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© Hamood Mohd. Al-Hattami,
Abdulwahid Ahmed Hashed Abdullah,
Afrah Abdullah Ali Khamis, 2021

Hamood Mohd. Al-Hattami, Senior Lecturer, Department of Accounting, Faculty of Commerce and Economic, Hodeidah University, Hodeidah, Yemen; Research Scholar, Department of Commerce, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, India.

Abdulwahid Ahmed Hashed Abdullah, Ph.D., Assistant Professor, Department of Accounting, College of Business Administration, Prince Sattam Bin Abdulaziz University, Saudi Arabia; Assistant Professor, Department of Accounting, Faculty of Commerce and Economics, Hodeidah University, Hodeidah, Yemen. (Corresponding author)

Afrah Abdullah Ali Khamis, Research Scholar, Department of Management Science, Dr. Babasaheb Ambedkar Marathwada University, India.



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Hamood Mohd. Al-Hattami (Yemen), Abdulwahid Ahmed Hashed Abdullah (Saudi Arabia), Afrah Abdullah Ali Khamis (India)

DETERMINANTS OF INTENTION TO CONTINUE USING INTERNET BANKING: INDIAN CONTEXT

Abstract

It is necessary to understand the customers' perceptions of internet banking because it helps determining the direction and patterns of intention to continue using internet banking. This could also help bank policymakers to develop appropriate strategies to increase internet banking usage. The study aims to examine the determinants of user's intention to continue using internet banking since there have been no systematic attempts to understand this aspect, especially in the Indian context. This research suggests and tests an extended model to predict the intention to continue using internet banking in India. The suggested study model was examined using survey data from 206 internet banking users. PLS-SEM was employed for data analysis. The findings imply that the most significant determinants of intention to continue using internet banking are service quality, trust, and user satisfaction. On the other hand, the study finds that intention to continue using internet banking is not impacted by system quality and information quality.

Keywords

customer research, internet banking, intention to continue, customers' perceptions, D&M model, trust, PLS-SEM

JEL Classification

M31, M15, O33, G20, L86

INTRODUCTION

Companies are working to gain more consumers by offering the highest comfort and security levels anywhere at 24/7. Comfort applications include, for example, goods delivery, health, and education. Internet banking helps this transformation. This service allows many banking services (e.g., bill payments, money transfers) to be conducted easily and securely at any time and from anywhere through the internet. Similarly, internet banking helps banking specialists to minimize strain in physical branches, reduce operating costs, and improve service quality (Rahi & Ghani, 2019; Foroughi et al., 2019).

In the initial phase, internet banking was used to offer information about banking services (Shankar & Jebarajakirthy, 2019). Nowadays, customers are using internet banking as a means of conducting many transactions, including account inquiry, account statement, order a checkbook, bills payments, money transfers, pay taxes, stock investment, and term insurance payment (Yu et al., 2015; Tam & Oliveira, 2016; Lin et al., 2020). Providing internet banking has become more of a "need to have" than a service that "nice to have" (Kesharwani & Singh Bisht, 2012).

Despite the possible benefits offered to consumers by internet banking, such as accessing services' banking at anytime and anywhere (Tam & Oliveira, 2017), the use of internet banking could have a strong impact

on users' perceptions. Such perceptions could also affect internet banking's continued usage. Continued usage is identified as the user's decision to continue using certain IT already used by the individual (Nabavi et al., 2016). Prior research indicates that continued usage is more critical than the initial one, as the developing cost of a fresh customer may reach up to five times of retaining a present customer (Yuan et al., 2019). Therefore, banks must comprehend the key determinants of the continued usage of internet banking. Understanding why users continue to use IT is critical to the long-term survival and ultimate modern IT success (Bhattacharjee, 2001; Nabavi et al., 2016). It is necessary to understand the customers' perceptions of internet banking because it will help determine the direction and patterns of continued internet banking adoption. This could also help bank policymakers develop appropriate strategies to increase internet banking usage.

Only fewer studies in literature concentrate on the determinants of continued usage of internet banking services (Foroughi et al., 2019; Yuan et al., 2019). In the Indian context, most researches concentrate on customers' acceptance or adoption of internet banking (e.g., Sujeet & Srikrishna, 2014; Safeena et al., 2011; Bashir & Madhavaiah, 2015; Kaur & Malik, 2019; Kumar et al., 2020). A systematic analysis by Shaikh and Karjaluo (2015) showed no single research that explained the continuation of consumer behavior towards using technology in South Asia or Africa (majorly India, Bangladesh, Pakistan, Bhutan, and Nepal). Consequently, further research is required to determine whether essential factors in the adoption cycle impact continuous behavior in the internet banking context. Therefore, the present study aims to bridge the research gap by suggesting an extended model based on DeLone and McLean's model to verify the customer's continuity intention towards using internet banking in India. Firstly, DeLone and McLean's model is extended by the trust factor as another critical construct in the internet banking context. Secondly, this research focuses on switching to continued internet banking usage via information, system, and service quality, trust, and user satisfaction with internet banking. Finally, PLS-SEM was utilized to examine the proposed research model.

1. LITERATURE REVIEW AND RESEARCH MODEL

State Bank of India (SBI)¹ defines internet banking services as the bank's services to its customers that offer access to account information, products, and other services (comprising the transaction of financial and non-financial) as recommended by the bank from time to time by the internet banking website of the bank. According to Karat et al. (2004, p. 119), "internet banking, as generally understood, means using the internet as an intermediary channel between the bank and its customers, allowing normal banking activities to be done with self-service, independently of time and place." Malhotra and Singh (2009, p. 43) stated that "internet banks are larger banks and have better-operating efficiency ratios and profitability as compared to non-internet banks." Overall, internet banking has become a critical distribution platform for banks. Banks are aggressively boosting technological development spending to treat

cost, revenue, and productivity concerns (Safeena et al., 2011). The present study aims to verify the determinants of user's intention to continue using internet banking in India.

The literature shows the adoption of many studies for DeLone and McLean's model (Al-Hattami et al., 2021; Al-Hattami, 2021). This model introduced initially in 1992 and then deliberately updated at the beginning of the new millennium (DeLone & McLean, 1992, 2003). The initial D&M model has been revised to include quality of service (SerQ), current system quality (SyQ), and information quality (InfQ) to examine the impact on IS usage and satisfaction (S. Sharma & M. Sharma, 2019b). Interest in SerQ is critical, as consumers' websites are increasingly becoming the target of SerQ ratings by consumers, not just SyQ and InfQ ratings (Xu et al., 2013). In the updated model, they also distinguish system usage from intention to use to measure the system's success in fields where system usage is optional and compulsory (Al-Fraihat

1 State Bank of India (SBI): <https://www.onlinesbi.com>

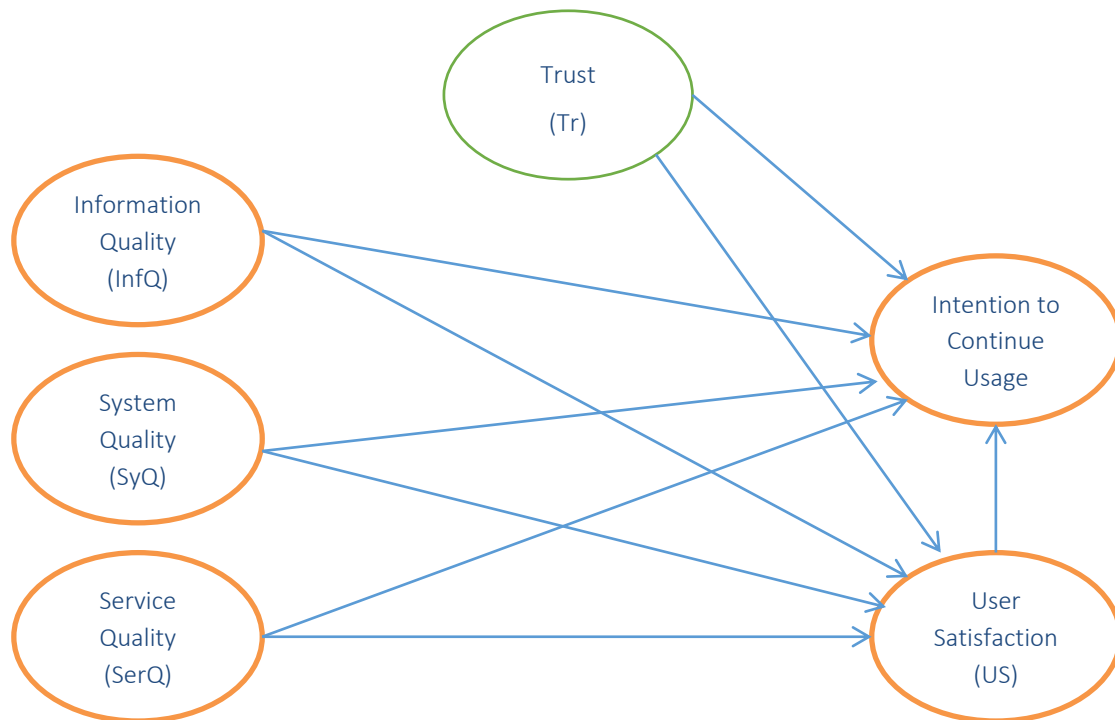


Figure 1. The proposed model

et al., 2020). However, Petter et al. (2008) considered ‘intention’ and ‘use’ the same factors.

Although the quality of information, system, and service may impact the first-time adoption of IS, the relationship between “satisfaction” and “intention/use” needs to be understood in terms of continued use (Teo et al., 2008). Moreover, continuous use is essential for IS to be truly capable of generating net benefits (Bhattacharjee, 2001; Tella, 2012). Based on this argument and besides adding “trust” construct, the present study uses “intention to continue usage” instead of “intention/use” (see Figure 1). This would activate the “intention/use” construct in the updated model of D&M.

Some studies were reviewed to justify the relationships, in Figure 1, in the internet banking context. Valaei and Baroto (2017) found a positive impact of InfQ on both continued usage intention and satisfaction in the Government’s Facebook page context. Rahi and Ghani (2019) applied their study to internet banking in Pakistan and concluded that managers who seek user satisfaction should concentrate on InfQ and SerQ to boost user’s continuance intention. However, they found that SyQ had a negative effect on user satisfaction. Similar results were found by S. Sharma and M.

Sharma (2019b) in the Omani mobile banking context. In the same context, Tam and Oliveira (2016) found that SyQ, InfQ, and SerQ positively affect user satisfaction. In the context of e-commerce, Lin (2007) and Wang (2008) also reported that overall quality (i.e., InfQ, SyQ, and SerQ) are the prerequisites of user satisfaction. Meanwhile, Teo et al. (2008) revealed that quality constructs have a different impact on “intention to continue usage” and “satisfaction” for the website. A recent study by Veeramootoo et al. (2018) on e-filing in Mauritius found that SyQ positively influences continuous use intention. For InfQ and SerQ, they were found not to significantly predict continuous use intention. Accordingly, this research can assume that increased system, information, and service quality in the internet banking system would lead to a positive rise in user satisfaction and intention to continue using internet banking.

Trust is critical in internet environments, especially regarding money. There is a need for great trust to successfully run such computing environments (Vatanasombut et al., 2008). According to Molla and Licker (2001), trust refers to two important issues: security and privacy. Besides website and content quality, customers can turn towards security and privacy issues. Teo et al. (2008) define trust as

an expectation that relieves the fear that the partner in the exchange will act opportunistically. In the internet banking context, trust is described as a customer's guaranteed confidence in an internet banking provider's capability to offer reliable online services (Bashir & Madhavaiah, 2015). Trust was determined as one of the core factors in internet banking literature (Lin et al., 2020). Literature supposes that customers who trust online banks probably carry on utilizing services provided by those banks (Yu et al., 2015; Vatanasombut et al., 2008). Trust will not just affect the intention to continue using internet banking, yet other factors as well (Lin et al., 2020). Customers will have higher satisfaction if they have higher trust in it (Lin et al., 2015; S. Sharma & M. Sharma, 2019b). Yoon (2002) further contended that the result of online trust may be satisfaction and indicated a positive association between trust and satisfaction. Teo et al. (2008) reported that numerous studies on online trust have dealt with behavioral intentions as the ultimate dependent variable. Trust and satisfaction relationship has been explored in relatively fewer researches. Accordingly, the current study focuses on customers' trust through its impact on both satisfaction and intention to continue using internet banking.

Satisfaction is recognized as a key factor in the continuity of any IS usage (Rahman et al., 2017), including internet banking. User satisfaction appraisal is the most commonly utilized indicator of IS efficiency because of its high level of validity and ease of verification (Cheok & Wong, 2015). For advocating users to accept an information system use, it is important to ensure a suitable level of compatibility between the user's needs and expectations (Kassim et al., 2012). Customer satisfaction is characterized as a measure of how an organization's goods or services fulfill customers' expectations (Iberahim et al., 2016). Hammoud et al. (2018) defined customer satisfaction as the customer's attitude formulated in reaction to the use of any form of electronic banking. Here, it is possible to define customer/user satisfaction as the degree to which the customer is convinced and satisfied with utilizing internet banking services. This, in turn, may encourage or discourage intention to continue using internet banking. In marketing literature, research on satisfaction and continued usage has protruded as a dominant is-

sue in IS (Hsiao et al., 2016). At the same time, Hsiao et al. (2016) and Veeramootoo et al. (2018) reveal that satisfaction has a robust effect on continued usage intention of e-filing and mobile social apps, respectively. Similar results were also found by Foroughi et al. (2019) in the Malaysian mobile banking context.

2. AIMS AND HYPOTHESES

The present study aims to verify the determinants of user's intention to continue using internet banking since there have been no systematic attempts to understand this aspect, especially in the Indian context. Based on the literature, the following hypotheses were developed:

- H1: *Information quality (InfQ) impacts user satisfaction.*
- H2: *Information quality (InfQ) impacts intention to continue using internet banking.*
- H3: *System quality (SyQ) impacts user satisfaction.*
- H4: *System quality (SyQ) impacts intention to continue using internet banking.*
- H5: *Service quality (SerQ) impacts user satisfaction.*
- H6: *Service quality (SerQ) impacts intention to continue using internet banking.*
- H7: *Trust (Tr) impacts user satisfaction.*
- H8: *Trust (Tr) impacts intention to continue using internet banking.*
- H9: *User satisfaction (US) impacts intention to continue using internet banking.*

3. METHODOLOGY

Since the study aims to verify the user's continuance intention towards using internet banking based on DeLone and McLean (2003), a quantitative approach is employed. To achieve this, a

questionnaire was employed for data gathering needed. Saunders et al. (2009) recommended that the questionnaire method is proper for the proposed hypotheses testing. Besides demographic data, the questionnaire used in this research comprises six variables: InfQ, SyQ, SerQ, Tr, US, and ICU. To guarantee reliability in scales, Hair et al. (2016) recommended that a set of indicators in a particular construct scale should be at least three. Accordingly, the researchers identified the basic areas of each construct and utilized indicators from prior studies to represent each (Ramayah et al., 2010; Tam & Oliveira, 2016; Gorla et al., 2010; Urbach et al., 2010; S. Sharma & M. Sharma, 2019b; Bhattacharjee, 2001). To score replies, a five-point Likert scale was employed for all indicators. Data were gathered from internet banking's users with the assistance of an online questionnaire via Google Docs. This questionnaire was sent via different social media networks like mails. In response, the questionnaire was completed by 206 internet banking users, all of which were valid for analysis. A sample that exceeds 200 is proper to provide sufficient statistical power for data analysis (Kelloway, 1998; Hair et al., 2014). Thus, the sample size of 206 is large enough for data analysis. Among these respondents, 80.1% were males; most of them were 26-35 years; over 50% of respondents have postgraduate (see Table 1).

Table 1. Demographic variables

Demographic variables	Categories	Freq.	Percentage %
Gender	M	165	80.1
	F	41	19.9
Age group	25 and below	20	9.7
	26-35	107	51.9
	36 and above	79	38.3
Education level	Graduate	40	19.4
	Postgraduate	109	52.9
	Doctorate	57	27.7

For data analysis, SEM was embraced. SEM is an efficient multivariate approach that is growingly used to evaluate and examine multivariate causal associations (Fan et al., 2016). The PLS-SEM is the most widespread statistical technique in IS and technology research (Rönkkö et al., 2016; Urbach & Ahlemann, 2010; Henseler et al., 2016). No presumptions are made by PLS-SEM about variables' distribution and guarantees optimum predictability precision (Vinzi et al., 2010). Further, it is extremely beneficial when

the research model is comparatively complicated with many variables, indicators, and structural paths (Urbach & Ahlemann, 2010).

4. RESULTS

To meet SEM requirements, both measurement and structural models were applied (Gefen et al., 2000). The measurement model was examined by reliability and validity, while the structural model was tested by testing hypotheses, assessing R^2 , Q^2 , effect size (f^2), and model fit.

4.1. Measurement model

Cronbach's alpha (α) is usually recommendable to guarantee reliability. The threshold of α is ≥ 0.7 (Hair et al., 2014). Composite reliability (CR) is also preferred with scores ≥ 0.70 (Urbach & Ahlemann, 2010). As shown in Table 3, both α and CR have values > 0.70 , reflecting the reliability of the measurement instrument used.

The validity is evaluated utilizing convergent validity (CV) and discriminant validity (DV). CV can be checked by factor loading (FL) and AVE. The FL for every item has to be ≥ 0.60 (Bagozzi & Yi, 1988). AVE for each variable has to be within ≥ 0.50 (Fornell & Larcker, 1981). DV implies how the measurements of various constructs vary from each other (Urbach & Ahlemann, 2010). The cross-loadings (CL) are usually the initial way to evaluate the DV of indicators (Hair et al., 2017). CL of an indicator on its latent variable should be above its loadings on all other latent variables (Urbach & Ahlemann, 2010; Gefen et al., 2000). The Fornell-Larcker standard is the second approach to evaluate the validity of discrimination. It compares AVE scores with the latent variable correlations (Fornell & Larcker, 1981; Hair et al., 2017). Specifically, the correlation values for each variable ought to be fewer than AVE's square root. As explained in Tables 2 and 3, all reliability and validity conditions were met.

Multicollinearity and common method bias (CMB) are also deliberated in this research. A multicollinearity issue is not desirable in any research. To evaluate the multicollinearity issue, a VIF is usually employed (O'Brien, 2007).

Table 2. Factor loadings and cross-loadings

		InfQ	SyQ	SerQ	Tr	UF	ICU
InfQ	InfQ1	0.813	0.136	0.555	0.463	0.566	0.512
	InfQ2	0.829	0.170	0.561	0.422	0.586	0.459
	InfQ3	0.847	0.109	0.572	0.447	0.564	0.460
	InfQ4	0.850	0.079	0.618	0.539	0.619	0.557
SyQ	SyQ1	0.016	0.643	0.058	-0.028	-0.000	0.026
	SyQ2	0.136	0.781	0.191	0.094	0.054	0.119
	SyQ3	0.082	0.804	0.167	0.075	0.063	0.072
	SyQ4	0.139	0.841	0.203	0.091	0.125	0.070
SerQ	SerQ1	0.534	0.143	0.797	0.512	0.490	0.493
	SerQ2	0.595	0.228	0.894	0.587	0.631	0.609
	SerQ3	0.560	0.145	0.839	0.631	0.574	0.540
	SerQ4	0.640	0.249	0.821	0.451	0.492	0.477
Tr	Tr1	0.526	0.102	0.590	0.892	0.666	0.584
	Tr2	0.535	0.143	0.601	0.916	0.648	0.613
	Tr3	0.451	0.031	0.568	0.879	0.649	0.609
US	US1	0.540	0.055	0.504	0.550	0.796	0.600
	US2	0.655	0.087	0.590	0.698	0.912	0.754
	US3	0.574	0.029	0.497	0.531	0.806	0.530
	US4	0.599	0.154	0.625	0.676	0.868	0.653
ICU	ICU1	0.579	0.078	0.589	0.674	0.729	0.881
	ICU2	0.466	0.104	0.537	0.511	0.562	0.863
	ICU3	0.507	0.097	0.533	0.556	0.668	0.872

Note: Factor loadings are remarked in bold.

Table 3. Measurement model and multicollinearity examination

	α	CR	AVE	InfQ	SyQ	SerQ	Tr	US	ICU	VIF
InfQ	0.855	0.902	0.697	0.835						1.999
SyQ	0.794	0.853	0.594	0.146	0.771					1.059
SerQ	0.859	0.904	0.703	0.692	0.228	0.839				2.478
Tr	0.877	0.924	0.803	0.563	0.102	0.655	0.896			1.831
US	0.868	0.910	0.717	0.701	0.099	0.657	0.731	0.847		2.952
ICU	0.843	0.905	0.760	0.598	0.106	0.636	0.672	0.756	0.872	-

Note: AVE's square root is in bold.

For the CMB, recent work stressed the significance of evaluating CMB's impact on statistical analysis outcomes (Chin et al., 2012). According to Kock (2015), the appearance of VIF greater than 3.3 is suggested as an indicator of multicollinearity problem, and that a model might be CMB. As clarified in Table 3, all VIF scores are fewer than 3.3, confirming the absence of multicollinearity problem and CMB.

4.2. Structural model

4.2.1. Hypotheses testing and R² assessing

To test the hypotheses (β -value, t -value, and p -value), a bootstrapping with 5,000 samples was con-

ducted. In Figure 2, β -values of the relations between model constructs can be seen. The t - and p -values are employed to examine if β -values are statistically significant (i.e., at *, **, or ***) or not. The results of hypotheses testing are presented in Table 4.

R^2 implies the variation proportion in the dependent variable that independent variable/s collectively interpret. The R^2 value should be at least 10% (Falk & Miller, 1992). Cohen (1988) indicates that the value of R^2 above 0.26 is substantial. Accordingly, as displayed in Figure 2, the R^2 values for US and ICU are 0.661 and 0.620, respectively, which are considered substantial.

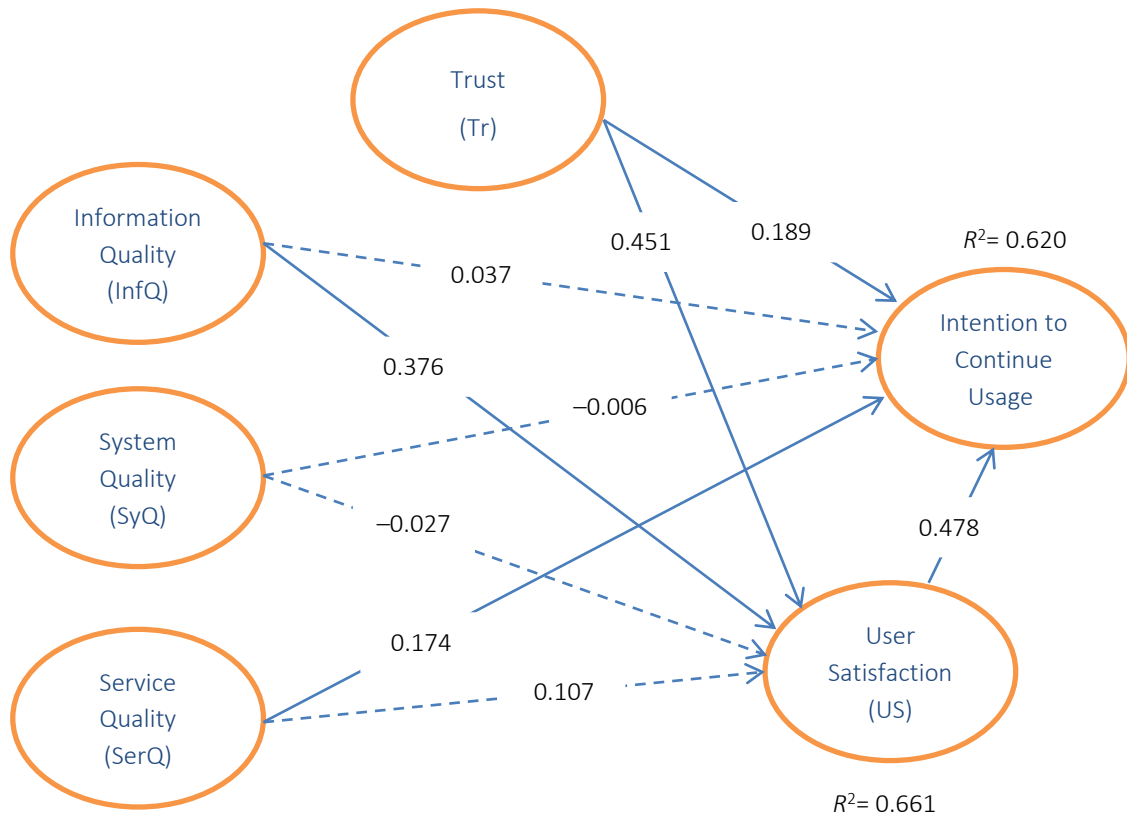


Figure 2. PLS algorithm results

4.2.2. Effect sizes (f^2) and predictive relevance Q^2

The p -value can display the existing effect, but it cannot uncover f^2 (Cohen, 1988). Effect size in each path in SEM can be revealed by Cohen’s f^2 (Urbach & Ahlemann, 2010). For explaining f^2 by Cohen (1988): the score of > 0.35 refers to a big effect, $0.15-0.35$ refers to a moderate effect, $0.02-0.15$ refers to a small effect, and lower than 0.02 refers to no effect. Table 4 displays all f^2 scores, which appear to be satisfactory.

In SmartPLS, the blindfolding procedure is used to evaluate Q^2 . The interval point for Q^2 is above zero. Q^2 scores over zero imply that the model has a predictive relevance (Hair et al., 2011). As reported in Table 4, all Q^2 scores are over 0.

4.2.3. Model fit

In PLS-SEM, the model fit evaluation is done employing two ways: SRMR and tests of the overall model fit (Schamberger et al., 2020). SRMR

Table 4. Structural model results

H	Path	Analysis outcomes		Supported?	f^2	Effect size	R^2/Q^2 (US and ICU)
		t	β				
H1	InfQ → US	5.943	0.376***	Yes	0.209	Medium	US 0.661/0.457
H2	InfQ → ICU	0.497	0.037ns	No	0.002	–	
H3	SyQ → US	0.520	–0.027ns	No	0.002	–	
H4	SyQ → ICU	0.115	–0.006ns	No	0.000	–	ICU 0.620/0.446
H5	SerQ → US	1.628	0.107ns	No	0.014	–	
H6	SerQ → ICU	2.432	0.174*	Yes	0.032	Small	
H7	Tr → US	6.352	0.451***	Yes	0.329	Medium	ICU 0.620/0.446
H8	Tr → ICU	2.187	0.189*	Yes	0.032	Small	
H9	US → ICU	5.709	0.478***	Yes	0.204	Medium	

is identified by the threshold score of ≤ 0.08 (Henseler et al., 2016). SRMR resulted from this study is 0.058, which is fewer than the threshold score identified in the literature. The Goodness of Fit (GoF) is described as “how well the specified model reproduces the observed covariance matrix among the indicator items” (Hair et al., 2014, p. 576). As an entire measure of the model, such an index has been created. Hence, it offers a singular indicator of the model’s overall prediction performance (Vinzi et al., 2010). In SmartPLS, there is no worldwide measure of fit. Yet, researchers suggest a worldwide GoF, which is provided utilizing the following formula (Tenenhaus et al., 2005):

$$GoF = \sqrt{R^2 \cdot AVE}.$$

The measure of GoF to identify if GoF scores are not fit, small, moderate, or high is provided by Wetzels et al. (2009) as follows: GoF lower than 0.1 (not fit); 0.1 to 0.25 (small); 0.25 to 0.36 (moderate); above 0.36 (high). In this research, the model’s GoF, resulting from the formula mentioned earlier, is > 0.36 , which is considered high.

5. DISCUSSION

Based on DeLone and McLean (2003), the present study examined the determinants of the user’s continuity intention towards using internet banking. The results summarized in the prior section show that except *H2*, *H3*, *H4*, and *H5*, all remaining hypotheses were supported and interpret 66.1% and 62.0% of the variance in UF and ICU. Based on results, InfQ is the key determinant affecting customers’ satisfaction with internet banking ($\beta = 0.376$, $p < 0.001$). This result reveals that the higher level of InfQ offered by service suppliers increases the level of satisfaction with internet banking. For instance, if the service supplier’s information is relevant, accurate, timely, and perfect, this will encourage customers to develop their satisfaction towards internet banking. A similar finding was also found in previous IS studies (S. Sharma & M. Sharma, 2019b; Valaei & Baroto, 2017).

However, the association between InfQ and ICU was insignificant ($\beta = 0.037$, $p > 0.05$). This is consistent with Veeramootoo et al. (2018). In

contexts whereby looking for information is the key driver of IS use, InfQ is important for continued usage, as revealed by Zheng et al. (2013) and confirmed by Veeramootoo et al. (2018). However, in internet banking case, since the users’ interaction nature with the internet banking channels is primarily for transaction needs (e.g., bills payments, money transfers) more than for information needs (e.g., account inquiry), InfQ matters less, justifying its insignificant association with ICU.

The role of system quality (SyQ) in this research was insignificant. The results imply that SyQ has no effect on either US ($\beta = -0.027$, $p > 0.05$) or ICU ($\beta = -0.006$, $p > 0.05$). This indicates that SyQ is not on the list of priorities of Indian users with their satisfaction and intention to continuance using internet banking. This result is partially consistent with Teo et al. (2008) and not consistent with Veeramootoo et al. (2018).

Regarding the SerQ role, it was partly significant. The results imply that SerQ has an effect on ICU ($\beta = 0.174$, $p < 0.05$), but no on US ($\beta = 0.107$, $p > 0.05$) towards internet banking. This is consistent with Sharma et al. (2015) who suggest that SerQ can play a critical role in the ICU of internet banking by users. However, such a finding is not in line with Veeramootoo et al. (2018) and Teo et al. (2008).

Trust was a critical factor in IS studies (Kassim et al., 2012). It is argued that trust as an important factor may further boost ICU and lead to US (S. Sharma & M. Sharma, 2019b). In this study, the influence of trust on both US ($\beta = 0.451$, $p < 0.001$) and ICU ($\beta = 0.189$, $p < 0.05$) is found to be significant. This result indicates that the high level of trust increases the level of US and ICU of internet banking. For example, if the bank provides secure internet banking services, it will motivate customers to develop their satisfaction and intention to continue using internet banking. This finding is in line with prior empirical studies. For instance, Susanto et al. (2016), Kassim et al. (2012), and Lin (2007) concluded a positive relationship between trust and satisfaction. S. Sharma and M. Sharma (2019b) found trust to be a key determinant of ICU and US of mobile banking. Lee and Kim

(2020) concluded that in pre- and post-adoption phases, the trust had a substantial influence on customers' behavioral intentions of internet-only banks.

The findings also provide powerful proof to support the causal relationship between US and ICU of internet banking with $\beta = 0.478$, $p < 0.001$. This result indicates that satisfaction determines the users' intention to continue using internet banking in the Indian case. Therefore, the function of satisfaction is not only limited to encouraging users to adopt internet banking (S. Sharma & M. Sharma, 2019b), but will also help create a positive view of the continued usage of internet banking. This finding is consistent with Rahi and Ghani (2019), Foroughi et al. (2019), Susanto et al. (2016).

5.1. Theoretical implications

It should be noted that this research was conducted in India. India is globally ranked as the second-largest market in terms of total internet users (IBEF, 2020) and has seen tremendous growth in e-banking in the past two decades (Shankar & Jebarajakirthy, 2019; Sujeet & Srikrishna, 2014). However, there is insufficient research on internet banking and continuous customer behavior in the Indian context. Thus, the present study aimed to bridge the research gap by suggesting an extended model based on DeLone and McLean to verify the user's intention to continue using internet banking in India. In addition to including trust as another significant construct in the internet banking context. This research has revealed useful insights into

the behavioral factors of intention to continue using internet banking in the case of India.

5.2. Practical implications

From a practical viewpoint, the fundamental aim of IS use studies is to guarantee that any IS is more effective for the community. This is only possible when IS is continually used (Bhattacharjee, 2001; Tella, 2012; Veeramootoo et al., 2018). This study provides an obvious view of the key factors influencing intention to continue using internet banking. The findings from this study can be useful for bank policymakers who can use such results to enhance their internet banking channels in favor of continued usage. The findings imply that the most significant drivers of intention to continue using internet banking are service quality (SerQ), trust (Tr), and user satisfaction (US).

Service quality (SerQ) is a key determinant of intention to continuance using internet banking. Therefore, banks should concentrate on customer's needs, support the customer with prompt and dependable services simultaneously, and present sufficient knowledge, personal care, and attention. This, in return, will motivate further continued usage of internet banking services.

Indian banks need to focus on service quality and gain the trust of the customers. It is important that customers feel safe during online transactions. Furthermore, since user satisfaction is the key factor, banks in India must customize services with effective administration to achieve customer satisfaction, motivating the intention to continue using internet banking.

CONCLUSION

The study aimed to examine the determinants of user's intention to continue using internet banking since there have been no systematic attempts to understand this aspect, especially in the Indian context. The PLS-SEM analysis findings imply that service quality, trust, and user satisfaction are

the most important determinants of intention to continue using internet banking. In other words, the results obtained suggest that the higher level of service quality, trust, and user satisfaction in internet banking would help to maintain existing customers and attract new and prospective ones.

This study had some limitations; first, it has not considered the moderate impact of demographic variables; detecting the impact of demographic variables on continuance use would supply deeper insights. Second, the study expanded DeLone and McLean's model by adding trust construct only. Therefore,

future research should apply the proposed model by adding more important constructs such as interest. Third, the study was conducted in India, a large multicultural and multilingual developing country. Thus, it would be intriguing to conduct a similar study to test and verify the model in other developing countries' contexts. Past research found an enormous variation in the expected effects with various types of users, cultures, and systems. Fourth, a larger sample may provide greater generalization ability of the proposed model tested. Finally, future research is also required to continue evaluating IS success in different contexts and countries to determine the relationship between costs and benefits of internet banking success.

AUTHOR CONTRIBUTIONS

Conceptualization: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah, Afrah Abdullah Ali Khamis.

Data curation: Hamood Mohd. Al-Hattami.

Formal analysis: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah.

Funding acquisition: Abdulwahid Ahmed Hashed Abdullah.

Investigation: Afrah Abdullah Ali Khamis.

Methodology: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah.

Project administration: Hamood Mohd. Al-Hattami, Afrah Abdullah Ali Khamis.

Resources: Abdulwahid Ahmed Hashed Abdullah, Afrah Abdullah Ali Khamis.

Software: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah, Afrah Abdullah Ali Khamis.

Supervision: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah.

Validation: Hamood Mohd. Al-Hattami.

Visualization: Afrah Abdullah Ali Khamis.

Writing – original draft: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah, Afrah Abdullah Ali Khamis.

Writing – review & editing: Hamood Mohd. Al-Hattami, Abdulwahid Ahmed Hashed Abdullah.

REFERENCES

- Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102(January), 67-86. <https://doi.org/10.1016/j.chb.2019.08.004>
- Al-Hattami, H. M. (2021). Validation of the D&M IS success model in the context of accounting information system of the banking sector in the least developed countries. *Journal of Management Control*, 32(1), 1-27. <https://doi.org/10.1007/s00187-020-00310-3>
- Al-Hattami, H. M., Hashed, A. A., & Kabra, J. D. (2021). Effect of AIS success on performance measures of SMEs: evidence from Yemen. *International Journal of Business Information Systems*, 36(1), 144-164. <http://dx.doi.org/10.1504/IJBIS.2021.112399>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. Retrieved from <https://www3.nd.edu/~kyuan/courses/sem/readpapers/ANDERSON.pdf>
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94. Retrieved from <https://link.springer.com/article/10.1007/BF02723327>
- Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370. Retrieved from <https://www.jstor.org/stable/3250921?seq=1>
- Cheok, M. L., & Wong, S. L. (2015). Predictors of e-learning satisfaction in teaching and learning for school teachers: A literature review. *International Journal of Instruction*, 8(1), 75-90. Retrieved from <https://eric.ed.gov/?id=EJ1085289>
- Chin, W. W., Thatcher, J. B., & Wright, R. T. (2012). Assessing common method bias: problems with the ULMC technique. *MIS Quarterly*, 36(3), 1003-1019. Retrieved from <https://www.jstor.org/stable/41703491?seq=1>
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). New York: Routledge.
- DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information*

- Systems Research*, 3(1), 60-95. Retrieved from <https://pubsonline.informs.org/doi/abs/10.1287/isre.3.1.60>
11. DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, 19(4), 9-30. <https://doi.org/10.1080/07421222.2003.11045748>
 12. Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.
 13. Fan, Y., Chen, J., Shirkey, G., John, R., Wu, S. R., Park, H., & Shao, C. (2016). Applications of structural equation modeling (SEM) in ecological studies: an updated review. *Ecological Processes*, 5(19), 1-12. <https://doi.org/10.1186/s13717-016-0063-3>
 14. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. Retrieved from <https://www.jstor.org/stable/3151312?seq=1>
 15. Gefen, D., Straub, D., & Bou-dreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4(Article 7), 1-77. <https://doi.org/10.17705/1CAIS.00407>
 16. Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. *The Journal of Strategic Information Systems*, 19(3), 207-228. <https://doi.org/10.1016/j.jsis.2010.05.001>
 17. Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage publications.
 18. Hair Jr, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2014) *Multivariate Data Analysis: a Global Perspective* (7th ed.). Pearson Education Inc., New Jersey.
 19. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, 19(2), 139-152. <https://doi.org/10.2753/MTP1069-6679190202>
 20. Hammoud, J., Bizri, R. M., & El Baba, I. (2018). The impact of e-banking service quality on customer satisfaction: Evidence from the Lebanese banking sector. *SAGE Open*, 8(3), 2158244018790633. <https://doi.org/10.1177/2158244018790633>
 21. Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management & Data Systems*, 116(1), 2-20. <https://doi.org/10.1108/IMDS-09-2015-0382>
 22. Hsiao, C. H., Chang, J. J., & Tang, K. Y. (2016). Exploring the influential factors in continuance usage of mobile social Apps: Satisfaction, habit, and customer value perspectives. *Telematics and Informatics*, 33(2), 342-355. <https://doi.org/10.1016/j.tele.2015.08.014>
 23. Iberahim, H., Taufik, N. M., Adzmir, A. M., & Saharuddin, H. (2016). Customer satisfaction on reliability and responsiveness of self service technology for retail banking services. *Procedia Economics and Finance*, 37(2016), 13-20. [https://doi.org/10.1016/S2212-5671\(16\)30086-7](https://doi.org/10.1016/S2212-5671(16)30086-7)
 24. India Brand Equity Foundation (IBEF) (2020). Indian Telecommunications Industry Report. Retrieved from <https://www.ibef.org/download/Telecommunications-June-2020.pdf>
 25. Karat, C. M., Blom, J. O., & Karat, J. (Eds.) (2004). *Designing personalized user experiences in eCommerce* (Vol. 5). Springer Science & Business Media.
 26. Kassim, E. S., Jailani, S. F. A. K., Hairuddin, H., & Zamzuri, N. H. (2012). Information system acceptance and user satisfaction: The mediating role of trust. *Procedia-Social and Behavioral Sciences*, 57(October), 412-418. <https://doi.org/10.1016/j.sbspro.2012.09.1205>
 27. Kaur, A., & Malik, G. (2019). Examining factors influencing Indian customers' intentions and adoption of internet banking: Extending TAM with electronic service quality. *Innovative Marketing*, 15(2), 42-57. [http://dx.doi.org/10.21511/im.15\(2\).2019.04](http://dx.doi.org/10.21511/im.15(2).2019.04)
 28. Kelloway, E. K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. Sage.
 29. Kesharwani, A., & Singh Bisht, S. (2012). The impact of trust and perceived risk on internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, 30(4), 303-322. <https://doi.org/10.1108/02652321211236923>
 30. Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (IJeC)*, 11(4), 1-10. Retrieved from http://cits.tamtu.edu/kock/pubs/journals/2015JournalIJeC_CommonMethodBias/Kock_2015_IJeC_CommonMethodBiasPLS.pdf
 31. Kumar, A., Dhingra, S., Batra, V., & Purohit, H. (2020). A Framework of Mobile Banking Adoption in India. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(2), 40. <https://doi.org/10.3390/joitmc6020040>
 32. Lee, J. M., & Kim, H. J. (2020). Determinants of adoption and continuance intentions toward Internet-only banks. *International Journal of Bank Marketing*, 38(4), 843-865. <https://doi.org/10.1108/IJBM-07-2019-0269>
 33. Lin, F. T., Wu, H. Y., & Tran, T. N. N. (2015). Internet banking adoption in a developing country: an empirical study in Vietnam. *Information Systems and e-Business Management*, 13(2), 267-287. Retrieved from <https://link.springer.com/article/10.1007/s10257-014-0268-x>
 34. Lin, H. F. (2007). The impact of website quality dimensions on customer satisfaction in the B2C e-commerce context.

- Total Quality Management and Business Excellence*, 18(4), 363-378. <https://doi.org/10.1080/14783360701231302>
35. Lin, W. R., Wang, Y. H., & Hung, Y. M. (2020). Analyzing the factors influencing adoption intention of internet banking: Applying DEMATEL-ANP-SEM approach. *Plos one*, 15(2), 1-25. <https://doi.org/10.1371/journal.pone.0227852>
 36. Malhotra, P., & Singh, B. (2009). The impact of internet banking on bank performance and risk: The Indian experience. *Eurasian Journal of Business and Economics*, 2(4), 43-62.
 37. Molla, A., & Licker, P. S. (2001). E-commerce systems success: An attempt to extend and respecify the Delone and McLean model of IS success. *J. Electron. Commerce Res.*, 2(4), 131-141. Retrieved from https://www.researchgate.net/publication/220437633_E-Commerce_Systems_Success_An_Attempt_to_Extend_and_Respecify_the_Delone_and_MaClean_Model_of_IS_Success
 38. Nabavi, A., Taghavi-Fard, M. T., Hanafizadeh, P., & Taghva, M. R. (2016). Information technology continuance intention: A systematic literature review. *International Journal of E-Business Research (IJEER)*, 12(1), 58-95. Retrieved from https://www.researchgate.net/publication/291831730_Information_Technology_Continuance_Intention_A_Systematic_Literature_Review
 39. O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & quantity*, 41(5), 673-690. <https://doi.org/10.1007/s11135-006-9018-6>
 40. Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems*, 17(3), 236-263. Retrieved from <https://link.springer.com/article/10.1057/ejis.2008.15>
 41. Rahi, S., & Ghani, M. A. (2019). Integration of DeLone and McLean and self-determination theory in internet banking continuance intention context. *International Journal of Accounting & Information Management*, 27(3), 512-528. <https://doi.org/10.1108/IJAIM-07-2018-0077>
 42. Rahman, M. N. A., Zamri, S. N. A. S., & Eu, L. K. (2017). A meta-analysis study of satisfaction and continuance intention to use educational technology. *International Journal of Academic Research in Business and Social Sciences*, 7(4), 1059-1072. <http://dx.doi.org/10.6007/IJARBS/v7-i4/2915>
 43. Ramayah, T., Ahmad, N. H., & Lo, M. C. (2010). The role of quality factors in intention to continue using an e-learning system in Malaysia. *Procedia-Social and Behavioral Sciences*, 2(2), 5422-5426. <https://doi.org/10.1016/j.sbspro.2010.03.885>
 44. Rönkkö, M., McIntosh, C. N., Antonakis, J., & Edwards, J. R. (2016). Partial least squares path modeling: Time for some serious second thoughts. *Journal of Operations Management*, 47-48(November), 9-27. <https://doi.org/10.1016/j.jom.2016.05.002>
 45. Safeena, R., Date, H., & Kammani, A. (2011). Internet Banking Adoption in an Emerging Economy: Indian Consumer's Perspective. *Int. Arab. J. e Technol.*, 2(1), 56-64. Retrieved from https://www.researchgate.net/publication/50367436_Internet_Banking_Adoption_in_an_Emerging_Economy_Indian_Consumer's_Perspective
 46. Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.
 47. Schamberger, T., Schubert, F., Henseler, J., & Dijkstra, T. K. (2020). Robust partial least squares path modeling. *Behaviormetrika*, 47(1), 307-334. <https://doi.org/10.1007/s41237-019-00088-2>
 48. Shaikh, A. A., & Karjaluo, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics*, 32(1), 129-142. <https://doi.org/10.1016/j.tele.2014.05.003>
 49. Shankar, A., & Jebarajakirthy, C. (2019). The influence of e-banking service quality on customer loyalty. *International Journal of Bank Marketing*, 37(5), 1119-1142. Retrieved from https://www.researchgate.net/publication/331076247_The_influence_of_e-banking_service_quality_on_customer_loyalty_A_moderated_mediation_approach
 50. Sharma, M., & Sharma, S. K. (2019a, June). Theoretical Framework for Digital Payments in Rural India: Integrating UTAUT and Empowerment Theory. In *International Working Conference on Transfer and Diffusion of IT* (pp. 212-223). Springer, Cham.
 51. Sharma, S. K., & Sharma, M. (2019b). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management*, 44(February), 65-75. <https://doi.org/10.1016/j.ijinfomgt.2018.09.013>
 52. Sharma, S. K., Govindaluri, S. M., & Al Balushi, S. M. (2015). Predicting determinants of Internet banking adoption. *Management Research Review*, 38(7), 750-766. <https://doi.org/10.1108/MRR-06-2014-0139>
 53. Sujeet, K. S., & Srikrishna, G. (2014). Internet banking adoption in India: structural equation modelling approach. *Journal of Indian Business Research*, 6(2), 155-169. <https://doi.org/10.1108/JIBR-02-2013-0013>
 54. Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services. *Industrial Management & Data Systems*, 116(3), 508-525. <https://doi.org/10.1108/IMDS-05-2015-0195>
 55. Tam, C., & Oliveira, T. (2016). Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective. *Computers*

- in *Human Behavior*, 61(August), 233-244. <https://doi.org/10.1016/j.chb.2016.03.016>
56. Tam, C., & Oliveira, T. (2017). Literature review of mobile banking and individual performance. *International Journal of Bank Marketing*, 35(7), 1044-1067. <https://doi.org/10.1108/IJBM-09-2015-0143>
57. Tella, A. (2012). Determinants of E-Payment Systems Success: A User's Satisfaction Perspective. *International Journal of E-Adoption*, 4(3), 15-38. <https://doi.org/10.4018/jea.2012070102>
58. Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis*, 48(1), 159-205. <https://doi.org/10.1016/j.csda.2004.03.005>
59. Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of Management Information Systems*, 25(3), 99-132. <https://doi.org/10.2753/MIS0742-1222250303>
60. Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. *Journal of Information Technology Theory and Application*, 11(2), 5-40. Retrieved from <https://aisel.aisnet.org/jitta/vol11/iss2/2/>
61. Urbach, N., Smolnik, S., & Riempp, G. (2010). An empirical investigation of employee portal success. *The Journal of Strategic Information Systems*, 19(3), 184-206. <https://doi.org/10.1016/j.jsis.2010.06.002>
62. Valaei, N., & Baroto, M. B. (2017). Modelling continuance intention of citizens in government Facebook page: A complementary PLS approach. *Computers in Human Behavior*, 73(August), 224-237. <https://doi.org/10.1016/j.chb.2017.03.047>
63. Vatanasombut, B., Igbaria, M., Stylianou, A. C., & Rodgers, W. (2008). Information systems continuance intention of web-based applications customers: The case of online banking. *Information & Management*, 45(7), 419-428. <https://doi.org/10.1016/j.im.2008.03.005>
64. Veeramootoo, N., Nunkoo, R., & Dwivedi, Y. K. (2018). What determines success of an e-government service? Validation of an integrative model of e-filing continuance usage. *Government Information Quarterly*, 35(2), 161-174. <https://doi.org/10.1016/j.giq.2018.03.004>
65. Vinzi, V. E., Trinchera, L., & Amato, S. (2010). PLS path modeling: from foundations to recent developments and open issues for model assessment and improvement. In *Handbook of partial least squares* (pp. 47-82). Springer, Berlin, Heidelberg.
66. Wang, Y. S. (2008). Assessing e-commerce systems success: a respecification and validation of the DeLone and McLean model of IS success. *Information Systems Journal*, 18(5), 529-557. <https://doi.org/10.1111/j.1365-2575.2007.00268.x>
67. Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, 33(1), 177-195. Retrieved from <https://www.jstor.org/stable/20650284?seq=1>
68. Xu, J., Benbasat, I., & Cenfettelli, R. T. (2013). Integrating service quality with system and information quality: an empirical test in the e-service context. *MIS Quarterly*, 37(3), 777-794. Retrieved from [https://scholars.cityu.edu.hk/en/publications/integrating-service-quality-with-system-and-information-quality-an-empirical-test-in-the-eservice-context\(dfbbb1a8-d6bf-4ddf-88b1-bd66e4d55af2\).html](https://scholars.cityu.edu.hk/en/publications/integrating-service-quality-with-system-and-information-quality-an-empirical-test-in-the-eservice-context(dfbbb1a8-d6bf-4ddf-88b1-bd66e4d55af2).html)
69. Yoon, S. J. (2002). The antecedents and consequences of trust in online-purchase decisions. *Journal of Interactive Marketing*, 16(2), 47-63. <https://doi.org/10.1002/dir.10008>
70. Yuan, Y., Lai, F., & Chu, Z. (2019). Continuous usage intention of Internet banking: a commitment-trust model. *Information Systems and e-Business Management*, 17(1), 1-25. <https://doi.org/10.1007/s10257-018-0372-4>
71. Zheng, Y., Zhao, K., & Stylianou, A. (2013). The impacts of information quality and system quality on users' continuance intention in information-exchange virtual communities: An empirical investigation. *Decision Support Systems*, 56(December), 513-524. <https://doi.org/10.1016/j.dss.2012.11.008>