



Understanding Smart Banking Services Adoption in Pakistan: Integrating Self-Expressiveness into UTAUT2 Model

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ABSTRACT

A smart banking service can be characterized as a convergence point at which technology can be adopted through mobile applications. The study examines the factors that have an impact on Pakistani bank customers' intentions to adopt smart banking services (SBS). This study used the unified theory of acceptance and use of technology (UTAUT2) as a base model and extended it by incorporating perceived self-expressiveness, which may influence individual usage of SBS. A total of 324 banking customers from five major banks in Pakistan completed a survey questionnaire in person using convenient sampling approach. The measurement and structural analysis were carried out using Smart PLS3 software. This study found that UTAUT2 significantly explained the behavioral intention (BI) to use SBS. The significant predictors of BI were facilitating conditions (FC), habits (HT), performance expectancy (PE), hedonic motivation (HM), effort expectancy (EE) and perceived self-expressiveness (SE). However, price value (PV) and social influence (SI) were not significant. FC, HT, and BI were also identified as significant factors influencing use behavior (UB). Indeed, this study has novel contribution in extending the UTAUT2 model with self-expressiveness to understand SBS adoption for the first time in Pakistan as a developing country.

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1. Introduction

Today, innovation is increasingly considered a key component of sustaining and developing competitive advantage for organizations (Tidd & Bessant, 2020). Innovation involves using advance technologies, like big data, Internet of thing (IoT) and information and communication technology (ICT), in ways that add value, enhance quality, or increase productivity (Kwateng, Atiemo, & Appiah, 2018). In the banking industry, smart banking services (SBS) have emerged as the newest trend driven by ICT. SBS is generally defined as a mobile application that empowers users to access e-banking services on their smartphones (J. B. Kim & Kang, 2012). The majority of clients carried out their banking activities in the bank through an automated teller machine (ATM) or over the telephone in the past. With SBS, bank customers can now transact banking activities 24 hours a day anywhere and anytime (Oliveira, Faria, Thomas, & Popovič, 2014; Vuong, Hieu, & Trang, 2020). The convergence of the Internet, mobile devices, and wireless technology has enabled banks to provide innovative e-banking services to their clients. SBS is an innovative electronic banking that enables users to perform various banking tasks through specialized mobile applications, for example, verification of transfer of the account, contactless payment, real-time tracking of expenses (Mani & Chouk, 2022). In addition, SBS offers customers a better account management experience and 24/7 access with personalized features, making the operational process more efficient (Shaikh, 2013). Banks can

also benefit from SBS by increasing customer service quality and revenue. SBS has enabled banks to expand their markets and reduce their operating costs. Therefore, banks can remain competitive with SBS (Drigă & Isac, 2014). Despite its numerous advantages, SBS is used by only a small percentage of banking customers in developing nations (Farah, Hasni, & Abbas, 2018). According to statistics, only 8.2 million of the 164 million mobile subscribers use smart banking applications (Asghar, Barberà, & Younas, 2021). Therefore, it is evident that SBS is still in its infancy, and further research is needed to develop this concept, especially in the developing world (Farah, Hasni, & Abbas, 2018; Mani & Chouk, 2022). Indeed, existing research focus on m-commerce rather than customer adoption of SBS (Afshan & Sharif, 2016). In addition, the literature on SBS focuses on external factors without considering behavioral factors (Goswami, 2017). Therefore, SBS adoption must be assessed based on behavioral factors (Farah, Hasni, & Abbas, 2018). Therefore, this study attempts to identify the behavioral factors that influence consumers' adoption of SBS and suggests ways to increase their acceptance.

In recent years, extensive research has been conducted to investigate the factors influencing people's decisions to adopt new technologies. Thus, several technology acceptance models (TAM) and theories have been developed to predict and explain users' BI towards new technologies (Chau & Hu, 2001; Lin & Chang, 2011). Indeed, researchers have recommended using the updated UTAUT model in future research to better understand user intentions regarding SBS adoption (Oliveira et al., 2014). According to Venkatesh, Thong, and Xu (2012), UTAUT2 is a useful model for clarifying how individuals accept technology. Furthermore, Venkatesh, Thong, and Xu (2012) recommended extending UTAUT2 to other relevant constructs in different contexts and places, as these new constructs may fundamentally modify the theory. In their view, future research should extend the model's application to diverse cultural contexts to uncover additional factors that may influence technology adoption behavior. Thus, this research examines the applicability of the UTAUT2 model by incorporating perceived self-expression as a behavioral factor to understand Pakistani customers' intention to adopt SBS. Through this study, banking managers can gain better insight into consumer perceptions and intentions regarding SBS, enabling them to reach a larger customer base and increase sales. Considering the theoretical gaps, the main research question was formulated as:

RQ. What are the key factors that impact customers' behavior to adopt SBS?

This paper consists of six sections. Next, we review literature and theoretical framework. Next comes the methodology, results and discussion. Finally, we discuss research implications, as well as study limitations and future research directions.

2. Reviewing the Literature

2.1. Smart banking services (SBS)

Mobile technology has enabled banks to offer a variety of banking services via specialized mobile applications (Alhosani & Tariq, 2020; Vuong, Hieu, & Trang, 2020). J. B. Kim and Kang (2012) describe SBS as "banking services that can be accessed through specialized apps." According to Pitt, Parent, Junglas, Chan, and Spyropoulou (2011), SBS reduces the processing time for consumers, giving them a more convenient user interface. Additionally, they enable banks to provide innovative services in a smart way, which may distinguish them from their competitors and help them expand their businesses in a competitive market (Drigă & Isac, 2014).

2.2. UTAUT model

UTAUT model was established with its four pillars (i.e., EE, SI, PE and FC), including moderators (age, voluntariness, gender and experience), which are used to BI to adopt technology. Nevertheless, the UTAUT model's weaknesses soon emerged (Negahban & Chung, 2014). UTAUT is only applicable to organizational contexts (Alalwan, Dwivedi, & Rana, 2017; Mohamed Merhi, Hone, & Tarhini, 2019). Given the differences between the factors that affect individual behavior in organizational and consumer contexts, it is necessary to create a model that is better suited for customers (Alalwan, Dwivedi, & Rana, 2017). Venkatesh, Thong, and Xu (2012) extended UTAUT by adding three (3) additional factors (UTAUT2), hedonic motivation (HM), habit (HT), and price value (PV), including three moderators, age, experience, and gender, to examine individuals' technology acceptance behavior. Venkatesh, Thong, and Xu (2012), however, suggested incorporating new factors into the model to expand theoretical knowledge of UTAUT2. Therefore, this study incorporated perceived self-expressiveness (SE) into the

UTAUT2 model. Prior technology adoption literature suggests that this novel construct has a significant impact on BI (Choi & Kim, 2016; Hong & Tam, 2006).

2.2.1. Performance expectancy (PE)

Individuals' PE refers to the expectation that using technology to perform certain activities will bring them some benefits or enhance their job related performance (Venkatesh, Morris, Davis, & Davis, 2003). SBS is considered as more convenient channel allowing individuals to get several services with flexibility in place and time (Hassaan, Li, & Akhtar, 2023; Hassaan, Li, & Yaseen, 2023a). Research on technology innovation has been found that Individuals' BI to use technology is significantly affected by their PE (Hassaan, Li, & Akhtar, 2023; Hassaan, Li, & Yaseen, 2023a). Indeed, Farah, Hasni, and Abbas (2018) found that PE is most important predictors of BI to accept and use SBS. So, we assume that:

H1: PE is positively related to BI.

2.2.2. Effort expectancy (EE)

Individuals' EE is measured by their perception of ease when utilizing new technologies (Venkatesh et al., 2003). According to Davis, Bagozzi, and Warshaw (1989), effort free and non-complex system also play an important role to predict customer's intention to adopt novel technology. In SBS, which require some sort of knowledge and skills Alalwan, Dwivedi, and Rana (2017), consumers' intention to use innovative technology can be determined by EE (Alalwan, Dwivedi, Rana, & Williams, 2016). SBS adoption intention has been proven to be significantly correlated with EE in previous studies (Alalwan, Dwivedi, & Rana, 2017; Farah, Hasni, & Abbas, 2018). Thus, we assume that:

H2: EE is positively related to BI.

2.2.3. Social influence (SI)

A person's SI refers to how much they feel that their social network should utilize technology (Miltgen, Popovič, & Oliveira, 2013). It has been seen that users normally share their usage experience of technology with others (Albashrawi & Motiwalla, 2020). Sharing experience with other is found as prominent attribute of technology users (Miltgen, Popovič, & Oliveira, 2013). Venkatesh, Thong, and Xu (2012) stated that others' opinions (family or friends) can impact technology use behavior and intentions. Research has found that SI is an important predictor of a customer's BI to adopt technology or SBS (Hassaan, Li, & Yaseen, 2023a, 2023b). Therefore, we assume that:

H3: SI is positively related to BI.

2.2.4. Hedonic motivation (HM)

An individual's perceived enjoyment or HM is how much pleasure and cheer they experience when using technological innovation (Venkatesh, Thong, & Xu, 2012). Technology adoption research has identified HM as a crucial factor affecting the use of innovation (Hassaan, Li, & Yaseen, 2023a, 2023b). In previous technology adoption studies, HM has been considered an important factor affecting individuals behavior to adopt new technology (Hassaan, Li, & Yaseen, 2023a, 2023b). A study by Baptista & Oliveira, (2016) found that HM has a significant influence on customer's BI to use SBS. So, we assume that:

H4: HM is positively related to BI.

2.2.5. Price value (PV)

PV describes how individuals consider the perceived benefits and usage costs of particular services in making cognitive tradeoffs (Dodds, Monroe, & Grewal, 1991). In SBS, several needed resources (i.e. 4G or 5G services, smartphones and Wi-Fi) are attached with financial cost bear by customer (Alalwan, Dwivedi, & Rana, 2017). So, the role of PV can't be ignored (Hassaan, Li, & Yaseen, 2023a, 2023b). Empirical evidence showed that users tend to adopt innovative technology with suitable, affordable and good prices (Maillet, Mathieu, & Sicotte, 2015; Oliveira, Thomas, Baptista, & Campos, 2016). Alalwan, Dwivedi, and Rana (2017) also found that perceived PV influences consumer BI to adopt SBS positively. Thus, we assume that:

H5: PV is positively related to BI.

2.2.6. Facilitating condition (FC)

FC refers to the availability and support provided by an organization or technical infrastructure for the technology usage (Venkatesh et al., 2003). Thus, it can be individuals' belief that resources and support are available that enables them to improve their technology usage (Thusi & Maduku, 2020). Baptista and Oliveira (2015) stated that SBS requires a set of technical structures and skills (i.e., the installation of applications and information about mobile services). In this regard, FC play an important role to provide a strong foundation for SBS usage. In a study by Thusi and Maduku (2020), FC positively predicted individuals' intention and use behavior (UB) towards technology adoption. Thus, we assume that:

H6: FC is positively related to BI.

H6a: FC is positively related to UB.

2.2.7. Habit (HT)

An individual's HT is the extent to which he or she performs automatic behavior repeatedly based on their information and experience over time. HT plays a key role in predicting future technology use (J. Kim, 2016). Additionally, HT was also found to be a moderator of technology adoption intentions and actual use (Limayem, Hirt, & Cheung, 2007). Research also demonstrated a significant relationship between HT and individuals' intention as well as use of SBS (Hassaan, Li, & Yaseen, 2023a, 2023b). Thus, we assume that:

H7: HT is positively related to BI.

H7a: HT is positively related to UB.

2.2.8. Self-expressiveness (SE)

This study suggests that SE can be viewed as an integral latent variable in the UTAUT2 model. An individual's SE can be defined by the way he or she uses certain technologies or consumes products that are essential to their self-identity (Nysveen & Pedersen, 2003). SE describes how a product, service and technology experience reflects one's personality (Morrison & Johnson, 2011). Technology adoption studies have shown that the construct significantly impacts BI to adopt and use technology (Choi & Kim, 2016; Hong & Tam, 2006). Therefore, we assume that:

H8: SI is positively related to BI.

2.2.9. Behavioral intention (BI)

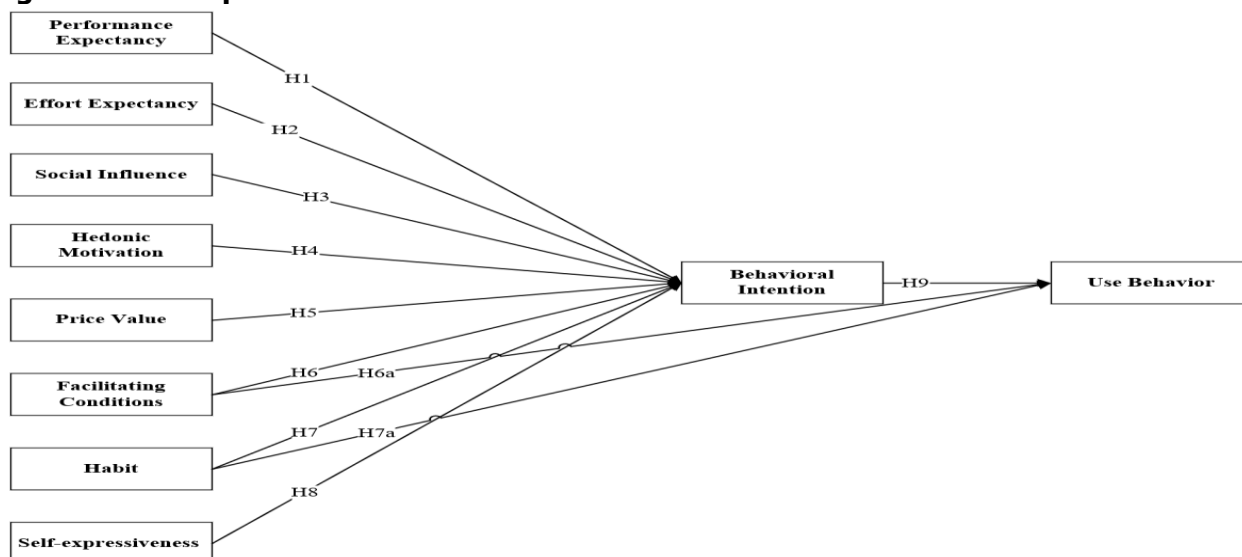
An individual's BI can be defined as their cognitive preparation to perform a specific behavior to utilize a specific technology (Mohamad Merhi, Hone, Tarhini, & Ameen, 2021). According to technology adoption literature, consumers' actual usage behavior (UB) is influenced by their BI (Hassaan, Li, & Yaseen, 2023a, 2023b). Different studies consider that if a customer has strong intention, he/she is more likely to perform certain behaviors (e.g., using or adopting new technology) with expected outcomes (Ajzen, 1991). Indeed, a significant relationship between BI and UB was also found in the previous SBS adoption studies (Hassaan, Li, & Yaseen, 2023a, 2023b). Therefore, we assume that:

H9: BI is positively related to UB.

3. Conceptual Model

In this research, eight latent variables that influence customers' intentions and use of SBS were examined. These variables included PE, EE, HT, SI, PV, HM, FC, and SE are newly added construct. Furthermore, HT, FC, and BI are also significant predictors of UB (See figure 1).

Figure 1: Conceptual Framework



4. Methodology

4.1. Collecting and sampling data

Primary data were collected through self-administered surveys of Pakistani bank customers. A convenient sampling procedure was conducted at five of the largest banks' branches: Muslim Commercial Bank Limited (MCB), National Bank of Pakistan (NBP), Bank of Punjab (BOP), Bank Al Habib Limited (BAH) and United Bank Limited (UBL) in Lahore and Multan. In these cities, the accessibility of Internet is widespread. Data were collected with permission from the branch managers. The screening process involved 324 samples. There were a majority of young participants (21-30 years old). Most of the participants (56.5 %) had master's degrees and were from higher education levels. Table 1 presents an overview of the participants' demographics.

Table 1: Demographics of respondents (n=324)

Demography		Frequency	Percentage (%)
Gender	Male	160	49.4
	Female	164	50.6
City	Lahore	184	56.80
	Multan	140	43.20
Education Level	Matric	18	5.6
	Intermediate	47	14.5
	Bachelor's degree	67	20.7
	Master's degree	183	56.5
	PhD	8	2.5
	Others	1	0.3
Age Group	Up to 20	20	6.2
	21-30	149	46
	31-40	137	42.3
	41-50	12	3.7
	Above 50	6	1.9
Bank	National Bank of Pakistan (NBP)	94	29
	Bank of Punjab (BOP)	90	27.8
	Muslim Commercial Bank Limited (MCB)	30	9.3
	Bank AL Habib Limited (BAH)	50	15.4
	United Bank Limited (UBL)	60	18.5

4.2. Measures

This research used "Seven-point Likert-scale" to measure constructs' items. Items related to BI, HM, FC, PV, HT, EE and PE were mainly adapted by Venkatesh, Thong, and Xu (2012). Also, the instruments for SI were derived from Venkatesh et al. (2003). Furthermore, items for SE were borrowed from Morrison and Johnson (2011). Items for UB were derived from Oliveira et al. (2014). In addition, five closed-ended questions were asked about demographic variables: gender, age group, education-level, city, and bank.

4.3. Common method variance (CMV)

In the context of measuring multiple constructs using the same method, it has been argued that CMV may introduce bias (Podsakoff & Organ, 1986). Several factors contribute to CMV, including survey methods and social desirability (Podsakoff & Organ, 1986). The effects of CMV were minimized using a priori methods (Hulland, Baumgartner, & Smith, 2018). The aim of the study was initially concealed through a cover letter attached to the questionnaire. Additionally, we randomly organized the questionnaire items and separated the dependent and independent variables. Finally, we pretested the questionnaire to ensure that there were no ambiguous scale items. By taking these steps before administering the study's survey, the risk of CMV is reduced (Karjaluoto, Glavee-Geo, Ramdhony, Shaikh, & Hurlpaul, 2021).

5. Results and discussion

5.1. Data analysis tools and techniques

Partial least squares (PLS-SEM) using Smart PLS 3 software was employed in this study. In several research situations and with more complex models, PLS (SEM) can be an effective method (Chin, 1998). Furthermore, it has fewer restrictions on sample size than other covariance based methods (Chin, 1998). Thus, a small sample size made PLS-SEM particularly appropriate for this research to ensure robust data analysis. In the study, the conceptual framework was assessed employing PLS-SEM with a two-stage approach comprising inner measurement models and outer structural models (Anderson & Gerbing, 1988).

5.2. Assessment of inner model

Cronbach's alpha (α) and composite reliabilities (CR) over 0.70 in Table 2 indicate good internal consistency reliability (Hair Jr, Matthews, Matthews, & Sarstedt, 2017) (see Table 2). Additionally, all constructs in the study have an average variance extracted (or AVE) more than 0.50, demonstrating convergent validity (CV) (Hair & Sarstedt, 2014) (see Table 2).

Table 2: Constructs reliability and validity

Constructs	Cronbach's α	CR	AVE
BI	0.728	0.846	0.647
EE	0.778	0.856	0.599
FC	0.714	0.823	0.538
HM	0.768	0.865	0.682
HT	0.752	0.858	0.668
PE	0.716	0.841	0.638
PV	0.705	0.830	0.620
SE	0.788	0.863	0.611
SI	0.718	0.840	0.637
UB	0.724	0.845	0.644

The hetero-trait-mono-trait correlations (HTMT) values were calculated to assess the model's discriminant validity, which should fell below 0.85 (Hair Jr et al., 2017; Henseler, Ringle, & Sarstedt, 2015). Table 3 shows discriminant validity (HTMT) of all the values examined in this study.

Table 3: Hetro-trait-Mono-trait Ratio of Correlations

	BI	EE	FC	HM	HT	PE	PV	SE	SI	UB
BI										
EE	0.610									
FC	0.744	0.612								
HM	0.585	0.487	0.516							
HT	0.605	0.412	0.519	0.416						
PE	0.720	0.612	0.683	0.448	0.539					
PV	0.523	0.487	0.678	0.605	0.454	0.514				
SE	0.583	0.399	0.498	0.349	0.455	0.506	0.372			
SI	0.535	0.545	0.471	0.544	0.376	0.560	0.470	0.452		
UB	0.645	0.386	0.544	0.363	0.498	0.565	0.411	0.409	0.360	

5.3. Assessment of outer model

In this study, the hypothesized relationships were tested with SEM using Smart PLS 3.2.8. The standard deviation, p-value, and t-value of each path are presented in Table 4. The analysis indicated that all construct p-values except PV and SI significantly influenced customers' BI and UB was either 0.10 or below (Kwateng, Atiemo, & Appiah, 2018) (see Figure 2). The effect size

(f^2) was also calculated in this study (Chin, 1998) (see Table 4). Cohen (2013) categorizes f^2 values as large, medium, and small if they are 0.35, 0.15, or 0.02. Indeed, All variance inflation factor (or VIF) values are lower than three (3), indicating that there are no vertical or lateral collinearity issues in the model (Kock, 2014, 2015) (see Table 4).

Figure 2: Path coefficient and p values

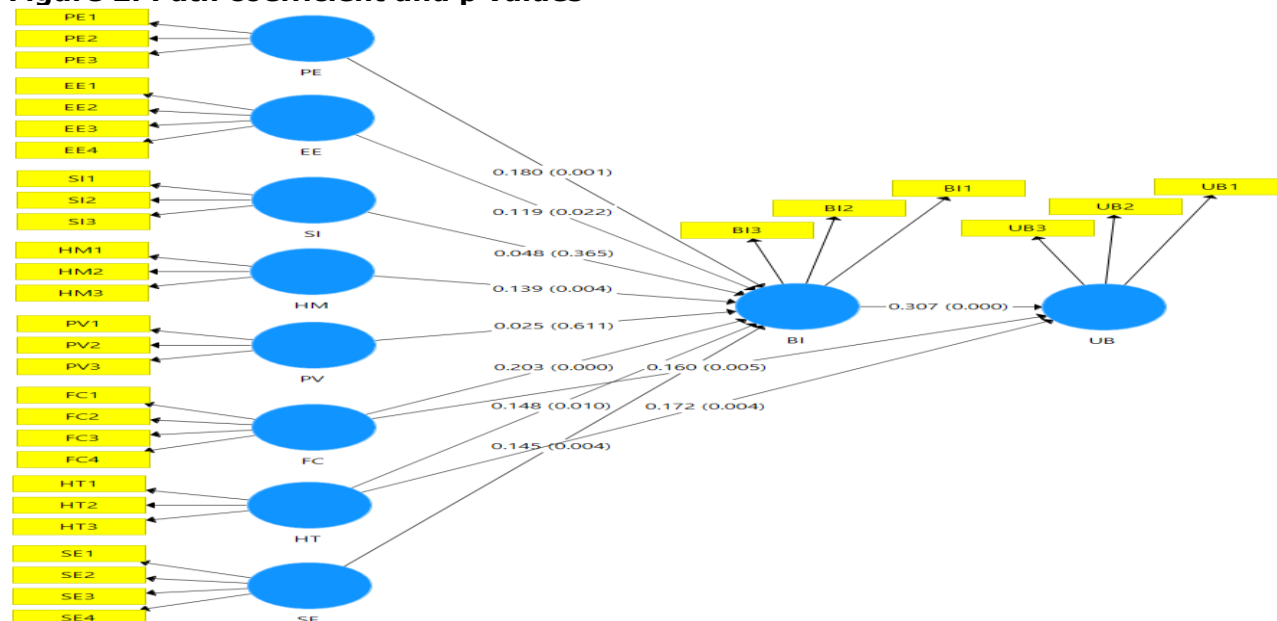


Table 4: Structural model results, f^2 and VIF values

Relationship between predictors	Standard deviation	t-value	p-value	f^2	VIF	Significant
BI -> UB	0.055	5.590	0.000	0.083	1.565	Yes
FC -> BI	0.051	4.016	0.000	0.046	1.709	Yes
HM -> BI	0.047	2.931	0.004	0.026	1.445	Yes
EE -> BI	0.052	2.299	0.022	0.020	1.582	Yes
FC -> UB	0.056	2.827	0.005	0.024	1.459	Yes
HT -> UB	0.059	2.909	0.004	0.031	1.301	Yes
PE -> BI	0.052	3.484	0.001	0.039	1.651	Yes
HT -> BI	0.057	2.592	0.010	0.031	1.348	Yes
SE -> BI	0.050	2.913	0.004	0.031	1.327	Yes
PV -> BI	0.048	0.510	0.611	0.001	1.502	No
SI -> BI	0.052	0.906	0.365	0.003	1.419	No

In addition, R^2 values were assessed (Hair Jr et al., 2017). Values of 0.35 (substantial), 0.15 (moderate) and 0.02 (weak) are used to assess R^2 (Cohen, 1988). Table 5 demonstrates a substantial “predictive accuracy” (R square adjusted or R^2) of 0.467 for BI and “moderate predictive accuracy” of 0.264 for UB. The study also used a blindfolded approach to analyze the predictive relevance values (Q^2). Endogenous latent variables exhibited cross-validated redundancies (CVR) of 0.285 for BI and 0.162 for UB, as well as cross validated communality (CVM) of 0.300 for BI and 0.298 for UB. In all cases, the values reflect significant predictive relevance and are greater than zero for all endogenous constructs (Cha, 1994).

Table 5: R square, R square adjusted and Predictive relevance

Construct	RR ²	Adjusted R ²	CVM	CVR
BI	0.480	0.467	0.300	0.285
UB	0.271	0.264	0.298	0.162

6. Conclusion

This research confirmed that Pakistani customers prioritize SBS's functionality aspects when deciding whether to adopt it. Previous research showed that PE has a substantial impact on BI (Hassaan, Li, & Akhtar, 2023; Hassaan, Li, & Yaseen, 2023a, 2023b). Furthermore, EE has a significant relationship with intention (BI) in this study. The findings show that customers want to use SBS with minimal effort, ease, and simplicity. Previous studies also supported the

significant relationship between EE and BI (Hassaan, Li, & Akhtar, 2023; Hassaan, Li, & Yaseen, 2023a, 2023b). Furthermore, this study found that FC significantly impacts BI and usage behavior (UB). The findings of previous studies show that users pay more attention to the resources, facilities, and skills necessary to use SBS (Alalwan, Dwivedi, & Rana, 2017; Alalwan et al., 2016; Thusi & Maduku, 2020; Yu, 2012; Zhou, 2012). Therefore, banks can ensure increased acceptance of SBS through improved organizational and technological infrastructure. Indeed, HT significantly influencing on both BI and UB in this study. In previous research, HT was found to influence respondents' intention to use SBS (Hew, Lee, Ooi, & Wei, 2015; Khan, Hameed, & Khan, 2017; Kwateng, Atiemo, & Appiah, 2018). The study found that HM significantly influenced Pakistani banking customers' intentions to adopt SBS. Previous research highlights the importance of HM in predicting customer behavior to adopt SBS (Hassaan, Li, & Yaseen, 2023a, 2023b). Also, the study findings revealed that SE significantly influences customers' BI to adopt SBS. Research has shown a significant relationship between SE and BI to adopt new technologies like SBS (Choi & Kim, 2016; Hong & Tam, 2006). The results further indicate that SI does not significantly affect BI. Venkatesh et al. (2003) found SI to be significant under mandatory conditions, but not under voluntary conditions. The adoption of SBS is typically a solo effort and is voluntary (Oliveira et al., 2014). Similarly, Alalwan and Rana, (2017) found that SI does not significantly affect SBS adoption. Furthermore, this study found that PV has insignificant effect on Pakistani banking customers' BI. Most banks offer free banking applications or SBS (Hassaan, Li, & Yaseen, 2023a, 2023b). This is why PV loses importance for many users. As a result, many customers have lost interest in PV. Finally, findings revealed that customers' BI influences UB. Previous research supports our findings and indicates that intention always leads positive adoption behavior (Farah, Hasni, & Abbas, 2018).

6.1. Theoretical contribution

This research enriches financial services marketing literature by analyzing the key drivers and barriers of SBS adoption among banking customers in Pakistan. This research presents a promising direction for examining SBS that has not been adequately explored in Pakistan. The UTAUT2 model was chosen as the theoretical foundation for understanding and explaining technology adoption and usage from the customer's perspective. This study provides a useful conceptual framework that is suitable for the users' context and captures principal aspects of customer behavior and intentions towards adopting SBS. Indeed, this research extends the applicability of the UTAUT2 model by examining innovative technology (SBS) in a novel context (the banking sector) in a developing country (Pakistan). Moreover, this research adds a new construct (SE) to the UTAUT2 model. This contributes significantly to the expansion of UTAUT2's theoretical horizons. Indeed, SBS could also enhance customers' feelings of pleasure and identity owing to its novel nature.

6.2. Managerial contribution

This study offers practical advice for banks and marketers on how to develop effective banking strategies by pinpointing essential factors that impact customer behavior and encourage the adoption of SBS. To encourage customers to adopt and use SBS, banks need to educate their target customers about usefulness of SBS. SBS should also be made easier for customers to use, making all transactions more convenient. Banks should adjust their services to enhance customers' positive experiences. To avoid repeating bad experiences in the future, banks should gather feedback from their customers. Additionally, banks need to develop organizational and technological infrastructure to assist customers in technical matters. SBS should be designed and promoted based on hedonic features to enhance the joyful experience for customers. According to this study, PV and SI are critical determinants of SBS adoption. To increase user acceptance of SBS, banks should keep SBS costs low and emphasize application simplicity. Furthermore, reward should be offered to potential customers to refer others to SBS. In addition, incentives can encourage potential clients to become regular customers.

6.3. Research limitations and future directions

This research has some limitations like most empirical studies. Demographic factors (like experience level, age, education and gender) were neither added as constructs nor measured in the structural model. To better understand human interactions with technology, demographic factors should be considered as moderators in the future research. Owing to time and budget limitations, this study employed a convenience sampling approach. Moreover, the study only examined "Pakistan", limiting the findings' generalizability. To identify the impact of culture on individuals' intentions for SBS usage, future studies should use a cross-cultural approach.

Moreover, longitudinal studies offer greater insight into the factors that shape customer behavior compared to cross-sectional studies.

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