

Moderating Effect of Technologies into Behavioural Intentions of Tourists toward Use of Mobile Wallets for Digital Payments: TAM Model Perspective

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Abstract Present study aims to investigate the moderating effect of technologies into behavioural intentions of tourists' toward use of mobile wallets while making digital payments with the help of Technology Acceptance Model (TAM). Sample of 250 tourists, visiting the Garhwal region of Uttarakhand has been collected through simple random sampling technique over predictor variables; Perceived value (PA), Compatibility (CO), Perceived enjoyment (PE) and Social Influence (SI), Mediating variables; Service Satisfaction (SS) and Service Trust (ST) and Behavioural intentions of tourists working as outcome variables. Further, keeping in view both conceptual and theoretical frameworks of the study, the Partial Least Square Structural Equation Modeling (PLS-SEM) technique was performed to test the proposed model. Findings of tested model brings into notice that there is significant positive relationship between and within predictor variables (PA, CO, PE & SI) and mediating variables (SS & ST). Both predictor and mediating variables are significantly impacting the outcome variable (Behavioural Intentions of tourists) toward use of mobile wallets for digital payments.

Keywords: Trust, Satisfaction, Behavioural Intentions, PLS-SEM, Mobile Wallets, TAM

INTRODUCTION

The omnipresent payment system in India has not been achieved yet as it is one of most cash-intensive economies of the world over the past. Nevertheless, around the World, India has nearly 775 million active internet users (TRAI, 2021). In M-wallet market of India, around 135 million e-wallet users are existing and in the year 2020, 80 per cent of E-commerce transactions were carried out via M-wallet. There are various sub sets of mobile commerce (M-commerce) and M-payment is one of the most common and prominent micro payment system to facilitate commercial transactions on mobile devices and applications such as mobile wallet. When any viable transaction has been initiated, authorized

and confirmed through cellular phone comes under the category of M-payment (Rao & Troshani, 2007; Zhang et al., 2012). In India, among tourists M-payment system is most vibrant and fastest growing as an alternative mode of payment for conducting their entire trips. There are two categories of M-payments (a) payments for purchases i.e. complement cash, cheques, and debit and credit cards and (b) account-based payments against bills and invoices such as money transfers into accounts or online banking payments (Karnouskos & Fokus, 2004). Majorly for recharges, flight bookings, IRCTC, hotel bookings, parking fees and purchasing other travel products, services and food items, tourists' uses M-payments. Mobile wallet is a smartphone based application that allows a tourist to make seamless

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and safe electronic transactions while being on trip and making online payments of travel products, amenities and services (Rao & Troshani, 2007). Operating software, cell-phone and online setup are three basis and most fundamental components of M-wallet. Not only performing the financial transactions but also in retrieve and authentication of user's identifications and also to secure past payment data, M-wallet helps significantly and securely. Tourists and service providers are facing several difficulties especially in hilly regions like Uttarakhand while making M-payments such as internet problems, network connectivity, and extent distances of banks from tourism destinations and sometimes shortages of cash in the Banks. There is huge scope for merchandising M-payments in India with the help of multichannel payment systems as still highest number of unbanked families are residing in India. Those who are the potential users of M-payment and wallet are less aware, technology savvy and worried about the security while using digital modes of payment (Bashir & Madhavaiah, 2015). Therefore, there is a need of creating awareness among tourists and stakeholders about the usages patterns, technological advancement and benefits of digital payments. Moreover, it has also noticed that large M-wallet players are dominating to small players and forcing them either close or shift to green pastures. Considering the huge potential of digital payments and M-wallets in India, both banking and non-banking players are showing great interest and attention and making their ways towards Indian tourism Industry. Thus, it has become very crucial to investigate behavioural intentions of tourists towards use of different mobile payment services via M-wallet while visiting and exploring tourism destinations. It is also imperative to measure the moderating effect of technologies into tourists' intentions while planning and using M-wallets services. The present work highlighted and focused on seven most leading M-wallet players in the digital payment system. For conducting the study, researchers has selected players from each category, namely Independent players and Banks and Mobile Network Operators (MNOs). These selected digital players are; (i) Airtel Money and Vodafone M-Pesa (telecom-based wallets) (ii) PhonePay, Google pay and Paytm (web-based companies) independent wallets and (iii) State Bank Buddy, HDFC PayZapp (Banks). A new technological era has been started which is focusing on interaction and association between the technological applications and human intentions (Sultan, 2015) because of scarcity of time, safety and security issues, ease of use, hassle free operations, money saving and improving personal and professional life styles (Gullen & Zimmerman, 2013), easily accessible and being more satisfied (Singh et al., 2017). The digital payment revolution has been lead and driven the modern applications, banking systems and people friendly digital products and processes. No other field has seen such metamorphosis in digitalization as seen in digital payment and M-wallet frameworks, bringing

about a myriad of digital payments choices for the tourists at tourism destinations. Unlike other countries of the World, in India cash is the entrenched and extensively used payment instrument on regular basis, but these days tourists are more digital payments friendly than even before and exploring and enjoying different M-wallets payment services.

REVIEW OF LITERATURE

In the late 1990, with inclusion of components such as expectations, individual and environmental influences technological innovations and its acceptance processes have started (Agarwal & Prasad, 1997; Bagozzi & Lee, 1999; Davis et al., 1989). Afterwards, more attention gained by the work related to internet, mobile phones and digital payments (Bitner, 2001; Garfield, 2005; Im et al., 2011; Jarvenpaa & Lang, 2005; Oye et al., 2014) which ensure design and development of several theoretical and conceptual models and frameworks related to users' adoption of new technologies and payment devices such as Technology Acceptance Model (Davis, 1989); Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975); Theory of Planned Behaviour (TPB) (Ajzen, 1991); Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2; Fishbein & Ajzen, 1975). The proposed model for the present research includes the variables and items from four above listed technology adoption models. Technology Acceptance Model (TAM) is the most significant and influential to examine tourists' technological behaviour intentions (Davis et al., 1989). TAM is employed to understand the behavioural intentions of tourists with the help of following two components; 'perceived usefulness' and ease of use' (Davis, 1989; Davis et al., 1989). Perceived usefulness is the degree of perceiving and adopting technological devices and applications in order to boost job satisfaction and performance whereas perceived ease of use is the belief that adoption of technological systems would be free of efforts and ease to use. Furthermore, extended TAM (TAM-2) assess the external variables which effect on system usage (Venkatesh & Davis, 2000). Social and organizational variables like job relevance, result demonstrability, subjective norm and image etc. are some of important latent variables of TAM-2.

Theory of Reasoned Action (TRA) model examines the human technological behaviour and specifies individual performance jointly and evaluated through belief and behaviour about technology and subjective norms has been perceived and influences by personal knowledge and awareness about technologies (Fishbein & Ajzen, 1975). Human' belief intends to examine certain behavioural pattern, which could be positive or negative, need to evaluate and determine as a consequences of technological impacts on human behaviour. Subjective norms belong to persons' acceptance or rejection of technological behaviour

in certain circumstances. It is affected by both internal and external atmosphere such as spouse, peer review, reference group and family members. Theory of Planned Behaviour (TPB) is the well-known and useful extension of the Theory of Reasoned Action (Ajzen, 1991) which helps in examining of human behavioural intention towards technologies (Fishbein & Ajzen, 1975). There are three main components belong to TPB; perceived behavioural control, attitude and subjective norm (Ajzen, 1985, 1988, p. 134). Briefly, Perceived Behavioural Control (PBC) includes two important components: facilitating conditions' (Triandis, 1979) determine the available resources (time, money and energy etc.), required to connect behaviour with technology followed by self-efficacy, human abilities to performing technological behavior (Ajzen, 1991). Attitude which is human evaluative behaviour, could be positive or negative being reflected through beliefs and working styles, whilst subjective norm is an individualistic perception and social beliefs about the normative expectations of others (Ajzen, 2002; Ajzen & Fishbein, 1975). Gupta and Sunil (2020) argued that both perception and satisfaction of tourists are important to consider before to cater their needs and wants likewise to tourism stakeholders (Kumar, Gupta, & Voda, 2021) and local residents (Tiwari et al., 2021).

Unified Theory of Acceptance and Use of Technology (UTAUT) model framework use for the prediction of the users' technologies adoption behaviour (Venkatesh et

al., 2003). UTAUT and its extended model UTAUT-2 are very widely accepted to examine and predict behavioural intentions of tourists about adoption of digital technologies such as digital payment and M-wallets. Components of UTAUT has been derived from Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) collectively and comprehensively. UTAUT designed four different and distinct factors i.e. facilitating conditions, performance expectancy, social influence and effort expectancy, these factors help in determining the usage and behavioural intentions of tourists about technology adoption. First, facilitating conditions which determines the degree to which tourists believes that a technological system could systematically and technically support the use of a new technology, system and mode of payments. Second, Performance expectancy provides empirical evidences on the basis of performance and usefulness of technology devices, applications that influences behavioural intentions of tourists. Third, social influence like peer groups, reference groups, society and family are also influence behavioural intentions of tourists with respect to technology adoption. Fourth, Effort expectancy focuses on tourists' attitude, ease of use and determines the acceptance of the digital technology. All these services and components make tourists' trips easier and comfortable due to tourists-friendly interface and quick digital payment setups like M-payment.

Table 1: Literature on Adoption of Mobile Wallet

Source	Context	Model Use	Extended Variables Studied
Chawla and Joshi (2020)	Mobile wallet	Extended TAM Model	Facilitating and demand conditions, safety and security, trust, lifestyle compatibility and gender as moderator
Pertiwi et al. (2020)	E-wallet	TAM Model	Privacy and money security, Perceived risk,
Karim et al. (2020)	E-wallet	Extended TAM Model	Innovativeness, perceived Stress, satisfaction,
Singh et al. (2020)	Mobile Wallet	TAM and UTAUT2	Suggestions to use, social influence
Schmidhuber et al. (2020)	Mobile payment	Extended TAM model	Perceived ambiguity, compatibility, personal innovativeness, social influence, risk and cost as moderating variables
Lew et al. (2020)	Mobile wallet	Jointly TAM critical mass theory, self-efficacy theory and Flow theory	Perceived critical mass and enjoyment, cellular phone self-efficacy and technology self-efficacy
Hasan and Gupta (2020)	Mobile wallet	TAM, TRA, TPB and UTAUT2 Model	Perceived enjoyment, Compatibility and social influence trust
Taufan and Yuwono (2019)	E-wallet	Extended TAM	Perceived value, social influence, alternatives, perceived trust and security
Amin et al. (2015)	Mobile wallet	TAM	Mobile wallet self-efficacy, learning and trust
Shaw (2014)		Mobile wallet Extended TAM	
Shin (2009)	Mobile wallet	UTAUT	Security, self-efficacy, social influence & trust
Seetharaman et al. (2017)	Mobile wallet	Extended TAM	Innovativeness, critical mass, security, trust, flexibility, cost, privacy, anonymity, speed and availability of alternatives
Alaeddin et al. (2018)	Mobile wallet	Extended TAM	Desire to switch from mobile wallet, perceived risk and attitude about switching to mobile wallet

All the above discussed models and theories are widely used and accepted in applied researches related to new technologies adoption by the tourists (Liu et al., 2011). Furthermore, these theoretical and conceptual models have been designed in different contexts such as E-commerce (Koufaris, 2002) and mobile commerce (Koivumaki et al., 2006). Modification in existing technology acceptance models are good for comprehensively understanding users' intentions about M-payment adoption (Shin, 2009). Therefore, after analyzing previous models and theories extensively such as TAM, TPB, UTAUT and TRA, framework and variables, objective and hypothesis for the

present study has been designed and discussed.

- To study the relationship between predictor, mediating and outcome variables.
- To examine the moderating effect of technologies into behavioural intentions of tourists toward use of digital payments.
- H₀1 There is no significant relationship between predictor, mediating and outcome variables.
- H2 Technologies have significant impact on behavioural intentions of tourists toward use of digital payments.

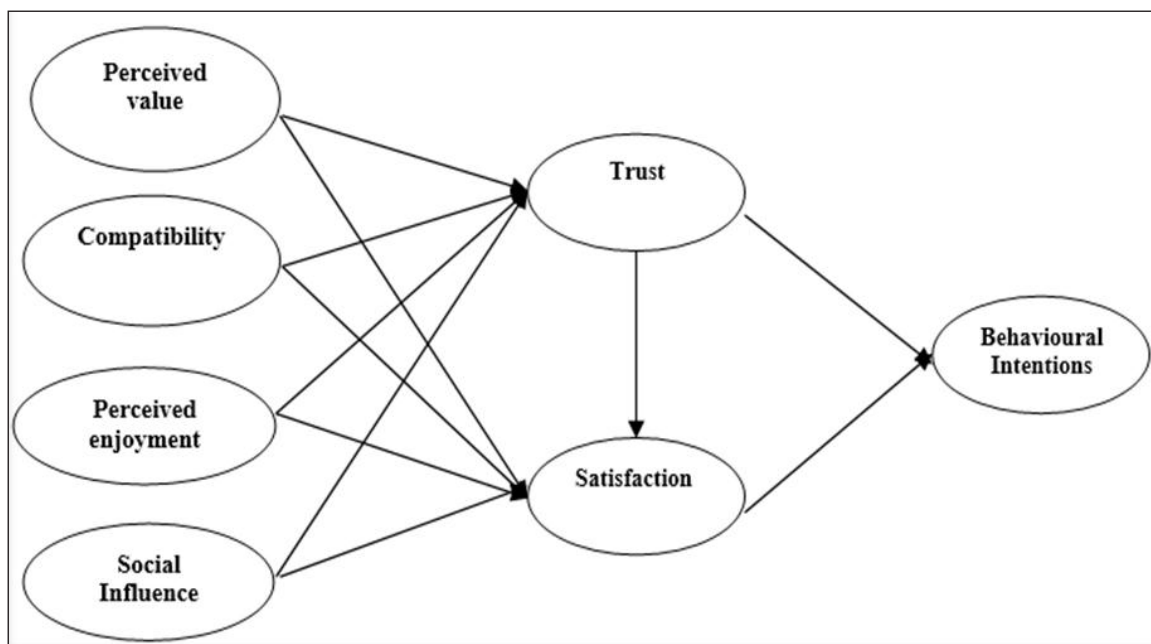


Fig. 1: Conceptual Framework

Predictor Variables: Perceived Value (PV), Compatibility (CO), Perceived Enjoyment (PE) & Social Influence (SI), *Mediating Variables:* Trust (TR) and Satisfaction (SA) and *Outcome Variable:* Behavioural Intentions (BI).

METHODS AND MATERIALS

The present study has adopted both quantitative and qualitative survey approaches to investigate moderating effect of technologies into behavioural intentions of tourists to use mobilewallets. The data was collected from the tourists, visiting Garhwal region of Uttarakhand, India. The measurement test items ($n = 43$) were picked up from Predictor Variables ($n = 22$): Perceived value ($n = 6$), Compatibility ($n = 7$), Perceived Enjoyment ($n = 4$) & Social Influence ($n = 5$), Mediating Variables ($n = 13$): Trust ($n = 6$) and Satisfaction ($n = 7$) and Outcome Variable ($n = 8$): Behavioural Intentions ($n = 8$). While the measurement

of reliability and validity of data and test items, few items were deleted before final analysis due to insignificant results and poor factor loadings as before the final selected items must be reliable and valid (Saura, 2020). All the selected items ($n = 43$) were measured on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The data was collected from tourists visiting the Garhwal region of Uttarakhand, India. Before final data collection, pilot study, primary and secondary tryouts were performed in order to check the validity and reliability of data and test items. The screening of test items were done on the basis of awareness, satisfaction and agreement level of tourists about digital payments and mobile wallets. For off-line survey, researchers visited the popular, Satellite and offbeat/remote tourism destinations of the Garhwal, Uttarakhand, where they interacted, observed and recorded responses of tourists on five point Likert scale in view of predictor, mediating and outcome variables via simple random sampling technique.

Furthermore, Chauhan et al. (2017) suggested that in the past few years, number of tourists using mobile wallets are increasing and showing positive interest in using digital mode of payments. Therefore, tourists visiting Garhwal region of Uttarakhand were targeted for the data collection and examining their behavioural intentions towards use of mobile wallets. Total sample of 250 tourists has been selected and analysed through Technology Acceptance Model (TAM) and Partial Least Square Structural Equation Modeling (PLS-SEM). TAM is the well-known and widely accepted model for examining technology adopting behaviour and moderating effect of technologies whereas PLS-SEM model is used to measure the structured relationships among latent, predictor, mediating and outcome variables. Reinartz et al. (2009) suggested that 100 sample size is the threshold for performing PLS-SEM analysis and “10-times methods” (inner or outer model) is most common of determining sample size (Hair et al., 2011).

DATA ANALYSIS AND RESULTS

To investigate the tourists’ agreement level (latent construct) for examining the causal relationship between predictor (PV, CO, PE and SI), mediating (TR and SA) and outcome (BI) variables, multivariate statistical method; Partial Least Square Structural Equation Modeling (PLS-SEM) was performed and to measure moderating effect of technologies into behavioural intentions of tourists to use digital payments, Technology Acceptance Model (TAM) was used. Hair et al. (2017) suggested that there are two types of SEM frameworks; covariance-based (Joreskog, 1993) and variance-based, that

is also known as partial least square PLS-SEM (Lohmöller, 1989a; Chin, 1998). After exploring both frameworks, Hair et al. (2017) explored that PLS-SEM combination is most effective and useful in establishing metric relationships between latent, predictor, mediating and outcome variables. PLS-SEM also works as “causal-predictive” and prominent measurable force at small sample sizes (100 to 300) and with non-normal distributions at NPC (Normal Probability Curve). Hence, PLS-SEM model is the most suitable for the present research work and performed via smart PLS application, which is highly recommended by various academician and researchers (Hair et al., Peng & Lai 2012).

The analysis work has been done in two different phases wherein the principal stage includes determination and evaluation of designed model in review to check fitness and usability and the subsequent stage has incorporated with implication of the model (PLS-SEM) (Gerbing & Anderson, 1988; Ringle et al., 2012). Present research has applied PLS-SEM to examine the variance-based structural equation modeling under determined variables (Arora & Dhiman, 2020; Dhiman et al., 2019; Saura et al., 2020). Indicator reliability of each constructs of data was measured by examining factors loading or outer weights of model. Indicator reliability has been confirmed through factors loading of all selected items and the threshold value is 0.7 (Fornell & Larcker, 1981). Few items related to different constructs (predictor, mediating and outcome) had to be dropped, as their factor loading value were less than 0.7, which would hinder the values of average variance extracted (AVE) and composite reliability (Hair et al., 2013).

Table 2: Reliability and Validity

Constructs	Items	Mean	SD	VIF
Perceived Value (PV) $\alpha = 0.861$ $\rho = 0.829$ CR = 0.738 AVE = 0.681	People around me who use mobile payment services have more prestige than those who do not.	3.82	0.89	1.21
	People who use mobile payment services have a high profile.	3.91	0.82	1.89
	Using mobile payment services is considered a status symbol among my friends.	3.67	0.90	2.31
	Mobile payment is less convenient/effective than Internet or off-line payment in managing payment.	3.87	0.85	1.92
	Using mobile payment systems would enable me to accomplish financial tasks and payments quickly.	3.72	0.83	2.65
	Using mobile payment systems would make it easier for me to manage and make payments.	3.43	0.82	1.22
Compatibility (CO) $\alpha = 0.721$ $\rho = 0.837$ CR = 0.801 AVE = 0.691	Mobile wallet is suitable to integrate with banking services.	3.89	0.89	1.87
	Using mobile payment services does not fit well with the way I like to purchase products and services.	3.54	0.91	2.54
	Using mobile payment services fits well with my lifestyle and work.	3.81	0.83	1.54
	I would appreciate using mobile payment services instead of alternative modes of payment (e.g., credit card, cash).	3.87	0.86	2.56
	I am familiar with all the transactions and functioning of the mobile wallet.	3.54	0.89	1.89
	It is easy to perform the steps required to use mobile payment services.	3.43	0.81	2.43
	My interaction with a mobile payment procedure is not clear and understandable.	3.56	0.90	2.32

Constructs	Items	Mean	SD	VIF
Perceived Enjoyment (PE) $\alpha = 0.791$ $\rho = 0.833$ CR = 0.722 AVE = 0.739	Using mobile payment system is rather pleasant.	3.43	0.85	1.45
	The mobile payment procedure is rather not enjoyable.	3.76	0.87	2.11
	Banking is fun in mobile wallet.	3.54	0.82	1.57
	App of mobile wallet is not very attractive and explanatory.	3.80	0.85	1.62
Social Influence (SI) $\alpha = 0.822$ $\rho = 0.743$ CR = 0.837 AVE = 0.732	People who are important/ influence to me would think that I should use m-payment.	3.92	0.92	2.33
	People who are important to me would think using m-payment services beneficial to me.	3.87	0.81	1.50
	I will use it because it is referred by my family and friends.	3.43	0.85	2.63
	I will use it because most of the people in society use it.	3.54	0.86	1.29
	People who are important to me would find using mobile payment services a good idea.	3.59	0.93	1.44
Trust (TR) $\alpha = 0.845$ $\rho = 0.711$ CR = 0.798 AVE = 0.781	I do not believe mobile payment systems are trustworthy.	3.69	0.84	2.29
	I trust that mobile wallet is safe and has reliable features.	3.78	0.85	1.32
	I trust mobile wallet apps and transactions done by mobile wallet.	3.93	0.83	2.80
	I trust mobile wallets keep my personal and financial information secure.	3.43	0.82	1.22
	My money is not secured in mobile wallet.	3.54	0.91	1.82
	I trust this app because my closed ones trust it.	3.56	0.86	2.78
Satisfaction (SA) $\alpha = 0.798$ $\rho = 0.839$ CR = 0.781 AVE = 0.737	Using M-wallet service gives me satisfaction.	3.66	0.89	1.91
	I am satisfied with the fees charged in M-wallet services.	3.54	0.81	2.62
	I am satisfied with the security of my money in M-wallet.	3.78	0.94	1.43
	Confidentiality of my personal details makes me satisfied with M-wallet.	3.51	0.82	1.80
	I cannot transfer money to anyone in need anytime, which makes me dis-satisfied.	3.43	0.81	2.55
	I don't have a positive attitude toward m-payments for shopping.	3.45	0.82	1.32
	My interaction with the m-payments system was very satisfying.	3.54	0.80	2.98
Behavioural Intentions (BI) $\alpha = 0.832$ $\rho = 0.785$ CR = 0.763 AVE = 0.782	I intend to adopt mobile wallet in the near future.	3.54	0.91	1.22
	I will frequently use Mobile wallet in the future.	3.56	0.86	1.90
	I intend to use mobile payment services when the opportunity arises.	3.69	0.81	2.49
	I could use a mobile payment procedure in case of access.	3.55	0.82	1.98
	I am willing to spend more time than I had planned on this m-wallet.	3.41	0.84	2.61
	I will strongly recommend others to use m-wallet like friends.	3.85	0.85	2.43
	Assuming I could use a mobile payment procedure at a merchant, I intend to use it.	3.49	0.83	2.82
	I will always try to use Mobile wallet.	3.81	0.86	1.78

Source: Primary Data. VIF-Variance Inflation Factor.

Measurement Model (TAM)

Technology Acceptance Model (TAM) is the systematic evaluation model, perform under two bases, reflective and formative measurement frameworks. TAM constructs' and items considered as reflective or predictor indicators (Chawla & Joshi, 2019; Kumar Sharma & Madhumohan Govindaluri, 2014) whereas under perceptual and formative framework of TAM, items and constructs are associated with belief and behaviour about technology adoption and usages (Mathieson et al., 2001) and also focusing on establishing relationships between construct and indicators. Venkatesh et al. (2003) explored TAM model as a predictor for users' information

and technology system adoption. However, to predict and determine the overall perception and satisfaction of the users, reflective framework could be followed (Mathieson et al., 2001). In sum, these reflective framework of TAM theory capture tourists' belief about essential benefits and features of technology adoption systems. Therefore, the present research has adopted the systematic evaluation approach of reflective measurement of TAM model (relationship of predictor and mediating variables to corresponding latent variable). In PLS-SEM, the contribution of each indicator or test item toward their respective variables must defined and determined (Hair et al., 2019). Therefore, the item loading of each indicator under respective constructs along with p

value need to be examined and is reported in the Table 3. Based on the classical model theory, reflective model could be investigated by following frameworks such as convergent and discriminant validity and reliability (Freeze & Raschke, 2007). The present research has measured the reflective measurement framework that determine the association linkage of items with their latent constructs in order to ensure the internal reliability of the selected model (Cronbach's alpha and CR). Construct validity i.e. convergent (through AVE) and discriminant validity (square root of AVE) (Fornell and Larcker, 1981) and heterotrait–monotrait ratio of correlation (HTMT) criterion (Henseler et al., 2015) was also examined and reported (Hair et al., 2016a; Hair & Hult, 2016; Hair et al., 2018).

Salloum et al. (2019) defined the convergent and discriminant validity as “extent of high correlation between theoretically identical” constructs and “extent of construct differentiation

from other constructs” respectively. Table 2 presented the reliability and validity measure along with descriptive statistics, where all values of reliability and validity indicators are more than the threshold values. As suggested by Fornell and Larcker (1981) that threshold value of AVE and CR are 0.50, CR is 0.70 respectively supported by (Churchill, 1979; Fornell & Larcker, 1981). All the reported values of AVE and CR in Table 2, are more than the threshold values (Fornell & Larcker, 1981). Moreover, theoretically measured constructs, which must have different purposes and indicators, has been examined through Discriminant validity (Hair et al., 2013). Value of discriminant validity should be greater than correlation to corresponding factors and measured by doing square root of AVE (Fornell & Larcker, 1981). All the threshold values of different validity and reliability are determined and confirmed each indicator, factor and variable of the present study.

Table 3: Outer Loadings

Items	Original Sample	Mean	S.D.	T-Ratio	P-Value
PV1	0.837	0.921	0.081	40.218	0.000**
PV2	0.921	0.787	0.032	57.291	0.000**
PV3	0.841	0.933	0.091	38.722	0.000**
PV4	0.789	0.882	0.044	54.811	0.000**
PV5	0.822	0.890	0.083	45.321	0.000**
PV6	0.911	0.871	0.023	23.291	0.000**
CO1	0.822	0.921	0.010	54.011	0.000**
CO2	0.901	0.801	0.039	48.810	0.000**
CO3	0.845	0.732	0.043	36.711	0.000**
CO4	0.722	0.932	0.020	57.291	0.000**
CO5	0.849	0.732	0.071	38.722	0.000**
CO6	0.935	0.889	0.034	34.614	0.000**
CO7	0.899	0.801	0.049	39.203	0.000**
PE1	0.903	0.792	0.021	51.815	0.000**
PE2	0.842	0.821	0.092	70.806	0.000**
PE3	0.784	0.820	0.043	29.643	0.000**
PE4	0.888	0.791	0.059	40.218	0.000**
SI1	0.919	0.832	0.081	57.296	0.000**
SI2	0.831	0.901	0.019	38.722	0.000**
SI3	0.920	0.739	0.033	52.871	0.000**
SI4	0.876	0.791	0.038	34.021	0.000**
SI5	0.738	0.821	0.082	58.872	0.000**
TR1	0.821	0.940	0.044	64.930	0.000**
TR2	0.981	0.781	0.089	32.182	0.000**
TR3	0.823	0.922	0.049	27.534	0.000**
TR4	0.921	0.743	0.071	50.381	0.000**
TR5	0.881	0.881	0.022	37.447	0.000**
TR6	0.701	0.811	0.031	49.740	0.000**
SA1	0.843	0.830	0.078	46.287	0.000**

Items	Original Sample	Mean	S.D.	T-Ratio	P-Value
SA2	0.980	0.734	0.043	37.219	0.000**
SA3	0.843	0.938	0.021	48.729	0.000**
SA4	0.945	0.749	0.081	66.732	0.000**
SA5	0.836	0.933	0.072	60.281	0.000**
SA6	0.756	0.781	0.028	46.206	0.000**
SA7	0.819	0.923	0.039	53.720	0.000**
BI1	0.932	0.682	0.011	49.810	0.000**
BI2	0.844	0.734	0.020	68.287	0.000**
BI3	0.922	0.782	0.029	54.218	0.000**
BI4	0.854	0.739	0.037	63.729	0.000**
BI5	0.781	0.892	0.071	48.726	0.000**
BI6	0.891	0.810	0.012	55.519	0.000**
BI7	0.932	0.782	0.061	35.724	0.000**
BI8	0.819	0.791	0.053	59.831	0.000**

Source: Primary Data.

Furthermore, HTMT (Henseler et al., 2015) has been confirmed by new framework of discriminant validity and its threshold value of HTMT under new framework of discriminant validity must be less than 0.85 (Clark & Watson, 1995; Kline, 2011) or < 0.90 (Henseler et al., 2015; Gold et al., 2001; Teo et al., 2008) and same has also maintained by the present study. It is also very crucial to measure the uniformity and accurateness of the proposed model before testing the proposed relationships and establish the structural modeling.

Hair et al. (2011) argued that in order to avoid the problem of collinearity, VIF (variance inflation factor) a good indicator to establish an appropriate relationships among selected indicators. If the value of each indicator and test item is greater than 5 means, there is problem with existing collinearity. Therefore, the suggested value of VIF must be less than 5 (Hair et al., 2011), and the significant value would be close to or below 3 (Hair et al., 2019). For the present research calculated values of VIF are lower than the threshold value as reported in Table 2 and does not included any formative constructs (Saura et al., 2019).

Table 4: Discriminant Validity (Square Root of AVE)

Constructs	PV	CO	PE	SI	TR	SA	BI
PV	0.892						
CO	0.702	0.732					
PE	0.881	0.820	0.831				
SI	0.722	0.892	0.683	0.723			
TR	0.791	0.789	0.748	0.843	0.801		
SA	0.783	0.682	0.740	0.729	0.745	0.691	
BI	0.811	0.732	0.711	0.682	0.828	0.830	0.622
Heterotrait–Monotrait Ratio of Correlation (HTMT)							
PV	PV	CO	PE	SI	TR	SA	BI
CO	0.801						
PE	0.782	0.830					
SI	0.711	0.781	0.871				
TR	0.708	0.792	0.792	0.803			
SA	0.903	0.881	0.803	0.772	0.703		
BI	0.783	0.728	0.974	0.684	0.862	0.871	
	0.881	0.682	0.782	0.702	0.763	0.662	0.785

Source: Primary Data.

Structural Model (PLS-SEM)

The explanatory power of the PLS-SEM model is determined by examining value of R^2 as presented in Fig. 2. The model explains the variance in each predictor, mediating and outcome variables due to each indicator, predictor variable and mediating variable respectively. Variance of 0.49%, 68%, 77%, 53%, 11% and 0.6% has been explained by indicators PV1, PV2, PV3, PV4, PV5 and PV6 in total perceived value (predictor variable), similarly 3%, 18%, 69%, 65%, 42%, 22%, and 75% by indicators CO1, CO2, CO3, CO4, CO5, CO6, and CO7 in total compatibility (predictor variable) and 75%, 88%, 86% and 77% by indicators PE1, PE2, PE3 and PE4 in total perceived enjoyment (predictor variable), 77%, 2%, 84%, 94% and 98% by indicators SI1, SI2, SI3, SI4 and SI5 in total social influence (predictor variable). Further, variance of 4%, 68%, 77%, 82%, 86%, 43%, 24% and 34%, 64%, 72%, 40%, 31% and 51% by indicators SA1, SA2, SA3, SA4, SA5, SA6, SA7 and TR1, TR2, TR3, TR4, TR5 and TR6 in total satisfaction and trust (Mediating Variables). Variance of 14%, 11%, 27%, 53%, 53%, 64%, 47% and 22% by indicators BI1, BI2, BI3, BI4, BI5, BI6, BI7 and BI8 in Behavioural intention of tourists (outcome variable).

Moreover, percentage share of predictor or latent variables to mediating variables; trust and satisfaction were also explained by the model, wherein variance of 12%, 3%, 2%, 1% and 25%, 2%, 4% and 25% due to latent variables; perceived value (PV), compatibility (CO), Perceived enjoyment (PE) and social influence (SI) in total trust and

satisfaction (mediating variables) respectively. However, outcome variable (behavioural intentions of tourists) is being impacted by each indicators ($n=31$), predictor variables; PV, CO, PE and SI ($n=4$) along with variance of 6% and 16% by mediating variables; TR and SA ($n=2$) in total behavioural intentions of tourism toward use of digital mode of payments. With the help of above explained variances by each indicator, predictor and mediating variables in Behavioural intentions of tourists, it is concluded that both TAM (Technology Acceptance Model) and PLS-SEM (Partial Least Square Structural Equation Modeling) are positioned at significant level of 'Goodness of fit' and considered as most reliable and valid models for examining the moderating effect of technologies into behavioural intentions of tourists (Henseler et al., 2016) and establishing causal relationship between predictor, mediating and outcome variables (Henseler et al., 2016; Farooq et al., 2017; Hu & Bentler, 1999; Bentler & Bonett, 1980). Hence, both the proposed objectives and their corresponding hypotheses 'To study the relationship between predictor, mediating and outcome variables (H_0 1 There is no significant relationship between predictor, mediating and outcome variables)' and 'To examine the moderating effect of technologies into behavioural intentions of tourists toward use of digital payments (H_2 Technologies have significant impact on behavioural intentions of tourists toward use of digital payments)' have been achieved and tested at 0.01 level of significance. That means, there is significant positive relationship exist between predictor, mediating and outcome variables and also showing the significant moderating effect of technologies into behavioural intentions of tourism toward use to digital modes of payments while traveling.

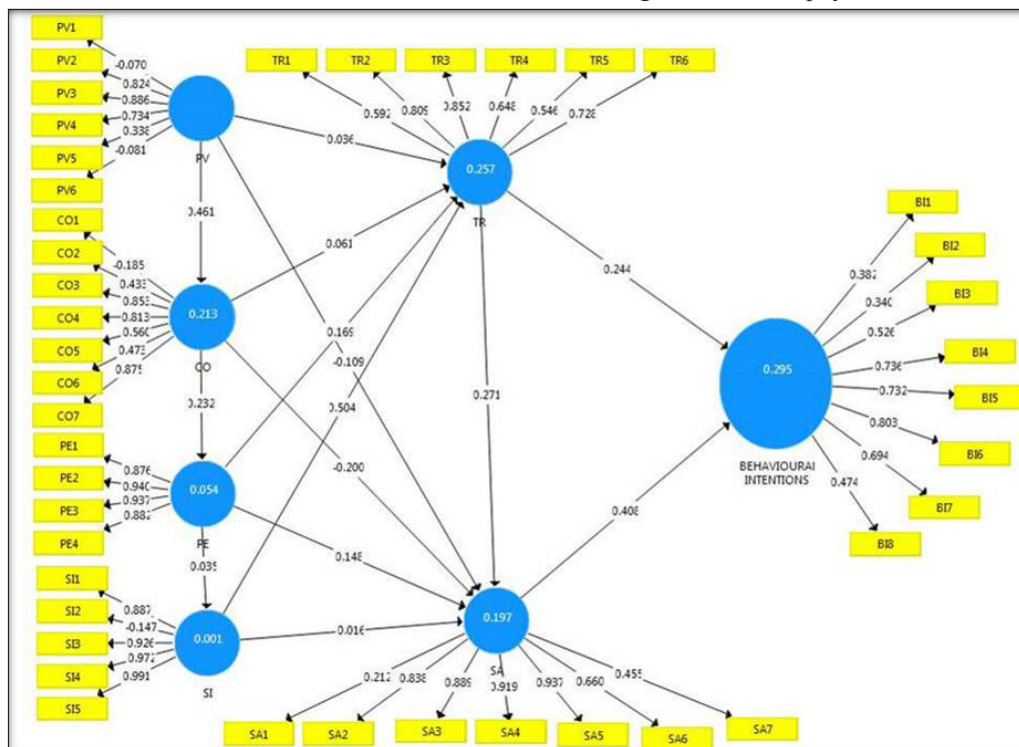


Fig. 2: PLS-SEM & TAM Model Output

DISCUSSIONS

The present research work empirically makes a structural model to test the applicability of the PLS-SEM and TAM model to digital payments including mobile wallet by the tourists visiting study area and also helpful in examination of their internal and external intentions and motivations towards use of digital payments (Davis, 1989). TAM is one of the most effective model for evaluating technological acceptance among tourists. The extended version of TAM model having similarities with the earlier one, was frequently used in technological driven applied sciences like self-service technology (Demoulin & Djelassi, 2016) and having perfect combination with PLS-SEM for solving the complex relationships among predictor, mediating and outcome variables (Bailey et al., 2017). These days, both TAM and extended TAM models have been using incorporation with PLS-SEM in view of establishing constructs and indicators relationship under different studied variables in relation to tourists' technological behaviour and intentions. TAM also has wide acceptance to examine users perception and satisfaction about m-wallets or e-wallets with the help of planned behaviour and psychological of reasoned action theory. Technological adoption behaviour of tourists' depends on multiple factors such as perceived risk, usability, benefits and availability of digital payments options at destinations (Marangunic & Granic, 2015) as suggested and measured in the present study. Results of the present study clearly outlines the significant relationships between predictor (PV, PE, CO and SI) and mediating (TR and SA) variables in relation to and outcome variable (BI). Additionally, moderating effects of technologies are also traced into both latent (PV, PE, CO and SI) and mediating (TR and SA) variables towards changing behavioural intentions of tourists about use of digital payments with the help of PLS-SEM modeling.

CONCLUSION

The objective of the present study was to establish the relationship between predictor, mediating and outcome variables and also to examine the moderating effect of technologies into behavioural intentions of tourists towards use of digital mode of payments. Where perceived value (PV), compatibility (CO), perceived enjoyment (PE) and social influence (SI) work as independent variables, behavioural intentions (BI) as a dependent variable, whereas trust (TR) and satisfaction (SA) acted as mediating variables between independent and dependent variable. To do so, both TAM and PLS-SEM were found most suitable and appropriate to use and perform the analysis work, as it works on the principal component analysis for the present study. Based on the results, it has concluded that there is a

significant positive relationship between; each indicator ($n = 31$) to predictor (PV, PE, CO and SI), mediating (TR and SA) and outcome (BI) variable, and also in case of between and within among each variables and indicators. Furthermore, each indicator and variable related to technological adoption behavioural and collectively and significantly impacting behavioural intentions of tourists toward to use of digital mode of payments. That's how proposed objectives and hypotheses of the present study have been achieved and tested. Recent and modern advancements in technology have made tourists more aware about digital mode of payment and their unique features, this could be potential moderating effect on technologies into behavioural intentions. A wide range of technological based digital payment products and services have made it possible for the tourists to track their payment record in a single click. They can use it while booking flights, accommodations, shopping and making payments of various travel amenities and activities etc. Therefore, it would be much appropriate to say that tourists have really found digital mode of payments such as mobile wallet trustworthy and easy to use that bring them to enjoy their leisure time peacefully and hassle-free.

IMPLICATIONS

The unprecedented growth has been noticed in number of mobile wallets uses during COVID-19 pandemic and behavioural intentions of tourists have also been changed about digital mode of payments including mobile wallets. According to the feedback and behavioural intentions of tourists, several resourceful implications need to be implemented by the tourism planners and service providers to ensure positive perception and highest level of satisfaction among tourists' about mobile wallets and their benefits, perceived value, compatibility, perceived enjoyment, social influence. As these are core indicators determining trust and satisfaction level of tourists about digital payments followed by positive behavioural intentions towards them. The vision of the Government is very clear and specific to make the India a cashless economy and in view of this various initiatives have been taken to integrate the technology with the changing trends in different sectors such as tourism and hospitality. The present study has highlighted need of technological advancement in digital mode of payments according to tourists' knowledge and feedback. Behavioural intentions of tourists will provide an idea about adoption of technology in changing paradigm of digital payments like M-wallets, E-wallet, unified payments interface based transactions and wallet-linked payment services etc. Such innovative technologies have opened a plethora of opportunities to tourism service providers and stakeholders to provide pleasant and memorable travel experiences to the tourists.

LIMITATIONS AND SCORE FOR FUTURE RESEARCHES

Although the present research work has brought the resourceful insights and understanding of behavioural intentions of tourists and determinants of digital and m-wallet payment adoption with the help of establishing relationship between predictor (PV, PE, CO and SI), mediating (TR and SA) and outcome (BI) variables via TAM and PLS-SEM model. At the same time it cannot be stated that present work is free of any limitations, such as the sample size, sample frame, population, studied variables, time frame and study area of the present study. No doubt, this brings profound opportunity for the future researchers and researches to address these areas. Future researches could focus on different tourism destinations and adding more studied variables, sample size and models. Apparently, the moderating role of geographical locations of tourism destinations and demographics of tourists' could be examined to see the impact of destination geographies and tourists demographics in adopting digital mode of payments such M-wallets. While the present study takes only behavioural intentions of tourists into consideration, therefore further researches would also include stakeholders and service providers. Additionally, this study has been conducted in Garhwal region of Uttarakhand, India that brings huge scope to use the proposed models, variables and indicators to different tourism destinations in India and World.

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