases. However, despite the apparent blessings that on-line purchasing bring, consumers are often reluctant to engage in simple online transactions (Hoffman, Novak, and Peralta 1999). Unfortunately tourism researchers, scholars, and practitioners do not know enough about the determinants of travelers' e-purchasing behavior. The present study tests a structural model predicting travelers' online purchase of tourism products and services using data collected from travelers visiting Mauritius. The Technology Acceptance Model (TAM, Davis, 1989) informs the structural model of the study. However, despite being one of the most influential theories explaining user acceptance of information technology, (Oh, Kim, Lee, Shim, & Park 2009), researchers argue that TAM has to be extended to provide a more comprehensive understanding of technology acceptance in different contexts

(Morosan, in press). The present study extends the TAM by integrating travelers' perceived risks and trust with respect to e-purchases with the basic variables of the framework (perceived usefulness, perceived ease of use, attitude and behavioral intention). Incorporation of these different streams of literature led to the development of the structural model predicting travelers' intent to engage in online purchases of tourism products and services (Figure 1). In doing so, the study makes some useful theoretical and practical contributions to research on travelers' e-purchase behavior. To-date, researchers have not yet systematically investigated the concept of trust in an online travel context. Furthermore, there is a paucity of research on travelers' trust in the context of online shopping for tourism products and services (Kim, Chung, & Lee, in press). The influence of travelers' perceived risks on their attitude toward e-purchasing has also not been systematically studied by tourism researchers and scholars. The paper argues that this integration allows a greater number of nuances to be captured.

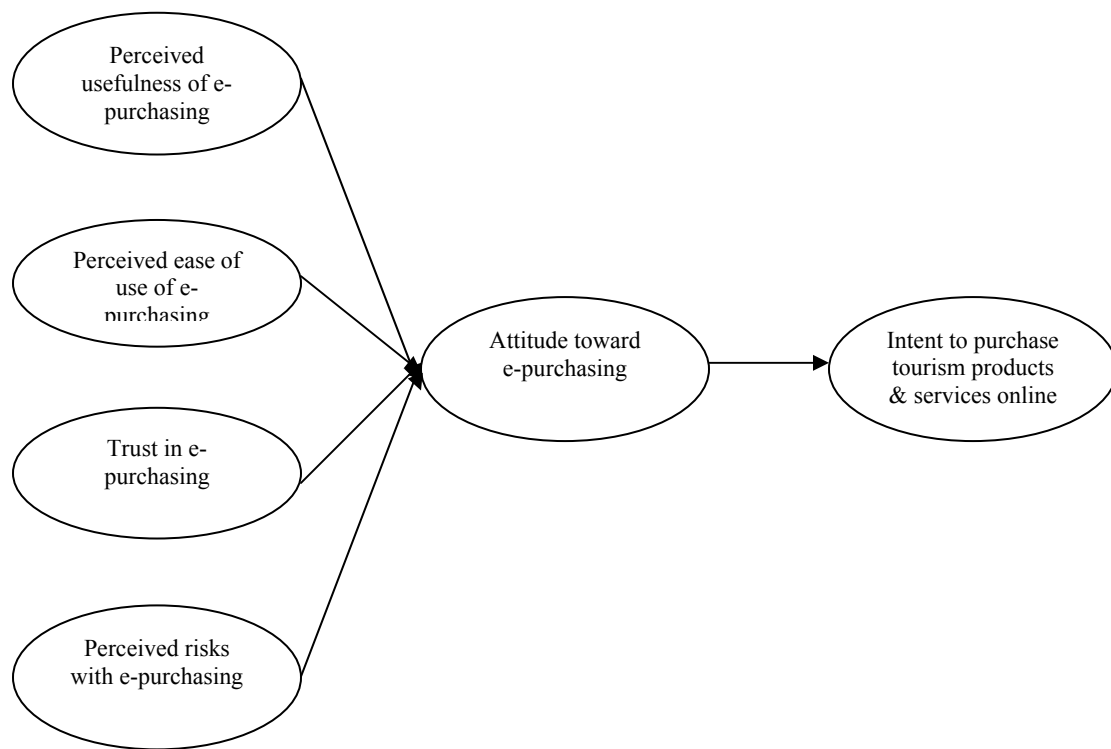


Figure 1. Structural Model Predicting Travelers' E-Purchase Behavior

CONCEPTUAL DEVELOPMENT

Technology Acceptance Model

Scholars have made wide use of the TAM to understand user acceptance of information technology in different situations (e.g. Morosan, in press; Morosan & Jeong, 2008), including online contexts (e.g. Moon & Kim, 2001). Originally introduced by Davis (1989), TAM explains the adoption of a technology via the constructs of attitudes, perceived usefulness, perceived ease of use and behavioral intention. Behavioral intention refers to the likelihood that travelers will purchase a tourism product or service online. Though, it would be ideal to have an

objective measurement of actual behavior, it is usually difficult to obtain one. Evidence suggests that there is a strong relationship between intention to use and actual use and studies have often used behavioral intention as a proxy for actual behavior (Morosan & Jeong, 2008). Attitude is defined in this paper as the travelers' inclination to exhibit a certain response toward tourism online services. It refers to the travelers' general feeling that engaging in online transactions is a favorable or unfavorable action. Favorable attitude toward a behavior results in strong intention to engage in that behavior (Ajzen, 1991). Morosan and Jeong's (2008) findings reveal that users' attitude toward hotel reservation websites influence intention to visit the websites. Based on the preceding theoretical and empirical discussion, the following hypothesis is developed:

Hypothesis 1 (H1): Travelers' attitude toward e-purchasing positively influences their intention to purchase tourism products and services online.

TAM postulates that attitude toward a technology is dependent on its perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness is defined as a traveler's subjective likelihood that e-purchasing will increase his/her performance. Perceived ease of use refers to the degree to which a traveler expects online services to be free from effort (Davis, Bagozzi, & Warshaw, 1989). The relationships between perceived ease of use and perceived usefulness and attitude have been validated in several studies (e.g. Morosan, in press). Based on the postulates of TAM, it is expected that travelers' attitude toward e-purchasing will be favorable if they perceive that purchasing tourism products online will help them to perform a task better (perceived usefulness), is easy to use, and requires little effort (perceived ease of use). The preceding theoretical and empirical discussion from the literature led to the formulation of the following hypotheses:

Hypothesis 2 (H2): Perceived usefulness positively influences travelers' attitude to e-purchasing.

Hypothesis 3 (H3): Perceived ease of use positively influences travelers' attitude to e-purchasing.

Online Trust

Tourism scholars emphasize on the role of trust in the online environment. Studies indicate that trust is an important determinant of users' attitude to e-commerce. Lack of trust is one of the most frequently cited reasons for customers not to engage in online transactions (Wu & Chang, 2006). Online customers are more likely to have a positive attitude toward e-vendors they trust as trust leads to favorable perceptions about the outcome of the online vendors' actions (Cho, 2006). Suh and Han's (2002) findings reveal that customers' trust impacts positively on their attitude toward internet banking. More recently, Zimmer, Arsal, Al-Marzouq, and Grover (2010), and McCole, Ramsey, and Williams' (2010) study findings show that trust in a website positively influences user attitude toward information disclosure and e-commerce. From the preceding discussion, the following hypothesis is developed:

Hypothesis 4 (H4): Trust in e-purchasing positively influences travelers' attitude toward e-purchasing.

Perceived Risks

Consumers often perceive significant risks when conducting online purchases and are often reluctant to engage in e-purchasing primarily due to risk concerns (Zimmer et al., 2010). Since it is often difficult to capture an objective measure of risks, research has typically addressed the notion of perceived risks (Shen & Chiou, 2010). The present study defines perceived risk with e-purchasing as travelers' beliefs about the potential uncertain negative outcomes from an online transaction (Kim, Ferrin, & Rao, 2008). Perceived risks negatively influence transaction intentions (Jarvenpaa & Tractinsky, 1999) and reduces intention to exchange information and complete online purchases (Pavlou, 2003). Based on the preceding discussion, the following hypothesis is formulated:

Hypothesis 5 (H5): Travelers' perceived risk negatively influences their attitude toward e-purchasing.

RESEARCH DESIGN

Study Method and Sample

The study relies on primary data collected from tourists visiting the island of Mauritius between October 2009 and February 2010. A questionnaire was administered to tourists at various tourism sites of the island where respondents were selected on a next to pass basis. The questionnaire was self-administered in nature, originally designed in English and translated into three other languages namely, French, German, and Italian because British, French, Italian, and German visitors constitute the major tourism markets for Mauritius. Only those respondents who had purchased a travel product over the internet at least once were selected for the interview. A total of 451 questionnaires were collected. After eliminating incomplete questionnaires to avoid biased results (Hair, Anderson, Tatham & Black, 1998), 438 valid questionnaires were used for further analysis.

Measurement of Constructs

The scales used to operationalize the constructs were borrowed from previous published studies. All items were measured on a 1-5 Likert scale, with 'strongly disagree' at the low end of the scale and 'strongly agree' at the high end. The constructs e-purchase intent (3 items), attitudes to e-purchasing (3 items), perceived ease of use (3 items), and perceived usefulness (3 items) were measured using scales commonly adopted in previous studies on TAM (Davis 1989; Yu, Ha, Choi, & Rho 2005). Trust in e-purchasing was operationalized using 3 items as suggested by previous studies (Chen, 2006; Kim, Ferrin, & Rao, 2008; McCole, 2002; Wu & Chan, 2006). Five items adopted from Cho (2006) and Flavian and Cuinaliu (2006) were used to measure perceived risks. Table 1 shows the items used to operationalize the constructs presented in the structural model.

Table 1
Properties of the Measurement Model

Constructs and items	Standardized loadings	Indicator reliability	Error variance	Composite reliability	AVE
<i>e-purchase intent</i>				0.82	0.61
I am likely to purchase tourism products over the Internet next time I travel	0.71	0.48	0.52		
It is likely that the Internet will be the medium I use to make online tourism purchases in the future	0.94	0.87	0.13		
I intend to use the Internet to purchase tourism products next time I travel	0.68	0.43	0.57		
<i>Attitude</i>				0.79	0.71
Using the Internet to make travel purchases is a good idea	0.82	0.56	0.44		
My general opinion regarding the e-purchasing of travel products is positive	0.79	0.55	0.45		
Using the Internet to purchase tourism products seems an intelligent idea to me	0.67	0.41	0.59		
<i>Perceived Usefulness</i>				0.81	0.79
Using the Internet to acquire travel products would permit me to purchase more efficiently	0.84	0.62	0.38		
Using the Internet to acquire travel products would permit me to purchase more quickly	0.90	0.75	0.25		
Using the Internet to acquire travel products would be useful	0.92	0.81	0.19		
<i>Perceived Ease of Use</i>				0.77	0.54
Learning to use the Internet for shopping of travel products was easy for me	0.68	0.43	0.57		
Using the Internet to purchase travel products does not require a lot of mental effort	0.85	0.69	0.31		
The Internet would be easy to use to make my travel purchases	0.68	0.43	0.57		
<i>Trust</i>				0.73	0.69
Online sites for tourism purchases are trustworthy	0.83	0.59	0.41		
Online sites for tourism purchases are reliable	0.67	0.41	0.59		
Tourism online sites have integrity	0.61	0.34	0.66		
<i>Perceived Risks</i>				0.89	.070
Conducting online tourism purchases through the Internet is risky	0.85	0.69	0.31		
Using credit cards to purchase tourism products online is risky	0.89	0.70	0.30		
Sending sensitive information through the Internet is risky	0.93	0.85	0.15		
In general, making payments online is risky	0.66	0.39	0.61		

Modeling Process

The structural model and hypothesized paths were tested using the maximum likelihood method of estimation, together with the two-staged process as recommended by Anderson and Gerbing (1988) using the LISREL structural equation analysis package. As recommended by Anderson and Gerbing (1988), a confirmatory measurement model that specifies the posited

relations of the observed variables to the underlying constructs, with the construct allowed to intercorrelate freely was tested. Unidimensionality of each construct in the model was tested before the overall measurement model was evaluated. Table 1 shows that the composite reliability of all constructs exceeded the acceptable level of 0.7. The variance extracted estimate which measures the amount of variance captured by a factor should be equal to 50% or higher (Fornell and Larcker 1981). Table 1 shows the properties of the measurement model.

RESULTS AND DISCUSSION

Sample Description

The sample consisted of 250 male (57%) and 188 female (43%) travelers. The nationality of the travelers was as follows: 122 French (27.9%), 96 British (21.9%), 65 German (14.8%), 58 Indian (13.2%), 39 South African, (8.9%), 33 Spanish (7.5%), and 25 respondents (5.7%) were from other nationalities. The age distribution was as follows: Fifty-three respondents (12.1%) were between 18-25 years, 98 respondents (22.4%) were between 26-35 years, 123 respondents (28.1%) were between 36-45 years, 37 respondents (8.4%) were between 46-55 years, 41 respondents (9.4%) were between the age of 56-65, and the rest was above 66 years of age (86 respondents, 19.6%). The majority of the respondents (68%) indicated that they use the Internet less than 4 hours per day, 23% of respondents had a daily Internet use of between 5-9 hours, while the rest (9%) indicated that they use the Internet for more than 10 hours daily.

Model Fit

The fit statistics of the measurement model indicated that they were all within the acceptance range: χ^2 fit was 253.15 with 148 degrees of freedom ($p = 0.00$); GFI = 0.96; NNFI = 0.95; CFI = 0.97; IFI = 0.94; PGFI = 0.73; PNFI = 0.74; Critical N value = 328.23; RMR = 0.27; SRMR = 0.42; and RMSEA = 0.39 (Table 2). Once it was ensured that the measurement model was reliable, the structural model was tested. Results indicated a robust and statistically acceptable structural model with the following fit indices: $\chi^2_{(153)} = 289.37$ ($p = 0.00$); GFI = 0.96; NNFI = 0.94; CFI = 0.97; IFI = 0.93; PGFI = 0.74; PNFI = 0.75; Critical N value = 321.19; RMR = 0.29; SRMR = 0.45; and RMSEA = 0.42 (Table 2).

Table 2
Fit Indices

Model Tested	χ^2	d.f.	GFI	NNFI	CFI	IFI	PGFI	PNFI	CN _v	RMR	SRMR	RMSEA
Measurement model	253.15	148	0.96	0.95	0.97	0.94	0.73	0.74	328.23	0.27	0.42	0.39
Structural model	289.37	153	0.96	0.94	0.97	0.93	0.74	0.75	321.19	0.29	0.45	0.42

χ^2 , Chi-square; d.f., degrees of freedom; GFI, Goodness-of-fit-index; NNFI, Non-normed-fit-index; CFI, Comparative-fit-index; IFI, Incremental-fit-index; PGFI, Parsimony-goodness of-fit-index; PNFI, Parsimony-goodness of-fit-index; CN_v, Critical N value; RMR, Root mean square; SRMR, Standardized root mean square; RMSEA, Root mean square error of approximation.

Having established the relative adequacy of the structural model's fit, it was appropriate to analyze the path coefficients corresponding to the proposed hypotheses. Findings suggest that with the exception of H3 ($b = 0.06$, $t = 0.42$, $p > 0.05$), all hypotheses were supported at $p < 0.05$ as follows: H1 ($b = 0.53$, $t = 4.62$); H2 ($b = 0.76$, $t = 5.57$); H4 ($b = 0.48$, $t = 3.65$); H5 ($b = -0.34$, $t = -3.92$). Table 3 shows the results standardized coefficients and associated t values for each hypothesized path relationship.

Table 3
Standardized Structural Estimates of Hypotheses

Hypothesized relationships	Estimate s	t-values	Results
H1: Attitude → e-purchase intent (+ve)	0.53	4.62	Supported
H2: Perceived usefulness → Attitude (+ve)	0.76	5.57	Supported
H3: Perceived ease of use → Attitude (+ve)	0.06	0.42	Not supported
H4: Trust → Attitude (+ve)	0.48	3.65	Supported
H5: Perceived risk → Attitude (-ve)	-0.34	-3.92	Supported

Discussion

Results indicate support for four hypothesized relationships. Findings support Hypothesis 1, suggesting that travelers' attitude toward e-purchasing exert a significant influence on their intent to purchase travel products online. Results support those of other studies which further validated the attitude-behavioral intent relationship in an e-commerce context (e.g. Cho, 2006; Hernandez et al., 2009) and the postulates of TAM (Davis, 1989). Results indicate that positive attitude toward e-purchases increases the likelihood of travelers to engage in future e-purchasing of tourism products and services. The findings also suggest that perceived usefulness significantly influences travelers' attitude toward e-purchasing, supporting Hypothesis 2. This finding is coherent with those of previous studies (e.g. Hernandez et al., 2009; Herrero & Rodriguez, 2008) and confirms the importance of the perceived usefulness construct in explaining users' attitude toward e-purchasing. Hypothesis 3 which postulates that perceived ease of use influences travelers' attitude toward e-purchasing is rejected. This finding is consistent with the results of previous studies (e.g. Hernandez et al. 2009), but contradicts those of Shen and Chiou (2010) and Cho (2006). The nature of the sample used in the present study can be used to explain the insignificant influence of perceived ease of use on travelers' attitude toward e-purchasing. The sample consists only of travelers who had previous experiences with e-purchases of travel products. Thus, for such travelers, ease of use with respect to e-purchasing may not be important as its significance may have decreased once the travelers had acquired experience of e-purchasing (Davis 1989; Hernandez et al. 2009).

Hypothesis 4 which predicts that trust influences travelers' attitude toward e-purchasing is also supported indicating that higher levels of trust lead to more positive attitude toward e-purchasing. The research joins to support other studies which found support for the relationship between trust and user attitude to e-commerce (e.g. D. J. Kim et al. 2008; McCole et al. 2010). Findings also support Hypothesis 5 which postulates that travelers' perceived risk negatively influences their attitude toward e-purchasing. This finding is congruent with those of Zimmer et al., (2010), and D. J. Kim et al., (2008), but contradicts that of Cho (2006) whose study findings

reveal an insignificant relationship between trust and attitude. Our result confirms the significant negative influence of perceived risk on travelers' attitude to e-purchasing. This may happen when travelers' feel uncertain or experience discomfort of anxiety when using on line services for e-purchases.

CONCLUSION AND IMPLICATIONS

This study develops a model predicting travelers' intent to purchase tourism products and services online and relies on data collected from travelers visiting the island of Mauritius. Eight hypotheses emanate from the structural model and have been tested using SEM. Results from the SEM analysis indicate a good model fit and support four of the five proposed hypotheses. The study's findings contribute both theoretically and practically to the field of travelers' e-purchase behavior. Our model is developed by integrating the basic TAM variables with the literature on users' trust and perceived risks with e-commerce. This integration allows us to develop a unique structural model predicting travelers' intent to purchase tourism product and services, contributing theoretically to research on travelers' online purchase behavior. Most studies on e-commerce adoption have been based on the idea that perceived ease of use and perceived usefulness are the most important determinants of users' attitude to e-commerce (Hernandez et al., 2009). However, our study demonstrates that perceived ease of use is not a good predictor of attitude toward e-purchasing, probably because the travelers' had previous experiences with online purchases. Our findings suggest that travelers' trust and perceived risks with e-purchasing are important determinants of their attitude to e-purchasing. Our study makes an important theoretical contribution to travelers' e-purchase behavior. It also contributes to the limited number of studies on trust in online shopping for tourism products and services.

Practically, the study's findings provide several managerial implications for online tourism and hospitality vendors. Results indicate that travelers' attitude to e-purchasing is a good determinant of e-purchase intent. Thus, tourism and related organizations should focus on those strategies that will improve the attitude of travelers toward e-commerce as it is likely that positive attitude will encourage travelers to purchase online. Our results suggest that travelers' perceived usefulness, perceived risks and trust with e-purchasing are good determinants of their attitude. Organizations should attempt to improve the usefulness of their online websites. Tourism and hospitality online vendors should focus on making e-purchasing a superior way to make purchases and communicate the potential benefits of e-purchasing to their target markets. To improve perceived usefulness, hospitality organizations should enhance the depth of information available on their online purchase websites by integrating other components that are useful to travelers (e.g. hotel reservations, information on nearby attractions, restaurants, maps, and events that might be taking place in the region). Results indicate that travelers' trust and perceived risk in e-purchasing are other important determinants of their attitude. While strategies to improve perceived ease of use is likely to increase travelers' trust in e-purchasing, tourism organizations can adopt a number of other strategies to gain trust and reduce perceived risks with e-purchasing. Online tourism vendors can make their e-purchasing websites more trustworthy by using trust seals (e.g. Trust-e and Webtrust) as a means of reassuring travelers that the sites have been verified by a third party.

LIMITATIONS AND FUTURE RESEARCH AVENUES

The research has a number of limitations that future studies should address. One possible limitation arises from the nature of the sample used. The study relies on data collected from travelers who have already adopted e-commerce for the purchase of travel products. Consequently, the explanatory power of our model can be explained not only by the constructs included, but also by the type of travelers used. Furthermore, our sample is slightly biased toward younger and middle-aged travelers and may not be representative of all travelers, particularly of older tourists who may have higher risks and trust concerns due to their lack of familiarity with e-commerce. Future research should consider testing the model using a sample of inexperienced and senior travelers to understand any possible differences in e-purchase intent. Our model is also based on the assumption that e-purchase intention is closely related to actual behavior. However, intentions and actual behavior might differ and travelers' e-purchase intent may not always reflect their actual behavior. Future researchers should therefore examine how perceived ease of use, perceived usefulness, perceived risks, trust and attitude to e-commerce influence actual behavior. Another limitation relates to the fact that travelers' e-purchase behavior is measured from a general perspective, irrespective of the type of tourism product or service purchased. The types of travel product may modify e-purchase behavior of travelers' because level of perceived risks is dependent on the cost of the product and level of tangibility (Hernandez et al., 2009). Travelers may be more reluctant to e-purchase high-priced or luxury invisible products compared to low-priced ones (M. J. Kim et al. in press). Future studies should take into account the types of travel products and services purchased by travelers online.

Other limitations relate to the way the perceived risks and trust constructs have been operationalized. While a generic approach to their measurement is taken in the study, future research should consider distinguishing between travelers' trust in online vendors and trust in tourism websites, travelers' perceived performance risk, financial risk, privacy risk and psychological risks with e-commerce to enhance the predictive power of the model. Another limitation relates to absence of other constructs not included in the model. Variables such as privacy and security concerns (M. J. Kim et al., in press), perceived self-efficacy, prior acceptance of e-commerce, user satisfaction with the Internet, frequency of Internet use (Hernandez et al. 2009), and relevance of travel related information (Zimmer et al., 2010) are other factors likely to influence travelers' e-purchase intention which future studies should consider. Questions such as 'How does the travelers' culture influence online purchase behavior?' or 'Does the economic status of travelers influence e-purchase intent?' are other potential areas of future research. Longitudinal studies should also be conducted to investigate travelers' changing online purchase behaviors.

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