Research Article

Determinants of customer acceptance and usage of mobile hotel reservation apps (MHRA): An exploratory factor analysis

Journal of Tourism, Hospitality & Culinary Arts (JTHCA)
2020, Vol. 12 (1) pp 231-247

Submit date: 15th August 2019
Accept date: 22nd August 2019
Publish date: 29th February 2020

Mohd Noor Ismawi Ismail
Mohd Hafiz Hanafiah
Mohamad Abdullah Hemdi
Norzuwana Sumarjan
Abdul Aziz Azdel*
Faculty of Hotel & Tourism Management,
Universiti Teknologi MARA Selangor, Malaysia.
**azdel@uitm.edu.my*

Proposed citation:

Ismail, M. N. I., Hanafiah, M. H., Hemdi, M. A., Sumarjan, N., & Azdel, A. A. (2020). Determinants of customer acceptance and usage of mobile hotel reservation apps (MHRA): An exploratory factor analysis. *Journal of Tourism, Hospitality & Culinary Arts, 12*(1), 231-247.

Abstract

The purpose of this study is to apply exploratory factor analysis (EFA) to assess the determinants of customer acceptance and usage of mobile hotel reservation apps (MHRA). The Unified Theory of Acceptance and Use of Technology (UTAUT2) model is adopted in this study. Through an online survey, the UTAUT2 determinants were administered to 422 Malaysian hotel customers who booked hotel rooms through MHRA. EFA, using Principal Component Analysis with Varimax Rotation, indicated a 34-item, with 7 factors final solution with the following subscales: Effort Expectancy (6 items); Habit (4 items); Hedonic Motivation (5 items); Performance Expectancy (5 items); Price Value (4 items); Social Influence (5 items); and Facilitating Condition (5 items). The finding confirms that the items to each of these domains are consistent with the UTAUT2 proposed determinants. This paper enables future researchers to expand the concept of MHRA by providing validated constructs for assessing technology adoption and usage among hotel customers. The significance of the study as well as its implications for research and practice are discussed. Suggestions are also made for future research.

Keywords:

Customer Acceptance; Usage; Mobile Hotel Reservation Apps (MHRA); Exploratory Factor Analysis (EFA); UTAUT2.

1 Introduction

The Internet is amongst the most important channels for hotel room distribution. Therefore, adopting an effective e-commerce strategy is a key matter for the lodging industry (Law, Buhalis, & Cobanoglu, 2014). Lately, the scene of e-commerce is changing globally and shifting towards mobile commerce (m-commerce) as more consumers use the Internet for shopping through their mobile devices such as smartphones and tablets. The smartphone penetration is currently 144 over 100 inhabitants in Malaysia amounted to 19.9 million users (Statista, 2017). Smartphones have become the staple of the everyday life for consumers, and nine out of ten smartphone users use their devices daily (Okumus & Bilgihan, 2014; Okumus, Bilgihan, & Ozturk, 2015).

Mobile devices have introduced both convenience and easiness to contemporary travelers. Nowadays, it is possible to complete tasks such as banking, scanning documents, reading a restaurant's rating and shopping on-the-go without the need for a computer. Furthermore, as more travelers have started to rely on their mobile devices to research travel and to book hotels at such a rapid pace, it is no surprise that major hotel companies have adopted and developed an online mobile presence in an attempt to meet this raising demand (Ozturk, Nusair, Okumus, & Hua, 2016). For instance, according to a study conducted by TripAdvisor, 74% of the hotel facilities think that it is important to offer the opportunity of mobile booking to their customers (TripBarometer by TripAdvisor, 2013). Another survey from TravelClick indicated that around 50% of surveyed hotels have an application that allows users to book rooms through their mobile devices, and of the remaining 44%, 23% plan to add booking functionality to their mobile site (TravelClick Press Releases, 2014). These statistics clearly demonstrate that mobile booking has drastically changed the distribution channels for hotels and over the past few years and it is estimated that mobile booking will become the prevailing distribution channel for hotels ad OTAs in the near future (Inversini and Masiero, 2014; Kucukusta et al., 2015, Law et al., 2015, Tode, 2014).

2 Issue

The interaction between humans and technology is influenced by some social and psychological factors and characteristics (Taiwo & Downe, 2013). Therefore, studies of technological innovation acceptance require psychological models and theories to explain and rationalise whether and how users benefit from new technologies and devices. The Technology Acceptance Model (TAM) (Davis, 1989) has been widely used to study acceptance across a variety of information system (IS) contexts (Chin, Marcolin & Newsted 2003; Riemenschneider, Harrison & Mykytyn 2003). In 2003, TAM became embedded in the Unified Theory of Acceptance and Use of Technology (UTAUT2) model (Venkatesh, Thong & Xu, 2012) as an extension of the Unified Theory of Acceptance and Technology Usage (UTATU) model (Venkatesh et al. 2003). The UTAUT2 model incorporates the four main determinants of usage and intention as the original model (i.e., performance expectancy, effort expectancy, social influence and facilitating

conditions) and also includes three additional determinants (hedonic motivation, price value, and habit).

Mobile service, in general, has been attracting excessive attention from researchers due to its relative novelty and continued expansion. However, academic research on mobile booking in general and mobile hotel booking apps, in particular, is insufficient (Ozturk, Bilgihan, A., Nusair, K., Okumus, F., 2016). It is important to note that previous studies in the context of mobile services have mainly concentrated on the adoption and acceptance of these technologies (Wang & Wang, 2010). Moreover, prior studies related to mobile booking have mainly focused on the adoption and acceptance of this technology and examined instrumental beliefs (e.g., PEOU, perceived complexity, service quality, and technical barriers) but ignored the customer centric attributes (Williams et al., 2011; Zulkifly et al., 2016)

Accordingly, to gain an in-depth understanding of the problem, it is essential to examine the determinant of customer acceptance and use of MHRA, particularly as they pertain to hotel booking experiences realised via mobile apps. Understanding the constructs above will not only contribute to the relevant body of knowledge but may also help hoteliers understand how to implement a mobile system that can benefit their customers and create better customer value. Since hotel engagement with customers is not based solely on price, but rather more holistic elements actualised along the travel planning process, it is important to explore customer acceptance, use, satisfaction and post purchase about MHRA and the making of online bookings. Addressing the research mentioned above gap, this study empirically adopts and validates the UTAUT2 model focusing on the customer acceptance and usage of mobile hotel booking apps. This study revisits the UTAUT2 model (Venkatesh et al., 2012) by augmenting it to capture specific hotel guest task-technology environment dynamics better. In addition to its scholarly benefits, exploring the adoption, usability and perception of MHRA can have practical implications for marketers (Parasuraman and Colby, 2015). Therefore, the main aim of this study is to identify the vital determinants that affect the customer acceptance and usage of MHRA as a part of the online booking facilities.

3 Literature Review

3.1 Mobile Hotel Reservation Apps (MHRA)

Hospitality mobile apps tend to fall into two categories. First, apps offered by third-party organisations that aggregate information on different hotels for the convenience of travelers; these also tend to provide information on various tourism related products and services. An example of this first type includes Trivago, Agoda, Booking.com, TripAdvisor, VisitBritain, etc. (Wang et al. 2016). The second type consists of mobile hotel reservation apps (MHRA), which are apps offered by specific hotels for customers to check their hotel location, room rates, promotions and membership information, such as their loyalty points (Anuar, Musa & Khalid, 2014; Ismail et al., 2017; Wang et al. 2016). This study adopts the term and definition of MHRA as suggested by Wang et al.

(2016), as it uniquely suits this research study. However, little is known regarding users' perceptions and behaviours as they apply to these apps. Without actual usage consumer data, it is difficult to determine the values, benefits and potential opportunities related to MHRA.

3.2 Customer Acceptance and Use of MHRA

Two models, particularly the TAM and UTAUT, have been widely applied to examine the adoption of technology in the tourism and hospitality field (e.g., Kim, Park, & Morrison, 2008; Morosan, 2011; Panagopoulos, Kanellopoulos, Karachanidis, & Konstantinidis, 2011). As this study is interested in booking decisions, the UTAUT framework is adopted, as it is believed to explain high variance when it comes to purchasing decisions. Moreover, the UTAUT has compared empirical and conceptual differences of eight prominent models (Venkatesh et al. 2003), while TAM has only tested two (perceived usefulness and ease of use) dimensions. Moreover, TAM has been criticised by Chuttur (2009), who asserted that it has "a limited explanatory" and weak "predictive power, triviality, and lack of any practical value" (p. 16-17). In an effort to reduce any inaccuracies in the predictions associated with behavioural intention, the UTAUT constitutes a suitable substitute model for TAM, which seems to overcome some of its noted downsides.

In 2012, Venkatesh and colleagues extended the UTAUT model to pay specific attention to the consumer-use context rather than its original purpose, i.e., technology acceptance and use among employees. This resulted in the UTAUT2 incorporating three new dimensions: hedonic motivation, price value, and habit, in addition to the original three dimensions (i.e., performance expectancy, effort expectancy, social influence and facilitating conditions). Following these new additions, Ventakesh et al. (2012) proposed that the UTAUT2 improves the variance of behavioural intention by 18% and the use of technology by 12% among mobile Internet consumers. According to Lewis and his research team (2013), the UTAUT model acts as a baseline; this has been applied to research on many organisational technologies. Figure 1 below shows the UTAUT2 framework.

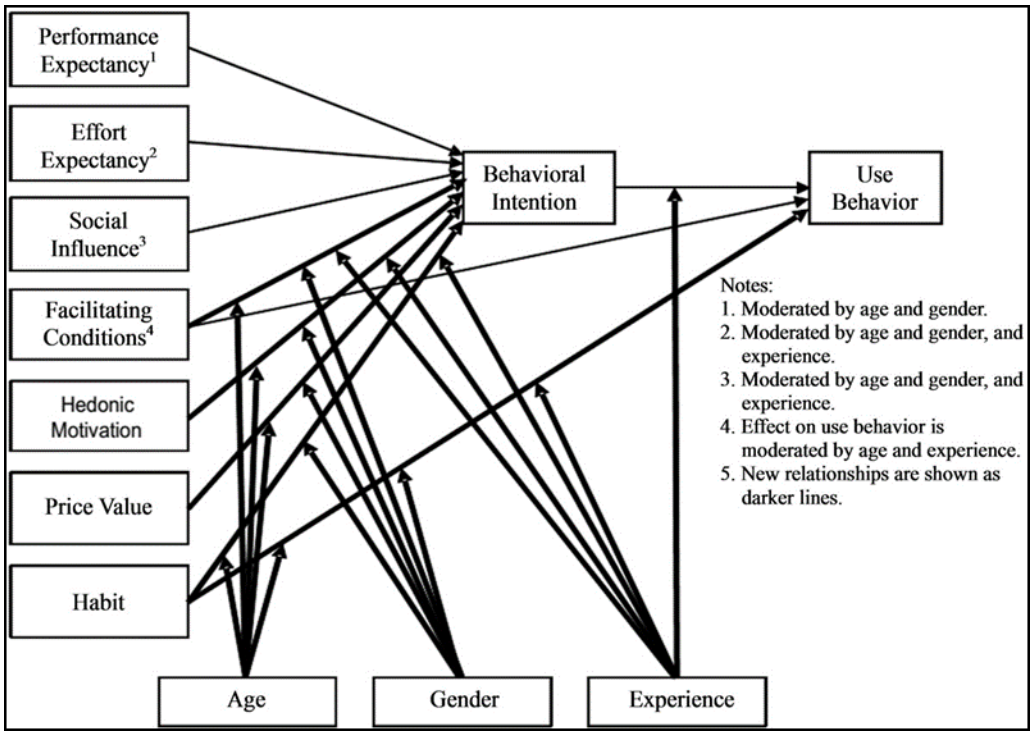

Figure 1: The Original UTAUT2 Framework by Ventakesh et al. (2012, P.160)

While some models used within the information system context have reached a relative level of maturity, the same cannot be said of UTAUT2, for which replication and generalisability studies, as well as those examining the model's predictive validity, are still much more limited in number. Additionally, when considering the available literature on mobile app adaption, those implementing the UTAUT2 model exclude other vital factors such as trust, perceived risk and the effect of technology readiness, which hinder the possibility to provide a holistic picture of the adoption of mobile apps (Alomary & Woollard, 2015).

4 Methodology

This study aims to find the best set of items from each latent factor that best explains the customer acceptance and use of the MHRA as a channel in an online hotel booking context by adopting the UTAUT2 model. In order to find the right set of parameters, the researcher did desk research to identify the definition of the UTAUT2 determinants and develop the research instrument. Next, a web-based survey was developed to collect the empirical data for this study. The online questionnaire was distributed through Google Form platform to Malaysian hotel customers that had experiences in using mobile apps for room booking.

The questionnaire consisted of two main parts. In the first part, respondents were asked to indicate their level of agreement to the statements regarding the

research constructs. The second part of the questionnaire included questions regarding respondents' demographic characteristics such as age, gender, education, income level and years of experience using MHRA. An explanation of MHRA technology with examples was included at the beginning of the questionnaire to make sure that the respondents had a clear idea of MHRA technology. All scales were adapted from previous researches, and they were all measured using a five-point Likert scale ranging from "strongly disagree" to "strongly agree." Minor modifications were made to ensure that the scales reflected the MHRA context. Performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit were adapted from Venkatesh et al. (2012) and measured with a total of thirty-five items. Table 1 below depicts the definitions of the UTAUT2 determinants adopted in this study.

Table 1: Definitions of the UTAUT2 Determinants

Elements	Definition	Studies
Performance Expectancy (PE)	Similar to TAM's perceived usefulness, PE is the perception that using a system will improve an individual's performance; it includes the (perceived) benefits expected from using a given technology in performing certain activities	Min, Ji & Qu (2008); Jambulingan (2013); Ventakesh et al. (2012)
Effort Expectancy (EE)	Similar to TAM's perceived ease of use construct, EE relates to the (perceived) ease of using a technology	Ventakesh & Brown (2001) as cited in Ventakesh et al. (2012)
Social Influence (SI)	A perception that an individual's significant others (e.g., relatives and peers) believe they should adopt a technology	Fishbein & Ajzen (1975) as cited in Leong et al., (2013)
Facilitating Conditions (FC)	A perception that technical and organisational infrastructures exist to support the use of a technology	Ventakesh et al. (2003)
Hedonic Motivation (HM)	The perceived enjoyment (fun or pleasure) when using technology, despite any anticipated performance consequences	Brown & Ventakesh (2005) Davis, Bagozzi & Warshaw (1992)

Price Value (PV)	The perceived trade-off between the cost of using technology and its perceived benefits.	Dodds, Monroe & Grewal (1991)
Habit (H)	Automatic behaviours (expected to be) performed due to learning; The natural behaviour of a person can be viewed in two different ways: 1: as an early behaviour 2: as an automatic behaviour	Limayern et al. (2007) Kim and Malhotra (2005)

Source: *San Martin & Herrero (2012, p.343)*

Once the survey questionnaire was developed, a pre-test was conducted. Six panels of expert which consisted of research methodology, information technology, and language proficient were selected to check the content and face validity of the questionnaire. A pilot test was then carried out on the questionnaire to ensure its clarity and comprehensiveness. The questionnaire was distributed to a total of 100 pilot participants who had previous experience in using mobile apps purchases. Based on the comments and feedback obtained from the participants, some modifications were made to the wording of the questionnaire.

4.1 Factor Analysis

The Exploratory Factor Analyses (EFA) were conducted for every item of the UTAUT2 constructs. Reliability tests were subsequently carried out after the EFA. It is important to note that all of the results from the EFA and reliability analyses in the following sub sections were analysed with the data collected from the survey of 422 respondents. According to Hair et al. (2006), six assumptions need to be considered when dealing with the Exploratory Factor Analysis (EFA). They are; a). The eigenvalues should be more than 1; b). Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy values must exceed .50; c). Minimum requirement of factor loading is .30 based on .05 or 95% significance level; d). Bartlett's test of sphericity is at least significant at .05; e). Communalities of items must be greater than .50, and f). Anti-image correlation of items is greater than .50. Using all criteria suggested by Hair (2006) except for factor loading, the exploratory principal component factor analysis with Varimax rotation was employed to the items of the UTAUT2 constructs or variables in this study.

5 Findings

5.1 Demographic Profile

A total of 422 questionnaires were obtained from the Google Form repository system. The demographic characteristics of the participants are presented in Table 2. 58% of the respondents are female. 49% of the participants are between the ages of 26–35 and nearly 62% of the respondents have a postgraduate qualification. Reflecting on the younger age of the respondents, 37% of the participants' household income is between RM 2000 and less per month. Finally, 52% of the participants' years of experience using the MHRA is less than a year.

Table 2: Respondents' demographic characteristics

Demographic characteristics	N	%
Gender		
Male	174	41.20
Female	248	58.80
Age		
25 years and below	138	31.50
26 - 35 years	208	49.60
36 - 45 years	71	16.80
46 - 55 years	8	1.90
55 years and above	2	0.50
Education level		
High School	17	4.00
Undergraduate	143	33.90
Postgraduate	262	62.10
Income		
RM 2000 and below	160	37.90
RM 2001 - RM 4000	111	26.30
RM 4001 - RM 6000	75%	17.80
RM 6001 - RM 8000	37	8.80
RM 8000 and above	39	9.20
Experience using MHRA		
Less than one year	223	52.80
Less than five years	150	35.50
More than five years	49	11.60

N=422

To assess the reliability of the data, Cronbach's Alpha was evaluated. All value-indicators mentioned in Table 3 are well above the prescribed 0.7 as excellent. According to (Henseler et al., 2009) Cronbach's Alpha should have values higher than

0.7 Alpha based on the correlations of indicators. Table 3 shows the Cronbach's Alpha value.

Table 3: Reliability measurement of reflective variables (n = 422)

Measurement Item	Code	Mean	Std. Deviation	Cronbach's A
Performance Expectancy	PE	4.220	0.679	0.954
Effort Expectancy	EE	4.067	0.583	0.906
Social Influence	SI	3.809	0.690	0.808
Facilitating Conditions	FC	3.871	0.678	0.822
Hedonic Motivation	HM	3.969	0.633	0.875
Price Value	PV	3.953	0.724	0.880
Habit	HA	3.634	0.976	0.945

5.2 Exploratory Factor Analysis

Before the extraction of the factors, several tests should be used to assess the suitability of the respondent data for factor analysis (Williams et al., 2012). The tests which include testing the suitability of data for factor analysis are Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity (Wu et al., 2012; Wu et al., 2008). The KMO index ranges from 0 to 1, with 0.50 is considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant ($p<.05$) for factor analysis to be suitable (Yu, 2012). This research shows both of the test results are well in the acceptable limits to be deemed satisfactory for sample size, adequacy test as shown in Table 4.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.927
Bartlett's Test of Sphericity	Approx. Chi-Square	13077.264
	Sig.	.000
	N	422

The next step of EFA confirms the extracted set factors conferring empirically to the eigenvalue rule along with the Scree Plot cross graphical confirmation. The data collected display 74% cumulative percentage of variance explained by a total of 7 components (factors) having an eigenvalue > 1. This confirms the seven constructs of UTAUT2 model used by this research as illustrated in table 4.0. According to (Kaiser, 1960) the requirement that the eigenvalue is greater than one is followed, and the factor load lower cut-off point is set at 0.50 for each item, as also suggested by (Hair et al., 2012; Williams et al., 2012).

Furthermore, the graphical interpretation using the Scree plot determines the number of factors extracted by drawing a straight line through the smaller eigenvalues where a departure from this line occurs as shown in figure 2.0. This point highlights where the debris or break occurs. In the example below (see Figure 2), the

inspection of the Scree plot and eigenvalues produce a parting line from linearity coinciding with a 7-factor result. Therefore this "Scree Test" indicates that the data should be analysed for seven factors. The mean values of all the items range from 3.634 to 4.220. Standard deviations range from 0.808 to 0.954 respectively.

The factor extraction procedure is based on the combination of using Maximum Likelihood rotation method and Promax rotation technique. This step primarily eliminates variables which do not load on any factor or variables that are loaded on multiple factors, or variables which load is lower than 0.50. Finally, seven constructs of UTAUT2 model are loaded only on one factor each. Hence this seven-factor set can be used to assess for the next data reduction process (e.g., Confirmatory Factor Analysis (CFA)).

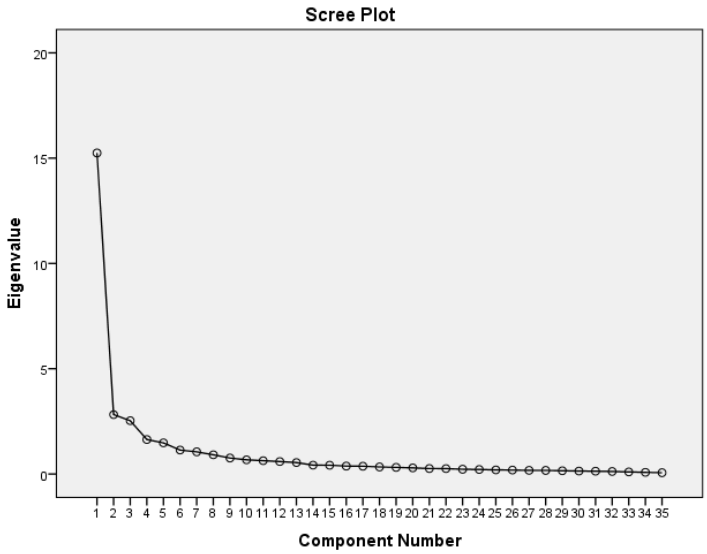

Figure 2: Scree plot of displaying the eigenvalues associated with seven factors above value 1.0.

5.3 Rotated Component Matrix

The extracted latent factors' best set of items are again tested for their reliability and results indicate high alpha values. This proves that the EFA extracted items are highly reliable, dependable and are expected to yield superior results if used for empirical analysis. Table 5 shows the Rotated Component Matrix with 34 items extracted.

Table 5: Rotated Component Matrix

	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Component 7
	Effort Expectancy	Habit	Hedonic Motivation	Performance Expectancy	Price Value	Social Influence	Facilitating Condition
EE3	0.784						
EE2	0.769						
EE5	0.746						
EE1	0.715						
EE4	0.686						
EE6	0.678						
HA2		0.850					
HA3		0.832					
HA1		0.815					
HA4		0.788					
HM3			0 .760				
HM2			0.735				
HM1			0.732				
HM4			0.581				
HM5			0.549				
PE3				0 .811			
PE1				0.786			
PE5				0.778			
PE2				0.759			
PE4				0.736			
PV3					0.841		
PV4					0.839		
PV5					0.815		
PV2					0.641		
PV1					Deleted		
SI3						0 .680	
SI5						0.633	
SI2						0.627	
SI4						0.526	
SI1						0.519	
FC3							0 .791
FC2							0.542
FC1							0.533
FC5							0.521
FC4							0.506
Eigenvalues	15.245	2.821	2.535	1.636	1.478	1.136	1.052

Percentage Variance Explained	43.556	8.061	7.235	4.675	4.223	3.246	3.006
Total Variance Explained	74.0023						

As explained earlier, the methodology adopted in the exploratory factor extraction using Maximum Likelihood has been carried out with Promax Rotation method. This results in the extraction of seven factors which explicate more than 74% of the variance explained. Based on the minimum loading (<.60), one item (PV1: The free-to-download MHRA influences me to use it) is deleted and removed from the price value construct.

The first factor which is labeled as effort expectancy is one of the determinants of customer acceptance and use of the MHRA technology. This factor of effort expectancy consists of six items. Based on the output, this factor explains the largest percentage of the variance in the data (43.556 %) with the eigenvalues of 15.425. As for the factor loading, all items in this analysis have primary loadings over .6 ranging from 0.678 to 0.784. Therefore, the original name effort expectancy is retained.

The second factor based on the rotated component matrix is habit which consists of four items related to habit to use MHRA every time when they make a booking (0.850), the continuity to use MHRA each time they book a hotel room (0.832), habit to use MHRA (0.815) and the overall feeling whether booking via MHRA is natural for them (0.788), in which each of them has recorded a factor loading of more than .5. With and eigenvalue of 2.821, this factor which is the determinant named habit is accounted for 8.061% of total variance. Therefore, the original name habit is retained.

The third factor based on the rotated component matrix is hedonic motivation which consists of five items related to the fun and pleasure derived from using the apps. The highest is item “the 360° room view is thrillling” (0.760), followed by “MHRA features are entertaining” (0.735), “using MHRA is stimulating” (0.732), and the lowest is “overall enjoyment booking via MHRA” (0.549) in which each of them has recorded a factor loading of more than .5. With and eigenvalue of 2.535, this factor named hedonic motivation is retained and accounted for 7.235% of total variance.

The fourth factor is performance expectancy which consists of five items related to the task and performance of the booking process via the apps. The highest loading is item “MHRA makes my booking easier” (0.811), tailed by “MHRA is an efficient alternative for booking” (0.786), “MHRA speeds up my booking process” (0.759), and the lowest is “MHRA improves my experiences in booking process” (0.736) in which each of them has recorded a factor loading of more than .5. With and eigenvalue of

1.636 and accounted for 4.675 percent of total variance, this factor which is called performance expectancy is retained.

The fifth factor is price value which consists of five items related to the price value that influences the usage of MHRA. The highest loading is the item "MHRA offer better room price than other booking channels" (0.841), followed by "MHRA offered me exclusive deals" (0.839), "MHRA offers better price value compared to another alternative" (0.815), and the lowest is "booking via MHRA give me good value for money" (0.641) in which each of them has recorded a factor loading of more than .5. From five items analyzed, one item PV1 is deleted due to the low factor loading. With an eigenvalue of 1.478 and accounted for 4.223 percent of total variance, this factor which is called price value is retained.

The sixth factor is showing 1.136 of eigenvalue with factor loadings ranging from 0.519 to 0.680 accounted for 3.246 percent of the varience in the data. As for the factor loading, all items in this analysis have primary loadings over .5. Therefore all items will be included, and the original name social influence is retained.

The last factor which is labeled as facilitating condition consists of five items. Based on the output, this factor explains the smallest percentage of the variance in the data (3.006 %) with the eigenvalues of 1.052. As for the factor loading, all items in this analysis have primary loadings over .5 ranging from 0.506 to 0.791. Therefore, the original name facilitating conditions is retained.

6 Conclusion

In the managerial context, the results of this study shed light on some important factors leading to users' adoption and usage of the hotel booking apps. Although other UTAUT factors such as performance expectancy, effort expectancy, facilitating conditions and social influence have significant impacts on users' intention, however, importance performance analysis has revealed that other factors such as price value, hedonic motivation, and habit also affect customers' intention to adopt MHRA. Hoteliers and mobile apps developers should be able to incorporate all of the determinants of customer acceptance and use of the apps when designing hotel apps to boost the apps usage. Attractive apps will enhance the adoption as well as encourage customers to book room directly with the hotel through the apps. This particular finding echoes the theory of innovation diffusion, indicating that users' intention to adopt a technology is both hedonic and utilitarian motivating factors.

Theoretically, this study contributes to the research field by redefining the construct of UTAUT2 through the experience of MHRA users. At the practical level, it enables educators, hoteliers, and other app developers to design and enhance the current MHRA for optimal usage. The finding highlights an important aspect of research and practice in the hospitality industry, which it is critical to include the aspect of customer technology readiness in offering technology-related services in the hotel businesses.

Future research should focus on the roles of the factors identified in this study and their relationship towards customer satisfaction and subsequent usage. The empirical study should be conducted to examine the causal relationship by using robust statistical methods such as path analysis or structural equation modelling (SEM). Finally, it is suggested for future research to put into perspective the social and cultural differences of customers in explaining their consummation towards mobile hotel booking services.

7 About the author

Mohd Noor Ismawi Ismail is a Senior Lecturer from the Department of Hotel Management, Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Malaysia. He is currently a doctoral researcher at the same institution. He graduated from University of Surrey, UK with MSc. of International Hotel Management with distinction. He has published a few papers in international conference proceedings. His research interests are in the area of hospitality technology, hotel operation and hospitality service marketing. He is also involved in various consultancy and short-term research projects with government agencies as well as private sector.

Assoc. Prof. Dr. Mohd Hafiz Mohd Hanafiah is currently serving as a Senior Lecturer at the Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Malaysia. Currently, he is also the Coordinator of Research Impact and Visibility at the Research Management Centre, UiTM. He completed his Ph.D. in Hotel and Tourism Management at Universiti Teknologi MARA Malaysia. He is an active author; authoring and co-authoring more than thirty research papers, mostly indexed by Scopus or Web of Science. He is also available for individual private tutoring, coaching, customized classroom training, and consultancy project.

Professor Dr. Mohamad Abdullah Hemdi is a Professor and the Dean of the Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Malaysia. His research interest is in the area of human resources management, particularly in the aspects of hotel employees' attitudes and work-related outcomes. He has published his worked in a number of international journals and conference proceedings. He is also the editorial board member for the Journal of Hospitality, Tourism, and Culinary Arts and Journal of Management and Science.

Assoc. Prof. Dr. Norzuwana Sumarjan is currently the Head of Postgraduate Centre at the Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Malaysia. She obtained her Ph.D. in Hospitality Management (Quality Management) from Iowa State University, USA and has published numerous papers for conference proceedings as well as journal articles. Her research interests are in the area of quality management, hospitality management and operation, organizational behaviour and senior living community. She is also the panel reviewer for a few journals and conference such as Journal of Tourism, Hospitality & Culinary Arts, Journal of Tourism, Hospitality & Environment Management and many more. Due to her active role as a researcher, she was awarded 'Researcher Excellent Award 2016' by Universiti Teknologi MARA.

Dr Azdel Abdul Aziz is a Senior Lecturer from the Department of Hotel Management, Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Malaysia. His research interests are in the area of hospitality technology, e-commerce, hospitality human resource and online learning.

8 References

Ahmed, M. S., Everett, J., & Turnbull, W. F. (2017). Extracting Best Set of Factors that Affect Students Adoption of Smartphone for University Education: Empirical Evidence from UTAUT-2 Model. *Journal of Management, Economics, and Industrial Organization, Vol.1* No.1, 2017, pp.51-64.

Alomary, A., & Woollard, J. (2015). How is technology accepted by users? A review of technology acceptance models and theories.

Anuar, J., Musa, M., & Khalid, K. (2014). Smartphone's application adoption benefits using mobile hotel reservation system (MHRS) among 3 to 5-star city hotels in Malaysia. *Procedia-Social and Behavioral Sciences, 130*, 552-557.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information systems research, 14*(2), 189-217.

Chuttur, M. Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Working Papers on Information Systems, 9*(37), 9-37.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis (Vol. 6).

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science, 40*(3), 414-433.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In New challenges to international marketing (pp. 277-319). Emerald Group Publishing Limited.

Inversini, A., Masiero, L., 2014. Selling rooms online: the use of social media and online travel agents. *International Journal Contemporary Hospitality Management, 26*(2), 272–292.

Ismail, M. N. I., Hemdi, M. A., Sumarjan, N., Hanafiah, M. H., & Zulkifly, M. I. (2017). Customer's acceptance, usage and M-satisfaction of Mobile Hotel Reservation Apps (MHRA). *Journal of Tourism, Hospitality & Culinary Arts, 9*(2), 425-442.

Kim, D. Y., Park, J., & Morrison, A. M. (2008). A model of traveller acceptance of mobile technology. *International Journal of Tourism Research, 10*(5), 393-407.

Kucukusta, D., Law, R., Besbes, A., Legohérel, P., 2015. Re-examining perceived usefulness and ease of use in online booking: the case of Hong Kong online users. *International Journal Contemporary Hospitality Management, 27*(2), 185–198.

Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management, 26*(5), 727-750.

Law, R., Leung, R., Lo, A., Leung, D., Fong, L.H.N., 2015. Distribution channel inhospitality and tourism: revisiting disintermediation from the perspectives of hotels and travel agencies. *International Journal Contemporary Hospitality Management, 27* (3), 431–452.

Morosan, C. (2011). Customers' adoption of biometric systems in restaurants: An extension of the technology acceptance model. *Journal of Hospitality Marketing & Management, 20*(6), 661-690.

Okumus, B., & Bilgihan, A. (2014). Proposing a model to test smartphone users' intention to use smart applications when ordering food in restaurants. *Journal of Hospitality and Tourism Technology, 5*(1), 31-49.

Ozturk, A. B., Bilgihan, A., Nusair, K., & Okumus, F. (2015, July). Mobile hotel booking technology in the hotel industry. In International Academic Conference on Social Sciences (p. 289).

Ozturk, A. B., Bilgihan, A., Nusair, K., & Okumus, F. (2016). What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use, and perceived convenience. *International Journal of Information Management, 36*(6), 1350-1359.

Ozturk, A. B., Nusair, K., Okumus, F., & Hua, N. (2016). The role of utilitarian and hedonic values on users' continued usage intention in a mobile hotel booking environment. International *Journal of Hospitality Management, 57*, 106-115.

Panagopoulos, A., Kanellopoulos, D., Karachanidis, I., & Konstantinidis, S. (2011). A comprehensive evaluation framework for hotel websites: The case of chain hotel websites operating in Greece*. Journal of Hospitality Marketing & Management, 20*(7), 695-717.

Parasuraman, A., & Colby, C. L. (2015). An updated and streamlined technology readiness index: TRI 2.0. *Journal of service research, 18*(1), 59-74.

Riemenschneider, C. K., Harrison, D. A., & Mykytyn Jr, P. P. (2003). Understanding IT adoption decisions in small business: integrating current theories*. Information & management, 40*(4), 269-285.

San Martín, H., & Herrero, Á. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: Integrating innovativeness to the UTAUT framework. *Tourism Management, 33*(2), 341-350.

Statista (2017). Number of smartphone users in Malaysia from 2015 to 2022 (in millions) https://www.statista.com/statistics/494587/smartphone-users-in-malaysia/.

Taiwo, A. A., & Downe, A. G. (2013). The theory of user acceptance and use of technology (UTAUT): A meta-analytic review of empirical findings. *Journal of Theoretical & Applied Information Technology, 49*(1).

Tode, C., 2014. Mobile Bookings Demand Skyrockets despite Lack of Optimized Experiences (10.12.14) http://www.mobilecommercedaily.com/mobile-bookings-demandskyrockets-despite-lack-of-optimized-experiences-report.

TravelClick Press Releases, 2014. Hotels Increasingly Offering Booking Options through Social and Mobile Channels (05.01.15) http://www.travelclick.com/en/news-events/press-releases/booking-options-through-social-and-mobile-channels.

TripBarometer by TripAdvisor, (2013). The World's Largest Accommodation and Traveler Survey. Winter 2012–2013.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178.

Wang, Y. S., Li, H. T., Li, C. R., & Zhang, D. Z. (2016). Factors affecting hotels' adoptionof mobile reservation systems: a technology-organization-environmentframework. *Tourism Management, 53*, 163–172.

Williams, Brett, Brown, Ted, & Onsman, Andrys. (2012). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine, 8*(3), 1.

Williams, M. D., Rana, N. P., Dwivedi, Y. K., & Lal, B. (2011). Is UTAUT really used or just cited for the sake of it? a systematic review of citations of UTAUT's originating article. In ECIS (p. 231).

Wu, Mei-Ying, Yu, Pei-Yuan, & Weng, Yung-Chien. (2012). A Study on User Behavior for IPass by UTAUT: Using Taiwan's MRT as an Example. *Asia Pacific Management Review, 17*(1), 92-111.

Wu, Yu-Lung, Tao, Yu-Hui, & Yang, Pei-Chi. (2008). The use of unified theory of acceptance and use of technology to confer the behavioral model of 3G mobile telecommunication users. *Journal of Statistics and Management Systems, 11*(5), 919- 949.

Yu, Chian-Son. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research, 13*(2), 104-121.

Zulkifly, M. I., Zahari, M. S., Hanafiah, M. H., Hemdi, M. A., & Ismail, M. N. (2016). Customers' technology readiness and customer information satisfaction on tablet-based menu ordering experience. In 3rd International Hospitality and Tourism Conference, IHTC 2016 and 2nd International Seminar on Tourism, ISOT 2016. CRC Press/Balkema.