IMPACT OF BEHAVIORAL, TECHNOLOGICAL & SOCIETAL ANTECEDENTS ON CONTINUOUS USAGE INTENTIONS OF MOBILE BANKING

Anam Qamar[1,*] and Muhammad Azeem Qureshi[2]

Abstract

The aim of this research was to examine the impact of behavioral, technological, and social antecedents on the continuous usage intentions for mobile banking, through the integration of well-known theories such as TTF, DOI, ECM, and UTAUT 02. The research design is built on the positivist approach supported by the quantitative method. A survey questionnaire was used to gather data. PLS-SEM 3.0 was implemented to empirically validate the stated hypotheses. The sample comprised of 234 mobile banking users in Karachi, Pakistan. The results indicated the strength of the model (R^2) was 71.8%, while the predictive relevance (Q^2) was 51%. Furthermore, price value, habits, satisfaction, and word of mouth, were significant antecedents of continued usage intentions, while performance expectancy, hedonic motivation, social influence, and effort expectancy, were found to be insignificant. A statistically significant mediating role of satisfaction and word of mouth was identified. These findings will be helpful for financial institutions, telecommunication companies, software providers, and other stake holders, to efficaciously execute financial inclusion by focusing on technological, behavioral, and societal aspects of mobile banking users.

Keywords: Continued Usage Intentions, ECM, TTF, UTAUT02, DOI, Mobile banking, PLS-SEM.

1. INTRODUCTION

The arrival of digital banking has led to the amplification of different products and services that offer a customized solution. Technology has restructured the way of executing different financial services (Kim & Jindabot, 2021). It has changed the nature of various1 financial operations from 'brick-and-mortar' to simply 'click' (Akhtar et al., 2019; Franque et al., 2021; Chen, 2012; Hassan et al., 2020).

One of the emerging aspects of digital banking is mobile banking; it allows users to execute their financial transactions by employing mobile devices such as tablets and smartphones (Kazi & Mannan, 2013). Mobile banking is a subset of mobile commerce that enables customers to carry out their tasks using mobile devices (Glavee-Geo et al., 2017). Mobile banking offers various functions such as fund transfers, bill payments, access to account statements and account details, transaction alerts, cell phone credit top-ups, online shopping, and educational fee payments, that enable users to

[1],* Ms. Anam Qamar is currently working as a lecturer in the Department of Business Administration at Jinnah University for Women, Pakistan. She obtained an MPhil degree in Business Management from Institute of Business Management, Pakistan. She is a Ph.D candidate in the Department of Business Management at Institute of Business Management, Pakistan. Email: anam.qamar@ymail.com

[2] Dr. Muhammad Azeem Qureshi is currently working as an Assistant Professor in the Department of Management & HR at Institute of Business Management, Pakistan. He obtained a Ph.D degree in Business Management from Institute of Business Management, Pakistan. He is postdoctoral research fellow at the University of Malaysia Perlis (UniMAP).

fulfill their financial needs with convenience and flexibility (Sahu & Deshmukh, 2020; Kitjaroenchai & Chaipoopiratana, 2022).

The government, financial institutions, and telecommunications corporations, all worked together to implement mobile banking in Pakistan between 2005 and 2006 (Rizvi et al., 2017). Although it is regarded as an innovative initiative carried out by the financial institutions and regulators in Pakistan, the convention is still moving slowly (Abbass, Khan & Kanwal, 2019; Hassan et al., 2020). According to the State Bank of Pakistan's Quarterly Payment System Review (2020–2021), there were 4.98 million digital banking customers in the quarter under review, up by 10% over the same quarter a year earlier. Also, the number of transactions made through e-banking had increased by 4% (or 309.5 million) in that review quarter compared to the same quarter in the previous year (or 296.7 million), while an increase of 5% (or 9.68 million) was seen in the given quarter for mobile banking, representing an increase of 20% over the same quarter in the previous year (Siddiqui, 2020).

1.1 Research Problem

A vital consideration for technology-based products or services is to determine the factors which impact users' technological adoption and continuation intentions (Franque et al., 2021; Hidayat-Ur-Rehman et al., 2021). Technological adoption is defined as the user's initial decision to use a particular information technology, while a continued usage intention can be defined as the user's decision to continue using a particular information technology after having already encountered it (Bhattacherjee, 2001). Unbanked persons may be linked to financial services through financial inclusion, which is important since it reduces poverty and inequality and helps the poor manage their finances. Mobile banking is now viewed as one of the potential drivers of financial inclusion (Rizvi et al., 2017). According to the Global Findex Survey 2021, India, China, Pakistan, and Indonesia have the largest unbanked populations in the world, contributing 230 million, 130 million, 115 million, and 100 million unbanked citizens respectively; together with Bangladesh, Egypt, and Nigera, these four countries contain more than half of the world unbanked population (Demirguc-Kunt, et al., 2021). Compared to Pakistan's neighbors, Bangladesh and India, growth has been somewhat modest. Since more than 80% of Pakistanis who receive cash earnings from the private sector also own a cell phone, electronic salary payments might be simpler to implement. Even though account ownership increased on average in both high-income and emerging nations, the latter's average growth rate was steeper.

Numerous studies have looked into the factors influencing the uptake of mobile banking in the setting of Pakistan (Abbas et al., 2018; Akhtar et al., 2019; Hassan et al., 2020; Kazi & Mannan, 2013) but the preliminary adoption cannot govern the concrete administrative outcomes until continued usage intentions are affirmed (Bhattacherjee, 2001; Yuan et al., 2016). The majority of studies have focused on identifying the factors that influence the adoption of mobile banking, such as perceived ease of use, service quality, perceived risk, trust, relative advantage, and social impact, by using the Technology Acceptance Model (TAM) framework (Abbas et al., 2018; Akhtar et al., 2019; Kazi & Mannan, 2013; Khurshid et al., 2014). Meanwhile, other research on mobile banking continued usage intentions have been executed in more developed countries like China, Portugal, Germany, Malaysia, and Saudi Arabia (Baabdullah et al., 2019; Chen, 2012; Hidayat-Ur-Rehman et al., 2021; Oliveira et al., 2016; Tam et al., 2020; Yuan et al., 2016). However, the use of any given technology does not only depend upon subjective assessment of individuals, thus there can be behavioral, societal & techno-logical aspects associated with the use of such technology. Literature has identified certain limitations associated with the application of TAM in assessing the actual use of new

technology and users' behavior as the facets which can impact users' behavior may vary in terms of task, context, functionality, preferences, etc. (Chandio et al., 2017; Ajibade, 2019). This research is focused on filling an existing research gap through pondering the facets that govern mobile banking users' intentions for continued usage by using an integrated theoretical framework comprised of four theories: Task Technology Fit (TTF), Diffusion of Innovation (DOI), Expectation Confirmation Model (ECM) and the Unified Theory of Acceptance and Use of Technology 02 (UTAUT 02).

2. LITERATURE REVIEW

2.1 Intention of Continued Usage

Continued usage intention is described as a user's decision to keep utilizing a product or service which they are already using (Rahi et al., 2021; Tam et al., 2020). It helps to predict users' post-adoption behavior (Foroughi et al., 2019; Franque et al., 2021; Naruetharadhol et al., 2021). Tam et al., (2020) identified the substantial effect of satisfaction, habits, performance, and expected effort, on mobile banking users' intentions for continued usage.

2.2 Theories Used in Research

This research study consisted of the integration of four theories (TTF, DOI, ECM & UTAUT02). The selected theories include the technological, social, and behavioral facets that impact the continued usage intentions of mobile banking users.

2.2.1 Expectation Confirmation Model

Consumers expectations are the frame of reference from which they make their judgments about products and services. If consumers' experiences are poorer than expected this will lead to negative disconfirmation, but if they are higher it could lead to positive disconfirmation (Oliver, 1980). ECM ascertains that consumers' continued usage intentions are largely instigated by the satisfaction that they had with prior use of the products or services (Bhattacherjee, 2001). This paradigm has gained recognition for describing user satisfaction and information system usage intentions. ECM helps in assessing the balance between consumers' decisions to continue using an information system and their decisions to make new purchases (Bölen & Özen, 2020).

2.2.2 Unified Theory of Acceptance and Use of Technology 02

The UTAUT argues that there are four main factors which influence individuals' intentions to adopt information system-based technology, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. The model identifies individuals' expectations in terms of interpersonal deliberations and usage context settings (Venkatesh et al., 2003; Wu et al., 2021). The UTAUT model was extended as UTAUT02 and included three more constructs named price value, hedonic motivation, and habits (Venkatesh et al., 2012). In addition, to examine intentions towards technological advancement, the model also looked at subsequent behavior. This approach seeks to address the challenges that information technology researchers encounter in creating the foundation for their research on how users perceive the technology (Farzin et al., 2021; Indrawati & Putri, 2018; Ketkaew et al., 2021).

2.2.3 Task-Technology Fit Model

Technologies are defined as various tools employed by individuals to accomplish certain tasks (Goodhue & Thompson, 1995). Individuals' attitudes and beliefs about a technology lead towards their continued usage intentions for that technology (Rahi et al., 2021). TTF explains that individuals use certain technology when it fulfills the requirements of the task to be performed. The TTF model indicates that a technology's ability to complete tasks is a key factor in determining whether the technology is accepted. Similarly, if technology fails to

meet the required needs or fails to enhance daily living, it must be considered a failure. TTF offers a perspective on how technology is used and the value it delivers (Goodhue & Thompson, 1995; Oliveira et al., 2014).

2.2.4 Diffusion of Innovation Theory (DOI)

Communication between people is one of the key factors that affects how innovations diffuse; diffusion of innovation may be defined as the process by which innovations spread through social actors. There are four important elements of diffusion of innovation named as innovations, communication channels, social systems, and time among these; communication channels have significant importance (Rogers 1962). Word of mouth plays an important role in the diffusion of innovation. People who have already experienced certain products or services can talk about the pros and cons without taking any commercial reward for it therefore it is considered to be trustworthy (Roselius 1971). The diffusion of innovations theory helps to understand how new scientific, technological, and other improvements, spread throughout civilizations and cultures. It helps to assess the impact of social factors on users post purchase behavior (Oliveira et al., 2016; Yen et al., 2019).

2.3.Theoretical Constructs

2.3.1 Task Characteristics

Task characteristics indicate users' intentions to transform input into output; if a task is costly and time-consuming this may decrease users' behavioral intentions to use information technology. Task characteristics were found to have an impact on task technologies' fit regarding mobile payments (Rahi et al., 2021; Lin et al., 2019)

H_1: Task characteristics positively impact the fit of task technologies.

2.3.2 Technology Characteristics

Technology characteristics indicate information systems that are used to perform certain tasks. In terms of mobile banking, these characteristics allow users to execute financial transactions, and access account information, anytime and anywhere. Technology characteristics had a substantial effect on the fit of a task technology in terms of mobile banking (Afshan & Sharif, 2016; Lin et al., 2019; Wu et al., 2021).

H_2: Technology characteristics positively impact the fit of a task technology.

2.3.3 Task Technology Fit

Fit of a task technology is defined as the extent of steadiness in the course of task and technology, the greater the steadiness the more the technology adds to maximizing the attainment of the task (Afshan & Sharif, 2016). Osah & Kyobe (2017) identified a consequential effect of a task technology's fit on utilization, which in turn influenced the continued usage intention of mobile-pesa in Kenya. Le et al. (2020) also found a significant indirect effect of the fit of task technology where satisfaction mediated the relationship between the task technology's fit and mobile banking users' intentions for continued usage in Vietnam.

H_3: Task technologies' fit positively impacts satisfaction.

H_4: Task technologies' fit positively impacts mobile banking consumers' continued usage intentions.

H_5: Task technologies' fit positively impacts performance expectancy.

2.3.4 Performance Expectancy

Performance expectancy can be defined as the degree to which individuals believe that a system augments their task performance (Venkatesh et al., 2003). Tam et al., (2020) found a significant impact of performance expectancy on continued usage intentions, as well as the satisfaction of mobile banking users. Dong (2018) found an insignificant impact of performance expectancy on consumers' decisions to use mobile payment in the context of Bangkok, as consumers may not perceive it as time saving or effectual in optimizing their financial operations.

H_6: Performance expectancy positively impacts mobile banking consumers' continued usage intentions.

2.3.5 Effort Expectancy

Effort expectancy refers to the expected ease of use when using a technological product or service. It indicates the extent to which the users must put effort into operating the given technology (Venkatesh et al., 2003). Tam et al., (2020) found a positive & significant impact of effort expectancy on performance expectancy. Farzin et al., (2021) identified a substantial effect of effort expectancy on the behavioral intentions of mobile banking users. In contrast, Indrawati & Putri (2018) found an inconsequential effect of effort expectancy on the continued usage intentions for e-payment applications.

H_7: Effort expectancy positively impacts mobile banking consumers' continued usage intentions.

H_8: Effort expectancy positively impacts performance expectancy.

2.3.6 Social Influence

Social influence can be defined as the degree to which the decisions of individuals are influenced by others' judgments or recommendations; it reflects the extent to which the individuals' beliefs, attitudes, and behavior, are influenced by the references of others (Venkatesh et al., 2012). It has been found to be a crucial significant determinant of mobile banking users' continued usage intentions (Tam et al., 2020; Indrawati & Putri, 2018) whereas Baabdullah et al., (2019), while Baptista & Oliveira (2015) did not find any significant impact of social influence on mobile banking consumers' continued usage intentions.

H_9: Social influence positively impacts mobile banking consumers' continued usage intentions.

2.3.7 Habit

Habit is explained as the degree to which people employ technology repeatedly due to experience; people who have repeatedly experienced certain information technology are likely to form a habit of using it (Farzin et al., 2021). According to Tam et al., (2020) habit is considered to be one of the critical factors that influence continued usage intentions, as people automatically behave in a certain way based on their prior experiences. Baabdullah et al., (2019) found a significant impact of habit on user's continued usage intentions for mobile banking, as repetitive use of mobile banking steadily augments the utility inherent in the given information system.

H_{10}: Habit positively impacts mobile banking consumers' continued usage intentions.

2.3.8 Hedonic Motivation

Hedonic motivation is a behavioral facet that influences the continued usage intentions for a given technology, it is defined as a feeling of fun or pleasure resulting from the use of the given technology (Venkatesh et al., 2012). Hedonic motivation has a substantial impact on the continued usage intentions for e-payment applications; different features such as discounts, deals, and vouchers, bring a sense of happiness and satisfaction for the users (Indrawati & Putri, 2018). On the contrary, hedonic motivation has also been found to be statistically insignificant in the context of the continued usage intentions of mobile banking users (Tam et al., 2020).

H_{11}: Hedonic motivation positively impacts mobile banking consumers' continued usage intentions.

2.3.9 Price Value

Price can be defined as the financial cost paid which is essential to acquiring a product or service; the cost and pricing strategies may have a considerable impact on a user's behavioral intention to use a given technology (Venkatesh et al., 2012). Price is considered as a cost and benefits analysis, from the consumers' perspective, of the given technology (Baabdullah et al., 2019; Ketkaew et al., 2021). It is a significant determinant of mobile banking continued usage intentions (Poromatikul et al., 2020; Indrawati & Putri; 2018).

H_{12}: Price value positively impacts mobile banking consumers' continued usage intentions.

2.3.10 Confirmation

Confirmation refers to the level of divergence between consumers' expectations regarding the usage of a certain service or product before they purchase and their confirmed knowledge after the actual usage of that product or service (Oliver, 1980). Confirmation positively impacts users' satisfaction, leading to continuance behavior (Franque et al., 2021). Yuan et al., (2016) investigated the facets that influenced the continued usage intentions of mobile banking users in China, finding a significant impact of confirmation, usefulness, and risk, on customer satisfaction, which in turn influenced continued usage intentions.

H_{13}: Confirmation of expectations positively impacts the satisfaction of mobile banking consumers.

H_{14}: Confirmation of expectations positively impacts mobile banking consumers' continued usage intentions.

2.3.11 Satisfaction

Satisfaction can be defined as the psychological state of users' experience and pre-usage expectations. It is dependent on the user's confirmation between their initial expectations and usage experience (Oliver, 1980). Rahi et al., (2021) revealed a decisive effect of satisfaction on user attitude and continued usage intentions. Satisfaction mediates the affiliation between confirmation and users' continued usage intentions; it was found to be statistically significant as a facet of continued usage intentions of mobile banking users in Saudia Arabia, with a high level of satisfaction contributing positively towards continued usage intentions (Hidayat-Ur-Rehman et al., 2021). Kumar et al., (2018) also found similar results; as satisfaction is an outcome of consumers' evaluation, if it is found to be positive then a high level of trust will be developed. Casaló et al., (2008) identified that satisfaction leads to loyalty and positive word of mouth in the context of e-banking services.

H_{15}: Satisfaction positively impacts mobile banking consumers' continued usage intentions.

H_{16}: Satisfaction positively impacts the word of mouth of mobile banking users.

2.3.12 Word of Mouth

Word of mouth can be explicated as a non-formal communication in which people refer certain products or services to others based on their personal experiences & satisfaction (Shaikh & Karjaluoto, 2016). In the context of Iran, Mehrad and Mohammadi (2017) expanded the (TAM) framework by incorporating trust, social norms, and word of mouth, discovering a strong impact of word of mouth on users' intentions to continue using mobile banking. Farzin et al., (2021) also discovered a statistically significant mediating influence of word of mouth between intentions to use and actual behavior with regard to Iranian consumers' attitudes toward mobile banking.

H_{17}: Word of mouth positively impacts mobile banking consumers' continued usage intentions.

2.4 Theoretical Framework

This research study includes the integration of four theories, TTF, DOI, ECM & UTAUT 02, for the assessment of antecedents that drive mobile banking consumers' continued usage intentions.

3. METHODOLOGY

3.1 Population and Sampling

The State Bank of Pakistan reports that there are 9.68 million active mobile banking customers in Pakistan. As a commercial hub and major city in Pakistan, Karachi serves as the target population for this research. The sample used in this study consists of people who have used mobile banking and have agreed to freely complete a questionnaire. A non-probability convenience sampling technique was used. In order to accurately represent the target demographic and to minimize sampling error, the target sample was restricted to current users of mobile banking. The sample included a total of 234

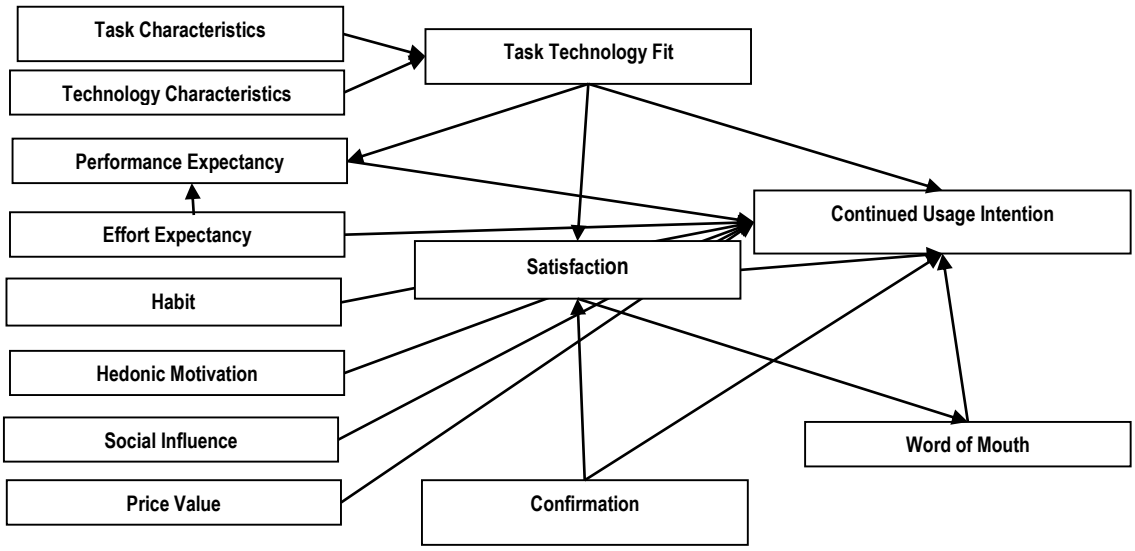

Figure 1 Theoretical Framework

respondents, which is deemed sufficient to carry out PLS-SEM. A deductive research methodology, which begins with general principles and leads to a specific circumstance was employed in this study (Sekaran & Bougie, 2016).

3.2 Research Instrument

In order to test the theoretical framework, a questionnaire developed in previous research studies was used as the survey instrument. The scale items used to measure the TTF model constructs were selected from Oliveria et al., (2014), while items for the UTAUT 02 scale were taken from Venkatesh et al (2003; 2012), items for the ECM scale were selected from Bhattacherjee (2001), and the scale items to gauge continued usage intentions and word-of-mouth were taken from the research investigations of Rahi et al. (2021) and Shaikh & Karjaluoto (2016), respectively. Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree) were employed.

3.3 Data Analysis Technique

This research executed Partial Least Square Structural Equation Modelling (PLS-SEM). Structural equation modelling (SEM) estimates relationships between collections of observable variables that serve as the conceptual variables in statistical models. There are two approaches named Covariance Based SEM & Partial Least Square SEM. CB-SEM is a factor based-SEM and is considered to be the better approach for theory testing, confirmation, and comparisons; it requires normality of data, a large sample size, and includes mainly reflective constructs. On the contrary, if the research aims to test a theoretical framework from a standpoint of prediction, then PLS-SEM is considered to be the most appropriate approach as its structures are designed to provide causal explanations (Hair et al., 2019). Similar to multiple regression analysis, it uses structural equation modelling to explain the variation in the endogenous constructs. Even with a small sample size, it can effectively explore complex interactions between latent variables and handle non-normality in data, as well as evaluate the dual function of formative and reflecting constructs (Hair et al., 2014). Factor-based SEM approaches use common factors with only shared variance to explain the covariance between their associated indicators; they empirically reflect the conceptual variable. Contrarily, composite-based SEM techniques, such PLS-SEM, combine linear combinations of indicators to create composite variables that empirically

represent the conceptual variables by using total variance; this places more emphasis on the in-sample explanation and out-of-sample prediction accuracy (Manosuthi et al., 2021).

4. RESULTS & DISCUSSION

4.1 Initial Data Screening

A total of 260 responses were received, of which 234 were deemed suitable for further analysis following the initial screening; this sample was still feasible for the empirical validation. Harman's one-factor test was executed, showing a loading percentage of variance of 43.504% which is less than the suggested threshold of 50%.

4.2 Demographic Information of Respondents

The demographic information of the respondents is presented in Table 1; the utilized sample consisted of 68% males and 32% females. 34% of the respondents belonged to the age group 18-24 years, 46% of the respondents belonged to the age group 25-35 years, and 12% of the respondents belonged to the age group 36-45 years, while 6% and 2% of the respondents belonged to the age groups 46 -55 years and 56 or above respectively. In terms of education, 36% of the respondents were graduates, 35% were undergraduates and 26% held a masters level qualification or above. The highest percentage of respondents held jobs in the private sector (67%), followed by students (15%), public sector jobs (7%), self-employment (6%) and lastly 5% of respondents were housewives. 28% of respondents fell within the monthly income bracket of less than Rs. 25,000, 29% belonged to the income group Rs. 26,000-50,000, 17% fell within the monthly income bracket of Rs. 51,000- 75,000, followed by15% in the Rs. 76,000-100,000 bracket, and11% in the Rs. 101,000 or above bracket. People who are youthful, educated, and employed are avid

Table 1 Demographic Information of Respondents

	Demographic Details	Percentage (%)
Gender	Males	68
	Females	32
Age	18-24	34
	25-35	46
	36-45	12
	46-55	6
	56 or above	2
Education	Matriculation	3
	Undergraduate	35
	Graduate	36
	Masters or above	26
Occupation	Student	15
	Private Job	67
	Public Job	7
	Self-Employed	6
	Household	5
Income	Less than Rs.25,000	28
	Rs. 26,000-50,000	29
	Rs. 51,000- 75,000	17
	Rs. 76,000-100,000	15
	Rs. 101,000 or above	11

users of mobile banking as they use mobile banking to manage their immediate financial demands, such as payments, fund transfers, and shopping, Pakistan's youth are driving the growth of the country's digital banking industry. Millennials and Gen Z'ers are therefore the most compatible mobile banking consumers (Kashif, 2021).

4.3 PLS Algorithm

Figure 2 shows the PLS-Algorithm values of the theoretical framework, the PLS algorithm is also referred to as a measurement model, as it depicts the measures which are essential to ascertain the reliability and validity of the constructs; it shows an order of regression expressed in weight vectors (Henseler et al., 2009).

4.4 Reliability & Validity Measures

The study used PLS-SEM in two parts. First, the reliability and validity were confirmed using the measures from Hair et al., (2019), which stipulate that the values of Cronbach's alpha, Composite reliability, and indicator factor (outer) loading, must all be greater than 0.70. The results in Table 2 show that all of the constructs have Cronbach's alpha values that are greater than the benchmark value of 0.70, and Composite reliability values that are congruent with the suggested criterion (i.e., >0.70). As a result, the internal consistency and indicator reliability of the constructs is established. The assessment of Convergent and Discriminant Validity, as recommended by Hair et al., (2019), is the first step in determining the validity of the constructs. To meet the recommended level, the value of AVE must**,** be >0.50. Table 2 shows that all the constructs have AVE values >0.50 thus establishing the Convergent Validity. Moreover, for the Discriminant Validity, primarily the cross-loading values are examined, depicting the indicator's factor (outer) loading values are greater than all its cross-loading values with other constructs. The Convergent and Discriminant Validity of the above constructs was confirmed because the HTMT ratios are below the recommended value of 0.90. The VIF values must not exceed 5, but a value below or near to 3 is ideal (Hair et al., 2019). The VIF values in this instance appear to be within the set threshold.

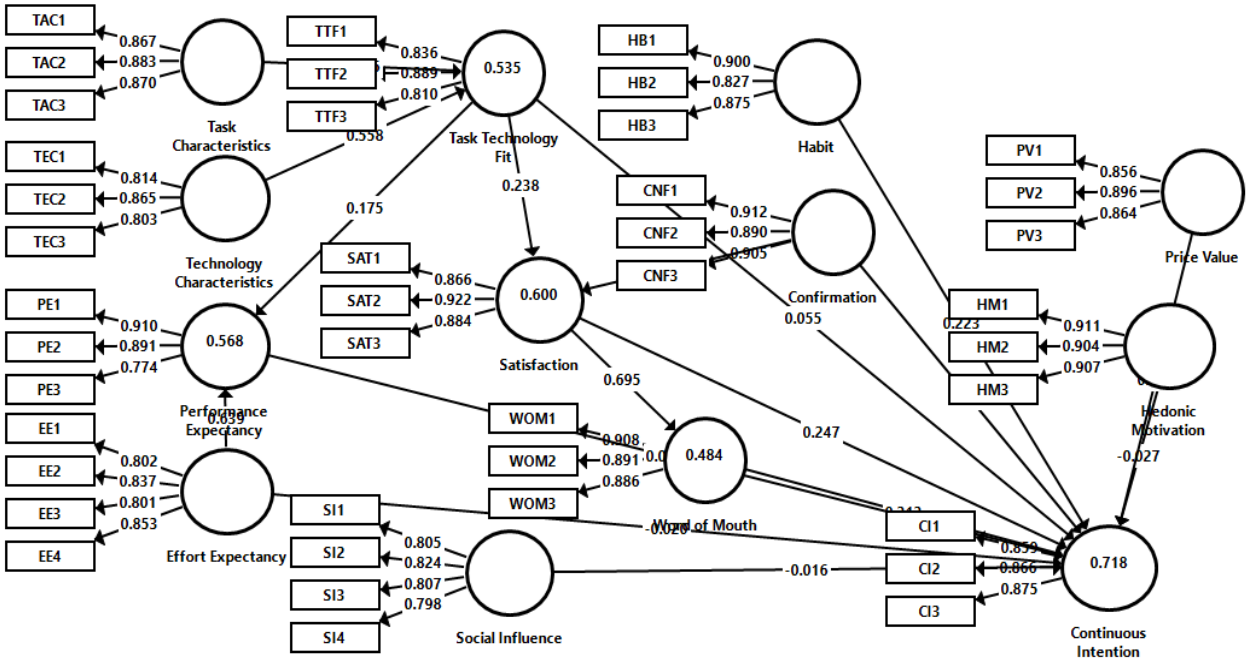

Figure 2 PLS-Algorithm

Table 2 Results of Outer Loadings, Cronbach's alpha, Composite reliability & AVE

Construct	Type	Items	Outer Loadings	Cronbach's Alpha	CR	AVE
Continued Usage Intention	Reflective	CI1	0.859	0.835	0.901	0.751
		CI2	0.866			
		CI3	0.875			
Confirmation	Reflective	CNF1	0.912	0.886	0.929	0.814
		CNF2	0.890			
		CNF3	0.905			
Effort Expectancy	Reflective	EE1	0.802	0.842	0.894	0.678
		EE2	0.837			
		EE3	0.801			
		EE4	0.853			
Habit	Reflective	HB1	0.900	0.838	0.902	0.753
		HB2	0.827			
		HB3	0.875			
Hedonic Motivation	Reflective	HM1	0.911	0.893	0.933	0.823
		HM2	0.904			
		HM3	0.907			
Performance Expectancy	Reflective	PE1	0.910	0.823	0.895	0.740
		PE2	0.891			
		PE3	0.774			
Price Value	Reflective	PV1	0.856	0.843	0.905	0.761
		PV2	0.896			
		PV3	0.864			
Satisfaction	Reflective	SAT 1	0.866	0.870	0.920	0.794
		SAT 2	0.922			
		SAT 3	0.884			
Social Influence	Reflective	SI1	0.805	0.824	0.883	0.654
		SI2	0.824			
		SI3	0.807			
		SI4	0.798			
Task Characteristics	Reflective	TAC1	0.867	0.846	0.906	0.763
		TAC2	0.883			
		TAC3	0.870			
Technology Characteristics	Reflective	TEC1	0.814	0.770	0.867	0.685
		TEC2	0.865			
		TEC3	0.803			
Task Technology Fit	Reflective	TTF1	0.836	0.801	0.883	0.716
		TTF2	0.889			
		TTF3	0.810			
Word of Mouth	Reflective	WOM1	0.908	0.876	0.924	0.802
		WOM2	0.891			
		WOM3	0.886			

4.5 Estimation of Path Coefficients (β)

In PLS-SEM the value of the path coefficients has a similar meaning as demonstrated by the standardized β in regression analysis. Beta values are used to test a hypothesized relationship between exogeneous and endogenous variables (Hair et al., 2019). The beta (β) explains the expected change in the endogenous construct due to one unit of change in the exogeneous construct. A larger beta (β) value indicates a substantial impact of exogenous constructs on endogenous constructs. To test the significance of a β value, t-statistics are used. The hypothesis is significant when the t-value

is greater than 1.96 and vice versa (Hussain et al., 2018).

Table 3 indicates the results of a structural regression model, TAC (β = 0.246, p = 0.001) & TEC (β = 0.558, p = 0.000) have a positive and significant direct impact on TTF that supports H1 and H2, jointly TAC & TEC explain 80.4% of the variance in TTF. Moreover, TTF has a direct significant impact on SAT (β = 0.238, p=0.000), and PE (β =0.175, p=0.016) (H3 & H5), but an insignificant impact on the CI (H4) (β =0.055, p=0.337) of mobile banking users; 23.8% of variance in SAT, and 17.5 % of variance in PE is explained by TTF, thus supporting H3 and H5, however TTF indirectly influences CI through SAT (β =0.059, p=0.020), depicting full mediation as shown in Table 4. Lastly, the indirect impact of TTF on CI through PE is found to be statistically insignificant (β =0.015, p=0.326) which confirms that there is only a direct effect. This is possible because of consumers' attitude towards the use of mobile banking as they may consider it as a supplementary approach which is mainly used for conducting financial transactions thus the fulfillment provides a sense of satisfaction which ultimately influences their continued usage intention therefore, it is not considered as an important direct determinant of continued usage intentions. The findings are congruent with previous research, such as Afshan & Sharif (2016); Le et al. (2020); Oliveira et al. (2014); Osah & Kyobe (2017); and Yuan et al. (2016).

The impact of PE (β =0.085, p=0.232) and EE (β= -0.020, p=0.804) on the CI of mobile banking users was found to be statistically insignificant (H6 & H7). Moreover, the indirect effect of EE on CI through PE was also found to be statistically insignificant (β=0.054, p=0.235). These results are congruent with the findings of Dong (2018); Indrawati & Putri (2018); Baptista & Oliveira (2015); and Lin et al. (2019). Consumers may not perceive performance expectancy as a time saving facet to enhance their financial operations, in terms of effort expectancy 46% of the respondents in this research belong to the age group 25-35 years who are skillful in terms of smartphone usage, therefore they can easily access mobile banking without putting in much effort. However, the impact of EE on PE was found to be statistically significant (β =0.639, p=0.000) with 63.9% of variance in

Table 3 Structural Model Results

Hypothesis	Path	Beta (β)	t-value	P value	Results
Hypothesis $_1$	TAC ⟶ TTF	0.246	3.411	0.001	Supported
Hypothesis $_2$	TEC ⟶ TTF	0.558	9.043	0.000	Supported
Hypothesis $_3$	TTF ⟶ SAT	0.238	3.993	0.000	Supported
Hypothesis $_4$	TTF ⟶ CI	0.055	0.961	0.337	Not Supported
Hypothesis $_5$	TTF ⟶ PE	0.175	2.407	0.016	Supported
Hypothesis $_6$	PE ⟶ CI	0.085	1.196	0.232	Not Supported
Hypothesis $_7$	EE ⟶ CI	-0.020	0.248	0.804	Not Supported
Hypothesis $_8$	EE ⟶ PE	0.639	8.660	0.000	Supported
Hypothesis $_9$	SI ⟶ CI	-0.016	0.188	0.851	Not Supported
Hypothesis $_{10}$	HAB⟶ CI	0.223	3.602	0.000	Supported
Hypothesis $_{11}$	HM ⟶ CI	-0.027	0.387	0.699	Not Supported
Hypothesis $_{12}$	PV ⟶ CI	0.192	2.911	0.004	Supported
Hypothesis $_{13}$	CNF ⟶ SAT	0.608	9.885	0.000	Supported
Hypothesis $_{14}$	CNF ⟶ CI	-0.017	0.218	0.827	Not Supported
Hypothesis $_{15}$	SAT ⟶ CI	0.464	5.107	0.000	Supported
Hypothesis $_{16}$	SAT ⟶ WOM	0.695	12.002	0.000	Supported
Hypothesis $_{17}$	WOM ⟶ CI	0.313	3.473	0.001	Supported

$p \leq 0.05$ Rejects the Null Hypothesis; $R^2 = 0.718$, $Q^2 = 0.510$

PE being explained by EE. These results are congruent with preceding research findings such as Oliveira et al. (2016) and Tam et al. (2020). The impact of SI on CI of mobile banking users was found to be insignificant (H9) (β= -0.016, p=0.851), aligned with preceding research such as Baabdullah et al. (2019) and Baptista & Oliveira (2015). The frequent use of mobile banking may reduce the dependency of mobile banking users on others suggestions, as they may not feel it is necessary to take recommendations from others. In contrast, the other behavioral construct, HAB, was found to have a significant and positive impact on the continued usage intentions of mobile banking users (H10) (β = 0.223, p= 0.000), with 22.3% of variance in the CI of mobile banking users being explained by habit. These findings are congruent with preceding research such as Baabdullah et al. (2019), Indrawati & Putri (2018) and Tam et al. (2020). HM was found to have an insignificant impact on the CI of mobile banking users (H11) (β= -0.027, p= 0.699); people with utilitarian motives are interested in objectivity of an outcome rather than just happiness or pleasure. These findings are congruent with preceding research, such as Tam et al. (2020) and Oliveira (2016). PV was found to have a positive and significant impact on the CI of mobile banking users (H12) (β=0.192, p= 0.004), congruent with preceding research such as Poromatikul et al. (2020) and Baabdullah et al. (2019).

CNF has a substantial direct impact on SAT (β = 0.608, p=0.000) but an insignificant impact on the CI (β= -0.017, p=0.827) of mobile banking users (H13 & H14), with 60.8% of variance in SAT being explained by CNF, however CNF indirectly influences the CI of mobile banking consumers through SAT (β=0.150, p=0.002), indicating full mediation, thus confirmation of expectations leads to satisfaction that ultimately influences continued usage intentions. These results are congruent with previous research, such as Osah & Kyobe (2017), Rahi et al. (2021), Tam et al. (2020) and Yuan et al. (2016). Similarly, SAT (β=0.464, p=0.000) was shown to have a direct significant impact on the CI and WOM (β=0.695, p=0.000) of mobile banking customers (H15 & H16), with 46.4% and 69.5% of variance in the CI and WOM being explained by SAT respectively. Moreover, the indirect impact of SAT on CI through WOM was also found to be statistically significant (β=0.217, p=0.001) indicating partial complimentary mediation. These results are congruent with preceding research such as Casaló et al. (2008), Hidayat-Ur-Rehman et al. (2021), Kumar et al. (2018), and Rahi et al. (2021). Lastly WOM was shown to have a significant direct impact on the CI of mobile banking users (H17) (β =0.313, p=0.001), with 31.3% of variance in CI being explained by WOM. These results are congruent with preceding research such as Farzin et al. (2021) and Mehrad & Mohammadi (2017).

5. CONCLUSION

The primary goal of this study was to examine the impact of technological, social, and behavioral factors on consumers' intentions to use mobile banking indefinitely. PLS-SEM was used to conduct an empirical analysis of the data, using a sample of 234 respondents. The model had strength of R^2 = 71.8%, while the predictive relevance (Q^2) was 51%. In addition, statistical significance was found for PV, HAB, SAT, CNF, WOM, and TTF, but not for PE, HM, SI & EE.

Table 4 Indirect Effects

Path	Beta (β)	t-value	P value	Results
TTF ⟶ SAT ⟶ CI	0.059	2.331	0.020	Supported
CNF ⟶ SAT ⟶ CI	0.150	3.043	0.002	Supported
TTF ⟶ PE ⟶ CI	0.015	0.982	0.326	Not Supported
EE ⟶ PE ⟶ CI	0.054	1.189	0.235	Not Supported
SAT ⟶ WOM ⟶ CI	0.217	3.399	0.001	Supported

$p \leq 0.05$ Rejects the Null Hypothesis.

5.1 Theoretical & Managerial Implications

There are various theoretical and managerial implications related to this research. First, by investigating the technological, behavioral, and societal factors, that affect the intention of mobile banking customers to continue using the service, this research attempts to overcome an existing gap and improve the body of knowledge in this field. Second, the majority of research studies on consumer behavior in the field of mobile banking have been focused on the Technology Acceptance Model (TAM), despite TAM having some limitations, particularly in assessing users' behavioral intentions related to a given technology. In order to study post-adoption consumer behavior in terms of mobile banking, integration of TTF, DOI, ECM, and UTAUT02 components has not been carried out often enough. Third, the empirical results of this study support the TTF model's applicability in understanding continued usage intentions. The effect of task characteristics & technological characteristics on task technology fit was found to be statistically significant. Task technology fit has a sententious effect on satisfaction which indirectly influences the continued usage intentions of mobile banking users. A new mediator, satisfaction, has been identified in the context of TTF and CI. This research has included constructs from the UTAUT 02 model, which is a synthesis of eight theories that have been created throughout time in the domains of marketing and information systems. Price value (i.e. cost and benefit analysis) is a crucial consideration for customers when weighing their options as they typically strive for higher value for their money. In terms of performance expectancy, consumers may not consider mobile banking as time-saving in enhancing their financial operations. Similarly, effort expectancy seems to be insignificant as the majority of the respondents belong to the younger age group who are already familiar with information system applications, consumers objectively use certain technology not just for pleasure and fun. The ECM components also provide important information regarding the continued usage intentions of mobile banking customers as confirmation has a direct impact on satisfaction, it increases when expectations are confirmed, the direct effect of confirmation on continued usage intentions was proven to be minimal, as satisfaction mediates the relationship between confirmation and continued usage intentions. By identifying word of mouth as a novel mediator between consumers' satisfaction & continued usage intentions, adds support for the DOI theory. Therefore, banks should develop task technology that fits between functionalities and consumer requirements. Banks may provide round-the-clock mobile banking support services to quickly address clients' concerns and issues. In order to achieve this goal, data management and analytics are required. Advertising campaigns that highlight the benefits of mobile banking, such as quicker shopping, greater productivity, safe transactions, and improved performance, anywhere and anytime, could catch customers' attention and encourage them to use the technology. Telecommunication companies should focus on providing customized, real-time and valued products or services to the intended customers, including their vast reach, solid customer relationships, cutting-edge analytics, and variety of collaborations. Software firms should focus on factors that take into account minimal bandwidth for data transfer, encrypted and compressed packets, strong security standards, and a flexible design that meets with regulatory requirements.

5.2 Limitations & Recommendations for Future Research

This study's research strategy was cross-sectional because data were acquired at a given point in time. Future studies may instead use a longitudinal research approach. Future study may incorporate additional aspects, including personality traits, demographic considerations, risk and security concerns, or psychological factors. Future

research on the best practices for composite-based SEM should take unobserved heterogeneity and a formative measurement model into account for this purpose. PLS-PM can be used for many different kinds of research, including confirmatory, explanatory, and predictive recent improvements like PLSc. This makes PLS-PM appropriate for causal research. PLSc can also be used to make results consistent with a factor-model, correcting the correlations of reflective constructs (Benitez et al., 2020; Manosuthi et al., 2021). One can also use integrated generalized structural component analysis (IGSCA); presenting estimates of component loadings for composite and reflective indicators, this analysis tends to recover parameters more precisely than PLSc for potential estimate biases (Fakfare et al., 2021).

REFERENCES

Abbas, S. K., Hassan, H. A., Asif, J., Junaid, H. M., & Zainab, F. (2018). What are the key determinants of mobile banking Adoption in Pakistan? *International Journal of Scientific & Engineering Research*, *9*(2), 841–848. https://doi.org/10.14299/ijser.2018.02.012

Abbass, A., Khan, R., & Kanwal, S. (2019). Factors Affecting The Adoption Of Mobile Banking In Pakistan. *Global Scientific Journals*, *7*(7), 425–436.

Afshan, S., & Sharif, A. (2016). Acceptance of mobile banking framework in Pakistan. *Telematics and Informatics*, *33*(2), 370–387. https://doi.org/10.1016/j.tele.2015.09.005

Akhtar, S., Irfan, M., Sarwar, A., Asma, & Rashid, Q. U. A. (2019). Factors influencing individuals' intention to adopt mobile banking in China and Pakistan: The moderating role of cultural values. *Journal of Public Affairs*, *19*(1), 1–15. https://doi.org/10.1002/pa.1884

Ajibade, P. (2019). Technology acceptance model limitations and criticisms: Exploring the practical applications and use in technology-related studies, mixed-method, and qualitative researches. *Library Philosophy and Practice, 2019*.

Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, *50*, 418-430.

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, *57*(2), 103168. https://doi.org/10.1016/j.im.2019.05.003

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*(August 2018), 38–52. https://doi.org/10.1016/j.ijinfomgt.2018.09.002

Bölen, M. C., & Özen, Ü. (2020). Understanding the factors affecting consumers' continuance intention in mobile shopping: the case of private shopping clubs. *International Journal of Mobile Communications*, *18*(1), 101. https://doi.org/10.1504/ijmc.2020.104423

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS quarterly*, 351-370.

Chen, S. C. (2012). To use or not to use: Understanding the factors affecting continuance intention of mobile banking. *International Journal of Mobile Communications*, *10*(5), 490–507. https://doi.org/10.1504/IJMC.2012.048883

Chandio, F., Burfat, F., Abro, A., & Naqvi, H. (2017). Citizens' acceptance and usage of Electronic-Government services: A conceptual model of trust and

technological factors. *Sindh University Research Journal-SURJ (Science Series)*, 49(3), 665-668.

Casaló, L. V., Flavián, C., & Guinalíu, M. (2008). The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International Journal of Bank Marketing*, *26*(6), 399–417. https://doi.org/10.1108/02652320810902433

Dong, X. (2018). *Performance expectancy, effort expectancy, social influence, facilitating conditions, and relative advantage affecting the Chinese customers' decision to use mobile payment in Bangkok.* 1–55. http://dspace.bu.ac.th/bitstream/123456789/3779/1/Dong2.pdf

Demirguc-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2021). The Global Findex Database. World Bank Group. https://www.worldbank.org/en/publication/globalfindex/Report

Farzin, M., Sadeghi, M., Yahyayi Kharkeshi, F., Ruholahpur, H., & Fattahi, M. (2021). Extending UTAUT2 in M-banking adoption and actual use behavior: Does WOM communication matter? *Asian Journal of Economics and Banking*, *5*(2), 136–157. https://doi.org/10.1108/ajeb-10-2020-0085

Foroughi, B., Iranmanesh, M., & Hyun, S. S. (2019). Understanding the determinants of mobile banking continuance usage intention. *Journal of Enterprise Information Management*, *32*(6), 1015–1033. https://doi.org/10.1108/JEIM-10-2018-0237

Franque, F. B., Oliveira, T., & Tam, C. (2021). Understanding the factors of mobile payment continuance intention: empirical test in an African context. *Heliyon*, *7*(8), e07807. https://doi.org/10.1016/j.heliyon.2021.e07807

Fakfare, P., Cho, G., Hwang, H., & Manosuthi, N. (2021). Examining the sensory impressions, value perception, and behavioral responses of tourists: the case of floating markets in Thailand. *Journal of Travel and Tourism Marketing*, *38*(7), 666–681. https://doi.org/10.1080/10548408.2021.1985042

Glavee-Geo, R., Shaikh, A. A., & Karjaluoto, H. (2017). Mobile banking services adoption in Pakistan: are there gender differences? *International Journal of Bank Marketing*, *35*(7), 1088–1112. https://doi.org/10.1108/IJBM-09-2015-0142

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS quarterly*, 213-236.

Hair, Joe F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, Joseph F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hassan, M., Qureshi, M. A., & Abbasi, A. N. (2020). *Acceptance of Mobile Banking (MB) Framework in Pakistan – A Systematic Review*. *18*(1), 37–52.

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*. Emerald Group Publishing Limited

Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.

Hidayat-Ur-Rehman, I., Ahmad, A., Khan, M. N., & Mokhtar, S. A. (2021). Investigating Mobile Banking Continuance Intention: A Mixed-Methods Approach. *Mobile Information Systems, 2021*. https://doi.org/10.1155/2021/9994990

Hussain, S., Fangwei, Z., Siddiqi, A. F., Ali, Z., & Shabbir, M. S. (2018). Structural Equation Model for evaluating factors affecting quality of social infrastructure projects. *Sustainability (Switzerland)*, *10*(5), 1–25. https://doi.org/10.3390/su10051415

Indrawati, & Putri, D. A. (2018). Analyzing factors influencing continuance intention of E-payment adoption using modified UTAUT 2 Model: (A case study of Go-Pay from Indonesia). *2018 6th International Conference on Information and Communication Technology, ICoICT 2018*, *December*, 167–173. https://doi.org/10.1109/ICoICT.2018.8528748

Kazi, A. K., & Mannan, M. A. (2013). Factors affecting adoption of mobile banking in Pakistan. *International Journal of Research in Business and Social Science (2147-4478)*, *2*(3), 54–61. https://doi.org/10.20525/ijrbs.v2i3.73

Kashif, M. (2021). Preferred by youngsters digital banking momentum. https://www.dawn.com/news/1601938

Ketkaew, K., Potipiroon, W., & Srimai, S. (2021). Acceptance of Mobile App "Racadi" Among Small Retailers: An Action Research. *ABAC Journal*, *41*(1), 146-165.

Khurshid, A., Rizwan, M., & Tasneem, E. (2014). Factors contributing towards adoption of E-banking in Pakistan. *International Journal of Accounting and Financial Reporting*, *1*(1), 437. https://doi.org/10.5296/ijafr.v4i2.6584

Kim, L., & Jindabot, T. (2021). Key determinants on switching Intention in Cambodian banking market. *ABAC Journal*, *41*(2), 204-222.

Kitjaroenchai, M., & Chaipoopiratana, S. (2022). Mixed method: antecedents of online repurchase intention of generation Y towards apparel products on e-commerce in Thailand. *ABAC Journal*, *42*(1), 73-95.

Kumail Abbas Rizvi, S., Naqvi, B., & Tanveer, F. (2017). Mobile Banking: A Potential Catalyst for Financial Inclusion and Growth in Pakistan. *The Lahore Journal of Economics*, *22*(Special Edition), 251–281. https://doi.org/10.35536/lje.2017.v22.isp.a11

Kumar, R. R., Israel, D., & Malik, G. (2018). Explaining customer's continuance intention to use mobile banking apps with an integrative perspective of ECT and Self-determination theory. *Pacific Asia Journal of the Association for Information Systems*, *10*(2), 79–112.

Kunt, A., Klapper, L., Singer, D., & Ansar, S. (n.d.). The Global Findex Database 2021 Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. World Bank. https://www.worldbank.org/en/publication/globalfindex

Le, T. T., Pham, H. M., Chu, N. H., Nguyen, D. K., & Ngo, H. M. (2020). Factors Affecting Users' Continuance Intention towards Mobile Banking In Vietnam. *American Journal of Multidisciplinary Research & Development (AJMRD*, *2*(4), 42–51. www.ajmrd.com

Lin, X., Wu, R. Z., Lim, Y. T., Han, J., & Chen, S. C. (2019). Understanding the sustainable usage intention of mobile payment technology in Korea: Cross-countries comparison of Chinese and Korean users. *Sustainability (Switzerland)*, *11*(19), 1–23. https://doi.org/10.3390/su11195532

Manosuthi, N., Lee, J. S., & Han, H. (2021). An innovative application of composite-based structural equation modeling in hospitality research with empirical example. *Cornell Hospitality Quarterly*, *62*(1), 139-156.

Manosuthi, N., Lee, J. S., & Han, H. (2021). Causal-predictive model of customer lifetime/influence value: mediating roles of memorable experiences and customer engagement in hotels and airlines. *Journal of Travel and Tourism Marketing*, *38*(5), 461–477. https://doi.org/10.1080/10548408.2021.1940422

Mehrad, D., & Mohammadi, S. (2017). Word of Mouth impact on the adoption of mobile banking in Iran. *Telematics and Informatics*, *34*(7), 1351–1363. https://doi.org/10.1016/j.tele.2016.08.009

Naruetharadhol, P., Ketkaew, C., Hongkanchanapong, N., Thaniswannasri, P., Uengkusolmongkol, T., Prasomthong, S., & Gebsombut, N. (2021). Factors Affecting Sustainable Intention to Use Mobile Banking Services. *SAGE Open*, *11*(3). https://doi.org/10.1177/21582440211029925

Oertzen, A. S., & Odekerken-Schröder, G. (2019). Achieving continued usage in online banking: a post-adoption study. *International Journal of Bank Marketing*, *37*(6), 1394–1418. https://doi.org/10.1108/IJBM-09-2018-0239

Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal of Information Management*, *34*(5), 689–703. https://doi.org/10.1016/j.ijinfomgt.2014.06.004

Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, *61*(2016), 404–414. https://doi.org/10.1016/j.chb.2016.03.030

Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, *17*(4), 460–469. https://doi.org/10.1177/002224378001700405

Osah, O., & Kyobe, M. (2017). Predicting user continuance intention towards M-pesa in Kenya. *African Journal of Economic and Management Studies*, *8*(1), 36–50. https://doi.org/10.1108/AJEMS-03-2017-148

Poromatikul, C., De Maeyer, P., Leelapanyalert, K., & Zaby, S. (2020). Drivers of continuance intention with mobile banking apps. *International Journal of Bank Marketing*, *38*(1), 242–262. https://doi.org/10.1108/IJBM-08-2018-0224

Rahi, S., Khan, M. M., & Alghizzawi, M. (2021). Extension of technology continuance theory (TCT) with task technology fit (TTF) in the context of Internet banking user continuance intention. *International Journal of Quality and Reliability Management*, *38*(4), 986–1004. https://doi.org/10.1108/IJQRM-03-2020-0074

Roussakis, E. N. (1997). Global banking: origins and evolution. *Revista de Administração de Empresas*, *37*(4), 45-53.

Rogers, Everett M. (1962). *Diffusion of innovations* (1st ed.). New York: Free Press of Glencoe.

Roselius, T. (1971). *Consumer Rankings of Risk Reduction Methods*. Journal of Marketing 35(1): 56–61.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach.* New Jersey: John Willey and Sons

Sahu, A., & Deshmukh, G. K. (2020). Mobile Banking Adoption: a Review. *Journal of Critical Reviews*, *7*(02), 2160. http://dx.doi.org/10.31838/jcr.07.14.435

SBP, (2020). *Payment Systems Quarterly*. (December), 1–15.

Shaikh, A. A., & Karjaluoto, H. (2016). Mobile banking services Continuance usage - case study of Finland. *Proceedings of the Annual Hawaii International Conference on System Sciences*, *2016-March*(April 2020), 1497–1506. https://doi.org/10.1109/HICSS.2016.189

Siddiqui, S. (2020, June 9). Pakistanis shift to internet, mobile banking. *June 09*. https://tribune.com.pk/story/2239324/2-pakistanis-shift-internet-mobile-banking

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*(1), 243–257. https://doi.org/10.1007/s10796-018-9864-5

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, *27*(3), 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Venkatesh_Thong_Xu_MISQ _forthcoming (GENDER AGE EXPERIENCE). *MIS Quarterly*, *36*(1), 157–178.

Wang, T., Lin, C. L., & Su, Y. S. (2021). Continuance intention of university students and online learning during the covid-19 pandemic: A modified expectation confirmation model perspective. *Sustainability (Switzerland)*, *13*(8). https://doi.org/10.3390/su13084586

Wu, R. Z., Lee, J. H., & Tian, X. F. (2021). Determinants of the intention to use cross-border mobile payments in korea among chinese tourists: An integrated perspective of utaut2 with ttf and itm. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1537–1556. https://doi.org/10.3390/jtaer16050086

Yen, W. C., Lin, H. H., Wang, Y. S., Shih, Y. W., & Cheng, K. H. (2019). Factors affecting users' continuance intention of mobile social network service. *Service Industries Journal*, *39*(13–14), 983–1003. https://doi.org/10.1080/ 02642069 .2018.1454435

Yuan, S., Liu, Y., Yao, R., & Liu, J. (2016). An investigation of users' continuance intention towards mobile banking in China. *Information Development*, *32*(1), 20–34. https://doi.org/10.1177/0266666914522 140.