Using the Unified Theory of Acceptance and Use of Technology to Explain E-commerce Acceptance by Jordanian Travel Agencies

by

Dima Dajani

Al-Zaytoonah University of Jordan, Jordan

This study examines the possibility of adapting a technology acceptance model designed in the context of the developed world to a developing nation. Jordan will be used as a case study for this purpose because it experiences similar challenges and opportunities that other Arab countries encounter in their technology acceptance. Qualitative and quantitative techniques were used to collect data for this research. The results indicated that performance expectancy, effort expectancy, social influence, competitive pressure and facilitating conditions had a positive impact on intention to use e-commerce. In contrast, perceived risk, government support and compatibility had insignificant relationship with behavioral intention. Furthermore, the result pointed out that age and gender did not affect the relationship between performance expectancy, perceived risk and behavioral intention.

1. Introduction

The use of information technologies is vital for the sustainable development of the economies of developing countries. Bowonder et al. (1993) recognized the importance of IT and its implications for developing countries. They argued that the developing countries need to understand the persistent nature of changes created by new IT applications and the consequences of not keeping pace with the changes occurring in the developed world. Lightner et al. (2002) underlined its importance and indicated that with the globalization and the increased use of e-commerce, it is imperative to ensure that these systems can be effectively used across cultural boundaries.

This implies that the global digital gap between the developed and developing countries should decrease. The world is a global market today; both firms and consumers in developed countries would like to exchange information, products and services with their counter parts in the developing countries. Therefore, Elbeltagi et al. (2005) underlined the importance of understanding the drivers behind technology adoption in developing countries to help companies remain competitive in the global market.

While e-commerce has become a significant driver of change in business practice, there have been few studies relating to its acceptance in developing countries, specifically in the Middle East area, and more particularly in Jordan. The limited research on technology acceptance in the developing countries indicates conflicting results with regards to the appropriateness and predictive power of these models in the developing countries (Abu Shanab et al., 2010; Bandyopadhyay and

Fraccastoro, 2007; Lin and Bhattacherjee, 2008). Researchers explain that the culture of a specific country and the type of technology investigated are the reasons behind this inconsistency (Steers et al., 2008; Abu Shanab et al., 2010). Therefore, one of the objectives of this study is to validate and test the appropriateness of the Unified Theory of Acceptance and Use of Technology UTAUT) model in a different culture, more specifically Jordan. The literature indicates that this model has not been extensively tested after it has been developed by Venkatesh et al. (2003). Only two studies used this model in the Arab World, namely the work of Al-Gahtani et al. (2007) and Abu Shanab et al. (2010).

Furthermore, despite the fact that the travel industry has a history of being among the first businesses to use particular forms of information technology, for example, computer reservation systems (CRS), followed by the global distribution systems (GDS), there are few studies of technology acceptance in the tourism sector, in both the developing and developed nations. To this date, there are very limited studies that examine technology acceptance in the tourism industry (Mette Hjalager, 2010; Buhalis and Law, 2008). In fact there is no single study that examines technology acceptance in the tourism industry in the Arab World. Therefore, one of the objectives of this study is to examine the factors that affect e-commerce acceptance in Jordanian travel agencies. This study examines the possibility of adapting a technology acceptance model designed in the context of the developed world to a developing nation. Jordan will be used as a case study for this purpose because it experiences similar challenges and opportunities that other Arab countries encounter in their technology acceptance.

2. Review of Literature

The technology acceptance models depend on various theories to explain the use of information technologies, such as the diffusion of innovation theory introduced by Rogers (2003), the theory of reasoned action by Fishbein and Ajzen (1975), the theory of planned behaviour introduced by Ajzen (1985, 1991), and the social cognitive theory presented in the work of Bundura (1977, 1978, 1986). Researchers used these theories as a background to explain the adoption and use of information technologies. Consequently, most of the proposed technology acceptance models used the behaviour intention construct as a mediating variable between the independent variables and the dependent variable, or used it as a dependent variable by itself. This implies that these models share the same underlying concept in explaining information technology use.

The most frequently cited model was the technology acceptance model, originally developed by Davis in 1986 (Davis et al., 1989). Their model suggested that the two main beliefs (e.g. perceived usefulness and perceived ease) affected individuals' attitudes. The attitude construct would determine the behaviour intention and consequently the use of information technology. Later, the construct of attitude was omitted from the model because it did not fully mediate the independent variables (Venkatesh and Davis, 1996). This means that the construct of perceived usefulness and perceived ease of use had a direct effect on behaviour intention without the moderating effect of attitude.

Another important model that explained the use of information technologies was the combined theory of planned behaviour and the technology acceptance model. This model used the independent constructs of TAM (perceived usefulness, perceived ease of use) and the independent constructs of the theory of planned behaviour (subjective norms, perceived behavioural control) to explain the behaviour intention and use of information technology. The technology acceptance model was extended to TAM2 to explain the use of information technologies. Venkatesh and Davis (2000) explained how independent variables (perceived usefulness, perceived ease of use, subjective norms, image, job relevance, output quality and result demonstrability) affected intention to use and usage behaviour of information technologies. To be specific, their model illustrated the major determinants of perceived usefulness and how the perceived usefulness construct affect intention to use information technologies. Furthermore, they showed in their model the moderating effect of experience and voluntariness between subjective norms and intention to use.

The unified theory of acceptance and use of technology operationalized various independent constructs from the aforementioned behaviour technology models. Venkatesh et al. (2003) used the independent constructs of (performance expectancy, effort expectancy, social influence and facilitating conditions) to explain the behaviour intention and use of information systems. In addition, they used the moderating variables of gender, age, experience, and voluntariness to explain technology use.

The UTAUT was validated and examined in different fields and settings. Using the UTAUT for accepting various information technologies was tested in both developed and developing economies, such as the work of Parameswaran et al. (2015), Conrad et al. (2015), Martins et al. (2014), Zhou et al. (2010) and Chan et al. (2010). However, the literature indicated the scarce application of the UTAUT in the context of the Arab World; with the exception of the study by Al-Gahtani et al. (2007) in Saudi Arabia, Abu Shanab et al. (2010) in the banking sector in Jordan, Al-Qeisi (2009), Alawadhi and Morris (2009) in the adoption of e-government in Kuwait and Riffaie et al., (2012) in explaining online banking in Oman. In addition, the literature indicated the scarce application of the UTAUT in the hospitality and tourism field, particularly in e-commerce.

Al-Gahtani et al. (2007) measured the effect of the UTAUT in explaining the behaviour intention and the use of computers in Saudi's organizations. They used the four constructs used in the original UTAUT introduced by Venkatesh et al. (2003). However, they substituted the social influence construct by subjective norms and they used four and three items to measure each construct without clear explanation for choosing these specific items. They concluded that performance expectancy and subjective norms affected the system use. In contrast, facilitating conditions and effort expectancy had no significant effect.

In addition, Abu Shanab et al. (2010) investigated the factors that affect consumers' acceptance of Internet banking in Jordan. They replicated and extended the UTAUT to examine its applicability in Jordan. They investigated the effect of performance expectancy, effort expectancy, social influence and personality dimensions (personal innovativeness, perceived trust, and perceived risk) on the behaviour intention. However, they excluded the construct of actual use and

substituted it by behaviour intention, and some of their constructs were measured by only two items that is not adequate to measure a construct.

In the context of the developing countries, Gupta et al. (2008) examined the adoption of ICT in government institutions in India. They investigated the effect of performance expectancy, effort expectancy, and social influence on the behaviour intention to use the technology. Furthermore, they investigated the effect of facilitating conditions on user behaviour and did not explain how they measured the user behaviour. In their investigation, they used the structural equation modelling to validate five of the major constructs and then used multiple regression analyses for each construct separately using only four measuring items. They found out that performance expectancy, effort expectancy, social influence and facilitating conditions had a positive impact on ICT use, and that gender did not moderate these relationships with behaviour intention.

Bandyopadhyay and Franccastoro (2007) examined the effect of culture through the social influence variable of the UTAUT on users' acceptance of Prepayment Metering System (new innovation in India). In their investigation, they used only three constructs (performance expectancy, effort expectancy and social influence) to test the acceptance of the new technology on a consumer sample. The researchers excluded actual use and facilitating conditions constructs without any justification. The results indicated high discriminant validity between some of the constructs, such as performance expectancy and effort expectancy. Their results indicated that social influence, performance expectancy and effort expectancy were significant determinants of behaviour intention to use the new system.

In addition, Neufeld et al. (2007) integrated the charismatic leadership theory with the UTAUT to examine the role of leaders influencing user adoption of information technology in seven organizations. They used only three items to measure each construct. They concluded that the leadership characteristic was positively associated with increased performance expectancy, effort expectancy, social influence and facilitating conditions perceptions of the system users.

Furthermore, Im et al. (2011) conducted a cross-culture comparison study using the UTAUT model. They examined the UTAUT using data from Korean and American college students and office workers to accept the MP3 player and Internet Banking. The results suggested that the effect of effort expectancy construct on the behaviour intention and the effect of behaviour intention construct on actual use were greater for the American sample. However, they used a student sample that has a different perception on the IT use. In addition, they used three items to measure each construct thus jeopardising the content validity.

With reference to e-commerce use, Qingfei et al. (2008) used the UTAUT to propose a model to understand mobile commerce acceptance and use in China from the consumer perspective. They incorporated different constructs, such as trust, privacy protection, and cost and user satisfaction in their revised model. They also introduced system and information quality, demographic variables and Chinese culture as moderating factors rather than experience and voluntariness.

In addition, Guo (2010) conducted an exploratory study to determine the factors affecting users in B2C e-commerce environment. He criticized the UTAUT and TAM

for excluding the threat appraisal and perceived coping appraisal constructs in their models. The threat appraisal deals with the psychological threats encountered in e-commerce transactions and the perceived coping appraisal is concerned with the users' perceived control over the Internet transactions. These factors affect performance expectancy and consequently behaviour intention in his proposed model.

In the education sector, Anderson et al. (2006) examined the drivers for Tablet PCs (a new technology that is used in higher education) acceptance by business faculties using the UTAUT. Their results highly validated the UTAUT and suggested that performance expectancy and voluntariness were the strongest drivers of technology acceptance when applying the model to business faculty in higher education. Furthermore, Robinson (2006) used the UTAUT to test students' behaviour towards using administrative and instructional technology tools in South-Western University. The results indicated that the students' attitudes and intention to use technology were affected by performance expectancy, effort expectancy and social influence.

The previous discussion illustrates that the UTAUT has not been extensively tested in the Arab world. In addition, the literature indicated that there is limited use of the UTAUT in the tourism sector and in examining e-commerce acceptance. There is an indication that the results of the UTAUT have been conflicting due to the technology being investigated, the methodology of data analyses and the culture of a specific country. To be more specific, results of the UTAUT in the developing countries have been inconsistent (Abu Shanab et al., 2010; Lin and Bhattacherjee, 2008). Therefore, there is a need to examine the UTAUT in Arab countries, such as the case of Jordan.

3. Research Conceptual Model and Hypotheses Formulation

The research conceptual model is partially based on the qualitative interviews and the review of literature and demonstrates six major constructs that are direct determinants of behavioural intention and consequently, intended degree of e-commerce use (see Fig.1). The following section explains the major constructs that determine e-commerce use.

Performance Expectancy: It is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). From the review of literature, it is apparent that this definition is similar to the definitions of perceived usefulness construct in the Technology Acceptance Model, the Combined Technology Acceptance Model with the Theory of Planned Behaviour, and TAM2, extrinsic motivation construct in the Motivation Model, job-fit variable in the Model of PC Utilization, relative advantage construct in the Diffusion of Innovation Theories and outcome expectations in the Social Cognitive Theory. All of these constructs proved to be major determinants of behavioural intention and use of information systems.

Several models illustrated the positive relationship between the constructs related to performance expectancy and behaviour intention to use the information systems. The job fit "measures the extent to which an individual believes that using a PC can enhance the performance of his job or her job" (Thompson et al., 1991, p.

129). The perceived usefulness construct enhances the job performance according to Davis (1989). The relative advantage construct in the diffusion of innovation theory indicates that the positive characteristics of the innovation affect its adoption. Finally, the outcome expectations from using the system affect the intentions to use it (Compeau and Higgins, 1995). Therefore, the higher the advantages that are gained from the system use, the faster the decision to adopt will be. Hence, the following hypotheses are proposed:

H1: Performance expectancy will have a significant positive relationship with behaviour intention to use e-commerce.

Effort Expectancy: It is defined as "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). This definition is related to the definition of perceived ease of use in Technology Acceptance Model (Davis, 1989), and Motivational Model (Van Der Heijden, 2004); complexity construct in the Model of PC Utilization (Thompson et al., 1991) and the Diffusion of Innovation Theory (Rogers, 1995); and ease of use construct in the Decomposed Theory of Planned Behaviour (Taylor and Todd 1995a), and the Combined Technology Acceptance Model with Theory of Planned Behaviour (Taylor and Todd, 1995b). All of these constructs had a positive relationship on the intention to use the system. Therefore the following hypotheses are proposed:

H2: Effort expectancy will have a significant positive relationship with behaviour intention to use e-commerce.

Social influence: is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). Three constructs are related to this definition: the first construct is subjective norm in the theories of Reasoned Action (Fishbein and Ajzen, 1975), Theory of Planned Behaviour (Taylor and Todd, 1995a) and Combined Technology Acceptance Model with the Theory of Planned Behaviour, TAM2 (Taylor and Todd, 1995b). The second construct is social factors in the model of PC Utilization (Thompson et al., 1991), and the third construct is image in the Diffusion of Innovation Theory (Rogers, 1995). All of these constructs had a positive effect on the intention to use the system. Hence, the following hypotheses are developed:

H3: Social influence will have a significant positive relationship with behaviour intention to use e-commerce.

Perceived risk: is an important factor that affects the individual's confidence in their decisions. Risky conditions can be those where the chances of the outcomes are not clear or known (Im et al., 2007). Risk is argued to be a multidimensional construct (Tsaur et al., 1997). For example, Cunningham (1967) and Bettman (1973) developed a plan for identifying the dimensions of risk. Cunningham suggested that certainty and the consequences of an act as two dimensions of the risk factor, while, Bettman suggested that there are two types of risk: the inherent risk and the handled risk. Moutinho (1987) classified the tourists' risks into five dimensions: functional risk, physical risk, financial risk, social risk and psychological risk. Roehl and Fesenmaier (1992) classified tourists' risk into seven items: equipment risk, financial risk, physical risk, psychological risk, satisfaction risk, social risk and time risk. Hence, the following hypotheses are proposed:

H4: Perceived risk will have a significant negative relationship with behaviour intention to use e-commerce.

External Factors: Several external factors affect the intention of individuals to use e-commerce in their organizations, such as government support, competition and external pressure.

Government agencies play a vital role in setting policies that facilitate or hinder the use of e-commerce in developing nations. Government support is defined as the extent to which government facilitates conditions in order to adopt new technologies (Calantone et al., 2006; Looi, 2005). This ranges from lowering the cost of using the Internet and setting up e-commerce facilities to developing e-commerce laws for different sectors and informing people on the advantages of using e-commerce in business activities (Calantone et al., 2006; Looi, 2005).

Furthermore, competitive and external pressures are important factors that affect the adoption of innovation at organizations (Looi, 2005; Hsu et al., 2006). It is rivalry that encourages firms to be more innovative and to increase the rate of innovation adoption (Premkumar and Roberts, 1999). Research on communication technologies indicated that the existence of these technologies is a necessity to compete in the market place (Premkumar et al., 1994). Hence, the following hypotheses were developed:

H5: Government support will have a significant positive relationship with behaviour intention to use e-commerce.

H6: Competitive pressure will have a significant positive relationship with behaviour intention to use e-commerce.

Organizational Factors: The organizational factors relate to two major constructs that affect the use of e-commerce at the travel agencies, namely facilitating conditions and compatibility. Resource-facilitating conditions refer to the availability of the financial and technology resources at an organization that have a positive effect on the intention to use the technology system (Taylor and Todd, 1995a). In addition to the facilitating condition construct, compatibility of the technology with the values, needs and culture is an important factor that affects the adoption of new technologies at organizations. Rogers (1995, p. 15) defined compatibility as "the degree to which an innovation is perceived as being consistent with the existing values…." He clarified that when the innovation is well-matched with the values and the culture of a certain society, it will be adopted easily. Similarly, Tornatsky and Klien (1982) concluded that the compatibility of the innovation with the users' norms have a positive influence on the adoption. Hence the following hypothesis is developed:

H7: Facilitating conditions will have a significant positive relationship with behaviour intention to use e-commerce.

H8: Compatibility with values, beliefs and preferred work practices will have a significant positive relationship with behaviour intention to use e-commerce.

Behaviour Intention: It is defined as a "measure of strength of one's intention to perform a specific behaviour" (Fishbein and Ajzen, 1975, p. 288) and is a useful predictor of how individuals will behave in the future. Behaviour intention is considered as an important mediator in the relationships between the independent variables and the use of the information systems. From the review of literature, all of the technology intention models illustrated the positive relationship between behaviour intention and intended use.

H9: Behaviour intention has a significant positive relationship with the intended degree of e-commerce use.
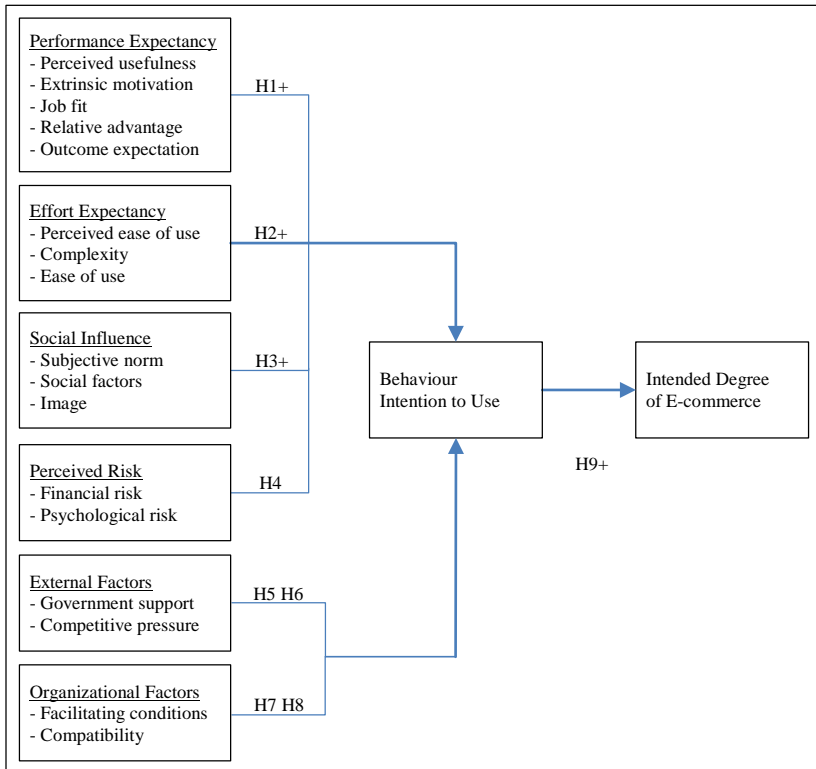

Figure 1. Conceptual Model

4. Methodology

4.1 Research Sample

A list of the total number of travel agencies (330 travel agencies) in the area of Amman was prepared. All of the travel agencies were organized alphabetically in a list with the names of the owners or operating mangers and contact addresses, then each of the travel agencies was assigned a number and entered through statistical

software (Excel) that randomly selected 320 travel agencies (using simple random sample technique). After multiple telephone calls, all of the travel agents were ready to participate with an exception of three travel agents. Two of the travel agents were going out of business, and one did not provide the reason for not participating. This decreased the total sample to 317. Given that only three travel agents did not participate from the desired sample, we can conclude low levels of non-response error (Malhotra, 2004).

4.2 Measurements

A broad set of indicators (items) were generated to measure the model constructs. The measurements of the constructs were derived from the extensive review of literature and the in depth interviews with travel agencies' owners. These items were submitted to a group of experts in multi-cultural and multi-lingual contexts to comment on their clarity and suitability. This procedure minimized construct bias and item bias that could occur due to the application of measurement developed in a Western culture to an Eastern culture without careful amendments (Mitchell, 1996; Van De Vijver and Hambleton, 1996). The items that survived this procedure were those incorporated in the questionnaire and represented the measures for the constructs used in this study.

Data was collected from 313 travel agencies in the area of Amman through a questionnaire survey. The survey instrument was despatched following a pilot test. Initial data analysis provided descriptive statistics relating to demographic variables, key informants and actual use of the Internet. The reliability and validity of each construct was established using item-to-total correlations, Fornell and Larcker's (1981) test of validity and exploratory factor analyses. The results of factor analysis were used as inputs in successive multiple regression analyses. E-commerce use was measured by time and frequency of the Internet use.

To calculate the discriminant validity, the researcher calculated the standardized item loadings and error terms for every item and construct in the conceptual model. Then, the researcher calculated the individual AVE for every construct and compared this with the squared correlation matrix as illustrated in table 1. The variance extracted (VE) is the average squared factor loading. The VE should be .5 or above to indicate convergent validity which is the case of all the constructs. In addition, the VE estimates for two factors are greater than the square of the correlation between the two factors and thus provide evidence of discriminant validity (Hair et al., 2006). Furthermore, the AVE values ranged from .50 to .64. These figures are all within the acceptable levels ($\geq$.50), and illustrates a sufficient AVE score (Hair et al., 2006). Furthermore, all squared correlations were lower than the AVE for each construct. This provides evidence of discriminant validity among the constructs in this study (Hair et al. 2006; Fornell and Larcker, 1981). Finally, construct reliability (CR) values ranged from .72 to .83 that provides evidence of adequate convergence or internal consistency (Hair et al., 2006).

Table 1. Squared Correlation Matrix (φ^2)

Measures	X	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Performance expectancy	X1	1									
Effort expectancy	X2	.36**	1								
Social influence	X3	.05**	.08**	1							
Perceived risk	X4	.05**	.31**	.19**	1						
Government support	X5	0.00	.04**	.02**	.16**	1					
Competitive pressure	X6	.35**	.07**	.20**	0.02*	.11**	1				
Facilitating conditions	X7	.31**	.13**	.05**	0.00	0.00	.26**	1			
Compatibility	X8	.03**	.07**	0.00	.13**	.24**	0.01*	.01	1		
Behaviour intention	X9	.47**	.17**	.13**	0.00	.03**	.47**	.29**	.00	1	
Intended degree of use	X10	.19**	.08**	.04**	0.00	0.00	0.12**	0.12**	.05**	.23**	1
VE	$\dfrac{(\sum_{i=1}^{n}\lambda_i^2)}{n}$	.68	.79	.71	.67	.82	.74	.93	.71	.80	.68
AVE	$\dfrac{(\sum_{i=1}^{n}\lambda_i^2)}{(\sum_{i=1}^{n}\lambda_i^2)+(\sum_{i=1}^{n}\varepsilon_i)}$	.50	.50	.51	.56	.50	.50	.64	.51	.50	.54
CR	$\dfrac{(\sum_{i=1}^{n}\lambda_1)^2}{(\sum_{i=1}^{n}\lambda_1)^2+(\sum_{i=1}^{n}\varepsilon_i)}$	.83	.75	.75	.72	.75	.80	.77	.76	.80	.70

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

4.3 Data Analysis and Results

After checking the regression assumptions, multiple regression analyses were carried out using the Enter Method to evaluate and to test the hypotheses. The results indicated a significant model ($F_{8, 304} = 62.639$, $P < .0005$. $R^2 = .622$, Adjusted $R^2 = .612$). The significant variables emerged from the results are shown below:

Table 2. Results of Significant Variables

Predictor Variables	Standardized Coefficients Beta	Sig
Performance Expectancy	.287	.000
Effort Expectancy	.170	.004
Social Influence	.159	.001
Competitive Pressure	.322	.000
Facilitating conditions	.116	.010

In contrast, the perceived risk, government support and compatibility constructs are not significant predictors in the model; hence H4, H5 and H7 are not supported. The following illustrates the results of these predictor variables:

Table 3. Results of Insignificant Variables

Predictor Variables	Standardized Coefficients Beta	Sig
Perceived Risk	.019	.702
Government Support	-.066	.144
Compatibility	.046	.277

In order to test the relationship between the behaviour intention to use e-commerce and Intended actual use of e-commerce, a bivariate regression analysis was carried out. As the name indicates, this analysis is used when we need to analyze the relationship between an independent variable (behaviour intention to use e-commerce) and a dependent variable (intended actual use). The results of the analysis indicate a significant relationship between the two variables ($F_{1, 311} = 93.849$, $P < .0005$. $R^2 = .232$, Adjusted $R^2 = .229$). The beta value in the standardized regression coefficient is .481. This means that behaviour intention contributes around .481 in explaining the dependent variable (actual use of e-commerce). Thus the results support H9 hypothesis that indicates a positive relationship between behaviour intention and actual use of e-commerce.

Table 4. Results of Significant Relationship between Behaviour Intention and Intended Actual Use

Predictor Variables	Standardized Coefficients Beta	Sig
Behaviour Intention	.481	.000

Intended actual use is measured by the frequency of using the Internet to sell tourism products and services online and the time spent on using the Internet. Table 7.6 illustrates that 78.9% of the travel agents will use the Internet from 6–10 times a day to sell tourism services. Furthermore, almost 50% of the sample will use it around 5 hours a day. None of the respondents indicated a rejection to use e-commerce at their travel agencies. These high percentages of use provide an indication of the e-commerce acceptance by the travel agents.

Table 5. Frequency of Using the Internet

Items	Frequency	Percent
Frequency of Use		
Not at all	0	0.0%
1–2 times a month	2	0.6%
1–2 times a week	2	0.6%
1–2 times a day	11	3.5%
3–5 times a day	12	3.8%
6–10 times a day	247	78.9%
More than 10 times a day	39	12.5%
Time		
Never use	0	0.0%
Shorter than 15 min	1	0.3 %
15–30 min	7	2.2 %
30 min 2 hrs	15	4.8%
From 2–3 hours a day	24	7.7%
From 4–5 hours a day	147	47.0%
Longer than 5 hours	119	38.0%

In summary, the results of the multiple regression analyses indicated a significant model and supported most of the theorized hypotheses. The results indicated that hypotheses 1, 2, 3, 6, 7 and 9 are supported. That is, performance expectancy, effort expectancy, social influence, competitive pressure, facilitating conditions and behaviour intention. In contrast, hypotheses 4, 5 and 8 were rejected (perceived risk, government support and compatibility). Furthermore, the results pointed out that age and gender did not affect the relationship between performance expectancy, perceived risk and behaviour intention. However, gender affects the relationship between social influence and behaviour intention and the relationship between effort expectancy and behaviour intention, but not age moderator. Table 6 provides a summary of the findings.

Table 6. Hypotheses: Summary Conclusion

Hypothesis Number	Independent Variables	Dependent Variables	Moderators	Results
H1	Performance Expectancy	Behaviour Intention	None	Accept
H2	Effort Expectancy	Behaviour Intention	None	Accept
H3	Social Influence	Behaviour Intention	None	Accept
H4	Perceived Risk	Behaviour Intention	None	Reject
H5	Government support	Behaviour Intention	None	Reject
H6	Competitive Pressure	Behaviour Intention	None	Accept
H7	Facilitating conditions	Behaviour Intention	None	Accept
H8	Compatibility	Behaviour Intention	None	Reject
H9	Behaviour Intention	Intended Actual Use	None	Accept

5. Discussion

Considering all of the results, it was concluded that the UTAUT, which was originally proposed and tested in developed countries, can also explain e-commerce adoption in Arab countries, such as Jordan. The modified UTAUT explained 62% of intention to use variance, and 23% of actual use variance. These findings are consistent with the limited scholarly work using the UTAUT in the developing countries, such as that of Gupta et al. (2008), Al-Gahtani et al. (2007) and Bandyopadhyay and Fraccastoro (2007).

The research model provides better explanatory power than previous work conducted in developing countries using different technology acceptance models, such as the TAM, to predict e-commerce adoption. For example, Seyal et al. (2004) investigated the factors that influence e-commerce adoption in Pakistan using different constructs, such as organizational culture, management support, government support and perceived benefits of the innovation. Their model explained 47% of the variance in the adoption of e-commerce. This implies that the unified model used in this research provides a higher explanatory power for e-commerce adoption rather than using a simple technology acceptance model to explain e-commerce adoption in the developing countries.

Furthermore, the UTAUT considers the cultural differences between Jordan and Western culture (wherein the UTAUT and most of the technology adoption models originated). The results suggest that adapting to the Jordanian hierarchical managerial style reduced the need of the mangers of the travel agencies to incorporate individual attitudes related to the adoption of e-commerce. This implies that the decision making in Jordanian firms evolves through top management rather than employees. As such, when an organization's top management decides to use a new innovation, his or her decision is unquestionable, and an employee's attitude toward the technology does not mediate the relationship between the independent factors and the actual use.

Therefore, the senior managers and owners of travel agencies have the authority to make innovation-decisions, whereby decisions to adopt or reject innovations are made by a few individuals in an organization, who possess high authority, high social status and excellent technical skills (Rogers, 2003). This result is consistent with the work of Hofstede (2005), who suggested that subordinates expect to be told what to perform in a hierarchical culture, such as in Jordan.

The research model highlights the importance of government support for e-commerce adoption. In particular, the construct of government support was not a significant factor to influence the e-commerce adoption in the Jordanian travel agencies. This means that the Jordanian government does not provide adequate assistance for the travel agents to facilitate the use of e-commerce. This finding is important because it is distinct from the Western cultures, in which government support was not investigated as a possible influential factor on the adoption of new innovation. This might be due to the low level of government support and interference in the Western markets. In contrast, the Jordanian government is responsible for taking decisions related to the technologies that are or are not allowed in the country, and is also responsible for setting up e-commerce laws in the country (INTAJ, 2000). As such, in the view of many Jordanian travel agents, the

government plays a fundamental role in assisting in the adoption of e-commerce, but their performance to-date has been inadequate.

The previous discussion provides evidence that the modified UTAUT is appropriate for the context of developing countries, such as Jordan. In addition, the model could be appropriate for other Middle Eastern countries that are similar to Jordan, such as Lebanon and Syria.

6. Theoretical and Practical Implication

As a contribution to theory, this study is one of the first to examine the modified UTAUT in the hospitality industry in the Arab world. Despite the extensive use of information technologies in the hospitality and tourism sector, only limited studies have recently applied the TAM and its extended versions to evaluate technology acceptance in this sector (e.g. Huh et al., 2009; Kim et al., 2009; Lam et al., 2007; Lee et al., 2006). Thus the application of technology acceptance models in the hospitality and tourism settings is still in its early stages, specifically in the Arab countries. Most of these studies focus on the critical factors influencing user acceptance in different settings in the hospitality industry, but not specifically in the travel agencies (Kim et al., 2009; Lam et al., 2007; Kaplanidou and Vogt, 2006; Wober and Gretzel, 2000). Moreover, none of these studies investigated the role of age and gender as potential moderators on the acceptance of technology. This study is the first to utilize the UTAUT model to analyze the critical determinants of e-commerce acceptance among Jordanian travel agencies. Therefore, researchers need to evaluate the UTAUT in travel agencies in both the developed and Middle East/Arab countries.

The research model adjusts for cultural differences between Jordan and other developed countries where technology acceptance models have been originally formulated. For example, the research model differs by the exclusion of some of the constructs, such as attitude toward adoption that is included in several technology models (e.g. TRA, TPB, C-TPB-TAM) and the inclusion of government support and technological benefits. The exclusion of attitude is consistent with the initial suggestion from Davis et al. (1989) where they have indicated that in certain contexts, attitude has a less important role in technology acceptance. Thus, the exclusion of attitude is appropriate in this study because the decision to adopt technology in the Jordanian travel agencies is made at the top management level. Furthermore, most of the decision makers in the developing and Arab countries might have a positive attitude towards adopting an innovation, but they do not adopt it. This is what Rogers (2003) referred to as the "KAP-gap". In addition, attitudes are believed to be long–term beliefs, and as such, some technology acceptance researchers (e.g. Thompson et al., 1991; Venkatesh et al., 2003) have excluded this construct from their work.

From a methodological perspective, the research considered the specific characteristics of the Jordanian business society that is traced to the Arab Islamic culture. The study indicates the importance of conducting depth-interviews in cross-cultural research to identify the exact meaning of some constructs integrated in the conceptual model, to capture the domain of key constructs investigated in the model (e.g. compatibility), and to include imperative constructs that could affect e-

commerce use in the Jordanian travel agencies (e.g. government support and competitive pressure).

The results of the study provide Arab senior managers and travel agencies owners with useful insights of the factors that could affect the acceptance of e-commerce at their agencies. The study indicates that innovation characteristics, such as performance expectancy, effort expectancy and compatibility can increase the acceptance of e-commerce. Therefore, programmers and designers of tourism websites should pay attention to the usefulness, the ease of use and the compatibility of the system. It is recommended to create websites that are easy to browse, interactive and compatible with the needs of the users so as to help them to understand and find what they are searching for. Furthermore, the language and the instruction of browsing should be easy to understand (Kim et al., 2009; Huh et al., 2009). Software engineers should develop software and programmes that have bi-lingual interface (Arabic and English) to be used and understood by all of the employees in the Arab organizations. Explicitly, user-friendliness of the e-commerce websites is essential to increase employees' acceptance.

Additionally, an important determinant of e-commerce use is compatibility. This implies that travel agents should have websites that are easy to update and flexibly to change. The travel agents should find it easy to update the information on their websites and change or add some tourism packages that are demanded by their clients. This requires Arab website designers to develop websites that are compatible with the needs of the staff in the organization. The websites should contain important and sufficient information that is understood by all of the staff. In addition, the layout, graphics, links and animation should be simple and attractive for both the employees and consumers.

Furthermore, the result of this study shows that awareness of e-commerce benefits and advantages has significant effect on the adoption of e-commerce in the Arab organisations. Therefore, the Jordanian government should launch campaigns illustrating the benefits of using e-commerce for Jordanian organisations. The government should formulate a national plan that increases the awareness and use of e-commerce to the Jordanian organisations and its consumers. The government should invest more in the ICT infrastructure and improve the Internet quality. In addition, the Jordanian government should encourage the development of more network service providers. This will increase the competition among service providers and allow the prices of the Internet to decrease.

7. Conclusion and Future Research

The study reveals that the UTAUT, which was proposed in developed countries, can be used to explain e-commerce use by Jordanian Travel agencies. The modified UTAUT is crucial for assessing the acceptance of e-commerce and other information technologies that are important for the development of developing economies. It explained 62% of behavior intention variance and 23% of intended actual use variance. Furthermore, some constructs showed significant relationship with behavior intention, such as performance expectancy, effort expectancy, social influence, competitive pressure and facilitating conditions. While the constructs of

perceived risk, government support and compatibility had insignificant relationship with behavior intention.

Despite the study's contributions and practical implications, it has also several limitations and unexplored future research directions. Evaluating the modified UTAUT with a broader sample (in other Arab countries, such as Syria, Egypt and Lebanon) could considerably increase the generalizability of the results. In addition, future research efforts in Arab countries should examine the conceptual model in other tourism sectors or in other industries to assess the extent to which these findings can be generalized since the application of the Unified theory of Acceptance and Use of Technology model is very minimal. Future research can be built on this study by testing the effect of different moderators such as age, gender and experience on the relationship between the independent and dependent constructs. Lastly, future research can investigate other variables that could explain the intention and use of e-commerce in tourism sector.

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