Factors influence user's intention to continue use of e-banking during COVID-19 pandemic: the nexus between self-determination and expectation confirmation model

Samar Rahi
College of Banking and Finance, University of the Punjab, Lahore, Pakistan
Mahmoud Alghizzawi
UniSZA, Kuala Terengganu, Malaysia, and
Abdul Hafaz Ngah
Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia

Abstract

Purpose – Internet banking services are proven to be much advantageous and convenient during COVID-19 pandemic. However, vibrant networking designs and dynamic changes in software development have made these services bit complex. Thus, the current study seeks to investigate Internet banking user continuance intention with factors underpinning self-determination theory (SDT) and expectation confirmation model (ECM) theory. The moderating role of image is studied between user intention to continue use of Internet banking and intention to recommend Internet banking service in social networks during COVID-19 pandemic.

Design/methodology/approach – The quantitative research approach is applied and data collected through a research survey. For inferential analysis, 360 responses were collected from active Internet banking users. The integrated information system model was empirically tested using structural equation modeling (SEM) approach.

Findings – Findings indicate that integrated IS research model has substantial explanatory power, i.e. 57.8% to predict continuance intention of Internet banking users. Within integrated research model, intrinsic regulation was found the most influential factor in order to determine Internet banking user continuance intention. Beside two theories integration, this study confirmed that the relationship between user continuance intention and intention to recommend Internet banking is moderated by image.

Practical implications – The fundamental contribution of this study is the integration of technological and motivational factors in Internet banking user continuance intention context. Theoretically, integration of both theories ECM and SDT in technology continuance intention context will enrich the emerging e-commerce literature. Concerning with managerial implications, intrinsic regulation was identified as an important factor among other factors. Therefore, managers and software developers need to understand user's intrinsic motivational factors in order to boost continuance intention of Internet banking users. It is also suggested that managers and marketing personnel should pay special attention to create a positive image of Internet banking services among Internet banking users.

Originality/value – Within information system literature the concept of user continuance intention has yet to be examined especially in Internet banking context. Thus, current research fills research gap and proposes an integrated technology motivational framework that combines motivational factors and technology factors altogether to investigate Internet banking user continuance behavior.

Keywords Continuance intention, Expectation confirmation theory, Internet banking, Self-determination theory, Image, Intention to recommend, Structural equation modeling

Paper type Research paper

1. Introduction

The COVID-19 pandemic has changed the structure of businesses (Shahabi *et al.*, 2021). Due to COVID-19 a clear paradigm shift has been seen in organizations and societies wherein

physical business and interactions are now converting into contactless businesses and contactless social interactions (Seetharaman, 2020). The world health organization has recommended to maintain social distance and contact-free interaction to mitigate COVID-19 virus transmission (WHO, 2020). Meanwhile, digital payment system has gained opportunity to grow in FinTech industry due to contact-less environment (Shahabi et al., 2021). Authors like Zhao and Bacao (2021) stated that digital payment allows consumers to maintain social distancing during COVID-19 pandemic, convenient and comprising contact-free features. Therefore, current research investigates factors which boost consumer confidence toward continuance use Internet banking services instead of initial adoption during COVID-19 pandemic. Within banking sector Internet banking websites are found as an alternative banking channel when comparing to traditional banking services (Yu and Asgarkhani, 2015; Yuan et al., 2019). Nevertheless, vibrant networking designs and dynamic changes in e-banking software have made Internet banking complex (Rahi et al., 2021a). Despite technology revolution stagnant growth is found in the use of Internet banking services (Rodrigues et al., 2017). Prior studies have shown limited growth in Internet banking service worldwide (Alwan et al., 2016; Lee, 2009; Rahi et al., 2018). Therefore, examining determinants which impact user intention to continue use of Internet banking services is needed to be examined.

Although there are several studies on e-banking explain Internet banking adoption issues, limited research work has been conducted to investigate Internet banking user continuance intention (Yuan et al., 2019). Author like Shaikh and Karjaluoto (2015) have argued that in South Asian region Internet banking user continuance intention is yet to be investigated. Therefore, current study fills research gap and investigate factors which influence user continuance intention to use Internet banking services. The term continuance intention is defined as *"user's decision to carry on using a specific IT that an individual has already been using"* (Nabavi et al., 2016). According to Yuan et al. (2019) examining user post-adoption behavior of Internet banking services is as important as user initial adoption of Internet banking services. The success of information system is based on its continuance usage instead of initial adoption (Bhattacherjee, 2001; Taghizadeh et al., 2021). Looking at the importance of continuance use of e-banking current research develops an amalgamated model grounded in self-determination factors, user expectation confirmation, image and user intention to recommend. This study is significant as it provides a comprehensive view of e-banking user behavior toward continuance use of Internet banking services which in turn assist managers and software developers to design user friendly e-banking software. The remaining of this paper exhibits literature review, hypotheses development, research methods, data analysis, discussion, contribution to theory and practice, conclusion and future research directions.

2. Literature review
2.1 The expectation confirmation theory
The expectation confirmation model (ECM) theory (ECM) is derived from customer satisfaction and dissatisfaction theory and emphasizes on post-acceptance of information system (Bhattacherjee, 2001). The ECM theory claimed that judgment and inner evaluation process are the essential factors to determine user continuance behavior (Bhattacherjee, 2001). The perceived performance construct was added in customer satisfaction disconfirmation model nevertheless, in ECM model performance is measured though user satisfaction (Bhattacherjee, 2001). The ECM theory entails four main factors namely user expectation confirmation, usefulness, user satisfaction and continuance intention of user. The ECM model is explained as the degree in which user feels that initial expectation is confirmed through actual usage. In Internet banking context, ECM is seen as the extent wherein Internet

banking service meet with user expectation (Aydınlıyurt *et al.*, 2021; Hoehle *et al.*, 2012; Tsai *et al.*, 2014; Venkatesh *et al.*, 2003). Prior studies have used ECM model in post-adoption context (Li and Liu, 2014; Lin *et al.*, 2005). For instance, Li and Liu (2014) have extended the ECM theory with user word of mouth to investigate user continuance intention. Similarly, Lin *et al.* (2005) have investigated users continuance intention toward web-portal with extension of confirmation and playfulness. Therefore, examining the role of ECM model in Internet banking user context reveals useful findings to understand IB user behavior toward continuance use of Internet banking services during COVID-19 pandemic.

2.2 Self-determination theory
The self-determination theory (SDT) highlights intrinsic and extrinsic motivational factors of human behavior. The intrinsic kinds of motivational factors talk about user intrinsic feeling, inherent satisfaction and enjoyment (Deci and Ryan, 1985). Therefore, extrinsic motivation indicates external factors of the human behavior. The SDT framework comprises four core motivational factors including: introjected regulation, external regulation, identified regulation and intrinsic regulation (Deci and Ryan, 1985; Deci and Ryan, 1991). The term intrinsic regulation is seen as user engagement in IB services due to personal interest and pleasure. Therefore, external regulation denotes to external actions including punishment, reward and threat from external environment. Introjected regulation indicates individual internalizing toward external regulations. Next to this, identified regulation is reflected to individual feelings of being own. Past studies have shown significant impact of intrinsic motivational factors in determining user continuance intention (Lin *et al.*, 2009; Standage *et al.*, 2005). Therefore, examining the role of intrinsic factors is essential to understand Internet banking user intrinsic behavior which motivate user to continue use of Internet banking services during COVID-19 pandemic.

3. Theoretical framework and hypothesis development
Understanding user behavior toward acceptance of information technology is a complicated phenomenon and cannot be assessed with single research framework (Samar *et al.*, 2017a). Earlier studies have encouraged researchers to extend SDT with other constructs such as perceived usefulness, confirmation and satisfaction (Lin *et al.*, 2009; Standage *et al.*, 2005). Consequently, author developed an amalgamated information system model grounded in technology factors, motivational factors, image and intention to recommend. Figure 1 exhibits the research framework of this study with moderating effect of image between Internet banking user continuance intention and intention to recommend Internet banking services during COVID-19 pandemic.

3.1 Expectation confirmation theory
Several researchers have used ECM theory in online web-usage context (Bhattacherjee, 2001; Li and Liu, 2014; Lin *et al.*, 2005). A study conducted by Lin *et al.* (2005) has confirmed that perceived usefulness and satisfaction influence positively user intention to continue use of website. Another study conducted by Li and Liu (2014) has confirmed that perceived usefulness and satisfaction are antecedents of user intention to continue use of e-system. Information system literature indicate that user expectation is linked with user experience (Bhattacherjee, 2001; Ehsani and Hosseini, 2021; Lois *et al.*, 2020). Concerning with perceived usefulness the UTAUT theory has established that perceived usefulness has influential impact user adoption behavior (Chetioui *et al.*, 2021; Venkatesh *et al.*, 2003). In Internet banking context studies were conducted by Tsai *et al.* (2014) and Hoehle *et al.* (2012) had revealed that IB user satisfaction could enhance when IB services meet IB user expectations.
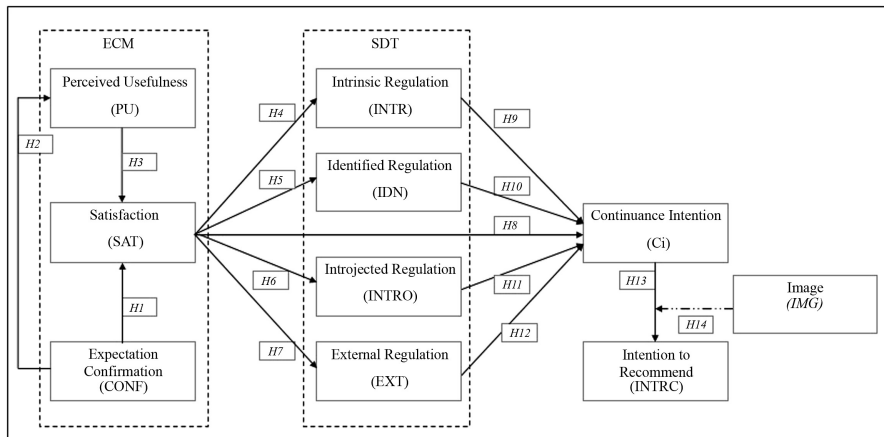
Figure 1.
The research
framework

Therefore, and reviewing existing work by Bhattacherjee (2001), Hoehle *et al.* (2012), Li and Liu (2014), Thong *et al.* (2006), Tsai *et al.* (2014), Venkatesh *et al.* (2011), following hypothesis are proposed:

H1. IB user expectation confirmation will positively impact user satisfaction.

H2. IB user expectation confirmation will positively impact customer perceived usefulness.

H3. Perceived usefulness will positively impact customer satisfaction.

3.2 Satisfaction and self-determination theory
In order to increase customers extrinsic motivation, satisfaction has found an important factor (Ferreira and Franco, 2020; Franque *et al.*, 2021; Lin *et al.*, 2009). According to Rahi *et al.* (2018) user motivation is linked with user experience. Satisfied users have inclined toward Internet banking usage (Mazuri *et al.*, 2017; Nayebpour and Bokaei, 2019; Santoro *et al.*, 2019). Authors like Lin *et al.* (2009) revealed that satisfaction has significant impact user continuance intention. Prior studies have shown that satisfaction significantly impact user intrinsic, identified, external and introjected regulation (Limayem and Cheung, 2008; Lin *et al.*, 2009; Standage *et al.*, 2005). Thus, following hypotheses are proposed:

H4. Satisfaction will positively impact intrinsic regulation.

H5. Satisfaction will positively impact identified regulation.

H6. Satisfaction will positively impact introjected regulation.

H7. Satisfaction will positively impact external regulation.

H8. Satisfaction will positively impact Internet banking user continuance intention.

3.3 The self-determination theory and user continuance intention
Extrinsic motivation is positively influence user intention and behavior to continue IB services (Lin *et al.*, 2009; Standage *et al.*, 2005). Literature supports that user feels intrinsically motivated when social activities provoke intrinsic interest which in turn positively influence user behavior and intention (Arfaoui *et al.*, 2020; Deci and Ryan, 1985; Santoro *et al.*, 2019).

Earlier studies have established that external, internal, identified and introjected regulations have significant impact user continuance intention toward usage of IB system (Deci and Ryan, 2000; Limayem and Cheung, 2008; Lin and Anol, 2008; Lin *et al.*, 2009; Standage *et al.*, 2005). Therefore, following hypotheses are proposed:

H9. Intrinsic regulation has positive impact IB user continuance intention.

H10. Identified regulation has positive impact IB user continuance intention.

H11. Introjected regulation has positive impact Internet IB user continuance intention.

H12. External regulation has positive impact IB user continuance intention.

3.4 Intention to recommend and continuance intention

Users with good technology experience have more shown incline toward technology recommendation in their social networks (Miltgen *et al.*, 2013). Therefore, in IB context Rahi *et al.* (2018a) have confirmed that positive Internet user intention toward a product/service would have significant influence user intention to recommend this product or service among family and friends. Past studies have disclosed that user with positive intention to continue e-services would have higher intention to recommend Internet technology in their social circle (Miltgen *et al.*, 2013; Oliveira *et al.*, 2016; Rahi *et al.*, 2018). Thus, intention to recommend is hypothesized as:

H13. Internet banking user continuance intention positive impact intention to recommend Internet banking.

3.5 Image and intention to recommend

Image is a parameter through which customer perception about a product or service is measured (Kang and James, 2004). In IB usage context, image is seen as net result of user's interaction with Internet banking website, impression, belief, feeling, knowledge and experience (Bravo *et al.*, 2009). According to Nguyen and Leclerc (2011) image is customer's association when organizations or products name comes into mind. Author's like Wellyan (2016) has revealed that image positively moderates the relationship between user satisfaction and behavioral loyalty. Good image has played role of moderating factor between satisfaction and loyalty and has encouraged IB users to continue use of IB services (Bravo *et al.*, 2009; Wellyan, 2016). Therefore, the moderating effect of image is hypothesized as:

H14. The positive relationship between user continuance intention and intention to recommend will be stronger when image is higher.

4. Research methods

4.1 Instrument development

The research model of this study is tested with data set collected through survey questionnaire. The survey questionnaire comprises demographic variables including age and gender of the respondents and measured with nominal scales. Therefore, in second part of the survey questionnaire includes constructs items expectation confirmation, usefulness, satisfaction, external and intrinsic regulation, introjected regulation, identified regulation, IB user continuance intention, intention to recommend and image. All constructs items are measured with seven-point likert scale ranging 1 for strongly disagree to 7 for strongly agree.

Scale items for perceived usefulness and user expectation confirmation are adapted from Bhattacherjee (2001). Therefore, satisfaction items were adapted from Mazuri *et al.* (2017).

User continuance intention and intention to recommend are adapted from Rahi *et al.* (2018). Construct items of intrinsic and external regulation are adopted from Lin *et al.* (2009). Identified and introjected regulation items are adapted from Standage *et al.* (2005). Finally, three items of image are adopted from Bravo *et al.* (2009) and adapted into current research context.

4.2 Data collection
A research survey was administered to note down the responses of Internet banking users. In line with research objectives this research attempts to fill the research gap regarding user continuance behavior and hence active Internet banking users were requested to participate. The sampling scheme is consistent with earlier studies conducted by Rahi and Ghani (2018). Overall 630 IB users were approached using convenience sampling method which is in line with Samar *et al.* (2017) and Rowley (2014). Out of 630 distributed questionnaires, 380 responses were returned. Nevertheless, 20 questionnaires have been discarded due to incomplete answers (Rowley, 2014). Finally, 360 questionnaires have been used for inferential analysis, yielding an effective response rate of 57.1%. Among those respondents, 52.4% were males, 47.6 were females. The majority of the respondents were young, 40% ranged in the age 21 to 30 years, therefore respondents with age range 41–50 years were found only 4.8%.

4.3 Common method bias
The present study attempts to examine Internet banking users' perceptions toward continuance use of IB services during COVID-19 pandemic. In this research determinants of user continuance intention were outlined as exogenous variables namely satisfaction, perceived usefulness and factors underpinned self-determination. Data were collected using single source. According to Podsakoff *et al.* (2003) CMV issue could arise when a single factor holds maximum variance, indicate that CMV is likely issue (Podsakoff *et al.*, 2003). To check common method bias, this study has used Harman's single factor test as recommended by Podsakoff *et al.* (2003). The un-rotated factor analysis revealed that the maximum variance in first factor was 28.15% and less than threshold value (50%). These findings have established that data is free from any kind of CMV issue and adequate for structural assessment.

5. Data analysis
The research model was tested with the structural equation modeling (SEM) technique. There are two families of SEM including variance-based technique and covariance-based technique. Both research techniques have their own advantages and disadvantages. In this study variance-based technique was adopted. According to Hair *et al.* (2016) variance-based technique is appropriate when the objective of the study is toward prediction or theory building. By following Anderson and Gerbing (1988) guideline, we used two-step approach for SEM including assessment of the measurement model and structural model. Smart PLS v. 3.2.7 software has been used to estimate the theoretical model (Ringle *et al.*, 2015).

5.1 Measurement model
The measurement model includes assessment of convergent validity and discriminant validity. Therefore, convergent and discriminant validities were analyzed following Anderson and Gerbing (1988) and Fornell and Larcker (1981) guidelines. The convergent validity properties are reported in Table 1.

As depicted in Table 1, all values of composite reliability are above than threshold value 0.70 and ranged from 0.871 to 0.979 indicating adequate reliability of the constructs (Chin, 1998a; Fornell and Larcker, 1981). Next to this convergent validity requires that factor loading must be greater than 0.60, Chin (1998a) and average variance extracted should not be

Constructs items	Loadings	(α)	CR	AVE
Image				
IMG1: Services offered by e-banking website are reliable	0.818	0.798	0.882	0.713
IMG2: Internet banking has a good reputation in marketplace	0.833			
IMG3: Operations made with Internet banking are completely safe and sound	0.881			
Intention to recommend IB				
INTRC1: I have intention to recommend IB services in my social circle	0.937	0.894	0.934	0.825
INTRC2: Having good experience of IB service will encourage me to recommend this service to friends and subscribe IB service	0.881			
INTRC3: I would definitely request my friends and family to subscribe and use IB service	0.906			
Expectation confirmation				
CONF1: During COVID-19 pandemic my experience with IB services was better than my expectation	0.975	0.968	0.979	0.941
CONF2: Internet banking service has better feature than I expected	0.960			
CONF3: Overall, Internet banking website meets with my expectations	0.975			
External regulation				
EXT1: Advertisement and promotion by service provider encourage me to continue use BI service during pandemic	0.912	0.890	0.923	0.750
EXT2: The use of IB service is better than other ways to perform a transaction	0.837			
EXT3: The use of IB service is exactly what I suppose to do	0.941			
EXT4: I feel myself in trouble of I do not use IB services	0.764			
Identified regulation				
IDN1: The use of IB service brings ease and improves my financial task	0.920	0.866	0.909	0.770
IDN2: The use of Internet banking service improves my financial learning skills	0.883			
IDN3: The use of IB service helps me in learning new things and improves my financial skills	0.828			
Intrinsic regulation				
INTR1: The use of IB services is joyful during pandemic	0.908	0.899	0.930	0.768
INTR2: Internet banking services has attractive and appealing features	0.861			
INTR3: Internet banking website has attractive and playfulness characteristics	0.871			
INTR4: The use of IB service intrinsically motivates me to use Internet banking service	0.864			
Introjected regulation				
INTRO1: As an Internet banking user I realize that I am completing my financial tasks in better way than others perform	0.867	0.881	0.927	0.808
INTRO2: I feel myself in trouble if I do not use IB service	0.930			
INTRO3: I feel uncomfortable if I do not use IB service to perform financial tasks	0.899			
INTRO4: I think if I stop use of IB service I will lose my confidence towards financial transaction	0.867			
Perceived usefulness				
PU1: The use of IB service improves my financial task performance	0.889	0.853	0.908	0.766
PU2: The use of IB service improves my financial task effectiveness	0.857			
PU3: The use of IB service is useful to perform financial transaction	0.879			

Table 1.
Measurement model

Constructs items	Loadings	(α)	CR	AVE
User satisfaction				
SAT1: Internet banking user feel satisfied while using IB service	0.796	0.802	0.871	0.628
SAT2: Internet banking user feels happy with IB service	0.772			
SAT3: I am pleased with features that Internet banking service provides to users	0.817			
SAT4: Overall, I am satisfied with IB website and features that Internet banking website comprises	0.784			
Continuance intention during pandemic				
Ci1: Internet banking is used frequently by users for any kind of financial transaction	0.826	0.856	0.912	0.777
Ci2: I have planned to continue use of Internet banking services on daily basis	0.906			
Ci3: In near future I would like to continue Internet banking services for financial transactions	0.909			

Table 1.

less than 0.50 will considered adequate convergent validity (Fornell and Larcker, 1981). Results of measurement model showed that all factor loadings ranged from 0.772 to 0.975 were higher than 0.70 and acceptable. In addition to that, AVE values were higher than threshold value 0.50 (ranged from 0.628 to 0.941), confirming convergent validity of the constructs.

Moving further discriminant validity of the constructs has been assessed following criterion suggested by Fornell and Larcker (1981). Discriminant validity is described as "*the extent wherein constructs items differentiate with corresponding construct and examine different concept*" (Fornell and Larcker, 1981). To achieve discriminant validity researcher has followed method suggested by Chin (1998b) that average variance extracted square root must be higher than correlation of other constructs. Results as depicted in Table 2 revealed that AVE square root of AVE are greater than correlation of other constructs indicating adequate discriminant validity of the measure.

5.2 Structural model
The structural model is assessed by calculating path coefficient and the R^2 values. Using bootstrapping method, we assessed the significance of the path coefficients and *t*-statistics (Hair *et al.*, 2016; Rahi, 2017). The results of structural model are presented in Table 3.

Constructs	CONF	Ci	EXT	IDN	IMG	INTR	INTRC	INTRO	PU	SAT
CONF	0.970									
Ci	0.746	0.881								
EXT	0.296	0.474	0.866							
IDN	0.062	0.171	0.044	0.878						
IMG	0.019	0.018	0.053	0.137	0.844					
INTR	0.512	0.657	0.457	0.104	0.057	0.876				
INTRC	0.282	0.415	0.320	0.148	0.133	0.362	0.908			
INTRO	0.323	0.465	0.272	0.107	0.016	0.297	0.215	0.899		
PU	0.561	0.702	0.308	0.129	0.011	0.587	0.386	0.397	0.875	
SAT	0.351	0.436	0.227	0.099	0.012	0.305	0.243	0.223	0.299	0.792

Note(s): Expectation Confirmation (CONF); Continuance Intention (Ci); External Regulation (EXT); Identified Regulation (IDN); Image (IMG); Intrinsic Regulation (INTR); Intention to Recommend (INTRC); Introjected Regulation (INTRO); Perceived Usefulness (PU); Satisfaction (SAT)

Table 2.
Fornell–Larcker method for discriminant validity

Hypothesis	Relationship	Direct effect (β)	SE	t-statistics	p-values
H1	CONF → SAT	0.267	0.055	4.857***	0.000
H2	CONF → PU	0.561	0.046	12.259***	0.000
H3	PU → SAT	0.149	0.053	2.783**	0.003
H4	SAT → INTR	0.305	0.049	6.193***	0.000
H5	SAT → IDN	0.099	0.053	1.848*	0.033
H6	SAT → INTRO	0.223	0.051	4.345***	0.000
H7	SAT → EXT	0.227	0.056	4.040***	0.000
H8	SAT → Ci	0.205	0.043	4.749***	0.000
H9	INTR → Ci	0.445	0.055	8.059***	0.000
H10	IDN → Ci	0.072	0.034	2.112*	0.018
H11	INTRO → Ci	0.236	0.044	5.322***	0.000
H12	EXT → Ci	0.157	0.050	3.167**	0.001
H13	Ci → INTRC	0.419	0.059	7.050***	0.000

Note(s): *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ (one-tailed)

Table 3.
Hypothesis results

Results of the structural model indicate that IB user continuance intention during COVID-19 is jointly predicted by expectation confirmation, usefulness, user satisfaction, intrinsic, identified, introjected and external regulation. The research model has explained 57.8% variance on user intention to continue IB services during pandemic. The results demonstrated that confirmation had positive influence on satisfaction and perceived usefulness ($\beta = 0.267$, t-value 4.857, significance $p < 0.000$ and $\beta = 0.561$, t-value 12.259, significance $p < 0.000$), confirming H1 and H2. Perceived usefulness had positive and significant influence on satisfaction ($\beta = 0.149$, t-value 2.783, significance $p < 0.000$), hence confirmed H3. Concerning with satisfaction and self-determination constructs, results indicated that satisfaction had positive and significant influence on intrinsic regulation and identified regulation ($\beta = 0.305$, t-value 6.193, significance $p < 0.000$, $\beta = 0.099$, t-value 1.848, significance $p < 0.05$), confirmed H4 and H5. Similarly, H6 and H7 revealed that satisfaction has significant impact in determining IB user introjected and external regulation ($\beta = 0.223$, t-value 4.345, significance $p < 0.000$, $\beta = 0.227$, t-value 4.040, significance $p < 0.000$). In addition to that user satisfaction had shown significant impact IB user intention to continue use of IB services ($\beta = 0.205$, t-value 4.749, significance $p < 0.000$), and confirmed H8. The PLS estimation has shown that intrinsic and identified regulation have positive impact on IB user continuance intention ($\beta = 0.445$, t-value 8.059, significance $p < 0.000$ and $\beta = 0.072$, t-value 2.112, significance $p < 0.01$), thus confirming H9 and H1. Findings also indicate that introjected and external regulation have positive impact IB user continuance intention ($\beta = 0.236$, t-value 5.322, significance $p < 0.000$ and $\beta = 0.157$, t-value 3.167, significance $p < 0.01$), hence supporting H11 and H12.

5.2.1 Effect sizes (f^2) and predictive relevance Q^2. In order to examine variance explained by exogenous variables toward dependent variable the coefficient of determination R^2 is assessed. Therefore, variance explained by each factor was analyzed with effect size (f^2) analysis. The effect size analysis values are assessed following a pattern that 0.35 indicating substantial 0.15 medium and 0.02 small consistent with prior studies (Cohen, 1988; Hair *et al.*, 2016; Rahi, 2017). Next to this predictive relevance is analyzed using blindfolding procedure Q^2 following method that values should be greater than 0 indicating adequate predictive power (Cohen, 1988; Hair *et al.*, 2016; Rahi, 2018). Table 4 demonstrated there is difference in effect size. Intrinsic regulation had medium-level effect on IB user intention to continue IB services. Therefore, external, identified, introjected regulation and satisfaction have small effect on user intention. Concerning with predictive relevance, results revealed that research

framework has substantial predictive relevance Q^2 (42.5%) and valid to predict IB user behavior toward continue use of Internet banking service during COVID-19 pandemic.

5.2.2 Post hoc analysis IPMA. To extend findings of PLS-SEM estimation a post hoc analysis importance and performance matrix analysis is incorporated to understand IB user behavior toward continuance user of IB services. IPMA highlights important areas research which in turn helps managers to take decisions (Hair *et al.*, 2016; Samar *et al.*, 2017). The results of IPMA are shown in Table 5.

IPMA results explained that user intrinsic characteristics and satisfaction have highest importance values 0.447 and 0.445, indicating that IB user's behavior influenced by intrinsic regulation and satisfaction. Constructs like external regulation, user expectation and introjected regulation have shown medium level of influence user behavior to continuance use of IB services during COVID-19 pandemic. Therefore, usefulness and identified regulation have shown less importance to predict outcome variable. Concerning with performance, performance index reveled that user expectation confirmation has the maximum performance index (71.319).

5.3 Moderating analysis

The research incorporates image as a moderating variable into research framework. Research conceptualized that positive relationship between IB user continuance intention and intention to recommend will be moderated by image. To calculate moderation product indicator technique has been used (Henseler and Fassott, 2010; Rahi *et al.*, 2021b). To compute moderation first step was to estimate interaction effect between IB user continuance intention and image. It is observed that with interaction effect R^2 increased from 19.2% to 2.6%. Increase in R^2 indicates that positive moderating trend exists. Results indicate significant moderating effect of image between user continuance intention and user intention to recommend and supported by ($\beta = 0.119$, *t*-value 1.833, $p < 0.5$) hence, confirming H14.

The strength of the moderation can be examined through simple slope analysis (Figure 2). This research hypothesized that *"The positive relationship between user continuance intention*

| IB user intention to continue IB services | | | | |
Factors	R^2	Q^2	(f^2)	Decision
Continuance intention	0.578	0.425		
Satisfaction			0.087	Small
External regulation			0.045	Small
Identified regulation			0.012	Small
Intrinsic regulation			0.340	Medium
Introjected regulation			0.115	Small

Table 4.
Coefficient of determination, effect sizes and predictive power

Exogenous variables	Importance of IB user to continue IB	Performance of IB user
Perceived usefulness	0.065	66.382
Expectation confirmation	0.138	71.319
External regulation	0.150	61.437
Identified regulation	0.070	67.854
Intrinsic regulation	0.447	59.764
Introjected regulation	0.227	63.194
Satisfaction	0.445	7.708

Table 5.
Importance and performance analysis
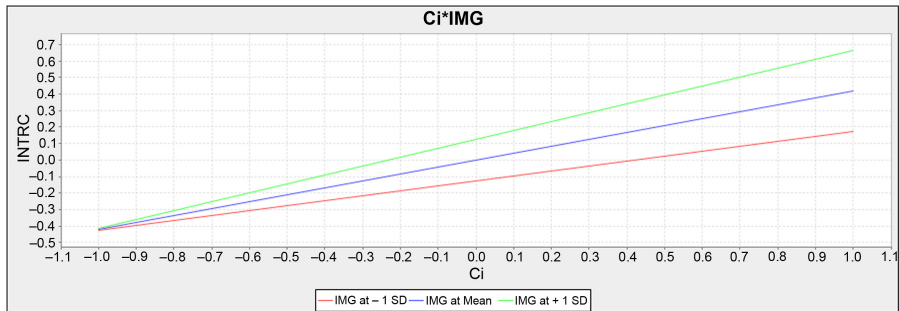
and intention to recommend Internet banking will be stronger when image is higher". Figure 2 exhibited that image has upright and positive gradient at +1SD when compared to image at -1SD less vertical. Findings of the simple slope trend have confirmed that positive relationship between IB user intention to continue IB services and their intention to recommend IB service to others will be higher when image effect is higher.

6. Discussion

The drive of differentiation and speed-to-market has increased the use of Internet technology during COVID-19 pandemic. Similarly, Internet users have more freedom to compare websites and switch between them. In this sense understanding factors which influence Internet banking user intention to continue use of Internet banking services during pandemic is necessary. This research intends to understand IB user continuance intention with ECM and self-determination factors. These frameworks include user motivational and technology factors which determine IB user continuance intention. Findings of the empirical analysis indicate IB user continuance intention has been jointly predicted by user intrinsic motivation, expectation, usefulness, user satisfaction, identified, external and introjected regulation. Compared with other investigation Tsai *et al.* (2014) R^2 48.2%, examined user's continuance intention, the present study has stronger variance R^2 57.8% in Internet banking user continuance intention. Moreover, the predictive power was found substantial Q^2 42.5% to predict IB user continuance intention toward use of Internet banking during COVID-19 pandemic. These findings established that the integrated research model has sound theoretical and empirical foundation to predict user continuance intention.

Concerning with ECM theory, results revealed that IB user expectation confirmation has significant impact both on user satisfaction and perceived usefulness and consistent with previous studies (Lin *et al.*, 2009; Tsai *et al.*, 2014). This directs that confirmation and perceived usefulness bring satisfaction among IB user to continue use of Internet banking during COVID-19. The integration of ECM and SDT was appropriate. Findings have shown significant impact of satisfaction toward user identified, introjected, intrinsic and external regulation and supported by Lin *et al.* (2009). This underscores the fact that, if users are satisfied with IB services they will be motivated toward continuance use of Internet banking services. This finding consistent with prior argument developed by Lin *et al.* (2009) stated that higher level of user satisfaction leads to user motivation to continue IB services. Given our findings about the impact of self-determination factors on user continuance intention, results confirmed that identified, introjected, regulation and external regulation have significant influence on user continence intention. Besides direct relationships, author has extended the research model with image and user intention to recommend IB service to others. This research has established that the relationship between user continuance

intention and intention to recommend is positively moderated by image. It corroborates with Bravo *et al.* (2009), which found out that Internet banking services with positive image would encourage users to recommend this to others.

Extending to structural model, research has estimated the effect size of outlined constructs. Results demonstrated that intrinsic regulation had medium level effect in IB user intention to continue use of IB service and considered as the most important variable among other variables. A post hoc analysis namely IPMA is employed to examine the importance and performance level of the outlined factors. Importance index showed that user intrinsic characteristics have the substantial importance to determine Internet banking user continuance intention. Therefore, bank managers should develop Internet banking application by following intrinsic motivational factors of Internet banking users. Intrinsic values in Internet banking context are activities that generate, human interest, challenge and novelty (Deci and Ryan, 1985). This also advocates that user interest, natural preference and enjoyment are the factors that managers need to take into consideration to boost IB user intention to continue IB service usage during and post-COVID-19 pandemic environment.

6.1 Implications to theory
Important contribution of this research is to integrate two well-known framework namely ECM and self-determination framework to examine Internet banking user continuance intention during COVID-19 pandemic. The study highlights antecedent of IB user continuance intention with factors underpinned ECM and self-determination model. Results revealed a substantial variance R^2 57.8% explained in determining IB user continuance intention during pandemic indicate that the integration of ECM and SDT is theoretically and empirically significant. Another theoretical contribution of this research is the uniqueness of outcome variable which is user intention to continue Internet banking service during COVID-19 pandemic. Thus, the current study is different from previous studies which have investigated initial adoption of Internet banking user instead of continuance intention Martins *et al.* (2014), Rahi *et al.* (2020). Additionally, our research model provides a comprehensive description of IB user in continuous use of Internet banking. Moreover, studying factors underpinned ECM and self-determination model in technology continuance context enrich e-commerce literature. Finally, moderating role of image between IB user continuance intention and user intention to recommend Internet banking among family and friends was found significant and hence contributes to post-technology adoption literature.

6.2 Practical implications
The findings of this research contribute to practice and reveal new insight to understand IB user behavior towards continuance use of Internet banking services during pandemic. Looking at effect size analysis, results demonstrated that user intrinsic regulation has shown highest effect and considered an important factor among other underpinned factors. This indicates that policy makers need to understand IB user's intrinsic factors to enhance user intention to continue IB services. From managerial aspect, IPMA analysis revealed that policymakers and website designers must pay attention IB users intrinsic characteristics when developing new Internet banking website. Besides two theories integration, the model was extended in post-adoption and recommendation context with moderating role of image. Results have disclosed that image has moderating impact between IB user continuance intention and intention to recommend IB services. These findings reflect that Internet banking service with good Internet banking website image will positively impact IB user intention to continue use of Internet banking service and recommend this service among family and friends. Therefore, current study suggest that managers and marketing personnel

should pay attention to create a positive image about Internet banking services which in turn boost user confidence and encourage to continuance use of IB services during and post-pandemic situation.

7. Conclusion

This study integrates self-determination framework and ECM theory to investigate IB user continuance intention and intention to recommend IB service among family and friend during COVID-19 pandemic. Results of the inferential analysis indicate that IB users continuance intention is directly affected by factors underpinned self-determination framework and ECM. The integrated research framework has confirmed that user expectation, usefulness, satisfaction, identified, intrinsic, introjected and external regulation had significant impact IB user intention to continue use of Internet banking services. More specifically intrinsic regulation had largest effect size (f^2) 0.340 and importance (IPMA) to determine Internet banking user continuance intention. Besides significant relationship, this research has established that intrinsic regulation could be an important factor for studying user continuance intention in Internet banking usage. The research framework of this study is confirmed as it reveals substantial variance R^2 57.8% in IB user intention to continue use of IB services. The predictive power of the model has been tested with Q^2 using IB user continuance intention as an outcome variable. Results demonstrate that model has substantial predictive power Q^2 42.5% to predict IB user continuance intention during pandemic. In post-technology adoption context, the research model was extended with image and user intention to recommend Internet banking. Results showed that positive image moderate the relationship between Internet banking user continuance intention and intention to recommend Internet banking among others. These findings indicate that having good Internet banking web-image will motivate Internet banking users to continue use of Internet banking and recommend IB service among family and friends.

7.1 Limitation and future research directions

Apart from significant contribution to practice, theory and method, the current research has some limitations. For instance sample indicates that majority of the respondents were young and familiar with Internet technology. Alternatively, including observations obtained from those users who have less interaction with Internet technology could reveal different findings. The integration of motivational (SDT) and technology (ECT) theories was appropriate due to substantial variance explained by exogenous factors to determine IB user continuance intention. Therefore, it is not claimed that the current research model includes all constructs which impact Internet banking user continuance intention. Consequently, adding other factors could enhance the strength of the model. This study is quantitative in nature and empirically test data to understand Internet banking user continuance behavior. Nevertheless, longitudinal and qualitative kind of research could reveal interesting findings. Finally, this research suggests that examining the role of newly developed research model in other domains including online shopping websites and e-government acceptance may strengthen the generalizability of the research model.

References

Anderson, J.C. and Gerbing, D.W. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, p. 411.

Alwan, H.A., Al-Zubi and Abedlhalim, Issa (2016), "Determinants of internet banking adoption among customers of commercial banks: an empirical study in the Jordanian banking sector", *International Journal of Business and Management*, Vol. 11 No. 3, p. 95.

Arfaoui, N., Hofaidhllaoui, M. and Chawla, G. (2020), "Social performance of the company", *EuroMed Journal of Business*, Vol. 15 No. 1, pp. 102-126, doi: 10.1108/emjb-03-2018-0024.

Aydınlıyurt, E.T., Taşkın, N., Scahill, S. and Toker, A. (2021), "Continuance intention in gamified mobile applications: a study of behavioral inhibition and activation systems", *International Journal of Information Management*, Vol. 61, 102414, doi: 10.1016/j.ijinfomgt.2021.102414.

Bhattacherjee, A. (2001), "Understanding information systems continuance: an expectation-confirmation model", *MIS Quarterly*, Vol. 25 No. 3, pp. 351-370.

Bravo, R., Montaner, T. and Pina, J.M. (2009), "The role of bank image for customers versus non-customers", *International Journal of Bank Marketing*, Vol. 27 No. 4, pp. 315-334.

Chetioui, Y., Lebdaoui, H. and Chetioui, H. (2021), "Factors influencing consumer attitudes toward online shopping: the mediating effect of trust", *EuroMed Journal of Business*, Vol. 16 No. 4, pp. 544-563, doi: 10.1108/emjb-05-2020-0046.

Chin, W.W. (1998a), "Commentary: issues and opinion on structural equation modeling", *JSTOR*.

Chin, W.W. (1998b), "The partial least squares approach to structural equation modeling", *Modern Methods for Business Research*, Vol. 295 No. 2, pp. 295-336.

Cohen, J. (1988), *Statistical Power Analysis for the Behavioural Sciences*, Lawrence Erlbaum Associates, Hillside. NJ.

Deci, E.L. and Ryan, R.M. (1985), "The general causality orientations scale: self-determination in personality", *Journal of Research in Personality*, Vol. 19 No. 2, pp. 109-134.

Deci, E. l. andRyan, R.M. (1991), "A motivational approach to self: integration in personality", *Perspectives on Motivation*, Vol. 38 No. 237, pp. 237-288.

Deci, E.L. and Ryan, R.M. (2000), "The 'what' and 'why' of goal pursuits: human needs and the self-determination of behavior", *Psychological Inquiry*, Vol. 11 No. 4, pp. 227-268.

Ehsani, F. and Hosseini, M. (2021), "Investigation to determine elements influencing customer's satisfaction in the B2C electronic retailing marketplaces", *EuroMed Journal of Business*, ahead-of-print, doi: 10.1108/emjb-08-2021-0121.

Ferreira, A. and Franco, M. (2020), "The influence of strategic alliances on human capital development", *EuroMed Journal of Business*, Vol. 15 No. 1, pp. 65-85, doi: 10.1108/emjb-04-2019-0052.

Fornell, C. and Larcker, D.F. (1981), "Structural equation models with unobservable variables and measurement error: algebra and statistics", *Journal of Marketing Research*, Vol. 18 No. 3, p. 382.

Franque, F.B., Oliveira, T. and Tam, C. (2021), "Understanding the factors of mobile payment continuance intention: empirical test in an African context", *Heliyon*, Vol. 7 No. 8, e07807.

Hair, J.F., Jr, Hult, G.T.M., Ringle, C. and Sarstedt, M. (2016), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Sage Publications.

Henseler, J. and Fassott, G. (2010), "Testing moderating effects in PLS path models: an illustration of available procedures", in Esposito Vinzi, V., Chin, W., Henseler, J. and Wang, H. (Eds), *Handbook of Partial Least Squares, Springer Handbooks of Computational Statistics*, Springer, Berlin, Heidelberg, doi: 10.1007/978-3-540-32827-8_31.

Hoehle, H., Huff, S. and Goode, S. (2012), "The role of continuous trust in information systems continuance", *Journal of Computer Information Systems*, Vol. 52 No. 4, pp. 1-9.

Kang, G.-D. and James, J. (2004), "Service quality dimensions: an examination of Grönroos's service quality model", *Managing Service Quality: An International Journal*, Vol. 14 No. 4, pp. 266-277.

Lee, M.-C. (2009), "Factors influencing the adoption of internet banking: an integration of TAM and TPB with perceived risk and perceived benefit", *Electronic Commerce Research and Applications*, Vol. 8 No. 3, pp. 130-141.

Li, H. and Liu, Y. (2014), "Understanding post-adoption behaviors of e-service users in the context of online travel services", *Information and Management*, Vol. 51 No. 8, pp. 1043-1052.

Limayem, M. and Cheung, C.M. (2008), "Understanding information systems continuance: the case of Internet-based learning technologies", *Information and Management*, Vol. 45 No. 4, pp. 227-232.

Lin, C.-P. and Anol, B. (2008), "Learning online social support: an investigation of network information technology based on UTAUT", *CyberPsychology and Behavior*, Vol. 11 No. 3, pp. 268-272.

Lin, C.S., Wu, S. and Tsai, R.J. (2005), "Integrating perceived playfulness into expectation-confirmation model for web portal context", *Information and Management*, Vol. 42 No. 5, pp. 683-693.

Lin, C.-P., Tsai, Y.H. and Chiu, C.-K. (2009), "Modeling customer loyalty from an integrative perspective of self-determination theory and expectation–confirmation theory", *Journal of Business and Psychology*, Vol. 24 No. 3, pp. 315-326.

Lois, P., Drogalas, G., Karagiorgos, A. and Tsikalakis, K. (2020), "Internal audits in the digital era: opportunities risks and challenges", *EuroMed Journal of Business*, Vol. 15 No. 2, pp. 205-217, doi: 10.1108/emjb-07-2019-0097.

Martins, C., Oliveira, T. and Popovič, A. (2014), "Understanding the Internet banking adoption: a unified theory of acceptance and use of technology and perceived risk application", *International Journal of Information Management*, Vol. 34 No. 1, pp. 1-13.

Mazuri, A.G., Samar, R., Norjaya, M.Y. and Feras, M.A. (2017), "Adoption of internet banking: extending the role of technology acceptance model (TAM) with E-customer service and customer satisfaction", *World Applied Sciences Journal*, Vol. 35 No. 9, pp. 1918-1929.

Miltgen, C.L., Popovič, A. and Oliveira, T. (2013), "Determinants of end-user acceptance of biometrics: integrating the 'Big 3' of technology acceptance with privacy context", *Decision Support Systems*, Vol. 56, pp. 103-114.

Nabavi, A., Taghavi-Fard, M.T., Hanafizadeh, P. and Taghva, M.R. (2016), "Information technology continuance intention: a systematic literature review", *International Journal of E-Business Research (IJEBR)*, Vol. 12 No. 1, pp. 58-95.

Nayebpour, H. and Bokaei, M.N. (2019), "Customers satisfaction by fuzzy synthetic evaluation and genetic algorithm (case study)", *EuroMed Journal of Business*, Vol. 14 No. 1, pp. 31-46, doi: 10.1108/emjb-11-2017-0041.

Nguyen, N. and Leclerc, A. (2011), "The effect of service employees' competence on financial institutions' image: benevolence as a moderator variable", *Journal of Services Marketing*, Vol. 25 No. 5, pp. 349-360.

Oliveira, T., Thomas, M., Baptista, G. and Campos, F. (2016), "Mobile payment: understanding the determinants of customer adoption and intention to recommend the technology", *Computers in Human Behavior*, Vol. 61, pp. 404-414.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, p. 879.

Rahi, S. (2017), "Research design and methods: a systematic review of research paradigms, sampling issues and instruments development", *International Journal of Economics and Management Sciences*, Vol. 6 No. 2, pp. 1-5.

Rahi, S. and Abd. Ghani, M. (2018), "The role of UTAUT, DOI, perceived technology security and game elements in internet banking adoption", *World Journal of Science, Technology and Sustainable Development*. doi: 10.1108/WJSTSD-05-2018-0040.

Rahi, S. and Ghani, M.A. (2018). A structural equation modeling (SEM-AMOS) for investigating brand loyalty and customer's intention towards adoption of internet banking economic and social development (book of proceedings), *29th International Scientific Conference on Economic and Social*.

Rahi, S., Ghani, M., Alnaser, F. and Ngah, A. (2018), "Investigating the role of unified theory of acceptance and use of technology (UTAUT) in internet banking adoption context", *Management Science Letters*, Vol. 8 No. 3, pp. 173-186.

Rahi, S., Ghani, M. and Ngah, A. (2018a), "A structural equation model for evaluating user's intention to adopt internet banking and intention to recommend technology", *Accounting*, Vol. 4 No. 4, pp. 139-152.

Rahi, S., Ghani, M.A. and Ngah, A.H. (2018b), "A structural equation model for evaluating user's intention to adopt internet banking and intention to recommend technology", *Accounting*, Vol. 4 No. 4, pp. 129-170, doi: 10.5267/j.ac.2018.3.002.

Rahi, S., Ghani, M.A. and Ngah, A.H. (2020), "Factors propelling the adoption of Internet banking: the role of E-customer service, website design, brand image and customer satisfaction", *International Journal of Business Information System*. doi: 10.1504/IJBIS.2020.10020858.

Rahi, S., Othman Mansour, M.M., Alharafsheh, M. and Alghizzawi, M. (2021a), "The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model", *Journal of Enterprise Information Management*, ahead-of-print, doi: 10.1108/jeim-04-2020-0156.

Rahi, S., Othman Mansour, M.M., Alharafsheh, M. and Alghizzawi, M. (2021b), "The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model", *Journal of Enterprise Information Management*, Vol. 34 No. 6, pp. 1874-1892, doi: 10.1108/jeim-04-2020-0156.

Ringle, C.M., Wende, S. and Becker, J.-M. (2015), *SmartPLS 3*, SmartPLS GmbH, Boenningstedt.

Rodrigues, L.F., Costa, C.J. and Oliveira, A. (2017), "How does the web game design influence the behavior of e-banking users?", *Computers in Human Behavior*, Vol. 74, pp. 163-174.

Rowley, J. (2014), "Designing and using research questionnaires", *Management Research Review*, Vol. 37 No. 3, pp. 308-330.

Samar, R., Norjaya, M.Y. and Feras, M.A. (2017), "Measuring the role of website design, assurance, customer service and brand image towards customer loyalty and intention to adopt internet banking", *The Journal of Internet Banking and Commerce*, Vol. 22 No. S8.

Samar, S., Ghani, M. and Alnaser, F. (2017a), "Predicting customer's intentions to use internet banking: the role of technology acceptance model (TAM) in e-banking", *Management Science Letters*, Vol. 7 No. 11, pp. 513-524.

Santoro, G., Ferraris, A. and Winteler, D.J. (2019), "Open innovation practices and related internal dynamics: case studies of Italian ICT SMEs", *EuroMed Journal of Business*, Vol. 14 No. 1, pp. 47-61, doi: 10.1108/emjb-05-2018-0031.

Seetharaman, P. (2020), "Business models shifts: impact of Covid-19", *International Journal of Information Management*, Vol. 54, 102173.

Shahabi, V., Azar, A., Faezy Razi, F. and Fallah Shams, M.F. (2021), "Simulation of the effect of COVID-19 outbreak on the development of branchless banking in Iran: case study of Resalat Qard–al-Hasan Bank", *Review of Behavioral Finance*, Vol. 13 No. 1, pp. 85-108, doi: 10.1108/rbf-06-2020-0123.

Shaikh, A.A. and Karjaluoto, H. (2015), "Making the most of information technology and systems usage: a literature review, framework and future research agenda", *Computers in Human Behavior*, Vol. 49, pp. 541-566.

Standage, M., Duda, J.L. and Ntoumanis, N. (2005), "A test of self-determination theory in school physical education", *British Journal of Educational Psychology*, Vol. 75 No. 3, pp. 411-433.

Taghizadeh, S.K., Rahman, S.A., Nikbin, D., Alam, M.M.D., Alexa, L., Ling Suan, C. and Taghizadeh, S. (2021), "Factors influencing students' continuance usage intention with online learning during the pandemic: a cross-country analysis", *Behaviour and Information Technology*, pp. 1-20.

Thong, J.Y., Hong, S.-J. and Tam, K.Y. (2006), "The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance", *International Journal of Human-Computer Studies*, Vol. 64 No. 9, pp. 799-810.

Tsai, H.-T., Chien, J.-L. and Tsai, M.-T. (2014), "The influences of system usability and user satisfaction on continued Internet banking services usage intention: empirical evidence from Taiwan", *Electronic Commerce Research*, Vol. 14 No. 2, pp. 137-169.

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User acceptance of information technology: toward a unified view1", *MIS Quarterly*, Vol. 27 No. 3, p. 425.

Venkatesh, V., Thong, J.Y., Chan, F.K., Hu, P.J.H. and Brown, S.A. (2011), "Extending the two-stage information systems continuance model: incorporating UTAUT predictors and the role of context", *Information Systems Journal*, Vol. 21 No. 6, pp. 527-555.

Wellyan, J. (2016), "Influence of corporate image and relationship quality on customer trust and customer loyalty on the pt Garuda Indonesia in Surabaya", *Organization*, Vol. 4 No. 11, pp. 01-13.

WHO (2020), "WHO. WHO, Coronavirus disease (COVID-19) advice for the public", available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public.

Yu, C.-S. and Asgarkhani, M. (2015), "An investigation of trust in e-banking: evidence from Taiwan and New Zealand empirical studies", *Management Research Review*, Vol. 38 No. 12, pp. 1267-1284, doi: 10.1108/MRR-09-2014-0210.

Yuan, Y., Lai, F. and Chu, Z. (2019), "Continuous usage intention of Internet banking: a commitment-trust model", *Information Systems and E-Business Management*, Vol. 17 No. 1, pp. 1-25.

Zhao, Y. and Bacao, F. (2021), "How does the pandemic facilitate mobile payment? An investigation on users' perspective under the COVID-19 pandemic", *International Journal of Environmental Research and Public Health*, Vol. 18 No. 3, 1016.

Further reading

Rahi, S. (2017a), *Structural Equation Modeling Using SmartPLS*, CreateSpace Independent Publishing Platform, available at: https://books.google.com.my/books?id=XwF6tgEACAAJ.

About the authors

Dr. Samar Rahi is an Assistant Professor of Marketing at Hailey College of Banking and Finance, the University of Punjab, Lahore, Pakistan. He holds a Ph.D. from Universiti Sultan Zainal Abidin (UniSZA), Malaysia. He has worked with top-notch travel tech joints like Saffr A/S, Amadeus and Galileo. His current research interests include e-government, health information system, information management, business intelligence, e-commerce, digital innovation and technology adoption. His research projects include study of e-health services, e-government adoption, travelling constraints, brand love, voice banking, and e-service quality. Samar Rahi is the corresponding author and can be contacted at: sr_adroit@yahoo.com

Dr. Mahmoud Alghizzawi holds PhD from Universiti Sultan Zainal Abidin (UniSZA), Malaysia. Mahmoud got his master's degree in marketing from Amman Arab University and BA degree in Business Administration from the Hashemite University. Mahmoud has over seven years of experience in corporate sector and has performed his duties as Customer Relationship Officer, for Extensya Communications Company, Arab Bank and Etihad Bank. For the past three years, Mahmoud has been working as Head of General Direction at the Great Expectations Schools. He is responsible in managing plans, organizing, directing and controlling all activities in the institution.

Dr. Abdul Hafaz Ngah is a senior lecturer at Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu. He holds a PhD in Technology Management focusing on Halal Supply Chain obtained from the Universiti Malaysia Pahang in 2016, Masters in Education (Technical and Vocational) from Universiti Teknologi Mara, BBA from Universiti Kebangsaan Malaysia, Diploma in Finance from Kolej Agama Sultan Zainal Abidin (KUSZA) and Professional Diploma on Freight Logistics and Management from Open Universiti Malaysia. His research interests include logistics, Halal supply chain, Halal marketing, tourism, operational management and information system.