International Journal of Hospitality and Tourism Systems
Volume 16 Issue 1 January 2023
ISSN: 0974-6250 (Print)

Hospitality & Tourism Systems

A Study on Behaviour Intention towards Adoption of Navigation Apps by Travellers: The UTAUT2 Perspective

Jick Castanha*, Prameya Gurav*, Subhash Kizhakanveatil Bhaskaran Pillai*, Indrawati**

Abstract *The purpose of the study is to examine traveller's behaviour intention towards technology adoption with respect to using mobile navigation apps by using the UTAUT2 framework. In order to validate and confirm the proposed model, data was collected from 203 respondents who actually use mobile navigation apps while travelling. The proposed model successfully achieved acceptable fit in terms of reliability and validity and was able to explain 52.6 percent variation in behaviour intention of travellers. Results also indicated that performance expectancy, effort expectancy, price value, and habit positively and significantly influence traveller's intention to adopt and use mobile navigation apps while travelling. In addition, income and experience moderates the relationship between hedonic motivation and behaviour intention. Similarly, occupation moderates the relationship between habit and behaviour intention. The study provides valuable insight to the developers and management of navigation apps to motivate travellers to use the mobile navigation app services every time they travel to new places.*

Keywords: *Navigation Apps, Technology Adoption, Travellers Intention, UTAUT 2*

INTRODUCTION

In a modern age of information and communication technology, many innovations took place in the information search domain. In the past, people were habitual to use of computer system with internet for any information or to search any services. But technology made it possible to search for any kind of information using smartphones. Mobile phones are the leading gateway of information and communication technology. The smartphone user in India is estimated to reach over 760 million in 2021 (Statista, 2021a). Similarly, the country is having nearly 700 million internet users in the year 2020, which is expected to increase to 974 million by the year 2025 (Statista, 2021b). The ever-growing mobile users and benefits associated with it boosted mobile commerce in India. According to a report, in the year 2019, around 19 billion mobile apps were downloaded in the country (Statista, 2021c), which is a clear indication that India is a poster child for mobile communications.

The usage of mobile applications by modern travellers has significantly influenced the tourism and hospitality industry (Karanasios et al., 2012). To travel to the destination place, first travellers will use travel-related applications to book flight tickets (Expedia, booking.com, and easy my trip). The next step is to search or book hotel rooms to stay at the destination place and hence will use accommodation-related applications (make my trip, and Expedia). Once tourists reach the destination, they will use transport-related applications (Uber, Redbus) and navigation applications (Google maps) while traveling to other locations. These applications enhance any travellers experience and eliminate any kind of adversity they face during their visit (Gupta et al., 2018). With the growing investment in mobile applications, it is very important to understand user acceptance and adoption to ensure successful implementation.

The present study aims at factors influencing travellers behaviour intention to use mobile navigation apps while travelling. To date, there is plenty of research regarding

* Goa Business School, Goa University, Goa, India. Email: jickcas@gmail.com; prameya16@gmail.com; subhash@unigoa.ac.in
** Telkom University, Bandung, Indonesia. Email: indrawati@telkomuniversity.ac.id

the adoption of mobile applications in various contexts, namely; purchasing travel tickets (Escobar-Rodríguez & Carvajal-Trujillo, 2013; 2014); mobile shopping (Tak & Panwar, 2017); mobile banking (Alalwan et al., 2017); mobile payment (Madan & Yadav, 2016). As far as authors knowledge, very few researches related to the adoption of navigation applications is available, for instance, Lu et al., 2015 and Gupta and Dogra, 2017. Additionally, the present study tries to test the moderating effects on the UTAUT2 construct, which was not tested in the earlier study. Hence, the present study fills the missing gap by adding valuable information and knowledge to the available literature. The paper provides valuable inputs for academicians, researchers, developers of navigation applications, and other stakeholders.

THEORETICAL REVIEW

The Unified Theory of Acceptance and Use of Technology (UTAUT) was proposed by Venkatesh et al., 2003 which focused on understanding the adoption and use of technology by employees using four core constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition) direct determinants of behavioural intention. These core constructs were identified after extensively reviewing the previous eight theories of technology acceptance, namely, Diffusion of Innovation Theory (IDT) by Roger in 1960, Theory of Reasoned Action (TRA) by Martin Fishbein and Ajzen in 1975, Social Cognitive Theory (SCT) by Bandura in 1986, Technology Adoption Model (TAM) by Davis in 1989, Theory of Planned Behaviour (TPB) by Ajzen in 1991, Model of Personal Computer Utilization (MPCU) by Thompson and Higgins in 1991, Motivation Model (MM) by Davis, Bagozzi and Warshaw in 1992, Extended Technology Adoption Model (TAM2) by Venkatesh and Davis in 2000 (Venkatesh et al., 2003; Williams et al., 2015**;** Castanha et al., 2021). In addition, theory incorporated that the relationship between these core constructs is in turn moderated by gender, age, experience, and voluntariness of use (Venkatesh et al., 2003).

In the initial years after its introduction, the UTAUT framework has been widely used to understand behaviour intention towards technology adoption in various fields, as it outperforms earlier theories by explaining the variance of 56 percent on behaviour intention (Venkatesh et al., 2003; Williams et al., 2015). But, after the development of the UTAUT2 model (an extension to the original UTAUT) by Venkatesh et al. (2012), it is widely used by researchers to understand consumer behaviour intention to adopt and use a particular technology, as it explained variance of 74 percent on behaviour intention (Venkatesh et al., 2012; Castanha et al., 2021). Three constructs were introduced in the extended model, namely, Hedonic Motivation, Price Value, and Habit, which are considered to be a good predictor of behaviour intention (Venkatesh et al., 2012). The present study adopted the UTAUT2 framework to understand the behaviour intention of travellers towards navigation applications while travelling. The proposed research model is shown in Fig. 1, with respective hypotheses to be tested in the present study.

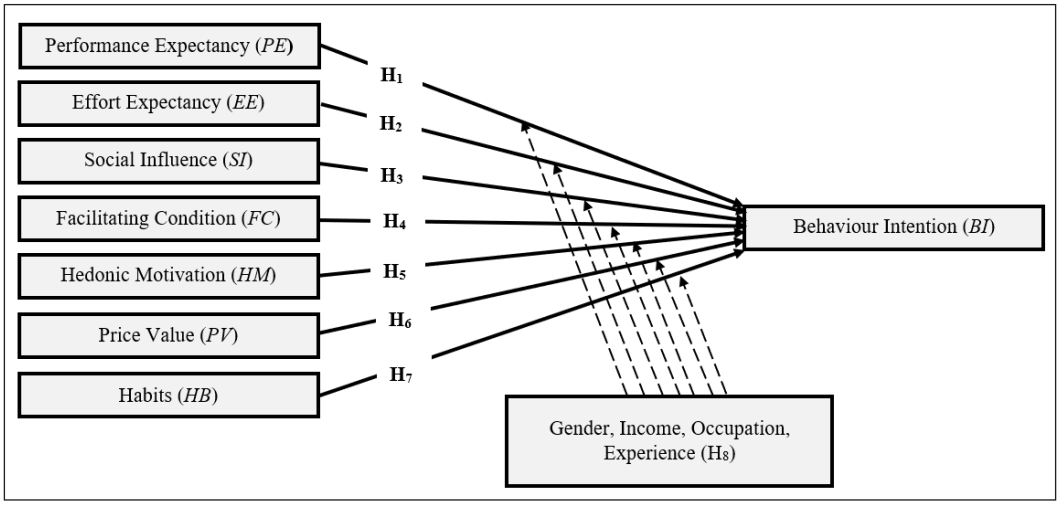

Fig. 1: Proposed Model and Hypotheses

Performance Expectancy (PE)

PE in the consumer context is defined as the extent to which an individual believes that using a particular technology would bring a favourable outcome while performing that activity (Venkatesh et al., 2003). In the UTAUT2 model, it is found that PE is the most significant construct which influences BI (Castanha et al., 2021). Therefore, a traveller is more likely to adopt and use navigation apps while travelling to new places

if he/she perceives that this application will help to reach the destination conveniently. Mobile navigation applications enable customization and also provide effective and useful information while travelling (Yang & Forney, 2013), thereby increases travellers perceived performance expectancy. Prior studies on the adoption of mobile applications confirm a significant relationship between PE and BI (Gupta et al., 2018; Tam et al., 2020). Further, studies also depicted a significant relationship between PE and BI in the specific context of mobile banking (Alalwan et al., 2017); online ticket reservation (Escobar-Rodríguez & Carvajal-Trujillo (2013; 2014), mobile shopping (Tak & Panwar, 2017), and also mobile travel apps (Gupta & Dogra, 2017). Hence, for the study, we proposed the following hypothesis:

H_1: PE positively influences travellers BI to adopt and use navigation apps while travelling.

Effort Expectancy (EE)

EE is defined as the perceived ease of use associated with the specific technology or system (Venkatesh et al., 2003). It basically specifies how much effort is required to learn and use the application (Tai & Ku, 2013). Lower the effort to understand and use the application, higher the intention to adopt and use the application (Kang, 2014). Existing research confirms that EE is a strong predictor of BI across various contexts, including mobile apps usage (Ameen & Willis, 2018; Tam et al., 2020), online travel reviews (Escobar-Rodríguez & Carvajal-Trujillo, 2014), mobile banking (Alalwan et al., 2017), mobile shopping (Tak & Panwar, 2017). Hence, the study proposes the following hypothesis:

H_2: EE positively influences travellers BI to adopt and use navigation apps while travelling.

Social Influence (SI)

SI is defined as the degree to which an individual perceives that important people (family, friends, relatives, and peer groups) in their life believe they should use a particular technology (Venkatesh et al., 2003). Individual may consider the referent experience, and feedback before the adoption of any application (Yang & Forney, 2013) and hence social influence are likely to encourage travellers intention to adopt and use the navigation apps. Prior studies depicted SI to be a strong predictor of BI towards adoption of any mobile applications (Hew et al., 2015; Tak & Panwar, 2017; Gupta et al., 2018; Baabdullah et al., 2019). Based on the above discussion, the following hypothesis was proposed:

H_3: SI positively influences travellers BI to adopt and use navigation apps while travelling.

Facilitating Conditions (FC)

FC is characterized as the degree to which an individual believes that support system, resources, and technical infrastructure are available for using the particular service (Venkatesh et al., 2003). It offers an individual a sense of psychological relief that in case of any problems related to system failure or technological barriers, the organization support is available, which in turn allows him/her to use the application (Nel et al., 2012). Prior studies confirm the relationship between FC and BI with respect to the adoption of mobile applications (Trojanowski & Kulak, 2017; Tak & Panwar, 2017; Gupta & Dogra, 2017). Further, Escobar-Rodríguez and Carvajal-Trujillo (2013; 2014), Indrawati and Yusliansyah, (2017) confirms that FC positively influences BI with respect to the adoption of ticket booking applications. Hence, we proposed the following hypothesis:

H_4: FC positively influences travellers BI to adopt and use navigation apps while travelling.

Hedonic Motivation (HM)

HM is defined as the fun, excitement, enjoyment, or pleasure derived from using a particular technology (Venkatesh et al., 2012). Intrinsic utilities play a very important role in technology adoption along with extrinsic utilities. An individual will solely use the application because he/she enjoys it and get satisfaction from using it. Prior studies also proved that HM shapes the travellers decision to adopt the mapping applications (Gupta & Dogra, 2017). Further studies also confirmed that HM positively influences BI (Alalwan et al., 2017; Tak & Panwar, 2017; Ameen & Willis, 2018). Hence, the study proposed the following hypothesis:

H_5: HM positively influences travellers BI to adopt and use navigation apps while travelling.

Price Value (PV)

PV is defined as travellers perceived benefits of using the navigation applications while travelling and the monetary cost involved in using the said applications (Venkatesh et al., 2012). If the perceived benefits arrived from the application are greater than the monetary cost, the travellers will be motivated to use the application and thus will have a positive impact on behaviour intention. Prior studies proved that PV is a significant predictor of BI in many contexts such as Escobar-Rodríguez and Carvajal-Trujillo, (2013); Alalwan et al., (2017); Tak and Panwar, (2017); Ameen et al. (2018); Ameen and Willis, (2018); Gupta et al., (2018). Thus, the present study proposed the following hypothesis:

H_6: PV positively influences travellers BI to adopt and use navigation apps while travelling.

Habit (HB)

HB is the extent to which travellers tend to use the navigation application automatically when they are travelling (Venkatesh et al., 2012). This behaviour is automatically performed because of the learning and past experience (Limayem et al., 2007). Prior studies on the adoption of smartphone applications by tourists (Gupta & Dogra, 2017; Ameen et al., 2018; Ameen & Willis, 2018; Gupta et al., 2018; Tam et al., 2020) observed HB acts as a significant predictor of BI. Similarly, specific studies on the adoption of shopping applications (Tak & Panwar, 2017), ticket booking applications (Escobar-Rodríguez & Carvajal-Trujillo, 2013) also highlighted the significant positive effects of HB on BI. Thus, the study proposes the following hypothesis:

H_7: HB positively influences travellers BI to adopt and use navigation apps while travelling.

Moderating Variables

In the study, we hypothesis that gender, income, occupation, and experience moderate the effect of UTAUT2 predictors (PE, EE, SI, FC, HM, PV, HB) on BI (Venkatesh et al., 2003; Venkatesh et al., 2012). In terms of gender, it is proved that males and females have different perceptions towards the adoption of a particular technology (Venkatesh et al., 2003; Venkatesh & Morris, 2000). Indrawati and Tohir (2016) concluded that Income moderates the relationship between all the predictors and BI. Similarly, based on the type of occupation, the behaviour intention to adopt the navigation apps will differ among the travellers. The earlier study also proved that based on the experience, the effects would be stronger on the predictors and BI (Venkatesh et al., 2003). Based on this evidence, the study proposed the following hypothesis:

H8: Gender/Income/Occupation/Experience moderates the relationship between PE, EE, SI, FC, HM, PV, HB on BI.

METHODOLOGY

The study employed a quantitative method to validate the proposed model and to examine the hypothesis. An email invitation link was sent to the travellers through a well-known source from January to April 2020. To validate the data, responses of the travellers who did not use the navigation application were removed, and after screening out the missing data, a valid 203 responses were taken into consideration for further analysis. The structured questionnaire was divided into two parts; the first section deals with the demographic characteristics of the travellers, and the second section measures the behaviour intention of the travellers to use the navigation application while travelling. The survey instruments consist of twenty-five scale items, as shown in Table 2, used from the existing studies (Venkatesh et al., 2003; Venkatesh et al., 2012; Gupta & Dogra, 2017). A five-point Likert scale was used, ranging from 1 (strongly disagree) to 5 (strongly agree). In order to analyze the data, the study used descriptive statistics, confirmatory factor analysis, and structural equation modeling using Smart PLS.

RESULTS AND ANALYSIS

Descriptive Statistics

The analysis of the demographic characteristics of the travellers is shown in Table 1. In terms of gender, the majority of the respondents were female (66.5 percent), whereas 33.5 percent were male. With respect to education, around 57.6 percent of respondents had a graduation degree, whereas 42.4 percent of respondents had a master's degree. The results show that a larger percentage of the respondents (70.4 percent) was having an income of less than one lakh. Around 64.5 percent of the respondents belong to the non-working class, which includes students and housewives, whereas 35.5 percent of the respondents are employed in the private and public sectors. In terms of geographical location, the majority of the respondents (64 percent) reside in South-Goa, and around 36 percent reside in North Goa. In terms of having the experience of using the navigation application while travelling, results depict around 81.3 percent of respondents use the navigation application for more than six months, whereas 18.7 percent of respondents have experience of fewer than six months.

Table 1: Result of Descriptive Statistics

Demographic Characteristics (N = 203)	Frequency (#)	Percentage (%)
Gender		
Male	68	33.5
Female	135	66.5
Education		
Up to Graduation	117	57.6
PG & above	86	42.4
Income		
Less than 1 Lakh	143	70.4
More than 1 Lakh	60	29.6
Occupation		
Working Class	72	35.5
Non-Working Class	131	64.5
Location		
North Goa	73	36.0

Demographic Characteristics (N = 203)	Frequency (#)	Percentage (%)
South Goa	130	64.0
Experience		
Less than 6 Months	38	18.7
More than 6 Months	165	81.3

Measurement Model

In order to test the proposed model and to examine the hypothesis, the first step is to assess the measurement model as suggested by Hair et al. (2016). Table 2 depicts the factor loading of the scale items used under each construct. It can be seen that all factor loadings are within the acceptable limit of 0.7 (Hair et al., 2010) except for PE4, which is 0.648 (Chen & Tsai, 2007). This item was not removed from the study as the AVE value (Table 3) for PE construct is within the minimum threshold of 0.5 (Fornell & Larcker, 1981; Henseler et al., 2009; Hair et al., 2010). Similarly, AVE values for other constructs were within the acceptable limits ranging from 0.563 (PE) to 0.819 (SI). Further, construct reliability and validity were tested using Cronbach Alpha (CA) and Construct Reliability (CR) results being shown in Table 3. The Cronbach alpha value for the eight constructs was within the acceptable limits of 0.7 (Hair et al., 2010), ranging from 0.773 for BI to 0.823 for HB, except for FC, which is 0.671. While, construct reliability values were above the acceptable limits of 0.7, which is considered to be an alternative to Cronbach alpha as its values are slightly higher than Cronbach alpha and the difference being relatively inconsequential (Peterson & Kim, 2013).

Discriminant Validity (DV) was assessed using the square root of AVE. DV helps to identify whether each item loads on its respective construct and is able to share more variance with its own construct or not (Fornell & Larcker, 1981; Chin, 1998). Table 3 depicts, square root of AVE for each construct is greater than the correlation between the constructs. Based on the results of CA, CR, AVE, and DV, it can be concluded that the measurement model is satisfactory in terms of reliability and validity.

Table 2: Scale Items Loadings

Scale Items	Loading
Performance Expectancy (PE)	
PE1: I find navigation apps useful for getting directions	0.756
PE2: Using navigation apps helps to reach my destination conveniently	0.790
PE3: Using navigation apps saves time while travelling	0.788
PE4: Navigation apps help to find alternative routes at all times	0.648
PE5: Navigation apps increases my productivity while travelling to places	0.761
Effort Expectancy (EE)	
EE1: Learning to use navigation apps is easy	0.753
EE2: Interaction with navigation apps is clear and understandable	0.809
EE3: Navigation apps are easy to use	0.826
EE4: It is easy to become expert/skillful in using navigation apps	0.795
Social Influence (SI)	
SI1: People who are important to me advised to use navigation apps	0.879
SI2: People who influence my behavior think that I should use navigation apps	0.930
Facilitating Condition (FC)	
FC1: I have the necessary resources to use navigation apps	0.900
FC2: I have the necessary knowledge to use navigation apps	0.830
Hedonic Motivation (HM)	
HM1: It's fun to use the features of the navigation apps	0.849
HM2: Using this app is enjoyable	0.916
HM3: Remote location features of this app entertains me	0.775
Price Value (PV)	
PV1: The cost of using navigation apps is reasonable	0.805
PV2: Using navigation apps is worth the cost	0.848
PV3: Navigation apps offer better value at the current price	0.866
Habit (HB)	
HB1: It became a habit of using navigation apps for finding destinations	0.848
HB2: I am addicted to using navigation apps for my trips	0.861
HB3: I must use navigation apps when travelling	0.863
Behavior Intention (BI)	
BI1: I intend to continue to use this app in future	0.786
BI2: I will keep using navigation apps while travelling	0.869
BI3: I plan to use this app frequently	0.833

Table 3: Cronbach Alpha, Construct Reliability, AVE and Discriminant Validity

Constructs	CA	CR	AVE	DV
Performance Expectancy *(PE)*	0.805	0.865	0.563	0.750
Effort Expectancy *(EE)*	0.808	0.874	0.634	0.796
Social Influence *(SI)*	0.782	0.900	0.819	0.905
Facilitating Condition *(FC)*	0.671	0.857	0.750	0.866
Hedonic Motivation *(HM)*	0.806	0.885	0.721	0.849
Price Value *(PV)*	0.792	0.878	0.706	0.840
Habit *(HB)*	0.823	0.893	0.735	0.858
Behavior Intention *(BI)*	0.773	0.869	0.689	0.830

The Structural Model

After establishing the reliability and validity of the proposed model, Structural equation modeling is conducted using the Smart PLS to determine the relationship between the model. Table 4 depicts the results of path coefficient and hypothesis status. It can be seen that four constructs, namely, PE, EE, PV, and HB, positively influence the travellers BI to adopt and use the navigation apps while travelling. At the same time, the other constructs of the UTAUT2 framework, namely, SI, FC, and HM, were not approved to have a positive and significant impact on BI. Based on the research hypotheses, it can be concluded that H_1, H_2, H_6, and H_7 are accepted as the p-value is less than 0.05, while H_3, H_4, and H_5 were not supported.

Table 4: Summary of Test Results for the Structural Model

Hypothesis	Relation	Path Coefficient	P-Values	Supported?	R^2
H_1	PE → BI	0.157	0.023*	Yes	0.526
H_2	EE → BI	0.154	0.044*	Yes	
H_3	SI → BI	0.063	0.373	No	
H_4	FC → BI	0.055	0.345	No	
H_5	HM → BI	-0.022	0.794	No	
H_6	PV → BI	0.208	0.003*	Yes	
H_7	HB → BI	0.362	0.000*	Yes	

*Significance Level 0.05.

Moderating Effects

In order to test the moderating effects on the proposed model, all the variables were divided into two categories based on the demographic characteristics (Henseler & Fassott, 2010). The results of the moderating effects are depicted in Table 5, in which t-values for each variable were calculated using the Chin formula (Chin, 2000). It can be seen that moderating variables do not moderate all the paths except HM on BI, moderated by income and experience, and HB on BI moderated by occupation. Hence, the hypothesis (H_8) was partially supported.

Table 5: Result of Moderating Effects

Paths	T-Values			
	Gender	Income	Occupation	Experience
PE → BI	-0.74	0.37	0.90	0.30
EE → BI	0.15	0.51	-0.47	-1.22
SI → BI	0.33	-0.29	-2.48	1.16
FC → BI	1.06	-2.31	0.11	-0.25
HM → BI	-0.67	2.00*	0.16	2.94*
PV → BI	1.01	-1.40	-1.12	-0.45
HB → BI	-0.76	-0.79	2.06*	-1.42

*Significance Level at 0.05 (1.96).

DISCUSSION

Using the UTAUT2 framework for mobile navigation apps, the study revealed insightful results. It can be seen from statistical results, the model examined in the current study is able to predict 52.6 percent of behaviour intention towards using mobile navigation apps while travelling. In addition, all criteria related to the measurement model, namely, construct reliability and validity, were achieved successfully. Four constructs (PE, EE, PV, HB) were found to be having a positive and significant relationship with BI to use navigation apps. Habit is found to be the strongest predictor of behaviour intention to use navigation apps while travelling, with a coefficient value of 0.362. The reason could be as people are getting more habitual to use the smartphone in day-to-day life, they prefer using all the applications available. From the past, travellers have the habit of using navigation apps and hence greater the intention to use the apps whenever they travel to new places. These results are in line with earlier studies namely, Escobar-Rodríguez and Carvajal-Trujillo (2013; 2014); Gupta and Dogra (2017); Gupta et al. (2018).

Price Value is considered to be the second strongest predictor of travellers behaviour intention to use navigation apps, with a coefficient value of 0.208. It is believed that navigation apps are available free of cost. Smartphone users do not have to pay any money for the use of navigation apps which increases the intention of travelers to use the navigation apps while travelling to new places. The result of the study contradicts the result of earlier study of adoption of navigation apps (Gupta & Dogra, 2017) but in line with Escobar-Rodríguez and Carvajal-Trujillo, (2013); Alalwan et al. (2017); Tak and Panwar (2017). Similarly, performance expectancy and effort expectancy were considered to be predictors of travellers behaviour intention to use the navigation app while travelling, having a coefficient value of 0.157 and 0.154 respectively. This may be due to the fact that the presence of navigation apps helps travelers to get directions without any difficulty. Also, navigation apps being easy to use influence travelers intention. The study results are similar to earlier studies namely, Escobar-Rodríguez and Carvajal-Trujillo (2014); Alalwan et al. (2017); Tak and Panwar (2017).

In the study, constructs namely, social influence, facilitating conditions, and hedonic motivation were conceptualized to have a positive and significant effect on the behaviour intention of travellers to use navigation apps. But, at the time of confirmation, it was found that these constructs are insignificant and do not influence travellers behaviour intention. In terms of social influence, results are similar to the earlier study of Gupta and Dogra (2017) but contradict in terms of facilitating conditions and hedonic motivation factors. It can be believed that travellers consider least important the recommendation of social groups to use the navigation apps. Similarly, travellers do not enjoy the apps to their fullest and believe organization support is missing. Thus, the management and developers need to redesign the navigation apps considering these factors, which in turn motivate the travellers to use the apps continuously in their every visit.

In terms of the moderation effect, it was found that income and experience moderate the relationship between hedonic motivation and behaviour intention. It means that travellers having lower-income and less experience of using the navigation app enjoy using the app. On the other hand, occupation moderates the relationship between habit and behaviour intention, which implies working class people prefer using navigation apps more frequently as compared to non-working class. This may be due to the fact that working-class people frequently travel to new places for a business trip or any other purpose.

CONCLUSION, IMPLICATIONS, AND FUTURE RESEARCH DIRECTION

The main objective of the study was to investigate the factors that affect the behaviour intention of travellers towards the adoption of mobile navigation apps by using the UTAUT2 framework. The finding of the study partially supported the theoretical and empirical ability of UTAUT2 to predict intention towards the adoption of apps in the mapping context. It was found that performance expectancy, effort expectancy, price value, and habit positively and significantly influence travellers behaviour. Among these constructs, habit was found to be the strongest predictor, followed by price value, performance expectancy, and effort expectancy. Further, the findings of the study depicted that social influence, facilitating condition, and hedonic motivation do not significantly influence the travellers behaviour intention. In terms of moderating effect, it is concluded that the relationship between hedonic motivation and behaviour intention is moderated by income and experience, and the relationship between habit and behaviour intention is moderated by occupation. Overall, the proposed model successfully achieved acceptable fit in terms of reliability and validity and was able to explain 52.6 percent variation in behaviour intention of travellers towards using mobile navigation app.

The present study fills the missing gaps in the existing literature by providing valuable insight, yet there are few inherent limitations. First, to understand the behaviour intention to adopt and use navigation apps, the study used all construct suggested by Venkatesh et al. (2012). Thus, one can extend the study by using other constructs, namely perceived trust, perceived risk, to understand the behaviour towards the adoption of mobile navigation apps. Second, the sample size for the study was limited to 204 respondents. Thus, future research can be conducted with

more respondents that will help in generalizing the results. Lastly, the study was conducted in the state of Goa. Thus, one can think of conducting a cross-section study in different states or in different countries, which will provide insightful results about the travellers behaviour intention towards adoption of mobile navigation applications.

REFERENCES

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, *37*(3), 99-110.

Ameen, N., & Willis, R. (2018). A generalized model for smartphone adoption and use in an Arab context: A cross-country comparison. *Information Systems Management*, *35*(3), 254-274.

Ameen, N., Willis, R., & Shah, M. H. (2018). An examination of the gender gap in smartphone adoption and use in Arab countries: A cross-national study. *Computers in Human Behavior*, *89,* 148-162.

Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management, 44,* 38-52.

Castanha, J., Pillai, S. K. B., & Indrawati. (2021). What influences consumer behavior towards information and communication technology applications: A systematic literature review of UTAUT2 model. *Advances in Intelligent Systems and Computing: ICT Systems and Sustainability: Proceedings of ICT4SD 2020* (vol. 1, pp. 317-327). Springer Nature, Singapore. Retrieved from https://doi.org/10.1007/978-981-15-8289-9_30

Chen, C., & Tsai, D. (2007). How destination image and evaluative factors affect behavioural intentions? *Tourism Management*, *28*(4), 1115-1122.

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research* (pp. 295-336). London: Lawrence Erlbaum Associates.

Chin, W. W. (2000). Frequently asked questions – partial least squares and PLS-graph. Retrieved June 9, 2010, from http://discnt.cba.uh.edu/chin/plsfaq.htm

Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2013). Online drivers of consumer purchase of website airline tickets. *Journal of Air Transport Management, 32,* 58-64.

Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2014). Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management*, *43,* 70-88.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.

Gupta, A., & Dogra, N. (2017). Tourist adoption of mapping apps: A UATAUT2 perspective of smart travellers. *Tourism and Hospitality Management*, *23*(2), 145-161.

Gupta, A., Dogra, N., & George, B. (2018). What determines tourists adoption of smartphone apps? An analysis based on the UTAUT-2 framework. *Journal of Hospitality and Tourism Technology*, *9*(1), 50-64.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Pearson Education International.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM).* Sage Publications.

Henseler, J., & Fassott, G. (2010). Testing moderating effects in PLS path models: An illustration of available procedures. V. Esposito Vinzi et al. (eds.), *Handbook of Partial Least Squares, Springer Handbooks of Computational Statistics*, 713-735.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing, 20,* 277-319.

Hew, J. J., Lee, V. H., Ooi, K. B., & Wei, J. (2015). What catalyses mobile apps usage intention: An empirical analysis. *Industrial Management & Data Systems*, *115*(7), 1269-1291.

Indrawati, & Tohir, L. M. (2016). *Predicting smart metering acceptance by residential consumers: An Indonesian perspective.* 4th International Conference on Information and Communication Technology (ICoICT), Bandung (pp. 104-109). Retrieved June 28, 2020; doi:10.1109/ICoICT.2016.7571892

Indrawati, & Yusliansyah, S. (2017). *Adoption factors of online-web railway ticket reservation service (A case from Indonesia).* 5th International Conference on Information and Communication Technology (ICoIC7), Malacca City (pp. 403-408). Retrieved June 28, 2020; doi:10.1109/ICoICT.2017.8074709.

Kang, S. (2014). Factors influencing intention of mobile application use. *International Journal of Mobile Communications*, *12*(4), 360-379.

Karanasios, S., Burgess, S., & Sellitto, C. (2012). A classification of mobile tourism applications. *Global Hospitality and Tourism Management Technologies*, *IGI Global, Hershey, PA*, 165-177. doi:10.4018/978-1-61350-041-5.ch011

Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How habit limits the predictive power of intention: The case of

information systems continuance. *MIS Quarterly*, *31*(4), 705-737.

Lu, J., Mao, Z., Wang, M., & Hu, L. (2015). Goodbye maps, hello apps? Exploring the influential determinants of travel app adoption. *Current Issues in Tourism, 18*(11), 1059-1079.

Madan, K., & Yadav, R. (2016). Behavioral intentions to adopt mobile wallets: A developing country's perspective. *Journal of Indian Business Research*, *8*(3), 227-244.

Nel, J., Boshoff, C., & Raleting, T. (2012). Exploiting the technology cluster effect to enhance the adoption of WIG mobile banking among low-income earners. *Management Dynamics*, *21*(1), 30-44.

Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, *98*(1), 194-198.

Statista. (2021a). Smartphone users in India 2015-2025. Retrieved 24 July, 2021, from https://www.statista.com/statistics/467163/forecast-of-smartphone-users-in-india/

Statista. (2021b). Number of internet users in India 2015-2025. Retrieved July 24, 2021, from https://www.statista.com/statistics/255146/number-of-internet-users-in-india/

Statista (2021c). Mobile app usage in India. Retrieved July 24, 2021, from https://www.statista.com/topics/5600/mobile-app-usage-in-india/

Tai, Y., & Ku, Y. (2013). Will stock investors use mobile stock trading? A benefit-risk assessment based on a modified UTAUT model. *Journal of Electronic Commerce Research*, *14*(1), 67-84.

Tak, P., & Panwar, S. (2017). Using UTAUT 2 model to predict mobile app based shopping evidence from India. *Journal of Indian Business Research*, *9*(3), 248-264.

Tam, C., Santos, D., & Oliveira, T. (2020). Exploring the influential factors of continuance intention to use mobile Apps: Extending the expectation confirmation model. *Information Systems Frontiers*, *22*(2), 243-257. doi:https://doi.org/10.1007/s10796-018-9864-5

Trojanowski, M. & Kulak, J. (2017). The impact of moderators and trust on consumer's intention to use a mobile phone for purchases. *Journal of Management and Business Administration, 25*(2), 91-116.

Venkatesh, V., & Morris, M. G. (2000). Why men don't ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage. *MIS Quarterly*, *24*(1), 115-139.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 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*, *36*(1), 157-178.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management*, *28*(3), 443-488.

Yang, K., & Forney, J. C. (2013). The moderating role of consumer technology anxiety in mobile shopping adoption: Differential effects of facilitating conditions and social influences. *Journal of Electronic Commerce Research*, *14*(4), 334-347.