A Studying on Factors Affecting Decision to Use Smart Tourism Applications using extended TAM

NGUYEN TRAN HUNG
Thuongmai University, Hanoi
VIETNAM

LE HOANG ANH
Banking University HCMC, Ho Chi Minh City
VIETNAM

DO THI THU HIEN
Thuongmai University, Hanoi
VIETNAM

VU THI THUY HANG
Thuongmai University, Hanoi
VIETNAM

Abstract: - The paper presented the theoretical exten ded accept new technology model (TAM), based on this theory and the results of previous studies, the research has built a model to study the factors impact the decision to use the sm art travel applications in V ietnam. The study identified the following factors: Perceived eas e of use, Perceived usefulness, Social im pact, Self-control, Information security concerns and Service quality affecting the decision to use s mart travel applications. The Hypothesis is tested throug h EFA discovery factor analysis, regression methods performed on SPSS software. From the results, t he study proposes solutions to promote smart applications in Vietnam.

Key-Words: - Extended TAM model; EFA discovery factor; Smart tourism.

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1 Introduction

A smart city is the appli cation of inf ormation and communication technology connecting sensors, high-speed wireless net works, large data processing to improve the quality of life in urban areas, improving the quality of service of th e city. city government, reducing energy consum ption, effective management of natural resources. In general, the assessment of a smart city based on the level of intelligence of the infrastructure that affects transport, health, construction, energy, management, etc. Smart streets, need to build intelligent systems: intelligent transportation sy stem, smart tourism system, smart education sy stem, ... In which the smart tourism system is well-placed. In m any countries, the sm art travel system is represented by smart travel applicati ons. Can understand sm art tourism is a tourism model built based on information and communication technology; help interaction, the close connection between managers, businesses and tourists, to im prove the quality of customer service, while making the management more convenient.

In Vietnam, there have been many cities and provinces applying smart tourism applications: Hanoi, Da Nang, Ninh Binh, Ho Chi Minh City. Besides, there are also se veral cities a nd provinces in the plan to apply smart tourism applications such as Tuyen Quang, Ba Ria - Vung Tau.

According to a survey of Q & M e Market Research Company published in June 2017, 88% of tourists search for information online, of which, 35% regularly use the intern et to search for travel information. There are a variety of potential s mart tourism users in Vietnam. Therefore, the question is that the inter net there are quite a lot of information pages on to urism and there may appear unorthodox websites, so the applic ation of smart travel applications has beco me indispensable in the era of industrial network 4.0.

Accurate assessment of the factors affecting smart travel application decisions will be helpful for all three application providers (Hanoi Department of Tourism, Vietnam Posts and Telecommunications Group), Travel business businesses and app users. Accurately measure the factors that influence the decision to use smart travel applications, help application providers develop their applications in the best way, meeting the needs of people. Thereby attracting more users to choose and use the smart travel application. On the user side, users have more access to the utilities that technology brings to tourism.

Among the provinces and cities that are applying smart tourism applications, Hanoi is the capital of Vietnam with many famous tourist destinations. Specifically, Hanoi has had popular travel applications: Ha Boi City Guide, My Ha Hoi, Trip Hunter, Hanoi Department of Tourism website, … The research topic is aimed at students. Hanoi area. Therefore, the research team decided to choose to deploy the topic: "Application of TAM (Technology acceptance model) to study the factors affecting the decision to use smart tourism applications in the context of Hanoi direction. to build a smart city".

2 The Theory of Acceptance of Technology

The Technology Acceptance Model (TAM) developed by Davis (1989). The TAM adopts the TRA model because of the relationships to explain an individual's acceptable behaviour. TAM has considered as the powerful and meticulous way to represent the antecedent of system usage through beliefs about two construct: 1) The Perceived Usefulness (PU) and 2) The Perceived Ease of Use (PEOU) combined of an information system (Davis, 1989, 1993; Davis et al., 1989, 1992). PU is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance". PEOU is defined as "the degree to which a person believes that using a particular system would be free of effort"

The attitude toward using is depended by two other factors such as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness is influenced by Perceived Ease of Use. On the other hand, both Perceived Usefulness and Perceived Ease of Use are influenced by external variables (EV). Behavioural intention to use is determined by the attitude towards using the new system. Finally, behavioural intention to use affect to actual use (Davis et al., 1989).

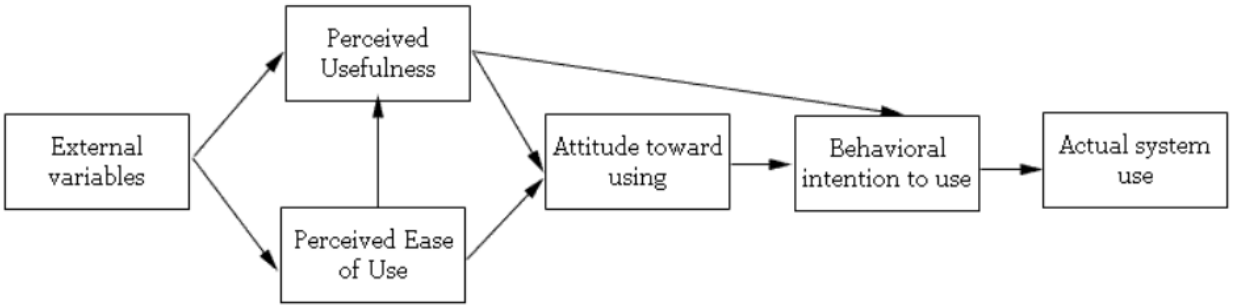

Figure 1. Technology Acceptance Model

Source: Davis et al. (1989)

Many previous types of research have applied TAM that proves the role of this theory. Thus, in the research of Yang et al. (2007), the authors conducted a survey questionnaire to collect citizen' perceived levels of their intention of E-tax. The constructs and questionnaire develop through that collected about technology acceptance model and diffusion of innovation of articles in the last few years. The objects of the survey were the citizen who has experienced tax. The results of this study showed the suitable to apply TAM in E-tax. Thus, the attitude and Perceived Usefulness have a direct influence on the construct behaviour intention, these results suitable with the context of E-tax research from other research such as Hung et al. (2006); Wu et al. (2005); and Chang et al, (2005). Moreover, the construct Perceived Usefulness and Perceived Ease of Use have a significantly positive effect on the attitude toward using E-tax. This result proved consistent with the empirical research by Chang (2005) and Hung (2006). The study confirmed most of the TAM's conclusions in prior studies in applying other Information Technology.

Although TAM has been widely applied to study on smart tourism field, but still meet with so me limitations such as TAM does not capture the characteristics that are s pecific to e-tourism . For instance, in the research of Sun et al. (2007), the authors stated that the ultimate goal of on-li ne Shopping is to entice consumers to shop online, n ot only be a ge neric information system. On the ot her hand, e-tourism is full of uncertainties. It is a reason for the need of adding more factors as antecedents of consumer acceptance. Thus, many studies have been carried out with extension factors.

TAM has been extended by the addition of other constructs such as co mputer self-efficacy Compeau & Higgins, 1995), Internet self-efficacy (Igbaria & Iivari, 1995; Eastin & LaRose, 2000; Joo et al., 2000; Hsu & Chiu, 2004a), subjective norm (Taylor & Todd, 1995a; Venkatesh & Davis, 2000 ; Bhattacherjee, 2000) or play fulness (Liu & Arnett, 2000; Moon & Kim, 2001; Hsu & Chiu, 2004a).

In the previous study, Wixom and Todd (200 5) stated that research ers have sought to extend TAM primarily in one of three following ways: (1) by introducing factors from related models, (2) b y introducing additional or a lternative belief factors, or (3) by examining antecedents and moderators of Perceived Usefulness and Perceived E ase of U se. On the othe r hand, Sh ih (2004) developed an extended TAM model to predict consu mer acceptance of online shopping. The author hypothesized User Satisf action, Web Security & Access Costs, and Percei ved Information Quality, Perceived System Quality, Perceived Services Quality are independent variables, Pikkarainen et al. (2004) studied consumer acceptance of Online Banking in Finland in the light of the TAM added with new variables such as security and privacy, perceived enjoyment, information on online banking, and quality of Internet connection.

Pikkarainen et al. (2004) studied consumer acceptance of online tourism in Finland by adopting the TAM a dded with new variables such a s perceived enjoyment, information on online tourism, security and privacy and quality of I nternet connection. In the stud y in the context of Malay sia about internet banking, th e author examination of individual's perceived securit y and privacy and t he Influence of t his on their i ntention to use e-tourism by using an extension of the TAM, Lallmaham ood (2000) proposed many previous studies with the reason of e xtending TAM, in this resear ch, the author added perceived security and pr ivacy as an independent variable beside Perceived Ease of Use and Perceived Usefulness.

Thus, the use of an extended TAM as a theoretical framework is adopted to e xamine the effect of an e xternal variable on the inte ntion to use e-tourism. In addition to TAM being a widely used and proven model, other reasons for th e adoption of this model are because TAM is si mple and e-tourism is an information system and an application used by many internet users.

3. Research model

Based on Davis' s TAM (1989) model combined with the results of prev ious studies b y other authors, the t eam proposed factors that influence the decision to use sm art travel applications of people. people in Hanoi. Ease of use is the degree of personal confidence in using the application that will bring f reedom of freedo m (Davis, 1989; Davis, 1993). Smart travel application is a new technology application, but this is the application on the ph one or the website so users can use the application without much difficulty. Many studies are showing that ea se of use ha s an impact on users' new technolog y application (Bendegul Okumus & Anil Bilgihan, 201 3; Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang, 2017; Davis, 1989). Therefore, the author proposes the hypothesis:

H1: Perceived Ease of Use (SD) has a positive effect on the decision to use (QD)

Perceptible usefulness is the perception of a customer concerning the potential advantages of their decision. This fact or has been studied in many studies involvin g the application of new technologies. This is co nsistent with previous studies (Bendegul Okumus & Anil Bilgihan, 2013; Changsok Yoo, Shi nhye Kwon, Hyunsoo Na & Byenghee Chang, 20 17; Davis, 1989). Therefore, the author proposes the hypothesis:

H2: Perceptual usefulness (HI) has a positive effect on use decision (QD)

Information quality and service quality are the two factors that can be considered as deciding whether or not users wi ll use the service of a provider. and services that affect user use of the service (Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang, 2017; Le Qu ang Hung, 2017). The following 2 hy potheses have been added to the proposed model

H3: Information quality (TT) received has the same direction of use decision (QD)

H4: Service quality (DV) has the same direction of use decision (QD)

In addition to the above two variables, awareness of preference i s also present in m any

studies on th e application of new technolo gy to know whether users feel like using the application (Bendegul Okumus & Anil Bilgihan, 201 3; Changsok Yoo, Shi nhye Kwon, Hyunsoo Na & Byenghee Chang, 2017)

H5: Perception of preference (UT) has a positive effect on use decision (QD)

The higher the self-control of people, th e more they are inclined to use new technology services or the autonomy positively affects the decision to use new technology services. Research on self-control influences previous use decisions (Bendegul Okumus & Anil Bilgihan, 201 3). Therefore, propose hypotheses

H6: Self-reliance (LC) works in the same direction as use decision (QD)

Social influence or social norm s indicate a user is aware of the other person' s point of view about whether the person should use the ser vice or n ot [1]. Previously, there was also res earch showing that social influences infl uence users' decision to use services (Bendegul Okumus & Anil Bilgihan, 2013)

H7: Social influence (social) impact positively with use decision (QD)

The technological barrier is the develop ment of technology that hinders the user 's easy use of the application; previous research has de monstrated that technological barriers affect the use of technology services. New (Bendegul Okum us & Anil Bilgihan, 2013)

H8: Technological barrier (CN) has the opposite effect of usage decision (QD)

When applying new technology services, what users are q uite worried about is that their information is leaked out, so inform ation security factors also play an im portant role to help researchers apply. New technology com pletes its research paper (Changsok Yoo, Shinhy e Kwon, Hyunsoo Na & Byenghee Chang, 2017)

H9: Information security (AT) has a positive impact on the decision to use (QD)

From the abo ve assumptions, we have the model below:

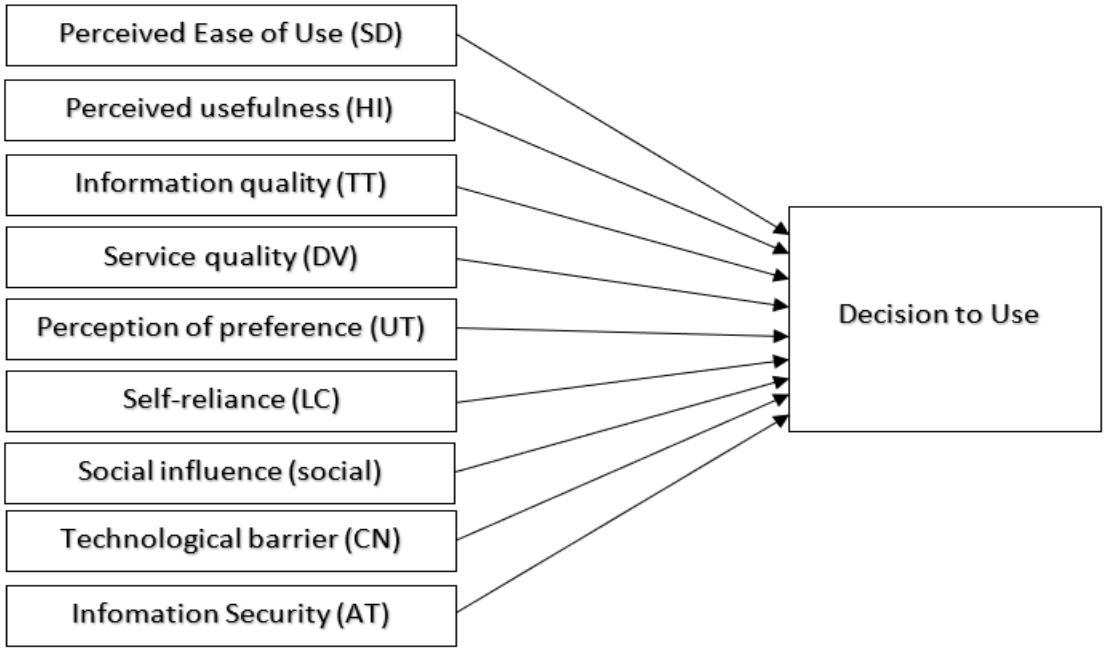

Figure 2. The proposed research model

Explain variables in the model has shown in appendix 1.

4. Research Methods

Questionnaire design: The study was conducted in Likert rank using 5 points.

A convenient sam pling method was used to survey residents using the smart travel application in Vietnam.

Data were collected by questionnaire, coded and processed by SPSS software, fro m which the analysis was performed: Descriptive analysis, Cronbach's Alpha test, EFA discovery factor analysis, feedback analysis. convention.

275 questionnaires were given ou t. Then proceed to receive the answer sheet, clean the information, encode the neces sary information in

the answer sheet, enter and analyze the data using SPSS 20.0 software.

The minimum sample size for exploratory factor analysis EFA is n = 5m , where m is the number of questions in the paper (Hair et al., 1998) . For multivariate regression analysis, the minimum sample size is n = 50 + 8m, where m is the number of independent factors (Tabachnicho Fidell, 1996).

5. Experiment results

5.1. Test the reliability of the scale by Cronbach's Alpha coefficient

The variables SD, HI, TT, DV, AT, XH, CN, LC, UT, and Q D were tested with a scale of Cronbach's Alpha.

In which: LC, QD variable Cronbach's Alpha coefficient is very high, respectively 0.834; 0.865; The variables HI, TT, DV, XH, CN, AT have Cronbach's Alpha coefficient, respectively, 0,790; 0.750; 0.775; 0.781; 0.764; 0.760 are greater than 0.7;

The variable SD has a Cronbach' s Alpha coefficient of 0.6656 greater than 0.6;

The UT variable has a Cronbach's Alpha coefficient of 0.614 and has an item -total correlation of the UT3 variable <0.3, so it excludes the UT3 variable from the observed variable when the UT variable has a Cronbach's Alpha coefficient of 0.754.

On the other hand, all variables (except UT3) have an item-total correlation> 0.3. Therefore, remove the UT3 observation variable to perform EFA discovery factor analysis

EFA discovery factor analysis. After the first analysis results:

Table 1. Analysis results of KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.873
Bartlett's Test of Sphericity	Approx. Chi-Square	2996.304
	Df	406
	Sig.	0.000

(Source: SPSS data analysis results)

Table 2. Rotated Component Matrix

	Component							
	1	2	3	4	5	6	7	8
HI2	.746							
HI1	.743							
UT1	.645							
HI3	.586							
HI4	.583							
UT2	.566							
DV3		.776						
DV1		.706						
DV2		.681						
DV4		.503						
LC2			.707					
LC3			.686					
LC4			.673					
LC1								
XH2				.795				
XH3				.752				
XH1				.685				

TT2					.808			
TT3					.673			
TT1					.659			
AT1						.785		
AT2						.781		
AT3						.587		
CN2							.797	
CN1							.773	
CN3							.594	
SD3								.801
SD2								.762
SD1								.521

(Source: SPSS data analysis results)

KMO index results> 0.5 and Sig. = 0.000 statistically significant, the variables model are correlated.

Table 2 sho ws that all v ariables in the groups have values greater tha n 0.5 and reach reli able values. And for the scale to have statistically significant variables, it is necessary to group:

Group 1 includes the variables: TT1, TT2, TT3;

Group 2 inc ludes variables: DV1, DV2, DV3, DV4;

Group 3 includes variables: AT1, AT2, AT3;

Group 4 includes variables: SD1, SD2, SD3;

Group 5 includes variables: LC2, LC3, LC4;

Group 6 includes variables: HI1, HI2, HI3, HI4;

Group 7 includes the variables: XH1, XH, XH3;

Group 8 includes the variables: CN1, CN2, CN3;

Based on the Total Vari ance Explained table, dividing into 8 gro ups explains 66.530% of the variation of the model.

All Communalities of observed variables have values greater than 0.4. With threshold criteria of Communalities value> 0.4 is acceptable.

5.2. Pearson correlation test results

Based on Cronbach's Alpha test results and EFA discovery factor analysis remove TT4 variables and create representative factors:

SD = Mean (SD1, SD2, SD3);

HI = Mean (HI1, HI2, HI3, HI4);

TT = Mean (TT1, TT2, TT3);

DV = Mean (DV1, DV2, DV3, DV4);

AT = Mean (AT1, AT2, AT3);

LC = Mean (LC2, LC3, LC4);

XH = Mean (XH1, XH2, XH3);

CN = Mean (CN1, CN2; CN3);

QD = Mean (QD1, QD2, QD3, QD4)

Table 3. Pearson correlation test results (Correlations)

		QD	AT	SD	LC	XH	HI	CN	TT	DV
QD	Pearson Correlation	1	.509**	.366**	.610**	.565**	.620**	.461**	.418**	.567**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000
	N	230	230	230	230	230	230	230	230	230

(Source: SPSS data analysis results)

Pearson correlation test shows the correlation between each independen t variable in the m odel and the dep endent variable. This test is done through the calculation of Pearson's correlation coefficient. Pearson's correlation coefficient is the covariance of the two v ariables divided b y the product of their standard deviations. Si g value. of observed variables SD, HI, LC, DV, AT, CN, TT, XH are less than 0.05 which means that th e independent variable co rrelates the dependent variable. Results of building a single linear regression model.

Table 4. Model summary results (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.787[a]	.619	.606	.462	.619	44.732	8	221	.000	1.982

a. Predictors: (Constant), CN, SD, DV, XH, AT, TT, LC, HI
b. Dependent Variable: QD

(Source: SPSS data analysis results)

Adjusted R Square (R square correct ed) reflects the influence of the independent variables on th e dependent variable. Here, 8 independent variables are included in the effect of 61.93% of the change of the dependent variable, the rest is d ue to non-model variables and rand om errors. The Durbin-Watson value of 1,9 82 has a value of approximately 2, so t here is no first-order correlation.

Table 5. ANOVA variance analysis results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.863	8	9.608	44.943	.000[b]
	Residual	47.245	221	.214		
	Total	124.108	229			

a. Dependent Variable: QD
b. Predictors: (Constant), CN, SD, DV, XH, AT, TT, LC, HI

(Source: SPSS data analysis results)

Sig value. of test F is 0.00 0 <0.05. Thus, the linear regression model is consistent with the overall.

Table 6. Coefficients results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.380	.245		-1.555	.121					
	AT	.121	.044	.144	2.737	.007	0.513	0.189	0.119	.624	1.602
	SD	.144	.057	.116	2.510	.013	0.367	0.169	0.106	.805	1.242
	LC	.156	.053	.167	2.944	.004	0.610	0.196	0.124	.537	1.861
	HI	.233	.061	.218	3.804	.000	0.618	0.241	0.154	.527	1.899
	XH	.197	.044	.229	4.445	.000	0.563	0.279	0.180	.650	1.538
	TT	-.023	.054	-.022	-.430	.667	0.421	-0.022	-0.013	.634	1.577
	DV	.267	.066	.219	4.053	.000	0.566	0.259	0.166	.592	1.688

	CN	.044	.046	.050	.973	.331	0.462	0.067	0.042	.643	1.555

a. Dependent Variable: QD

(Source: SPSS data analysis results)

For t-tests of each inde pendent variable, Sig value. less than or equal to 0.05 means that variable has a meaning in the model, whereas Sig. greater than 0.05, that independent variable should be removed. So in this model, only variables AT, SD, LC, HI, XH, DV are retained.

Beta normalized regression coefficients, a mong all regression coefficients, the independent variable with the lar gest Beta, that variable h as the most influence on the change of the dependent variable. Therefore, the SD variable has the most influence on the change of the QD dependent variable.

After removing TT variable, running t he model again, we get the foll owing result: t he significant value of the CN variable is 0.346> 0.05, so we need to remove the CN variable.

After eliminating the CN variable, we get the following result:

Table 7. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	Constant	-.395	.243		-1.621	.106					
	AT	.119	.038	.150	3.115	.002	0.513	0.222	0.141	.744	1.344
	LC	.151	.053	.161	2.839	.005	0.610	0.202	0.128	.533	1.875
	SD	.141	.055	.114	2.548	.012	0.367	0.166	0.104	.860	1.163
	XH	.216	.042	.251	5.165	.000	0.563	0.295	0.191	.727	1.375
	HI	.237	.060	.221	3.951	.000	0.618	0.242	0.155	.549	1.822
	DV	.268	.062	.219	4.333	.000	0.566	0.278	0.179	.672	1.489

a. Dependent Variable: QD

The table shows that Sig values of each boun dary are> 0.05, s o it is possible to conclude that all variables affect the QD dependent variable.

Specifically, the influence of the factors on the QD is as follows:

$$QD = 0.150 * AT + 0.111SD + 0.161 * LC + 0.221 * HI + 0.251 * XH + 0.219 * DV$$

Thus, the factors AT, SD, LC, HI, XH, DV have the same directional effe ct, when inc reasing by 1 unit, the average value of the QD factor increases by 0.150; 0.1114; 0.161; 0.221; 0.251; 0.219 units.

For research projects with a model combined with a questionnaire using the Likert scale, VIF <2 will not have multiple collinearities between independent variables. The above study did not meet the requirement of multicollinearity.

Histogram normalized residual frequency chart

The remainder may not follow the norm al distribution for reasons such as: Using the wron g model, the variance is not a constant, the num ber of residuals is not sufficient f or analysis, etc. We ne ed to conduct many different surveys. The simplest way to investigate is to build a histogram of the histogram remainder below.

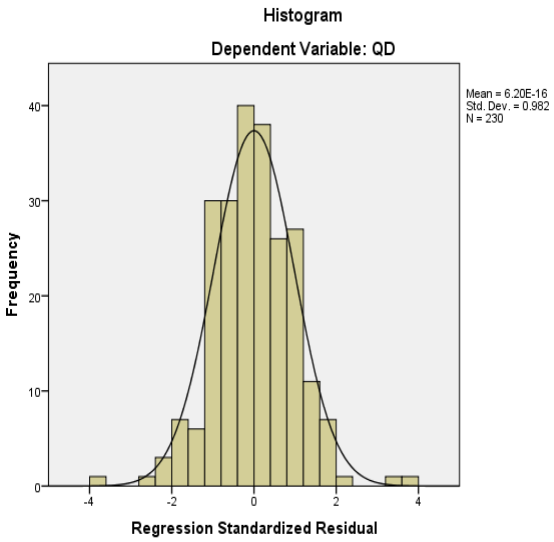

Figure 3. Histogram normalized residual frequency chart

(Source: SPSS data analysis results)

From the ch art shows, a standard distribution curve is superimposed on the frequency chart. This curve has a symmetrical form that fit s the graph form of the n ormal distribution. The mean value is close to 0, the standard deviation is 0.982 close to 1, so we can say the standard approximation distribution. Therefore, it can be concluded that: Assuming the normal distribution of the residual is not violate.

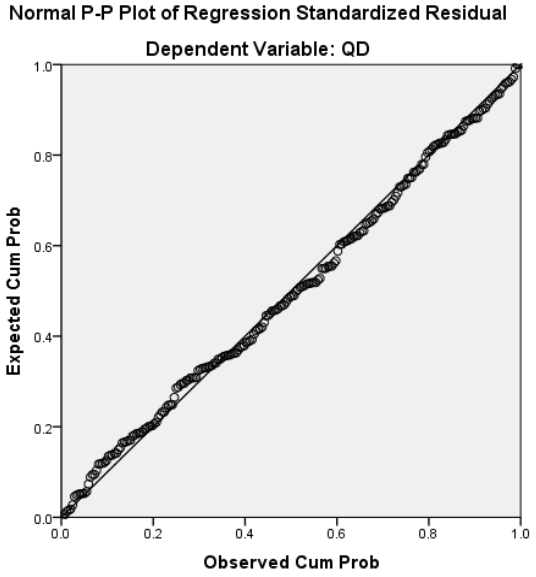

Figure 4. Normalization graph of Normal P-P Plot

(Source: SPSS data analysis results)

With P-P Pl ot, the percentile points in the distribution of the remai nder will focus into a diagonal line, thus not violating the regression assumption of residual calibration.

Scatter Plot scatter plots between stand ardized residuals and normalized predictive values help us detect whether existing data violates the linear relationship assumption. Represents the Standardized Residual value on the horizontal axis and the Predicted Value on the vertical axis.

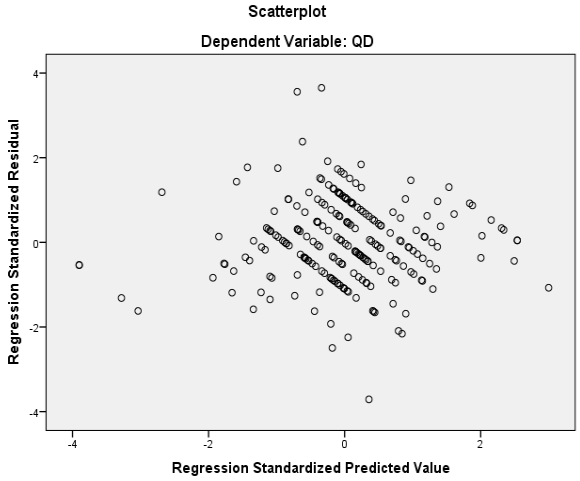

Figure 5. Scatter Plot chart tests the linear contact assumption.

(Source: SPSS data analysis results)

The output graph, the distribution points of the remainder if there are forms: Parab olic graph, Cubic graph or other non-linear graph forms, the data violates the assu mption of a linear relation. count. Looking at the graph, we can see that the standardized residual has not changed in any order against the s tandardized predicted value. Hen ce the assumption of linear contact is not violated.

6. Conclusion and propose solutions

6.1. Conclusion:

Such data analy sis results show that: perceived usefulness, perceived ease of use, social influence, information-related concerns, service q uality, and autonomy affect the decision. inten ds to use the smart travel application of people in Hanoi but to varying degrees. In particular, the Social influence factor has the strongest influence on the decision to use s mart travel applications of the people in Hanoi and the Factor in the perceived e ase of use has the least influence on the decision to use Smart travel application. The Social Influence factor (Social) is th e one that has the most influence on the decision to use, which supports the hypothesis of Bendegul Okumus & Anil Bilgihan (2013). The Quality of Service (DV) factor influences the decision to share smart travel applications following the research by Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang (20 17)

and Le Quang Hung (2017). The factors HI and SD influence the de cision to use completely consistent with the TA M model (Davis, 1989; Davis, 1993); Bendegul Okumus & Anil Bilgihan (2013), Changsok Yoo, Shinh ye Kwon, Hyunsoo Na & By enghee Chang (2017) wit h previous IT studies. The influence of Information Security (AT) factor is consistent with the resear ch of Changsok Yoo, Shi nhye Kwon, Hyunsoo Na & Byenghee Chang (2017).

6.2. Proposed Solutions

From the r esearch results, it shows that the objective assessments for the developm ent of smart tourism applications in the present contribute to Vietnam towards buildi ng a sm art city. To develop smart travel appl ications in Vietnam, the application pro vider should pay attention, focus on im proving the following main factors: Quality of infor mation and services; Perceived usefulness; S ocial influence; Safety information. As follows:

Firstly, Social I mpact factor is one of the factors that greatly influence the decis ion to use smart travel applications of people in Vietnam, so the application provi der should state heighten th e importance of this factor by implementing the following solution: (1) Th rough various channels such as television, social networks (especially social networks because of the access to the period of industrial revolution 4 .0, users tend to access information through social networks a lot. m ore), ... application vendors need to conve y the message of the substitution of sm art travel apps co mpared to traditional travel. (2) Create opportunities for customers to increase the opportunit y to experience the application before deciding to use it by expanding the free wifi sy stem (currently on the edge of Hoan Kiem Lake and some place s already having wifi s ystem free). Particularly needed is the i mpact on pioneering custo mer groups that use the appl ication to demonstrate technological advancements. When the prophylactic customer group has a good assessment of the usefulness of the application, it is also the best signal to broadcast and transmit the most objective information to entice the rem aining customer groups to use the application.

Secondly, the Quality of Service factor, the results show that this factor has a lot of influence on the decision to use the smart travel application. (1) It is nece ssary to focus on im proving the core benefit of the smart travel application, which is a utility service that can be accessed any time, anywhere, making users feel more convenient and easier than the form . (2) Listen to feedback about the quality of customer applications b y different channels such as feedbac k directly via the web, applications or hotlines, .. or through research surveys. From there, make appropriate plans to adjust and i mprove service quality to meet user needs.

Finally, Information Security Concern factor has also been shown to influence users' decision to use smart travel apps. The application that vendors need to bui ld trust with customers that their information provided to ap plication systems is not leaked out.

6.3. Future Research

Future studies may apply the procedure carried out by this study for a larger sa mple size. Doing this will make the results more general. Besides, the independent variables in this model only explain 61.9% of the variation of the dependent variable. Therefore, future studies can add other independent variables to the model to obtain new results.

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Appendix 1. Explain variables in the model

I.	Perceived ease of use	Refer
SD1	You can learn how to use the application easily	Davis (1989), Davis (1993)
SD2	When interacting with the application you find it easy to understand	
SD3	You find the smart travel app easy to use	
II.	Perceived usefulness	
HI1	You find the use of smart travel apps very helpful for you in providing travel information	Davis (1989), Davis (1993)
HI2	Smart travel application increases the efficiency of travel activities, can be used anytime, anywhere	
HI3	You find content provided through the smart travel app to be useful to you	
HI4	Overall, you consider the smart travel app a valuable service to you	
III.	Information quality	
TT1	The information provided from the smart travel application is accurate	Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang (2017)
TT2	Information from the supplier about a satisfactory application	
TT3	Easily refer to the parameters of the smart travel application through different forms whenever you want (app on phone, web, ...)	
IV.	Service quality	
DV1	The application provider fulfills its commitment to quality of service	Le Quang Hung (2017)
DV2	Smart travel application of the provider of many core services	
DV3	You think the provider will provide the service as expected	
DV4	The smart travel app provider always provides services quickly	
V.	Perception of preference	
UT1	You find it interesting to use the application	Bendegul Okumus & Anil Bilgihan (2013)
UT2	Smart travel app brings you the favor	
UT3	You use the app to kill time	
VI.	Self-reliance	
LC1	You can use the app to search for travel information if you've used the same app before	Bendegul Okumus & Anil Bilgihan (2013)
LC2	You can use the app to search for travel information if someone guides you to use it	
LC3	You can use the app to search for travel information if you have time to try it out	
LC4	You can use the application to search for travel information if you can afford the objects of travel such as entrance tickets, food, reservations ...	

VII. Social influence		
XH1	You use the app because your friends also use it and you want to belong to that group	Bendegul Okumus & Anil Bilgihan (2013)
XH2	Using the app also reflects my personality to others	
XH3	According to your loved ones, you should use the smart travel app	
VIII. Technological barriers		
CN1	You find installing this application difficult for yourself	Bendegul Okumus & Anil Bilgihan (2013)
CN2	Differences from traditional travel forms affect your use of smart travel apps	
CN3	The slow performance of smart travel websites or apps affects your decision to use the smart travel app.	
IX. Concerned about information security		
AT1	You are afraid your information will be collected	Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang (2017)
AT2	Logging in to smart travel websites or apps with personal information affects your intention to use the app	
AT3	You use virtual credentials to log in to smart travel websites or apps	
X. Decided to use		
QD1	In general, the smart travel application of the current application delivery forms makes me feel satisfied	Changsok Yoo, Shinhye Kwon, Hyunsoo Na & Byenghee Chang (2017)
QD2	Using smart travel apps is my right decision	
QD3	I enjoy using the 4G smart travel app for my activities	
QD4	I will continue to use the smart travel application in the future	