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Smart Banking App Adoption: Key Influences in Developing Countries with Rapid Tech Change

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ABSTRACT

This study was intended towards analyzing the application of smart banking apps among banking customers and identifying the key factors influencing this adoption. Quantitative data were collected with close ended questionnaire. Variables were identified from concerned theoretical framework. A convenience sampling technique was employed, distributing questionnaires to 200 respondents. Various statistical tools and techniques were utilized to analyze the data. The main results indicate that performance expectancy, effort expectancy, social influence, facilitating conditions, price value, and trust are key factors influencing the use of smart banking apps. Additionally, the two most significant factors determining whether a consumer will use smart banking application services are effort expectancy and trust. Banks can gain valuable insights from this study regarding the variables that influence consumer acceptance and utilization of smart banking applications. Recognizing the key factors that impact user adoption and usage is essential for effectively designing, developing, implementing, and improving smart banking app services.

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Introduction

The rapid proliferation of internet and smart phone usage has transformed banking services globally, enabling customers to conduct transactions anytime and anywhere through mobile applications (Kim and Jeon, 2017; Hammoud, Bizri, and Baba, 2018). In Western economies, smart banking applications have matured into essential service delivery channels, with adoption rates exceeding 70% in countries such as the UK, USA, and Canada (Statista, 2023). In contrast, South Asian markets have experienced uneven adoption, often shaped by infrastructural, cultural, and trust-related barriers (Yoon and Occeña, 2014; Mentheri and Tariq, 2020). Existing studies on mobile and smart banking adoption have predominantly focused on technologically advanced economies or on broader South Asian contexts such as India, Pakistan, and Sri Lanka, with limited attention to Bangladesh's unique financial and digital ecosystem. This gap is significant given that Bangladesh has witnessed exponential digital growth — with internet penetration rising to 38.9% and smart phone usage surpassing 80 million devices as of 2024 (BTRC, 2024) — yet smart banking app adoption remains relatively low, with only about 15% of internet users engaging with such services (Bangladesh Bureau of Statistics, 2022).

Despite a population exceeding 173 million, as of January 2025 Bangladesh's internet penetration stood at just 44.5%, covering about 77.7 million users Data Reportal – Global Digital Insights. Smartphone ownership has grown rapidly—with 63% penetration in early 2025 and more than half of households now have internet access, including 60.3% in urban areas and 46% in rural areas (The Business Standard, 2024). Additionally, mobile banking is booming: by May 2024, around 229.9 million mobile banking users were registered with commercial banks, up from 67.7 million in 2018; and transaction volumes surged by over 30% year-on-year (RSIS International, 2024). Internet banking transaction values also climbed dramatically, reaching BDT 631,002 crore in 2023—an 858% increase since 2019 (Fincat BD, 2024). Yet despite this growth, adoption remains inconsistent and

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usage limited to certain demographics, posing challenges for full financial inclusion and digital transformation.

The present study contributes to the literature by offering an empirical, Bangladesh-specific examination of smart banking app adoption using an extended version of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. While UTAUT has been widely used to explain technology adoption behaviors, this study advances its application by incorporating Price Value and Trust as critical determinants (Hossain, 2019). Price value reflects the perceived trade-off between the monetary/time investment and the benefits of using smart banking apps, which is particularly relevant in developing economies where cost sensitivity is high. Trust, encompassing perceptions of security, reliability, and integrity, has been consistently identified as a decisive factor in digital financial adoption in environments where cyber security risks and fraud are prevalent. Incorporating these variables addresses a research gap in Western and South Asian literature, where trust is often discussed but not always integrated into UTAUT-based empirical models, and where price sensitivity is rarely given explicit analytical weight (Baabdullah et al., 2019).

The research problem is twofold. First, despite significant investments by Bangladeshi banks in digital platforms — including leading apps such as City Touch (City Bank), EBL Sky banking (Eastern Bank), and BRAC Bank ASTHA — adoption rates remain modest compared to the growing digital infrastructure. Second, the slow uptake raises strategic concerns for financial inclusion, customer retention, and competitive positioning, especially in an era when Fintech alternatives are increasingly available. Understanding the behavioral determinants that drive or hinder adoption is therefore essential for both policymakers and banking strategists.

By focusing on performance expectancy, effort expectancy, social influence, facilitating conditions, price value, and trust, this study not only captures the conventional UTAUT constructs but also addresses the socio-economic realities of Bangladesh's banking sector. Performance and effort expectancy directly relate to user efficiency and ease of use; social influence captures the role of peer and community adoption in a collectivist society; facilitating conditions account for infrastructural and service support challenges; while price value and trust address the economic and security dimensions that are particularly acute in Bangladesh's context. Together, these factors provide a comprehensive framework to diagnose adoption barriers and inform targeted interventions.

Bangladesh's banking sector has launched advanced mobile applications—such as City Bank's City Touch, Eastern Bank's EBL SKYBANKING, and BRAC Bank's ASTHA—yet customer uptake remains inconsistent (The Financial Express, 2023). This lag understates the potential of digital banking as a catalyst for financial inclusion, especially for rural and under banked populations. The research problem is therefore twofold: a. Low relative adoption: Despite widespread Smartphone and internet access, mobile banking usage remains constrained, inhibiting economic participation and inclusive growth; and b. Structural and perceptual barriers: Cost concerns and trust deficits—exacerbated by concerns over cyber security and limited awareness—deter broader uptake.

This study examines six critical constructs—Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Price Value, and Trust—to identify the most influential factors in adoption decisions. Performance and Effort Expectancy reflect ease of use and perceived usefulness; Social Influence captures peer-driven adoption dynamics in Bangladesh's collectivist culture; Facilitating Conditions denote infrastructural and support factors; and Price Value and Trust address cost-benefit perceptions and security concerns central to sustainable adoption.

Literature Review

Smart Banking

Advancements in technology have significantly benefited the financial sector, particularly in smart banking, leading to notable changes and improvements in banking applications (Baabdullah et al., 2019). Compared to traditional banking systems, these innovations have reduced costs, including operational fees. Modern banking has evolved from old paper-based systems to sophisticated mobile banking apps. However, as technology has advanced, acceptance barriers have also increased (Bharti, 2016). Mobile applications enabled by Wi-Fi connectivity offer extensive business opportunities, making transactions, business operations, and purchasing goods and services effortless. This can enhance a country's financial services. To optimize mobile banking, it is essential to educate clients about the available features and how banks can leverage these tools to build strong customer relationships (Kahandawa and Wijayanayake, 2014). Mobile banking encompasses all banking services, including loans, bill payments, and money transfers, which is especially beneficial for entrepreneurs who may need these services at specific times and in remote locations (Varma, 2018).

Customer's Adoption of Technology in Banking

Key Benefits of smart banking applications that influence user satisfaction are security, convenience, and ease of use (Sampaio et al., 2017). The number of mobile users conducting financial transactions via apps is expected to reach 2 billion globally by 2021, up from 1.2 billion in compare two five years ago (Juniper, 2017). These customers will get entry into their bank accounts and perform routine transactions through their mobile apps (Sampaio et al., 2017). Research by Chaouali et al. (2017) indicates that attitudes toward mobile banking adoption significantly and positively affect users' intentions to utilize these services. Users value efficiency, convenience, and safety as ideal outcomes when using mobile banking (Laukkanen, 2007). Additionally, trust can affect the interrelation between perceived value and consumer satisfaction (Chung and Kwon, 2009). Factors such as perceived usefulness, perceived ease of use, and social influence positively relate to users' attitudes toward mobile banking. In turn, a positive attitude toward mobile banking correlates with its adoption. This suggests that consumers are more interested to take smart banking when service providers offer user-friendly services that meet their needs (Deb and Lomo-David, 2014).

Factors Affecting Smart Banking Application Uses

Performance Expectancy

Performance expectations are the strongest predictor of both the intention to use and actual usage behavior (Jeng and Tzeng, 2012). Specifically, this refers to an expectation of certain individual that utilizing these changes or adopting a new technology will significantly enhance the performance (Venkatesh et al., 2003).

Effort Expectancy

Effort expectancy has been defined as the belief of certain people and parties that adopting modern technologies of banking is not difficult and required minimum effort. As ease of use increases, the likelihood of adopting online banking rises (Venkatesh et al., 2003). Thusi and Maduku (2020) also relate "effort expectancy" to mobile banking, describing it as a process which is increasingly easy to learn and also to execute.

Social Influence

Social influence means that whether a person's social fraternity like friend, family, and other important people like to use the smart banking apps. In the context of mobile banking, this refers to "the influence of social surroundings and the social environment on a customer's intention to adopt mobile banking" (Alalwan, Dwivedi, and Rana, 2017).

Facilitating Conditions

Facilitating conditions also play an important role in attracting users to Internet banking. To effectively utilize Internet banking services, individuals need a certain level of ability, resources, and technology (Zhou et al., 2010; Tarhini et al., 2016). When customers have access to adequate support and services, they will attract them more.

Price Value

Pricing value means the calculation of an individual's perceived interests against the perceived costs he/she need to bear for using a certain application. (Venkatesh, Thong, and Xu, 2012). Additionally, while financial costs are a significant factor in a customer's intention to apply updated technologies, for employees, the time and effort required can serve as a proxy for costs, especially if they are lower than expected (Mallat et al., 2007; Venkatesh et al., 2012). User intentions are greatly influenced by perceived price, highlighting that cost is a critical element in user decision-making (Chiang and Jang, 2007)

Trust

Trust is defined as faith in the strength, capability, reliability, and integrity of a person, system, or object (Gupta and Kamilla, 2014; Zhou, 2014). In the context of e-banking and e-commerce, trust comprises four components: security, integrity, authentication, and authorization (Yousafzai, Foxall, and Pallister, 2010). As noted by Kramer (1999), "trust is the foundation of all kinds of relationships," making it a crucial factor in the adoption of mobile banking and other fintech services, as it shapes consumer expectations of their service providers.

Adopt Intention to Use Smart Banking App

Prior studies on mobile banking technology have shown a direct and significant relationship between the intention to use and actual usage behavior (Baptista & Oliveira, 2015; Thusi & Maduku, 2020). According to Aladwani (2002), consumers in various countries do not perceive Internet banking as particularly significant; rather, they view Internet banking and ATMs as more important than traditional banking methods. While adopting technology is essential for using the Internet, it can be challenging as it requires changes in behavioral habits and adjustments to financial services and technology (Tarhini et al., 2016; Yuan et al., 2019; Alkhowaiter, 2020). In the context of online banking, it is assumed that individuals with positive intentions to use or acquire it will engage with it periodically (Lin, Wu, and Tran, 2015).

Earlier Studies in Bangladesh

Research on mobile banking and Fintech adoption in Bangladesh highlights a complex interplay of technological, social, and psychological drivers influencing user behavior. Hassan et al. (2022) identified performance expectancy, effort expectancy, trust, and perceived risk as critical determinants of mobile Fintech adoption, noting that trust plays a disproportionately large role in emerging markets due to heightened concerns over transaction security. Similarly, Azad (2016), using a neural network approach, demonstrated that perceived usefulness and ease of use significantly predict mobile banking adoption, while also emphasizing the moderating effect of demographic variables such as age and income. Attitudinal factors have also been found central. Himel et al. (2021) reported that users' positive attitudes towards mobile financial services (MFS) strongly influence their intention to use them, with social influence and facilitating conditions acting as important enablers. In a related study, Hafez (2023) showed that consumption values—functional, social, and epistemic—affect adoption, and that perceived security moderates these effects, reinforcing the salience of trust in the Bangladeshi context. Earlier work by Ashraf et al. (2010) also established that privacy and trust are pivotal in internet banking adoption, providing an enduring foundation for contemporary fintech research. Furthermore, Chowdhury and Hussain (2022), applying the Technology Acceptance Model (TAM), confirmed that perceived usefulness and ease of use remain robust predictors of fintech acceptance in Bangladesh, while external factors like technological awareness further shape adoption. Collectively, these studies underscore that in Bangladesh, adoption decisions are not solely technology-driven but deeply shaped by trust, cost–benefit perceptions, and socio-cultural influences—aligning closely with the present study's integration of Price Value and Trust into the UTAUT framework.

Conceptual Framework

The independent variables for this research include: Performance Expectancy, Effort Expectancy, Social Influences, Facilitating Conditions, Price Value and Trust. The current study aims to identify the variables influencing the adoption of smart banking applications among customers in the Khulna region. Consequently, the dependent variable—affected by the independent variables—is the intention to adopt smart banking applications. Based on the conceptual framework, six hypotheses have been constructed for the purpose of testing.

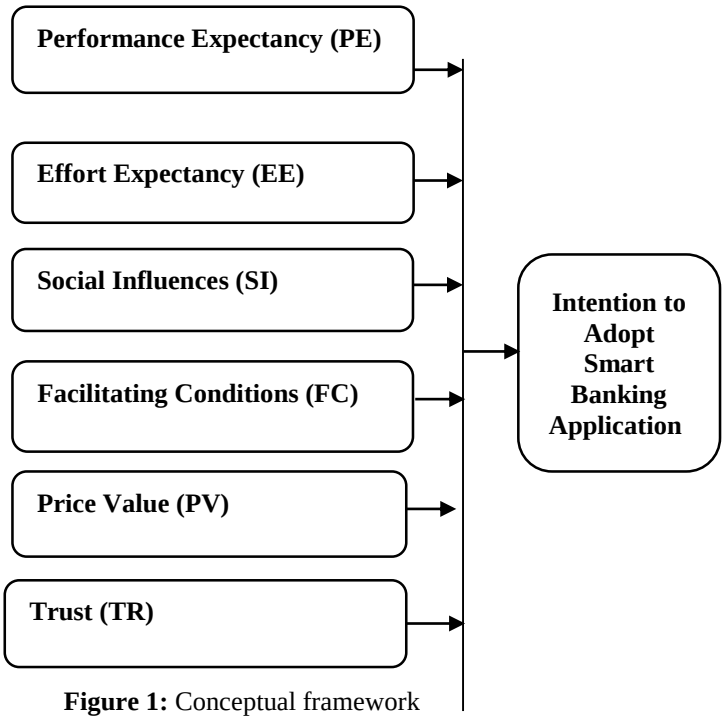

Figure 1: Conceptual framework

These hypotheses include:
H_1. *Performance expectancy* positively influences customer's intention to adopt smart banking applications.
H_2. *Effort expectancy* positively influences customer's intention to adopt smart banking application.
H_3. *Social influences* positively influence customer's intention to adopt smart banking application.
H_4. *Facilitating conditions* positively influence customer's intention to adopt smart banking application.
H_5. *Price value* positively influences customer's intention to adopt smart banking application.
H_6. *Trust* positively influences customer's intention to adopt smart banking application

Methodology

Research Design

This descriptive research employed a quantitative methodology. A systematic survey was designed to gather information from participants. The responses were analyzed to test the hypothesis, leading to conclusions based on the findings.

Data Collection and Source

The study focused on Khulna City, of Bangladesh and primarily collected data from private banks located there. The targeted banks included Standard Chartered Bank, Eastern Bank Limited, Dutch Bangla Bank Limited, Brac Bank, and Prime Bank Limited. Primary data was utilized for this study, collected directly from the study area through a field survey. A structured questionnaire containing essential questions about the topic was employed to gather the information. Pilot testing and retesting of the questionnaire was carried in order to check both the reliability and validity of the constructs. Data were collected during a period of more than two months starting at September, 2023 and ended at October, 2023.

Population and Sampling

The target population for this study consists of users of smart banking apps, denoted as "N." The population is always larger than the sample. For this research, the study population includes smart banking app users in Khulna City, which has a total population of 2,613,365, according to the District Statistics 2022 report by the Bangladesh Bureau of Statistics. Not all residents use smart banking applications; as per the Bureau of Statistics, 38.9% of the total population uses the internet, and among them, 15% utilize smart banking apps. Therefore, the estimated population size of smart banking app users in Khulna is approximately 15,248.

A "sample," denoted by the letter "n," refers to a representative subset of the entire population. For this study, the samples consist of smart banking app account holders from Khulna City. A non-probability and convenience sampling strategy was employed due to its practicality, cost-effectiveness, and time efficiency (Ary and Jacobs, 2002). The following formula was used to determine the sample size, represented by n.

$$\mathbf{n = [Z^2 p\,(1 - p)]/\, e^2}$$

Here,

n = the size of the sample, z = the z-score associated with a level of confidence (for a confidence level of 95%, the critical value or z-score is 1.96) =1.96, e = The margin of error = 7% (at 95% confidence level), p= 5% = 0.05. Based on the formula above, the sample size (n) = 196 samples. In order to collect this sample we contacted around 350 people and the response rate was around 67%.

Measurement of variables

The survey instrument comprised two sections: demographic questions and construct questions. The demographic questions included gender, age, income, occupation, the name of the current smart banking application used, and the respondent's experience with smart banking applications. The seven constructs examined were performance expectancy (PE), effort expectancy (EE), social influences (SI), facilitating conditions (FC), price value (PV), trust (TR), and adoption intention (AI).

Data Processing, Analysis and Technique

After collecting data from the field survey, it was processed for analysis. The data were coded and then decoded following statistical tests to generate concise and precise insights. The collected data were classified based on attributes and class intervals to facilitate analysis. The questionnaire utilized five-point Likert scales, ranging from 1 to 5, with responses ranging from "strongly agree" to "strongly disagree." The study utilized quantitative data, primarily collected through a structured survey questionnaire. This data was analyzed using descriptive reporting techniques. Various tools, including graphs, charts, frequency distribution tables, and pie charts, along with statistical methods such as correlation and regression analysis, were employed to examine relationships between variables. IBM SPSS 25 was used for statistical analysis and calculations, facilitating tests such as descriptive statistics, reliability analysis, correlation analysis, and regression analysis, among others.

Table 4.1: Measurement of variables

Performance Expectancy
1. Using smart banking app help me accomplish tasks more easily.
2. The app services are diverse and useful for my job.
3. The app services help me to increase my productivity.
Effort Expectancy
4. Smart banking apps are easy to use.
5. My interaction with the app services is clear and understandable.
6. I think I would learn to use the app services quickly.
Social Influence
7. People who are important to me think that I should use the banking apps.
8. Most people in my environment use smart banking apps.
9. Using those apps indicate me to have a higher status than those who do not.
Facilitating Conditions
10. I have knowledge necessary to use these apps.
11. I get help from customer care/app providers when I have difficulties using these apps.
12. A smart banking app is compatible with other technologies I use.
Price Value
13. Smart banking apps offer better value for my money.
14. I think using these app services is budget friendly.
15. Using these app services save money compared to other banking services.
Trust
16. I trust that my personal information will be secured while using these app services.
17. I trust the procedure of settling transactions of these app services.
18. These app services protect the data that are sent by me.
Adopt Intention
19. I believe I will keep using these services.
20. I will use smart banking app services for different kinds of banking transactions.
21. I believe the app services perform consistently.

Research Model

Considering consumer technology, Venkatesh et al. (2012) updated the UTAUT model, known as UTAUT2 or the Extended Unified Theory of Acceptance and Use of Technology. This revised model adds three constructs to the original UTAUT: price value (PV), habit (HT), and hedonic motivation (HM). Thus, the intention to adopt technology is influenced by price value (PV), trust (TR), facilitating conditions (FC), social influence (SI), effort expectancy (EE), and performance expectancy (PE) according to UTAUT2. Recent research has utilized the UTAUT2 framework, demonstrating its effectiveness in measuring customer adoption and use of new technologies (Arenas, Peral, & Ramón, 2015; Megadewandanu, Suyoto, & Pranowo, 2016).

While the UTAUT framework offers a robust basis for examining technology adoption, alternative models provide complementary insights. The Technology Acceptance Model (TAM) posits that *perceived usefulness* and *perceived ease of use* are the primary determinants of adoption intention, influencing attitudes toward the technology (Davis, 1989). TAM has been widely applied to mobile banking and fintech contexts, including in Bangladesh, demonstrating that user perceptions strongly shape acceptance (Chowdhury & Hussain, 2022). The Diffusion of Innovations (DOI) theory (Rogers, 2003) adds a broader sociological lens, identifying *relative advantage*, *compatibility*, *complexity*, *trialability*, and *observability* as key attributes that drive or hinder adoption. DOI has proven valuable in understanding how innovations spread across different social groups, which is pertinent in Bangladesh's diverse demographic landscape. Integrating UTAUT with TAM and DOI perspectives can thus yield a more comprehensive understanding of the socio-technical and cultural factors shaping smart banking app adoption.

Data Analysis

Frequency Analysis

Table 5.1: Descriptive Analysis of all Factors

N		Performance	Effort	Social	Conditions	Price	Trust	Intention
N	Valid	196	196	196	196	196	196	196
	Missing	0	0	0	0	0	0	0
Mean		4.69	4.41	4.89	4.35	4.50	4.13	4.39
SD		1.02	.985	.852	.745	.652	.403	.521

The dataset consists of responses from 196 participants, providing a robust foundation for understanding perceptions across seven key variables: Performance, Effort, Social, Conditions, Price, Trust, and Intentions. The mean scores indicate that respondents generally hold positive views across all these dimensions. The highest average score is observed in the Social variable, with a mean of 4.89 and a standard deviation of 0.85, suggesting strong agreement or favorable attitudes toward social aspects among participants. This is closely followed by Performance, which has a mean of 4.69 and a standard deviation of 1.02, indicating that while respondents generally rate performance highly, there is a wider range of opinions in this area compared to other variables. Effort and Price also show moderately high means, at 4.41 (SD = 0.99) and 4.50 (SD = 0.65), respectively, which points to generally positive perceptions but with some variability, especially for effort. Conditions and Intentions have mean scores of 4.35 (SD = 0.75) and 4.39 (SD = 0.52), indicating slightly less enthusiasm but still positive attitudes overall, with relatively lower variability. Trust receives the lowest mean score of 4.13, with a notably small standard deviation of 0.40, revealing that while trust levels are positive, they are less strong compared to the other variables, but perceptions of trust are consistent among respondents. The standard deviations highlight the degree of consensus within the sample. Performance's highest standard deviation (1.02) reflects diverse opinions, suggesting that participants' experiences or expectations around performance differ more substantially. Conversely, trust and intentions, with the smallest standard deviations, suggest more agreement and homogeneity in these perceptions. Overall, the data points to generally favorable attitudes across the board, with the strongest consensus in trust and intentions, and the widest range of views on performance.

Reliability and Validity

We assessed construct validity using Pearson correlation tests, finding all items significantly correlated ($p < 0.05$) with their intended constructs. Reliability was confirmed

(for all the seven constructs) with Cronbach's alpha values of 0.824, 0.875, 0.896, 0.901, 0.845, .912 and 0.922—well above the 0.70 threshold. A Confirmatory Factor Analysis (CFA) via Structural Equation Modeling (SEM) in AMOS (n = 196) showed good model fit: NFI = 0.923, CFI = 0.948, IFI = 0.930, TLI = 0.912 (all > 0.90), and RMSEA = 0.042, indicating acceptable fit.

Table 5.2: Model Fit Summary

Model	NPAR	CMIN	DF	P	CMIN/DF	NFI/ delta1	RFI rho1	IFI delta2	TLI rho2	CFI	PRATIO
Default	52	37.54	62	.000	7.102	**.923**	.921	**.930**	**.912**	**.948**	.747
Saturated	201	.000	0			1.000		1.000			.000
Independence	21	652.01	112	.000	22.10	.000	.000	.000	.000	.000	1.000

Model	PCFI	NCP	FMIN	RMSEA	PCLOSE	AIC	BCC	ECVI
Default	.805	1542.321	1.532	**.**042	.000	1325.142	1452.12	2.013
Saturated	.000	.000	.000			159.0	2.013	.312
Independence	.000	1712.543	26.354	.032	.000	31152.01	2512.3012	30.251

Model	MECVI	HOELTER .05	HOELTER .01
Default	1.847	162	158
Saturated	.265	34	38
Independence	37.254		

We tested Harman's single factor test, which is a widely used indicator for identifying and testing the presence of common method bias in data. Our results indicate that only 34.52% of the variance was explained by a single factor, which is well below the standard level cut-off value of 50%. This finding suggests and provides evidence that the data do not have any significant issues associated with common method bias.

Correlation Analysis among All the Factors

Table 5.3: Correlation Analysis among All the Factors

	PE	EE	SI	FC	PV	TR	AI
PE	1						
EE	.561**	1					
SI	.432**	.482**	1				
FC	.548**	.641**	.653**	1			
PV	.525**	.600**	.558**	.612**	1		
TR	.399**	.532**	.548**	.643**	.670**	1	
AI	.476**	.674**	.522**	.674**	.660**	.812**	1

**. Correlation is significant at the 0.01 level 2 tailed

Table 5.3.1 shows a significant correlation among factors. Among the relationships, Trust (r = .812), has the highest correlation with adopt intention with smart banking application. This is subsequently followed by Price Value (r = .660), facilitating conditions (r = .674), social influence (r = .522), effort expectancy (r = .674) and performance expectancy (r = .476). As a result, it can be concluded that each and every relationships are positive here.

Regression Analysis and Hypothesis Testing

Table 5.4: Result of the regression analysis

Variables	Customer Intentions		
	Beta	R^2	P Value
Performance expectancy (H1)	.34**	.48	.01
Effort expectancy (H2)	.42**	.54	.02
Social influence (H3)	.48**	.61	.02
Facilitating conditions (H4)	.52**	.62	.01
Price value (H5)	.65**	.65	.01
Trust (H6)	.25*	.48	.04

N.B. Regression weights shown are standardized coefficients obtained at the final step (n=196); *p < 0:05; **p < 0.01.

The regression analysis results in Table 5.4 provide insights into the factors influencing customer intentions, measured through standardized beta coefficients, R^2 values, and significance levels (p-values). Each predictor variable significantly impacts customer intentions, as all p-values are below the conventional thresholds (0.05 or 0.01), indicating statistically significant relationships. Price value (H5) emerges as the strongest predictor of customer intentions, with the highest beta coefficient of 0.65 and an R^2 of 0.65, meaning that price value alone explains 65% of the variance in customer intentions at its step in the model. This suggests customers highly consider the perceived value for money when forming intentions.

Facilitating conditions (H4) also show a strong effect, with a beta of 0.52 and an R^2 of 0.62, indicating that the availability of resources or infrastructure supporting use substantially encourages customer intentions. Similarly, social influence (H3) with a beta of 0.48 and R^2 of 0.61 highlights the importance of peers or societal pressure in shaping intentions. Effort expectancy (H2) follows with a beta of 0.42 and R^2 of 0.54, showing that customers' perception of ease of use significantly impacts their intention to engage. Performance expectancy (H1), while slightly lower at beta 0.34 and R^2 0.48, still significantly contributes, reflecting the role of expected benefits or performance gains. Lastly, trust (H6) has the lowest beta at 0.25 and R^2 0.48 but remains significant at $p = 0.04$, indicating that confidence in the service or product moderately affects customer intentions. These results reveal that while all variables are important, price value, facilitating conditions, and social influence are the most influential factors driving customer intentions in this study, explaining a substantial proportion of the variance.

So, on the basis of the findings of the study, it is possible to reach the conclusion that all the six hypotheses of this research can be accepted.

Hypothesis 1 (H_1): Performance expectancy positively influences customer's intention to adopt smart banking application-**Accepted**.

Hypothesis 2 (H_2): Effort expectancy positively influences customer's intention to adopt smart banking application-**Accepted**.

Hypothesis 3 (H_3): Social influences positively influence customer's intention to adopt smart banking application-**Accepted**.

Hypothesis 4 (H_4): Facilitating conditions positively influence customer's intention to adopt smart banking application-**Accepted**.

Hypothesis 5 (H_5): Price value positively influences customer's intention to adopt smart banking application-**Accepted**.

Hypothesis 6 (H_6): Trust positively influences customer's intention to adopt smart banking application-**Accepted**.

Discussion

The study's findings reveal a positive correlation between the independent and dependent variables, demonstrating that performance expectancy significantly influences the adoption of smart banking apps. This suggests that customers are more likely to adopt these apps if they believe that using them will enhance their job performance, simplify task completion, and boost productivity. Effort expectancy also shows a positive and significant effect on the adoption of smart banking apps. When customers perceive these apps as- easy to use, understandable, and quick to learn the adoption potentiality increased. Similarly, social influence plays a crucial role, as customers tend to adopt smart banking services based on the opinions of important individuals in their lives, such as friends, colleagues, and family members. Additionally, those who believe that using these applications confers a higher status are more inclined to adopt them, aligning with existing research (Baptista & Oliveira, 2015). Facilitating conditions positively affect the intention to adopt smart banking apps, indicating that customers are more likely to embrace these technologies if they have a solid understanding of them, can access customer support when issues arise, and find them compatible with other technologies they use. Price value also significantly impacts smart banking app adoption. Customers are more likely to adopt apps that they perceive as offering better value for money and saving costs compared to traditional banking services. Lastly, trust is a critical determinant in predicting customers' intentions to use smart banking applications. The analysis indicates that customers are more motivated to adopt these services when they believe that using the system will enhance their trust and ensure high levels of security and reliability in their banking transactions.

Theoretical Implications

This study offers several theoretical contributions to the technology adoption literature, particularly in the context of developing economies. First, it extends the Unified Theory of Acceptance and Use of Technology (UTAUT) by incorporating Price Value and Trust as additional predictors of adoption intention. While the original UTAUT2 model (Venkatesh et al., 2012) includes price value, its relevance has been understudied in low- and middle-income economies where cost considerations are often decisive. By empirically validating price value in the Bangladeshi context, the present study reinforces its salience in environments with high cost sensitivity and demonstrates its applicability beyond consumer goods and services into digital banking adoption.

Second, the inclusion of Trust as an explicit construct enhances the explanatory power of the model. Trust has been widely acknowledged in e-commerce and online banking research (Ashraf et al., 2010; Hassan et al., 2022), yet it is often examined outside of the UTAUT framework. This study's integration of trust directly into the model addresses a theoretical gap and provides a more comprehensive lens for understanding adoption behavior in markets where security and privacy concerns are prevalent.

Third, by applying the extended UTAUT model to the Bangladeshi smart banking app market, this research demonstrates the model's cross-cultural adaptability. Prior studies have predominantly focused on Western contexts or broader South Asian settings; this study offers evidence that socio-economic factors, digital infrastructure maturity, and cultural attributes can alter the relative influence of adoption determinants.

Finally, the strong predictive role of Effort Expectancy and Trust in this study suggests that user confidence in both the usability and security of technology is central to adoption in emerging markets. This finding encourages refinement of existing adoption models to account for the interplay between ease of use and trustworthiness in shaping behavioral intentions, thereby contributing to theoretical development in technology acceptance research.

Practical Implications

The findings of this study provide several actionable insights for banking practitioners, policymakers, and Fintech developers aiming to increase the adoption of smart banking applications in Bangladesh.

First, the strong influence of Effort Expectancy underscores the importance of designing applications with simple, intuitive interfaces that minimize learning curves. Banks should invest in user-friendly layouts, multilingual support (including Bangla), and streamlined on boarding processes to cater to diverse user segments, including less digitally literate customers.

Second, the significant role of Trust highlights the necessity of robust security features and transparent communication. Banks must prioritize advanced authentication methods (e.g., biometric login, two-factor authentication), implement visible fraud prevention measures, and regularly inform customers about these safeguards. Public campaigns and customer education initiatives can help address perceived risks and enhance confidence in digital transactions.

Third, the impact of Price Value suggests that customers are sensitive to the perceived cost–benefit ratio of smart banking. Banks could offer fee reductions, cash back incentives, or bundled service packages to improve perceived value. Promoting cost savings over traditional banking channels can also strengthen adoption intentions.

Fourth, Social Influence and Facilitating Conditions indicate that community endorsement and access to technical support are important. Peer-driven marketing, influencer endorsements, and referral programs can amplify adoption through social networks. Additionally, establishing easily accessible customer service points—both physical and virtual—will ensure users can resolve technical issues promptly.

Finally, the results have policy implications. Regulators such as Bangladesh Bank can collaborate with commercial banks to establish standardized security protocols, enhance interoperability between banking platforms, and expand digital infrastructure in rural areas. By aligning industry practices with consumer needs identified in this study, the banking sector can not only boost adoption rates but also contribute to broader financial inclusion goals.

Limitations and Future Research Direction

While this study makes meaningful contributions to the understanding of smart banking application adoption in Bangladesh, certain limitations must be acknowledged to provide context for interpreting the findings and to guide future research.

First, the study employed a convenience sampling method focused on respondents from Khulna City. Although this approach was practical for data collection, it limits the generalizability of the findings to the broader Bangladeshi population, particularly rural communities where digital infrastructure, literacy levels, and banking behaviors may differ. Future studies should adopt probability-based sampling and include a more geographically diverse sample to capture regional variations in adoption determinants.

Second, the study used a cross-sectional survey design, which captures user perceptions and intentions at a single point in time. This approach does not account for changes in attitudes and behaviors over time, especially as new banking technologies emerge or as user trust evolves. Longitudinal research designs could provide deeper insights into how adoption patterns develop and persist over time.

Third, the model examined a limited set of predictors—Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Price Value, and Trust—within an extended UTAUT framework. While these constructs are significant, other potentially influential factors such as perceived risk, compatibility, habit, and hedonic motivation were not included. Future research could explore these variables, as well as moderating effects of demographic factors such as age, gender, education, and income.

Fourth, the data relied on self-reported measures, which may be influenced by social desirability bias or inaccuracies in recalling past experiences. Incorporating behavioral data—such as actual app usage logs—alongside survey responses would enhance the robustness of findings.

Finally, this study focused exclusively on the banking sector. Given the convergence of banking and Fintech services in Bangladesh, future research could broaden the scope to include mobile wallet providers, peer-to-peer payment platforms, and digital lending services. This would allow comparative analyses across different types of financial technologies, offering a more comprehensive understanding of digital financial adoption.

Future research should address sampling diversity, incorporate longitudinal and mixed-method approaches, expand the range of variables examined, and explore cross-sector comparisons. Addressing these gaps will not only strengthen theoretical models like UTAUT in the context of emerging economies but also generate richer, more actionable insights for policymakers and industry practitioners seeking to enhance digital financial inclusion.

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Conflict of Interest

The authors declares no conflict of interest.

References

Aladwani, A. M. 2002. “The development of two tools for measuring the easiness and usefulness of transactional Web sites,” *European journal of information systems: an official journal of the Operational Research Society*, 11(3), pp. 223–234.

Alalwan, A. A., Dwivedi, Y. K. and Rana, N. P. 2017. “Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust,” *International journal of information management*, 37(3), pp. 99–110.

Alkhowaiter, W. A. 2020. “Digital payment and banking adoption research in Gulf countries: A systematic literature review,” *International journal of information management*, 53(102102), p. 102102.

Arenas, G., Peral, P. and Ramón, J. 2015. "Elderly and internet banking: An application of UTAUT2," *Journal of Internet Banking and Commerce*, 20(1), pp. 1–23.

Ary, D. and Jacobs, L. C. 2002. *Introduction to Research in Education*. USA, Belmont Thomson Learning.

Ashraf, M. A., Alam, M. M., & Noor, M. S. (2010). The influence of privacy and trust on the adoption of internet banking in Bangladesh. Malaysian Management Journal, 14, 33-48.

Azad, M. A. K. (2016). Predicting mobile banking adoption in Bangladesh: a neural network approach. Transnational Corporations Review, 8(3), 207-214.

Baabdullah, A. M. *et al.* 2019. "Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model," *International journal of information management*, 44, pp. 38–52.

Baptista, G. and Oliveira, T. 2015. "Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators," *Computers in human behavior*, 50, pp. 418–430.

BBS (Bangladesh Bureau of Statistics). (2022) *District statistics 2022: Khulna*. Dhaka: Bangladesh Bureau of Statistics.

Bharti, M. 2016. "Impact of Dimensions of Mobile Banking on User Satisfaction," *J. Internet Bank. Commer*, 21.

BTRC (Bangladesh Telecommunication Regulatory Commission). (2024) *Internet and mobile phone subscribers in Bangladesh – January 2024*. Dhaka: BTRC.

Chaouali, W., Souiden, N. and Ladhari, R. 2017. "Explaining adoption of mobile banking with the theory of trying, general self-confidence, and cynicism," *Journal of retailing and consumer services*, 35, pp. 57–67.

Chiang, C.-F. and Jang, S. S. 2007. "The effects of perceived price and brand image on value and purchase intention: Leisure travelers' attitudes toward online hotel booking," *Journal of hospitality & leisure marketing*, 15(3), pp. 49–69.

Chowdhury, N. H., & Hussain, N. (2022). Using technology acceptance model for acceptance of FinTech in Bangladesh. International Journal of Internet Technology and Secured Transactions, 12(3), 250-264.

Chung, N. and Kwon, S. J. 2009. "Effect of trust level on mobile banking satisfaction: a multi-group analysis of information system success instruments," *Behaviour & information technology*, 28(6), pp. 549–562.

Datareportal. (2025) *Digital 2025: Bangladesh*. Available at: https://datareportal.com/reports/digital-2025-bangladesh (Accessed: 12 August 2025).

Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS Quarterly*, 13(3), pp. 319–340.

Deb, M. and Lomo-David, E. 2014. "An empirical examination of customers' adoption of m-banking in India," *Marketing intelligence & planning*, 32(4), pp. 475–494.

Dhaka Tribune. (2024) *Online banking increases pushing digital finance*. Available at: https://www.dhakatribune.com/business/336951/online-banking-increases-pushing-digital-finance (Accessed: 12 August 2025).

Financial Express. (2023) *Digital banking revolutionising financial landscape*. Available at: https://today.thefinancialexpress.com.bd/print/digital-banking-revolutionising-financial-landscape-1702391754 (Accessed: 12 August 2025).

Fincat Bangladesh. (2024) *Digital banking landscape in Bangladesh*. Available at: https://fincatbd.com/economy/digital-banking-landscape-in-bangladesh (Accessed: 12 August 2025).

Gupta, D. and Kamilla, U. 2014. "Cyber Banking in India: A Cross-Sectional Analysis Using Structural Equation Model," *IUP Journal of Bank Management*, 13.

Hafez, M. (2023). Examining the effect of consumption values on mobile banking adoption in Bangladesh: the moderating role of perceived security. Kybernetes, 52(12), 6232-6250.

Hammoud, J., Bizri, R. M. and Baba, I. 2018. "The impact of e-banking service quality on customer satisfaction: Evidence from the Lebanese banking sector," *SAGE Open*, 8(3).

Hassan, M.S., Islam, M.A., Sobhani, F.A., Nasir, H., Mahmud, I. and Zahra, F.T. (2022) 'Drivers influencing the adoption intention towards mobile fintech services: a study on the emerging Bangladesh market', *Information*, 13(7), 349.

Himel, M. T. A., Ashraf, S., Bappy, T. A., Abir, M. T., Morshed, M. K., & Hossain, M. N. (2021). Users' attitude and intention to use mobile financial services in Bangladesh: an empirical study. South Asian Journal of Marketing, 2(1), 72-96.

Hossain, F. R. 2019. *Top 5 Internet Banking Apps in Bangladesh (2019) - An Ultimate Review*.

Jeng, D. J.-F. and Tzeng, G.-H. 2012. "Social influence on the use of Clinical Decision Support Systems: Revisiting the Unified Theory of Acceptance and Use of Technology by the fuzzy DEMATEL technique," *Computers & industrial engineering*, 62(3), pp. 819–828.

Kahandawa, K. and Wijayanayake, J. 2014. "Impact of Mobile Banking Services on Customer Satisfaction: A Study on Sri Lankan State Commercial Bank," *Int. J. Comput. Inf. Technol*, 3, pp. 546–552.

Kim, J. and Jeon, Y. 2017. "Empirical Validation of Personal Information Violation Risks with Use Intention: Focusing on Domestic Smart Banking Services," *Journal of the Korean Society for Quality Management*, 45(3), pp. 583–594.

Kramer, R. M. 1999. "Trust and distrust in organizations: emerging perspectives, enduring questions," *Annual review of psychology*, 50(1), pp. 569–598.

Laukkanen, T. 2007. "Internet vs mobile banking: comparing customer value perceptions," *Business process management journal*, 13(6), pp. 788–797.

Lin, F.-T., Wu, H.-Y. and 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), pp. 267–287.
Mallat, N. *et al.* 2007. "An empirical investigation of mobile ticketing service adoption in public transportation," *Personal and ubiquitous computing*, 12(1), pp. 57–65.
Megadewandanu, S., Suyoto and Pranowo 2016. "Exploring mobile wallet adoption in Indonesia using UTAUT2: An approach from consumer perspective," in *2016 2nd International Conference on Science and Technology-Computer (ICST)*. IEEE.
Mentheri, K. K. A. and Tariq, D. M. U. 2020. "Quality improvement of audit processes duration by the implementation of lean six sigma (LSS) in the aviation industry of UAE: A case study," *Journal of advanced research in dynamical and control systems*, 12(05-SPECIAL), pp. 1373–1385.
Rogers, E.M. (2003) *Diffusion of Innovations*. 5th edn. New York: Free Press.
RSIS International. (2024) *The effect of mobile banking on the financial performance of commercial banks in Bangladesh*. Available at: https://rsisinternational.org/journals/ijrsi/articles/the-effect-of-mobile-banking-on-the-financial-performance-of-commercial-banks-in-bangladesh (Accessed: 12 August 2025).
Sampaio, C. H., Ladeira, W. J. and Santini, F. D. O. 2017. "Apps for mobile banking and customer satisfaction: a cross-cultural study," *International journal of bank marketing*, 35(7), pp. 1133–1153.
Statista. (2023) *Mobile banking penetration in selected countries worldwide*. Available at: https://www.statista.com/statistics/222286/mobile-banking-penetration-in-selected-countries/ (Accessed: 12 August 2025).
Tarhini, A. *et al.* 2016. "Extending the UTAUT model to understand the customers' acceptance and use of internet banking in Lebanon: A structural equation modeling approach," *Information technology & people*, 29(4), pp. 830–849.
TBS News. (2024) *Over 50% households use internet in Bangladesh: BBS*. Available at: https://www.tbsnews.net/bangladesh/over-50-households-use-internet-bangladesh-bbs-1032411 (Accessed: 12 August 2025).
Thusi, P. and Maduku, D. K. 2020. "South African millennials' acceptance and use of retail mobile banking apps: An integrated perspective," *Computers in human behavior*, 111(106405), p. 106405.
Varma, A. 2018. "Mobile banking choices of entrepreneurs: A unified theory of acceptance and use of technology (UTAUT) perspective," *Theoretical economics letters*, 08(14), pp. 2921–2937.
Venkatesh *et al.* 2003. "User acceptance of information technology: Toward a unified view," *MIS quarterly: management information systems*, 27(3), p. 425.
Venkatesh, Thong and Xu 2012. "Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology," *MIS quarterly: management information systems*, 36(1), p. 157.
Wikipedia. (2025) *List of countries by mobile banking usage*. Available at: https://en.wikipedia.org/wiki/List_of_countries_by_mobile_banking_usage (Accessed: 12 August 2025).
Yoon, H. S. and Occeña, L. 2014. "Impacts of customers' perceptions on internet banking use with a smart phone," *Journal of Computer Information Systems*, 54(3), pp. 1–9.
Yousafzai, S. Y., Foxall, G. R. and Pallister, J. G. 2010. "Explaining Internet banking behavior: Theory of reasoned action, theory of planned behavior, or technology acceptance model?: Internet banking behavior," *Journal of applied social psychology*, 40(5), pp. 1172–1202.
Yuan, Y., Lai, F. and Chu, Z. 2019. "Continuous usage intention of Internet banking: a commitment-trust model," Information systems and e-business management, 17(1), pp. 1–25.
Zhou, T. 2012. "Examining mobile banking user adoption from the perspectives of trust and flow experience," *Information technology and management*, 13(1), pp. 27–37.
Zhou, T. 2014. "Understanding the determinants of mobile payment continuance usage," Industrial management + data systems, 114(6), pp. 936–948
Zhou, T., Lu, Y. and Wang, B. 2010. "Integrating TTF and UTAUT to explain mobile banking user adoption," *Computers in human behavior*, 26(4), pp. 760–767.