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STAKEHOLDERS' PARTICIPATION INTENTION TOWARDS A SUSTAINABLE DESTINATION MANAGEMENT SYSTEM

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Abstract: This study aims to predict the intention to participate in the Destination Management System (DMS) among tourism stakeholders in Vietnam. By using and modifying the Unified Theory of Acceptance and Use of Technology (UTAUT) for organisational level, this paper will identify and empirically examine factors that influence various stakeholders that are potential users of DMS to adopt and accept a comprehensive national DMS in Vietnam. A convenience sampling method was used to collect data from tourism-related stakeholders in Vietnam. 301 questionnaires were used in the study. This data was analysed using structural equation modeling with Smart PLS. The results showed that the important predictors of the tourism stakeholder's participation in the DMS included social influence, government regulations and technology awareness. Interestingly, technology awareness was found to mediate the relationship between performance expectancy, social influence and the intention to participate in the DMS. The study provides recommendations to DMS developers, potential DMS managers and national tourism authorities in developing a sustainable destination management system, and highlights limitations of the study as well as suggestions for future research.

Keywords: Sustainable tourism, destination management system, UTAUT, technology adoption, Vietnam.

Introduction

New technologies and innovation are critical to successful tourism destinations and sustainable tourism development (UNWTO, 2018). A series of opportunities in tourism have been created by the rapid development of information and communications technology (ICT) (UNWTO, 2018). Buhalis *et al.* (2011) assert that a destination's strategic positioning and competitiveness will be improved, as well as its benefits from tourism will be maximised, if advanced ICTs, especially Destination Management System (DMS) is adopted.

DMS provides a flexible and profitable communication bridge and a strategic management tool and, therefore, it becomes an essential tool for both tourism demand and supply. DMS can integrate all destination stakeholders as well as bring the destination to the global market at anaffordable cost andenhances the destinations' long-term competitiveness and sustainability (Buhalis *et al.*, 2011). DMS is also able to harmonise all the needs of stakeholders in the destination (Martins *et al.*, 2013). For tourism departments, the DMS will help to accurately understand the demand of enterprises and tourists and subsequently, reasonably allocate tourism resources. For tourism enterprises, the DMS will help to know the tourists' demands. Consequently, they can design and develop better tourism products to attract tourists. As for tourists, they can obtain information, virtually tour a destination and provide market information feedback (Zhengjie *et al.*, 2013). Via DMS, local communities can engage in the creation and promotion of the destination image and resources; they can also participate in the tourism development policymaking and implementation processes (Sigala, 2011).

Moreover, the DMS enables destinations to have a more powerful and sustainable competitive advantage in the future, as it becomes increasingly complex based on emerging technologies over the years (Buhalis & Wagner, 2013). Aurélien and Desiré (2014) highlighted that DMS provides an accurate and up-to-date comprehensive electronic database. It can help increase the number of visitors and attract the right market segment. DMS also aids in the wide distribution of destination information online. DMS can make a long-term positive impact on the local economy in achieving competitiveness and sustainable tourism development with the creation of effective internal and external networks with partners and customers. Furthermore, DMS contributes to the destinations' sustainable competitiveness and development by conveying travel information distribution, planning, fulfilment, and also travel- related education and entertainment (Valčić & Domšić, 2012). Ali and Frew (2014) found that destination already engaging with a DMS, considered it a primary investment for sustainable tourism. For those who have never engaged with a DMS, this system is considered as a new way to manage sustainable tourism. Notably, comprehensive information provided by a DMS will help tourists understand the destination better and encourage them to have more sustainable behaviours and attitudes at the destination (Ali & Frew, 2014).

In Vietnam, the importance of ICT in tourism development has been realised since the early days of the Internet. ICT has been acknowledged as one of the significant contributors to Vietnam's tourism achievements. In addition, ICT had a significant roll in solving Vietnam tourism's current limitations and weaknesses in terms of quality of service, management and marketing, and enhanced sustainable development (Vietnam National Administration of Tourism [VNAT], 2018a). Notably, VNAT was one of the first three organizations to have websites operating in Vietnam since the country started having Internet connection in 1997. However, the level of ICT adoption in Vietnamese tourism is still lagging in terms of developing a DMS for the country. Currently, VNAT websites show limited services to stakeholders; lack proper reservation and purchase functions and have a fragmented database (Vu, 2018). They lack information on the market trend which is most useful for tourism businesses. These factors have hindered Vietnam from improving its quality of tourism service, tourism marketing and management as well as reaping maximum benefits from tourism and assuring sustainable development (VNAT, 2018a). It has been ascertained that a comprehensive Destination Management System (DMS) will significantly contribute to fulfilling almost all five main tasks and solutions of the master plan on ICT applications for Vietnam tourism in the period of 2018 - 2020 and vision to 2025 (VNAT, 2018b). DMS is also found to be the most suitable tool to address current Vietnamese tourism's limitations and weaknesses in order to enhance sustainable tourism development in the nation. Therefore, developing a DMS is inevitable for Vietnam.

However, researchers reported that implementing a successful DMS is a complex issue (Martins *et al.*, 2013). I Heeks *et al.* (1999) said that when implementing ICT solutions, it is vital to study context-specific strategies and factors because the success or failure of the project is strongly affected by these. Korpelainen (2011) said studies of successful ICT implementation usually reviewed the literature of critical success factors. Similarly, Estēvão *et al.* (2014) found that there is a vast literature on DMS; however, they were often in the form of case studies. Most of them focus on the advantages of DMS to destinations or the prerequisites or barriers to DMS implementation (Estēvão *et al.*, 2014). There is clearly a lack of a specific theory or model to these studies (Korpelainen, 2011). Particularly, for the DMS project, it was found that almost all DMSs failed or faced challenges to succeed because governmental tourism departments often develop the system by themselves with a lack of participation of other stakeholders (Estēvão *et al.*, 2014).

Based on the foregoing discussions, this paper aims to predict the intention to participate in the Destination Management System (DMS) among tourism stakeholders in Vietnam. By modifying the Unified Theory of Acceptance and Use of Technology (UTAUT), this paper aims to identify and examine factors that influence various stakeholders, who are potential users of the DMSs, to participate in the comprehensive national DMS in Vietnam.

Theoretical Background and Research Hypotheses

The Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh *et al.* (2003) developed the unified model through reviewing eight models which explain ICT usage, namely the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), the Motivational Model, Theory of Planned Behaviour (TPB), a model combining TAM and TPB, the model of Personal Computer (PC) utilisation, Diffusion of Innovation Theory (DOI), and the Social Cognitive Theory. The purpose of UTAUT is to explain a user's intention to use ICT and the subsequent user behaviour. The model considers four constructs as direct determinants of user acceptance and usage behaviour: performance expectancy, effort expectancy, social influence, and facilitating conditions. There are four key moderating variables: gender, age, experience, and voluntariness of use.

The UTAUT provides a tool for managers to assess the likelihood of success of a technology's introduction, and to understand the drivers of acceptance in order to design interventions. UTAUT focuses on users who may be less willing to adopt and use new systems (Korpelainen, 2011). In addition, UTAUT is a theory used for IT adoption at the individual level (Arpaci *et al.*, 2012). However, Venkatesh *et al*. (2003, p.470) have suggested for future researchers to enhance the understanding of technology acceptance and usage by taking "the form of additional theoretically motivated moderating influences, different technologies (e.g., collaborative systems, e-commerce applications), different user groups (e.g., individuals in different functional areas), and other organisational factors (e.g., public or government institutions)."

In 2016, Venkatesh *et al.* reviewed the UTAUT literature from September 2003 until December 2014 to understand the latest developments in research on technology acceptance and use. They have found significant theoretical contributions to the technology acceptance and use domain of existing UTAUT extensions with new libraries of context effects and specifying contextual moderations. In order to successfully implement a DMS, with the overarching aim of identifying factors that influence stakeholders participating in the system, the original UTAUT model has been extended and modified for this study at organisational level with additional constructs based on the actual context.

Performance Expectancy

Performance expectancy in the UTAUT model refers to the job performance that the users believe they will achieve when using the system (Venkatesh *et al.*, 2003). This is similar to perceived benefits or usefulness, which is a significant factor influencing the adoption of technological innovations in many studies. Ramdani *et al.* (2009) found that perceived relative advantage significantly influences firms' adoption of enterprise systems. Ifinedo (2011) found that perceived benefit was the most important predictor of Internet and e-business technologies (IEBT) acceptance among small and medium enterprises in Canada. Lin (2014) revealed that perceived benefits have a significant role in decisions to adopt electronic supply chain management system (e-SCM). Perceived advantages of cloud computing (CC) significantly and positively affected firms willing to adopt it (Amini & Bakri, 2015). Leung *et al.* (2015) found that expected benefits were the main criterion in determining the ICT adoption of a hotel. The researchers believed

that future users would be interested in the system if its benefits of competitive advantage are explored, such as the use of pricing, product or distribution strategies; the use of e-CRM (Customer Relationship Management) to seize opportunities; the use of product-cycle management, entering new markets and new customers (Buhalis & Wagner, 2013); increasing the number of the bookings; expanding markets (Sigala, 2014); reducing seasonality, costs of IT, distribution, and commission (Buhalis & Spada, 2000). Hence, the following hypothesis is suggested:

H1: Performance expectancy has a positive influence on the intention to participate in DMS.

Effort Expectancy

Effort expectancy in the UTAUT model refers to the ease of use of the system that the users perceived or expected (Venkatesh *et al*., 2003). The system should be easy to understand, navigate and operate. The users should be provided all information that allows them to solve problems encountered and carry out transactions with no need for any professional help. These features were rated very important for DMS (Buhalis & Spada, 2000). In terms of Information System (IS) success, DeLone and McLean (2004, p.41) suggested that "a website must be easy to use and available whenever the customer wishes to access it." In addtion, DMS needs to have functions that support local tourism suppliers to easily update the content (Zehrer *et al.*, 2005). Aurélien and Herinandrianina (2014) suggested that ease of use might influence the adoption of DMS, as the respondents mainly focus on this characteristic. As a comprehensive DMS is relatively new to tourism stakeholders in Vietnam, therefore, it is important to find out how they perceive the importance of ease of use of the DMS that will lead to their intention to use. Thus, the following hypothesis is suggested:

H2: Effort expectancy has a positive influence on the intention to participate in DMS.

Social Influence

Social influence refers to the extent an individual can affect someone's belief and ability to accept and use the new technology (Venkatesh *et al*., 2003). Past studies also indicated the direct relationship between social influence and behavioural intention towards the consumption of a particular technology (Venkatesh *et al*., 2003). Alraja (2016) found that social influence has a significant positive influence on employees in adopting and implementing e-government. Similarly, social influence was found to be an important influencing factor in the intention to use Point of Sale terminal (Abubakar & Ahmad, 2014) and the use of open data technologies (Zuiderwijk *et al.*, 2015). However, in contrast, social influence does not have a significant impact on Jordanian customers' intentions and the adoption of internet banking (Abdallah *et al.*, 2018). In this study, social influence is defined as the degree to which the inclinations of important people in an organisation will influence adoption of the system. Moreover, it also examines the level of influence of the top public sector on the intention to participate in DMS in organisations. Therefore, the following hypothesis is proposed:

H3: Social influence has a positive influence on the intention to participate in DMS.

Facilitating Conditions

Facilitating conditions is a construct identified by Venkatesh *et al*. (2003) and refers to the available organisational and technical infrastructure to support the users to use the system. However, in this study, with the purpose of the model is used for organisational level, government regulations are considered as facilitating conditions for tourism organisations to participate in the DMS in Vietnam. Government regulations construct is a factor extracted from the external environmental context of the Technology - Organiz ation - Environment (TOE) framework introduced in Tornatzky and Fleischer (1990). The construct is proposed for this study based on the important role of the government's orientations and policies in the industry

development in general and particularly in ICT for tourism development, especially in the master plan on ICT applications for Vietnam tourism in the period of 2018 - 2020 and vision to 2025 (VNAT, 2018b). Moreover, governments have a significant influence on the adoption and success of inter-organisational information systems through planning, regulation and incentives, which can increase electronic transaction security and credibility (Bédard *et al.*, 2008), particularly in supporting tourism businesses to adopt information system technologies (Eraqi & Abd-Alla, 2008). Buhalis and Spada (2000) suggested that incentives should be given to tourism organisations to adopt technologies such as DMSs. Laws and regulations may have a strong impact on the adoption of new technologies (Amini & Bakri, 2015). For example, the government's policy that provides tax allowances to companies dealing with online-business has reduced barriers for entrance into the market (Vukadinović & Knežević, 2016). Hence, the following hypothesis is proposed:

H4: Government regulations have a positive influence on the intention to participate in DMS.

Mediating Variable - Technology Awareness

Technology awareness is defined as "user's knowledge about the capabilities of technology, its features, potential use, and cost and benefits, i.e., it relates to awareness-knowledge" (Nambisan *et al.*, 1999, p.372). In their study, Nambisan *et al.*, (1999, p.372) constructed it a s "technology cognizance" and considered it as "the foundation for the initiation process". They postulated that in the initial stage of an information system, if users are clear about the technology, its functions and environment operating system, then they will actively be involved in the system (Nambisan *et al.*, 1999). Ndou and Petti (2007) postulated that perhaps due to insufficient awareness of the potential benefits of technologies, tourism companies have limited use of ICT and limited adoption of e-business. It may result in challenges in the successful implementation of DMS in destinations. The researchers stated that stakeholders need to be clear about the impacts and benefits of the initiative before they apply. Even if it is a simple solution, it is also not automatically adopted without awareness (Ndou & Petti, 2007). "A lack of know-how within the destination" is one of challenges that need to be overcome when implementing DMS (Buhalis & Wagner, 2013, p.128). Aurélien and Herinandrianina (2014) corroborated that Destination Management Organizations (DMOs) would adopt DMS quickly if they are fully aware of its value. As mentioned above, DMS is relatively new to tourism stakeholders in Vietnam, it would, therefore, need to find out how they are aware of DMS that will lead to their participation. Based on the foregoing definitions and discussions, technology awareness in this study is considered as the extent to which an organisation is aware of the features, costs, benefits and operations of DMS. The following hypotheses are proposed:

H5: Technology awareness has a positive influence on the intention to participate in DMS.

H6: Technology awareness mediates the relationship between performance expectancy and the intention to participate in DMS.

H7: Technology awareness mediates the relationship between effort expectancy and the intention to participate in DMS.

H8: Technology awareness mediates the relationship between social influence and the intention to participate in DMS.

H9: Technology awareness mediates the relationship between government regulations and the intention to participate in DMS.

Conceptual Framework

Based on the extension of UTAUT model, the constructs conceptualised in this model have been contextualised based on contexts of DMS implementation and Vietnamese tourism development. The adaption of constructs in this model has been modified based on the context

of the study area. The detailed descriptions of constructs are provided as above. All the hypotheses are summarised in the conceptual framework in Figure 1.

Methodology

This quantitative research paper is driven by a positivist paradigm and the respondents were industry and business managers or senior staff from tourism management departments and tourism businesses in Vietnam. The hardcopy of the questionnaire was distributed to the respondents who had attended international and national tourism conferences, forums and tourism fairs held mostly in Hanoi and other cities and provinces in Vietnam, from April to September 2019. At these events, there were many tourism organisations from all over the country in attendance. In addition, the softcopy of the questionnaire and the online survey link were emailed to the tourism organisations in the industry list. The questionnaire was first developed in English. Then it was translated into Vietnamese. To verify the correctness of the translation, back-translation method was used (Brislin, 1970 as cited in Venkatesh *et al.*, 2012).

Because the study focuses on all tourism organisations, a convenience sampling method was used. Nine hundred questionnaires (600 hardcopies and 300 softcopies) were distributed and 339 were answered. From the 339 returned questionnaires, after removing straight-lining patterns and outliers, only 301 were employed for data analysis. This study employed structural equation modelling with Smart PLS version 3.2.9 to test the hypotheses. The minimum sample size estimation for this study to use PLS-SEM was checked by using the inverse square root method and by the gamma-exponential method, which was demonstrated to be fairly accurate by Kock and Hadaya (2018). Based on the results of the structural model assessment (Table 7), the estimation calculated by two methods is 160 and 146, respectively, with the minimum absolute significant path coefficient in the model is 0.197, the significant level used is 0.05 and power level required is 0.8 (Kock & Hadaya, 2018). Therefore, the 301 respondents of this study fulfil the minimum required sample size to test the research model.

Measurement of Variables

All items used to measure the constructs in the theoretical framework were adopted and adapted from various studies of DMS and technology adoption literature. The items for performance expectancy was adapted from Sigala (2014) and Lin (2014), the items to measure effort expectancy was adapted from Sigala (2014) and Gorla *et al.* (2010), the items for social influence was adapted from Venkatesh *et al*. (2003), the items for government regulations were adapted from Sigala (2013) and Maina and Nzuki (2015) and the items for the intention to participate in the DMS was adapted from Maina and Nzuki (2015). Each item was measured using a 5-point likert scale (5 = strongly agree; 4 = agree; 3 = neutral; 2 = disagree, 1 = strongly disagree).

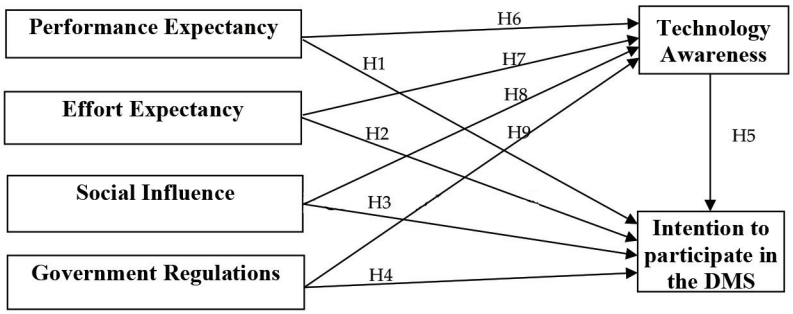

Figure 1: Conceptual framework

Data Analysis and Findings

The data were analysed using Smart PLS version 3.2.9, which is developed by Ringle *et al.* (2015) that is a variance of structural equation modelling (SEM). It is chosen because this work predicts the relationship between the variables in the research model (Hair *et al.*, 2017). Furthermore, Smart PLS is also suitable for data that do not meet the normality requirements. As suggested by Hair *et al*. (2017), the study tests the multivariate normality by looking at the skewness and kurtosis using WebPower software that is available online. Results showed the data were multivariate and not normal as follows: 1) Mardia's multivariate skewness with $\beta = 2.730$ and $p < 0.01$) and 2) Mardia's multivariate kurtosis with $\beta = 50.235$ and $p < 0.01$. Hence, Smart PLS was chosen as it is a non-parametric analysis software.

Table 1 shows the categorisation of the respondents according to the type of organisation. In this study, tourism management departments include Destination Management Organisations (DMOs), tourism site management departments, and other organisations, such as tourism research institutes, tourism schools and tourism associations. Meanwhile, tourism businesses include international and domestic travel agencies, accommodation providers, restaurants and airlines.

Common Method Variance

Common Method Variance (CMV) bias could have been an issue because data were compiled from a single source (Podsakoff *et al.*, 2003). Thus, Harman's single factor test was carried out to examine the CMV to affirm the present study is free from this issue and adequate for inferential. This test checks whether a single factor emerges or account for the majority of the covariance among the measures. A CMV is a problem if the first factor results in more than 50% (Podsakoff *et al*., 2003). The results revealed that the maximum co-variance explained by single factor solution was 30.83%, indicating that CMV was not a severe problem in this study (Table 2).

Measurement Model Assessment

The first test is convergent validity, which reflects whether a particular item measures a latent variable that it is said to measure (Urbach & Ahlemann, 2010). Hair *et al*. (2017) proposed that the loading and Average Variance Explain (AVE) must exceed 0.5, and the Composite Reliability (CR) must reach 0.7 to ensure that convergent validity is established in the model. The analysis confirmed that convergent validity was adequate with loading, AVE and CR values surpassing the recommended values ranging from 0.655 to 0.935, for loading, 0.548 to 0.826 for the AVE, and 0.829 to 0.934 for CR.

Table 1: Respondents according to the type of organisation

Type of Organisation	No. of Respondents	%
Tourism Management Department	157	46.3
Tourism Business	182	53.7
Total	**301**	**100**

Table 2: Harman's single factor solution

Total Variance Explained						
Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative (%)**	**Total**	**% of Variance**	**Cumulative (%)**
1	7.401	30.836	30.836	6.698	27.910	27.910

Thus, it can be confirmed that the measurement model showed evidence of convergent validity. Table 3 and Figure 2 illustrate the result of the measurement model of the study.

The second test is a test for discriminant validity, which ensures all the constructs are unique and captures phenomenon not mapped by other constructs in the model (Hair *et al*., 2017). In this study, the measurement model's discriminant validity is assessed by using two measures: 1) Fornell and Larcker criterion, and 2) Heterotrait-Monotrait (HTMT) ratio.

According to Fornell and Larcker criterion, the square root of the AVE of each construct should exceed the correlations between it and all other constructs in the model (Hair *et al*., 2017). The results of PLS algorithm reveals that the square root of the AVE was higher than the corresponding row and column correlation values of the constructs, which confirmed the discriminant validity of the constructs (Table 4).

Benitez *et al.* (2020) suggest considering the heterotrait-monotrait (HTMT) ratio of the correlations of an HTMT to test discriminant validity. They set the value higher than 0.85 (for conceptually different constructs) and 0.90 (for conceptually similar constructs) indicate there is a severe issue of discriminant validity. The outcomes showed that all HTMT values were below 0.85, and therefore, it is confirmed that discriminant validity is present in this study (Table 5).

Table 3: Measurement model

Construct	Items	Loading	AVE	CR
Performance Expectancy	PE3	0.702	0.548	0.829
	PE4	0.775		
	PE6	0.781		
	PE7	0.699		
Effort Expectancy	EE1	0.829	0.616	0.864
	EE2	0.819		
	EE3	0.824		
	EE4	0.655		
Social Influence	SI1	0.864	0.648	0.880
	SI2	0.846		
	SI3	0.803		
	SI4	0.698		
Government Regulations	GR1	0.836	0.761	0.905
	GR2	0.896		
	GR3	0.884		
Technology Awareness	TA1	0.901	0.774	0.911
	TA2	0.872		
	TA3	0.865		
Intention to participation	INT1	0.935	0.826	0.934
	INT2	0.909		
	INTEN3	0.882		

Note: CR = Composite Reliability, AVE = Average Variance Explain, PE1, PE2 and PE 5 has been removed due to low loading

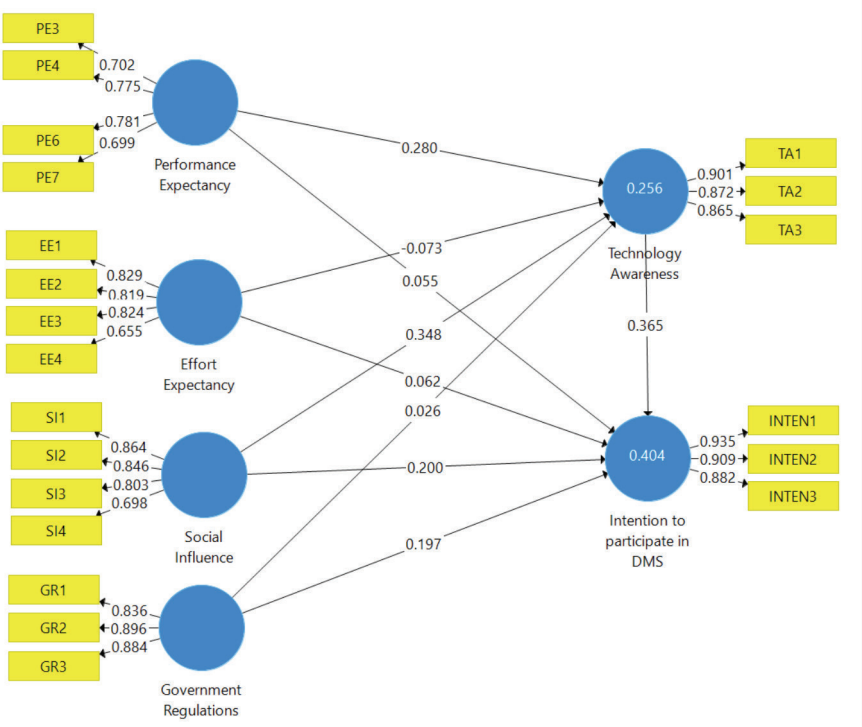

Figure 2: Measurement model

Table 4: Discriminant validity (Fornell-Lacker Criterion)

	EE	GR	INT	PE	SI	TA
Effort Expectancy	**0.785**					
Government Regulations	0.386	**0.872**				
Intention to participate in DMS	0.277	0.395	**0.909**			
Performance Expectancy	0.524	0.301	0.364	**0.740**		
Social Influence	0.244	0.389	0.477	0.384	**0.805**	
Technology Awareness	0.169	0.217	0.529	0.383	0.448	**0.880**

Table 5: Discriminant validity (Heterotrait-Monotrait - HTMT)

	EE	GR	INT	PE	SI	TA
Effort Expectancy						
Government Regulations	0.470					
Intention to participate in DMS	0.322	0.453				
Performance Expectancy	0.667	0.392	0.436			
Social Influence	0.317	0.476	0.553	0.496		
Technology Awareness	0.201	0.254	0.605	0.475	0.530	

Once a measurement model is confirmed, the lateral collinearity test (VIF) was tested to ensure that there is no collinearity issue in the model before proceeding to the structural model. Diamantopoulos and Siguaw (2006) said if the VIF value is higher than 3.3, it has a potential collinearity issue. Table 6 shows that all VIF values are lower than 3.3, confirming that the lateral multicollinearity is not a concern for this study.

Structural Model Assessment

In assessing the structural model, Hair *et al.* (2017) suggested evaluating the path coefficient by applying bootstrapping procedure with a re-sample of 5,000 responses to obtain standard beta, corresponding t-values and confidence intervals. In addition, this assessment also involves evaluating the coefficient of determination R^2, predictive relevance Q^2 and effect size (f^2).

Table 7 shows the PLS estimation results with t-statistics and significance level of the constructs. The results revealed that two hypotheses were not supported (H1 and H2) and the other three hypotheses were supported (H3, H4 and H5). Accordingly, performance expectancy and effort expectancy showed a positive but not significant influence on the intention to participate in DMS and unsupported H1 (PE -> INT, $\beta = 0.058$, t-value = 0.901, significance = $p > 0.01$) and H2 (EE -> INT,

Table 6: Multicollinearity

Construct	VIF - INT	VIF - TA
Effort Expectancy	1.507	1.500
Government Regulations	1.320	1.319
Performance Expectancy	1.632	1.527
Social Influence	1.463	1.301
Technology Awareness	1.344	

Table 7: Path coefficient assessment

Hypothesis	Relationship	Beta	SE	T Value	P Values	LL	UL	Decision
H1	Performance Expectancy -> Intention to participate in DMS	0.058	0.061	0.901	0.367	-0.043	0.158	Unsupported
H2	Effort Expectancy -> Intention to participate in DMS	0.063	0.063	0.976	0.329	-0.037	0.167	Unsupported
H3	Social Influence -> Intention to participate in DMS	0.200	0.055	3.661	0.000	0.109	0.292	Supported
H4	Government Regulations -> Intention to participate in DMS	0.197	0.044	4.528	0.000	0.124	0.268	Supported
H5	Technology Awareness -> Intention to participate in DMS	0.364	0.056	6.535	0.000	0.268	0.453	Supported

β = 0.063, t-value = 0.976, significance = p > 0.01). The intention to participate in DMS was significantly influenced by social influence, government regulations, technology awareness and supported H3 (SI -> INT, β = 0.200, t-value = 3.661, significance = p < 0.01), H4 (GR -> INT, β = 0.197, t-value = 4.528, significance = p < 0.01) and H5 (TA -> INT, β = 0.364, t-value = 6.535, significance = p < 0.01).

Table 8 presents the results of the coefficient of determination (R^2), the effect size (f^2), and the predictive relevance (Q^2) and (q^2) of exogenous variables on the endogenous variable.

The coefficient of determination (R^2) value is 0.404, suggesting that 40.4% variance in the intention to participate in DMS was jointly predicted by performance expectancy, effort expectancy, social influence, government regulations and technology awareness.

Effect size (f^2) was calculated following the criterion suggested by Cohen (1988). Accordingly, the criterion is that effect size (f^2) values accounted large (0.35), medium (0.15) and small (0.02) (Cohen, 1988). The findings show that among the exogenous variables, technology awareness has a medium effect, and all others had a small effect on the intention to participate in DMS.

Predictive relevance of the model is calculated collectively with Q^2, including all factors and at the individual level (single factor) (q^2) by using the blindfolding procedure. The Q^2 for intention is 0.326, which is higher than 0 (Hair *et al.*, 2017), indicating that all exogenous variables have a predictive ability on the intention to participate in DMS. According to Benitez *et al.* (2020), the results of the blindfolding procedure revealed that the predictive relevance of the model almost reached a large level at 32.6%, and confirmed the extension of UTAUT model with the external environment factor in DMS participation context. All exogenous variables had a small level of predictive relevance with the endogenous variable.

Mediating Analysis

The mediating relationship of technology awareness between exogenous variables and the intention to participate in DMS was calculated with bootstrap procedure and was tested with indirect effect. The results revealed that H6 and H8 are supported while H7 and H9 are unsupported.

The indirect effect shows that technology awareness mediates the relationship between performance expectancy and intention to participate in DMS (β = 0.280 x 0.365 = 0.103, t-values of 3.697) was significant at p < 0.001. In addition, the indirect effect with 95% boot confidence interval with lower and upper values (LL = 0.060, UL = 0.149) does not contain zero

Table 8: Coefficient of determination (R^2), effect size (f^2) and predictive relevance (Q^2)

Construct	R^2	Q^2	(q^2)	f^2	Effect Size
Intention to participate in DMS	0.404	0.326			
Effort Expectancy		0.003		0.004	no effect
Government Regulations		0.036	small	0.050	small
Performance Expectancy		0.000		0.003	no effect
Social Influence		0.034	small	0.046	small
Technology Awareness		0.120	small	0.167	medium

Note:

- Effect Size impact indicator are according to Cohen (1988), f^2 value: 0.35 (large), 0.15 (medium), 0.02 (small), less than 0.02 (no effect) (Hair *et al*., 2017)
- Predictive Relevance (q^2) of Predictor Exogenous Latent Variable as according to Benitez *et al.* (2020), q^2 value: 0.35 (large), 0.15 (medium), 0.02 (small)

in between, which indicates significance of the mediating relationship (Preacher & Hayes, 2008) and H6 was supported. Similarly, the significant mediating role of technology awareness between social influence and intention to participate in DMS (β = 0.348 x 0.365 = 0.127, t-values of 4.446) was confirmed at $p < 0.001$ and 95% boot CI values (LL = 0.081, UL = 0.175) does not contain zero in between and H8 was supported (Table 9 and Figure 3).

Discussion

This study aims to examine the critical determinants that affect the decision to participate in Destination Management System (DMS) among tourism stakeholders in Vietnam by employing the UTAUT framework. This study confirmed that the modification of UTAUT model for organisational level with additional constructs of government regulations and technology awareness was theoretically and statistically valid. Results showed that altogether, performance expectancy, effort expectancy, social influence, government regulations and technology awareness explained R^2 of 40.4% variance in tourism stakeholder's intention to participate in DMS. The results identify the important predictors of the tourism stakeholder's participation in the DMS.

The results indicate that social influence, government regulations and technology awareness are significant factors that influence the decision of the stakeholders whether they intend to participate in the DMS . The findings are in line with previous literature that claims that social influence significantly influences Egyptian consumers' intention to adopt B2C e-commerce (Al-sahouly, 2015); government regulations or regulatory support - the support given by the government authority to encourage IT innovation by firms, is one of the important factors in the adoption of Cloud Computing for SMEs (Amini & Bakri, 2015); technology awareness significantly influenced behavioral intention to use Point of Sale terminal (Abubakar & Ahmad, 2014).

Contrary to expectations, effort expectancy did not significantly influence the intention to participate in the DMS. This finding is interesting and in line with the research

Table 9: Mediating relationship of technology awareness

Hypothesis	Relationship	Beta	SE	T Value	P Values	LL	UL	Decision
H6	Performance Expectancy -> Technology Awareness -> Intention to participate in DMS	0.103	0.028	3.697	0.000	0.060	0.149	Supported
H7	Effort Expectancy -> Technology Awareness -> Intention to participate in DMS	-0.025	0.023	1.134	0.257	-0.064	0.012	Unsupported
H8	Social Influence -> Technology Awareness -> Intention to participate in DMS	0.127	0.029	4.446	0.000	0.081	0.175	Supported
H9	Government Regulations -> Technology Awareness -> Intention to participate in DMS	0.009	0.020	0.467	0.641	-0.025	0.041	Unsupported

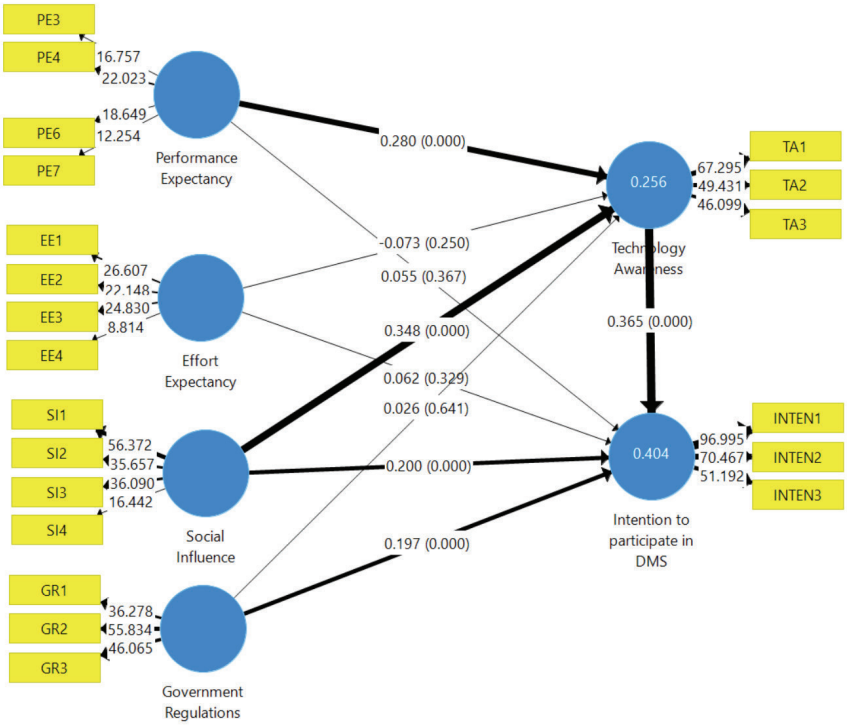

Figure 3: Bootstrapped structural model

carried out by Escobar-Rodríguez & Carvajal-Trujillo (2013), which revealed that there is no significant impact of effort expectancy on online airline ticket purchase intention. Similar to online purchase intention, this is possible because DMS is a web-based application that users can access and use as any other web-based applications, so the users' intention to participate in the DMS is not extensively affected by their effort in using the system. This contradicts some past studies that showed that effort expectancy has a significant influence on the user's intention to adopt internet banking (Rahi *et al.*, 2019) and to use m-learning (Chao, 2019).

Performance expectancy also proved not to be a significant factor in influencing stakeholders to intend to participate in DMS. The finding contradicts previous literature. Perhaps tourism stakeholders do not intend to participate in the DMS due to the limitations of information about DMS, so the expectations from the system were unclear. If they were provided sufficient information about DMS, the findings of this study might be more like those in the previous literature. This can be noticed when technology awareness was introduced as a mediator between the relationship performance expectancy and the intention to participate in the DMS.

It is interesting to note that the direct relationship between performance expectancy and intention to participate in DMS was raised when the mediating variable of technology awareness was introduced. This might be true because when the stakeholders' expectations of performance are more apparent, their awareness of the system will be more clear, then the chance of them participating in the system is relatively higher. In addition, the mediating relationship of technology awareness between social influence and intention to participate in the DMS was also found to be significant, and the finding was in line with that of Abubakar and Ahmad (2014). This study confirmed the mediating effect of technology awareness among performance

expectancy, social influence and stakeholder intention to participate in the DMS.

Conclusion

Implication for Theory

The Unified Theory of Acceptance and Use of Technology (UTAUT) is considered a simple IS acceptance model at the individual level (Petter *et al.*, 2013). However, this original model has been extended and modified for this study at organisational level with additional constructs based on the actual context. This is the significant contribution of the study to the IS adoption literature in general and DMS literature in particular. It helps to understand the main factors influencing various stakeholders in the destination who are potential users of the DMS to participate in the system.

Implication for Practice

The proposed framework was empirically validated and translated into practical results for destinations (in this study, the destination is Vietnam). The empirical investigation helped to understand the factors that influence stakeholders' decision of DMS participation in Vietnam. The findings suggest that the government and especially national tourism authority (in this study is Vietnam National Administration of Tourism - VNAT) should focus on regulation issues that facilitate stakeholders to join the system. Notably, the role of VNAT, which has a strong social influence on the stakeholders' participation in the system, should be given special attention to assure the successful implementation of the system. Moreover, VNAT has to create awareness on DMS to enhance tourism stakeholders' intention to participate in it. Besides, DMS developers should design the system based on the stakeholders' expectations on their performance when participating in DMS.

The results of the study provide useful information for DMOs at provincial and local levels in Vietnam to refer to when they want to develop a DMS. It will be a helpful tool for DMO managers in the decision-making process, as well as their stakeholders in the project of developing a DMS. It also raises the awareness of the system within tourism stakeholders in Vietnam. Therefore, it helps DMOs to understand and know how to best utilize DMS tools and applications to manage and market tourism in their destinations. Besides, tourism-related businesses will know how to reap the benefits of investing in DMS.

Limitations and Suggestions for Future Research

The study was limited to examine five factors (performance expectancy, effort expectancy, social influence, government regulations, and technology awareness) and able to explain 40.4% of the variation in intention to participate in DMS. Therefore, other factors should be identified and researched in the future to get further insight, such as training and cooperation. This will help to explain more comprehensively the intention to participate in DMS of the potential users. In addition, this study identified the factors influencing the stakeholders' participation in a sustainable DMS Future research could focus on the impact of DMS participation on the performance of organisations.

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