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Prospects and challenges of mobile banking in Bangladesh: A case study

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Abstract

Mobile banking is a technology advancement that enables convenient, anytime, anywhere access to financial services. When using mobile banking, customers can access banking services via their phones without having to wait in line. It is a branchless kind of banking. The purpose of the study was to identify the prospects and challenges facing Bangladeshi mobile banking in the twenty-first century. Over 80 respondents were selected using Yaro Yamani formula from a sample of bank clients and bankers and given a standardized questionnaire. The study's goal has been perceived through the application of the descriptive research approach. Based on the study's findings, people's interest in mobile banking is growing daily due to its advantages. Certain banks do not presently offer all mobile banking services, and not all respondents are aware of all the mobile banking options available. Fast data transfer and cost-effective usage are two factors that entice customers. Some of the disadvantages of mobile banking are that it is very expensive, private, complex, etc. Lowering operational risks and increasing consumer confidence in Bangladesh's mobile banking services can be achieved through robust technical information control and security procedures that ensure the integrity and confidentiality of financial transactions.

Keywords: Mobile; Banking; Customers; Questionnaire; Descriptive; interest; Consumers; Achieved; Confidentiality; etc.

1. Introduction

Mobile banking is currently the most advanced technology and tool for appropriate banking in the modern era. In Bangladesh, mobile banking is becoming more and more commonplace every day. With the widespread use of mobile phones, banking services may now be developed for those without bank accounts who have access to a phone through mobile phone banking. (2013), Kabir [1].According to Quick (2009) [2], mobile banking is any facility that allows users to access banking services on their mobile device, including bill payment, fund transfers, balance inquiries, and transaction histories. Numerous obstacles to the adoption and impact of mobile banking in Bangladesh have also been identified over the course of the study. Most people living in developing nations do not receive adequate banking services. About two thirds of people in Bangladesh's underdeveloped nations do not have a formal bank account with a financial institution (Sultana, 2016).[3]. The lack of bank branches in rural areas means that impoverished people have less access to banking services and financing. With less fees associated with opening and maintaining a mobile bank account, mobile banking presents a fantastic means of enabling vulnerable individuals to access financial services. With regard to the issues ahead for mobile banking, this article will be helpful to the bank as well as the customer. This article also urges policymakers to include unbanked impoverished individuals in the financial system. The majority of bank employees and those who utilize mobile banking will benefit from increased knowledge and education.

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1.1. Present Scenario of Mobile Banking in Bangladesh

Bangladesh, a developing nation, is a shining example of a mobile banking system that works well. A smart phone is one of the most widely used and recognizable pieces of technology, not just in developed nations but also in Bangladesh. It is also expected that as mobile banking becomes more popular, traditional branch banking would decline. There are numerous private, nationalized, and specialty banks as well as commercial banks. There is a claim that multinational banks provide superior services to others. Several banks have started offering mobile banking services in an effort to increase efficiency. Hence the list of mobile service providers are given below:

Table 1 Mobile Finance Service Providers in Bangladesh

Serial No.	Name of the Mobile Financial Service (MFS)	Name of Bank Providing MFS
1	Bkash	Brac Bank Limited
2	Rocket	Dutch Bangla Bank Private company limited
3	mCash	Islami Bank Bangladesh Private company limited
4	MY Cash	Merchantile Bank Private Company Limited
5	T cash	Trust Bank Private Company Limited
6	FirstPay Sure Cash	First Security Islami Bank Private Company Limited
7	U Cash	United Commercial Bank Private company limited
8	OK wallet	One bank Private Company Limited
9	Sure cash	Rupali bank Private Company Limited
10	TeleCash	Southeast Bank Limited
11	BCB Sure Cash	Bangladesh Commercial Bank Limited
12	Jamuna Bank Sure Cash	Jamuna Bank Limited
13	Islamic Wallet	Al-Arafah Islami Bank Private Company Limited
14	Spot Cash	Standard Bank Private Company Limited
15	Tap' n Pay	Meghna Bank Private Company Limited
16	Sonali e wallet	Sonali Bank Private Company Limited
17	Hello	Bank Asia Private company limited
18	Nagad	Bangladesh Post Office

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1.2. Scope of Mobile Banking

Using mobile devices, such as smartphones or personal digital assistants (PDAs), to conduct financial operations is known as mobile banking (Georgi and Pinkl, 2005). [5]. The services that are being provided may encompass transaction facilities along with additional associated services that mainly address informational requirements concerning bank operations. Mobile banking is the provision of banking and financial services with the use of mobile communications devices, taking these variables into account and adhering to the narrowly defined scope of this study. The range of services provided may encompass capabilities for managing accounts, executing transactions on the stock market and banks, and obtaining personalized data.

1.3. Statement of the Problem

Technology assists banks in offering their clients services in a simple manner that ensures their satisfaction. Technology has assisted banks in the financial sector in launching innovative, user-friendly products and creating practical payment methods (Dixit and Datta, 2010).[6]. One benefit of technology is mobile banking, which makes it simple for users to check their balance, make bill payments, transfer money, recharge their phones, and more (Mousa et al., 2011). [7]. The proliferation of mobile phones in underdeveloped nations has been one of the most fascinating technological advancements of the last ten years. Actually, more people in underdeveloped nations probably own mobile phones than

bank accounts (Porteous, 2006) [8]. In 2012, there were over 16 million people in Bangladesh, but only 13% of them had bank accounts, according to Akhtaruzzaman et al. (2017) [9]. In light of this, Bangladesh Bank made the decision to allow commercial banks to provide financial services—also referred to as mobile banking, mobile transfers, and mobile payments—to "the banked and the unbanked" via mobile networks. However, there are a lot of issues with mobile banking. The purpose of the study is to determine what obstacles mobile banking faces and how far it can advance in Bangladesh.

1.4. Significance of the Study

A very timely service provided by banks is mobile banking. Mobile banking is the process by which clients use cell phones, pagers, PDAs, or other such devices to contact a bank's networks over telecommunication wireless networks and complete financial transactions. This definition was provided by Segun (2011)[10]. Consumers benefit greatly from the fact that many banks in Bangladesh now offer their financial services via mobile technologies. The present state of mobile banking will be discussed in this article along with potential future developments. Furthermore, the research will ascertain how to guarantee the prosperity of mobile banking in Bangladesh and the urgency with which service providers must address any problems they find. To assist Bangladesh's socioeconomic development, it is imperative that the research will examine the opportunities and challenges associated with mobile banking.

1.4.1. Objectives of the Study

- The main objective of the study is to ascertain the prospects and challenges of mobile banking in Bangladesh.
- The specific objectives are as follows:
- To examine the features and evaluate mobile banking systems in Bangladesh.
- To identify the challenging factors that may barrier to implement mobile banking in Bangladesh;
- To provide policy recommendations to overcome thechallenges based on bankers' opinion.

1.4.2. Hypotheses of the Study

- **H_1:** There are no shortcomings of using mobile banking to clients in Bangladesh.
- **H_2:** There are no prospects regarding the future progression of mobile banking in Bangladesh.
- **H_3:** There are no factors that could impede its execution in Bangladesh.

2. Literature Review

- **Ogochukwu and Chimarume (2023)[11]** examined the drawbacks that mobile banking offers to users, found out what kind of expectations there are for the technology's future advancement, and identified potential roadblocks to its adoption in Nigeria. Distribution of structured questionnaires to students served as the main information source for the data collection for that project. In this study, the Chi-square method was employed to test the hypotheses and simple percentage analysis was utilized to examine the data.
- **Pal and Islam (2020)[12]** conducted study to see whether mobile banking may contribute to financial inclusion. Over 510 respondents from the Dhaka and Mymensingh division completed a structured questionnaire that has been developed and examined. The qualitative dataset was transformed into a quantitative format so that the responses could be arranged as percentages. The study's goal has been achieved by using the descriptive research approach. According to the report, Bangladesh's unbanked poor people can access banking services through mobile banking.
- **Ansari (2018)[13]** conducted research to identify Bangladesh's mobile banking issues. A total of 250 samples were chosen for the investigation, and they were gathered in 2014.Primary data was used to identify the problems, and descriptive statistics, correlation analysis, and regression analysis were used to determine each problem's location. This research identifies new factors that are responsible for Bangladesh's mobile banking issues.
- **Islam (2015)[14]** conducted a study using 25 banks in Chittagong and Dhaka. Fifty bankers, or internet banking service providers, were selected for interviews out of 50 cases- one from each bank, a management, and another IT professional. An expanded version of the widely utilized Technology Acceptance Model (TAM) was employed in that study to confirm the acceptance and viewpoints of online banking service providers. The success of internet banking in Bangladesh depends on the technology and services being affordable, user-friendly, safe, secure, and straightforward to use.
- **Hossain, A. and Haque Z. (2014)[15]** found that while consumers are willing to adopt mobile banking, there are a number of significant obstacles standing in their way, including security concerns, technological difficulties, and legal constraints. It has been suggested to researchers that mobile banking be upgraded by utilizing a robust infrastructure that guarantees privacy and security.

- **Parvin (2013)[16]** stated that every commercial bank will introduce mobile banking in order to increase customer satisfaction while lowering delivery costs. Additionally, it has been shown that consumers are content with the few services offered and that mobile banking in Bangladesh appears to have a bright future.
- **Sharma, N. (2012)[17]** employed seventeen variables pertaining to the quantitative features of online banking. Here, it has been discovered that rural consumers are quite satisfied with e-banking. According to his suggestion, rural customers are happy with e-banking services. Additionally, he made the argument that among all the other banking channels, ATMs are crucial for obtaining support for rural clients.
- **Baten (2010) [18]** examined the financial potential of e-banking and also also presented the current state of the banking industry in Bangladesh and attempted to explain the advantages and extent of e-banking in comparison to the current system. Based on the results, the banking sector in Bangladesh benefits greatly from e-banking.
- **Sharma and Singh (2009) [19]** made an effort to highlight the troubling aspects of mobile banking. Like- security issue, fraudulent transactions issue, friendliness issue and complexity issue etc. Remedies for those cases have also been offered, including application software installation, upgrades, and standardization, among others.
- **Anyasi and Otubu (2009) [20]** found that people want easy and appropriate banking system, low cost transactions and more secure medium of banking.
- **Islam (2005) [21]** explained the present status of banking sectors in Bangladesh and at the same time brought out the scope and benefits of E-banking compared with the existing system. He found out the efficiency, securityof the proposed infrastructure under various circumstances will be beneficial to the customers.
- **Suronta (2003) [22]** outlined the current state of the banking industry in Bangladesh while also outlining the advantages and potential of e-banking over the current setup. He found out the effectiveness, security of the planned infrastructure under various scenarios will be advantageous to the customers.
- **Rao et al. (2003)[23]** found that there are several issues with Bangladesh's online banking services' delivery, control, and accessibility. A number of suggestions have been made, including the following: begin to see mobility as a powerful distribution channel in and of itself; establish an account control and access system; etc.

2.1. Research Gap

From the discussion above, it is clear that there are a number of issues that are working against the development of this cutting-edge mobile banking application, such as the absence of an adequate regulatory framework and concerns about the security of mobile transactions. Given the issues, opportunities, and relevance of mobile banking in this instance, it is imperative that a study be done to determine the opportunities and difficulties associated with mobile banking in a developing nation like Bangladesh. Not a single research has been done on the potential and difficulties of mobile banking in Bangladesh, despite the fact that the field is rapidly expanding. Finding this gap and making some recommendations for the nation's mobile banking industry's further development are the goals of the current study.

2.2. Conceptual Framework

Mobile banking is the process of using an electronic device, most commonly a smartphone- to access a bank account and other financial services offered by banks. It allows customers to pay bills, transfer money, check account balances, and engage in online activities without having to visit banks. The initial version of mobile banking was implemented through SMS in the 1990s. Nonetheless, with the introduction of the mobile web and cellphones with wireless access protocol (WAP) in 1999, European banks started offering m-banking platforms to their customers[24]. Georgi and Pinkl (2005)[25] described mobile accounting as transaction-based banking services that are conducted and/or accessible through mobile devices, with a conventional bank account as the focal point. Mobile accounting is the area of mobile banking that deals with accessing account-specific, non-informational banking services through mobile telecommunication devices. Services of account operation and account administration are the two categories of services in mobile accounting. In addition to the services of account administration, which include access administration, changing operative accounts, blocking lost cards, and cheque book requests, account operation services include payment remittances and transfers, standing orders for bill payments, money transfers to sub-accounts, and remitting money policies. Mobile financial services that revolve around a securities account but are not informational in nature are referred to as mobile brokerage.

According to Georgia and Pinkl (2005)[26], mobile financial information is a term used to describe non-transaction based banking and financial services. Account Information and are the two categories of services included in mobile financial information. Balance inquiries, statement requests, check statuses, credit card information, branch and ATM locations, helpline numbers, emergency contacts, and completion status information are all included in the account information. Market information, on the other hand, includes things like currency rates, interest rates for the market and specific banks, commodity prices, stock market quotes and reports, and product details and offers. In mobile banking, there are three different kinds of applications: client-based, messaging-based, and browser-based. Data processing is done

exclusively on and by the server in the browser-based application. Thus, a mobile device with a high processing power or the need for additional software is not required, Dilg and associates (2004)[27]. Through messaging-based services, text messages are used to facilitate communication between the bank and its customers. If specific predetermined events take place, the bank may automatically initiate these notifications. The bank could also send the messages as a confirmation of the requests made by the customers. Customer messages can include requests for information, like the account status, or instructions, like how to complete a transaction (Dilg et al., 2004)[28]. Transactions may be prepared offline by entering the required information, for example. The data is transmitted and a connection to the server is made once all required information has been entered. PIN and TAN are used to perform a security check on the data before it is sent. (Dilg and colleagues, 2004)[29].

3. Methods and Materials

3.1. Design of the Study

Although there are several research strategies for this study, the cross-sectional survey and ex-post facto survey research were chosen for this study's objectives.

3.2. Data Sources

The researcher used the two data kinds in order to ensure the accuracy of the information derived from the study. Thus, both primary and secondary sources will provide the data for this study.

3.3. Primary Sources of Data

3.3.1. The following primary research data were used by the researcher in this study:

Forms of questionnaires have been used as follows: A set of questions has been taken from a structured questionnaire. Eighty people between the ages of eighteen and fifty-one were chosen at random to complete the three-page questionnaire. To assess the current situation of mobile banking users, a standardized questionnaire has been created. The survey was divided into two sections: The general demographic variable and some basic respondent information, including age, gender, education, and occupation, as well as information about whether or not they have utilized mobile services in the last three months and whether or not they had a phone and bank account, were covered in Part I. Questions about respondents' perceptions of the opportunities and difficulties associated with mobile banking were included in Part II. The only open-ended question that allows respondents to express their thoughts in detail is this one. With the use of SPSS, the data was examined descriptively and in multidimensional basis in order to present several viewpoints on mobile banking. In order to examine the research questions, frequencies and percentages have also been measured.

3.4. Secondary Sources of Data

Several sources have been consulted, particularly for the conceptual framework of this research, which was derived from textbooks, journals, magazines, newspapers, and other sources. These have all been used as backup data sources. In order to enter this information, data was collected from the following information centers: bank branches and the internet.

3.5. Population of the Study

The population under study comprises 100 individuals who have accepted the offer of e-banking services from 10 banks in Bangladesh. They are Sonali Bank Public Limited Company, Rupali Bank Public Limited Company, Agrani Bank Public Limited Company, Janata Bank Public Limited Company, Pubali Bank Public Limited Company, BRAC Bank Public Limited Company, Dutch Bangla Bank Public Limited Company, Islami Bank Bangladesh Public Limited Company, Mercantile Bank Public Limited Company, and United Commercial Bank Public Limited Company.

3.6. Sample and Sampling Technique

The sampling unit designates the demographic segment that is being selected for consideration. It denotes, in essence, the demographic segment that requires surveying. Both public and private commercial banks make up the study's sample.

Thus, Yaro Yamani formula is used to ascertain the results:

$$\text{The firmula is } n = \frac{N}{1+N(e)^2}$$

Where

- n = required sample size
- N = Research population
- e = level of significance 0.005 (5%)

$$\text{Hence, required sample size } n = \frac{100}{1+100(0.05)}$$

$$n = \frac{100}{1.25} = 80$$

3.7. Description of the Research Instruments

A structured questionnaire that allows respondents to express their opinions on the issue has been employed by the researcher to collect primary data from respondents. There are two sections to the questionnaire: part A and part B. Part A deals with the respondents' personal information, whereas Part B offers five grades for responding to the study questions. They are as follows:

- SA: Strongly Agreed.
- A: Agreed.
- D: Disagree.
- SD: Strongly Disagree

3.8. Method of Data Collection

A set of twenty questions with multiple choice answers was created by the researchers and given to the participants. There is an opportunity for respondents to express their personal opinions through the open-ended and closed-ended questions in the items.

3.8.1. Method of Data Presentation and Analysis

The data obtained were analyzed using simple percentage and chi-square in testing the hypothesis. The following is the formula for chi-square $X^2 = \sum \frac{(fo-fe)^2}{fe}$

Where:

- X^2 = Chi square
- fo = Observed frequency
- fe = Expected frequecny
- $\sum$ = Summation.

$$\text{The expected frequecies are calculates as } \frac{(Total\ row\ x\ (Total\ column)}{Grand\ total}$$

The critical value is determined thus;

Degree of freedom = (C-1) (T-1)

The level of significance = 5 = 0.05

Table 2 Age of the Respondents

		Frequency	Percent
Valid	Less than 20	5	6.0
	21-30 years	25	32.0
	31-40 years	30	38.0
	41-50 years	15	18.0
	51 or more	5	6.0
	Total	80	100.0

Source: Field survey.

Table no. 2 shows the age of respondents. The respondents' ages range from less than 20 to 51. Ages 31 to 40 made up the majority of responders (38%) in this survey. Those who are between the ages of 21 and 30 (32%), 41 and 50 (18%), under 20 (6), and 51 years of age or more (6%) are progressively included.

Table 3 Profession of Respondents

		Frequency	Percent
Valid	Service holder	30	38.0
	Businessman	35	44.0
	Student	10	12.0
	Others	5	6.0
	Total	80	100.0

Source: Field survey.

According to Table no. 3, the majority of respondents (44%) are business owners, followed by 38% of service providers, 12% of students, and 6% of those in other professions. According to the data, businesspeople and service providers are more likely than those in other professions to use developing technologies and mobile phone services for financial transactions.

Table 4 Possession of bank account

		Frequency	Percent
Valid	Yes	80	100.0

Source: Computed by researcher.

Table 5 Possession of Mobile phone

		Frequency	Percent
Valid	Yes	80	100.0

Source: Computed by researcher.

When researcher asked whether they have a mobile phone, all respondents have mentioned to have own mobile phones.

Table 6 Awareness of Mobile Services by Respondents

		Frequency	Percent
Valid	Send/Receive text message	8	10.0
	Play games	2	2
	Play and Store music	7	9.0
	Access the internet	20	25.0
	Make payments via mobile	25	32
	Check bank balance	15	18
	Email	3	4.0
	Total	80	100.0

Source: Computed by researcher.

Table no. 6 shows awareness of mobile Services by respondents. The majority of respondents (32%) indicated that they are aware of the possibility of utilizing their phone to make payments when asked about mobile services they are familiar with. In the following list, mobile phones are used by those who are aware of accessing the internet (25%), playing and storing music (9%), sending and receiving text messages (10%), and checking bank balances (18%).2% more respondents said they have experience with using a mobile device to play games. The remaining 4% know that people can send emails using their mobile phones.

Table 7 Bank offers the Mobile Services

		Frequency	Percent
Valid	Yes	72	90.0
	No	3	4.0
	Don't know	5	6.0
	Total	80	100.0

Source: Computed by researcher.

Table no. 7 displays the outcomes of banks offering mobile services. When the researcher asked if they had a bank account and if their bank offered mobile banking services, 90% of the participants said that they did. Only 4% of the participants reported that their banks do not provide mobile banking services, and the remaining 6% said they are not sure if their banks do.

Table 8 Respondents interest about mobile banking services offered by their bank.

S/N	Services	4	3	2	1	Total
		SA	A	D	SD	
1	Account balance enquiries.	31	19	14	16	80
		39%	24%	17%	20%	100%
2	Funds transfer payment via mobile.	42	18	7	13	80
		53%	23%	9%	16%	100%
3	Reports of potentially fraudulent transactions.	25	15	29	11	80
		31%	19%	36%	14%	100%
4	Stocks markets information.	16	24	12	28	80
		20%	30%	15%	35%	100%

Source: Computed by researcher.

As can be observed from table No. 8, 31 respondents or 39% of respondents strongly believe that account balance inquiries should be serviced. Nineteen or twenty-four percent of respondents concur with this statement, seventeen or seventeen percent disagree, and sixteen or twenty percent strongly disagree. Paying with a mobile device for fund transfers Strong agreement was expressed by 42 respondents, or 53%. This perspective is shared by 18 respondents or 23% of respondents, disagreed by 7 respondents or 9%, and strongly disagreed by 13 or 16%. About reports of fraudulent transactions, the following respondents—15 respondents or 19% agree, 29 respondents or 36% disagree, and 11 respondents or 14% strongly disagree—agree, agree, and disagree severely. Lastly, information about stock markets Twelve or fifteen respondents disagree, twenty-eight or thirty respondents strongly disagree, and sixteen or twenty percent strongly agree. Lastly, information about stock markets 16 respondents or 20% of responders strongly concur. This perspective is shared by 24 respondents (or 30%) respondents, disagreed by 12 respondents (15%), and strongly disagreed by 28 respondents (35%).

Table 9 Respondents' opinion regarding attractiveness of mobile banking

S/N	Services	**4**	**3**	**2**	**1**	**Total**
		SA	**A**	**D**	**SD**	
1	Mobile devices with bigger display	16	24	12	28	80
		20%	30%	15%	35%	100%
2	Better input devices	3	5	61	11	80
		3.75%	6.25%	76.25%	13.75%	100%
3	High speed of data transmission	52	14	8	6	80
		65%	17.5%	10%	7.5%	100%
4	Cheaper cost of utilization	38	26	4	12	80
		47.5%	32.5%	5%	15%	100%

Source: Computed by researcher.

It is discovered in table no. 9 that mobile devices with larger displays In terms of how intriguing or alluring mobile banking services are, 16 respondents, or 20% of the total, highly agree with this statement; 24 respondents, or 30% of the total, agree; 12 respondents, or 15% of the total, disagree; and the remaining 28 respondents, or 35% of the total, strongly disagree. Better input devices are another factor that draws customers to mobile banking services, according to 3 respondents (3.75% of respondents), 5 respondents (6.25% of respondents), 61 respondents (76.25% of respondents) who disagree, and 11 respondents (13.75% of respondents) who strongly disagree in this instance. Regarding the next topic, which is "High speed of data transmission services," 52 respondents, or 65% of respondents, strongly agreed that this is the most alluring aspect of mobile banking. Another 14 respondents, or 17.5% of respondents, agreed with this statement. Nevertheless, 8 respondents, or 10% of respondents, and 6 respondents, or 7.5% of respondents, disagreed. Regarding the lowest cost of utilization, 38 respondents (47.5%) highly agree, 26 respondents (32.5%) agree, 4 respondents (5%), who disagree, and the remaining 12 respondents (15%) severely disagree.

Table 10 Respondents opinion regarding advantages of mobile banking

S/N	**Services**	**4**	**3**	**2**	**1**	**Total**
		SA	**A**	**D**	**SD**	
1	Ubiquitous conducting of bank business.	52	14	8	6	80
		65%	18%	10%	7%	100%
2	Fast reactions to market development.	13	12	45	10	80
		16%	15%	56%	13%	100%
3	Overview of bank account/s.(e.g sms alerts for large transactions)	38	26	4	12	80
		48%	32%	5%	15%	100%

Source: Computed by researcher.

Table No. 10 reveals that one benefit of mobile banking services is the ubiquitous conducting of bank business, which is strongly agreed upon by 52 respondents (or 65% of respondents). Of the respondents, 14 respondents (or 18%) agree with this statement, 8 respondents (10%) disagree, and the remaining 6 respondents (or 7%) severely disagree. In the second place, 12 or 15% of respondents agreed, 45 or 56% disagreed, and 10 or 13% strongly disagreed that one of the benefits of mobile banking services is the ability to respond quickly to market developments. Regarding the remaining services, 38 or 48% of respondents strongly agree that one of the benefits of mobile banking is an overview of their bank account(s), such as receiving SMS alerts for large transactions. Another benefit is that 26 or 32% of respondents also agree with this statement, while 4 or 5% disagree and 12 or 15% strongly disagree.

Table 11 Respondents opinion regarding disadvantages of mobile banking

S/N	Services	4	3	2	1	Total
		SA	A	D	SD	
1	Security concerns/risks.	42	18	7	13	80
		53%	23%	9%	16%	100%
2	Complicated/uncomfortable usage of mobile devices.	11	16	49	4	80
		14%	20%	61%	5%	100%
3	Too expensive	52	14	8	6	80
		65%	18%	10%	7%	100%

Source: Computed by researcher.

Table No. 11 demonstrates that 42 respondents, or 53%, strongly agreed that security concerns and hazards are one of the drawbacks of mobile banking services. 13 or 16% of respondents strongly disagreed with this statement, while the remaining 18 or 23% of respondents agreed with it. Regarding complicated or uncomfortable mobile device usage, 11 or 14% of respondents strongly agreed that this is another drawback of mobile banking; 16 or 20% agreed with this idea; 49 or 61% disagreed with that perspective; and 4 or 5% strongly disagreed. In summary, 52 or 65% of respondents strongly agree that one of the challenges faced by mobile banking services is its high cost; 14 or 18% also agree; 8 or 10% disagree; and finally, 6 or 7% strongly disagree.

Table 12 Respondents opinion on the hindering Factors of Mobile Banking

S/N	Services	4	3	2	1	Total
		SA	A	D	SD	
1	Technical and security standard	43	27	4	6	80
		38.75%	33.75%	5%	7.5%	100%
2	Business and legal issues	31	19	14	16	80
		38.75%	23.75%	17.5%	20%	100%
3	Regulatory and supervisory issues	8	26	4	12	80
		10%	32.5%	5%	15%	100%

Source: Computed by researcher.

Table no. 12 demonstrates that the technical and security standard is one of the things preventing mobile banking services from being fully utilized. Of the respondents, 43, or 38.75%, strongly agreed, followed by 27 or 33.75% who agreed, 4 or 5% who disagreed, and 6 or 7.5% who strongly disagreed. Regarding business and legal concerns, 31 respondents, or 38.75%, highly agreed that this is another problem impeding mobile banking; 19 respondents, or 23.75%, agreed with this view; 14 respondents, or 17.5%, disagreed with that opinion; and 16 respondents, or 20%, strongly disagreed. Finally, but just as importantly, 8 or 10% of respondents strongly agreed that regulatory and supervisory difficulties are one of the things impeding the availability of mobile banking services; 26 or 32.5% of respondents also agreed in this regard; 4 or 5% disagreed; and 12 or 15% severely disagreed.

3.9. Test of Hypotheses

3.9.1. Hypothesis

- **H_1: There are no advantages of mobile banking to the customers.**

$$x^2 = \sum \frac{(fo - fe)^2}{fe}$$

Where:

- x^2 = Chi square
- fo = Observed frequency
- fe = Expected frequecny
- $\sum$ = Summation.

Table 13 Data for Testing H_1

Responses	Security concerns/risk	Complicated/ uncomfortable usage of mobile device	Too expensive	Total
SA	(35) 42	(35) 11	(35) 52	105
A	(16) 18	(16) 16	(16) 14	48
D	(21) 7	(21) 49	(21) 8	64
SD	(8) 13	(8) 4	(8) 6	23
Total	80	80	80	240

Source: Table no. 13. Computed by researcher.

Table 14 Contingency Table on H_1

	Fo	Fe	Fo – Fe	(Fo –Fe)²	$x^2 = \sum \frac{(fo-fe)^2}{fe}$
	42	35	7	49	1.4
	11	35	-24	576	16.5
	52	35	17	289	8.3
	18	16	2	4	0.25
	16	16	0	0	0
	14	16	-2	4	0.25
	7	21	-14	196	9.3
	49	21	28	784	37.3
	8	21	-13	169	8.0
	13	8	5	25	3.1
	4	8	-4	16	2
	6	8	-2	4	0.5

Total	**240**				**86.9**

Source: Table no. 14. Computed by researcher.

Here Degree Freedom :(C-1): 4-1=3;T.V. Tabulated Chi-Square Value= 7.81; X_2= 86.9

Table no. 14 shows that at the 5% level of significance, the critical table value is 7.81, with a computed Chi-square of 86.9 and degree of freedom is F=3. In this case,7.81< 86.9. Therefore, H_1 is rejected because the computed Chi-square value is higher than the critical table value, indicating that there are drawbacks for clients using mobile banking.

H_2: There are no expectations regarding the future development of mobile banking.

$$x = \sum \frac{(fo - fe)^2}{fe}$$

Table 15 Data for Testing H_2

Responses	**Mobile devices with bigger display**	**Better input devices**	**High speed of data transmission**	**Cheaper cost of utilization**	**Total**
SA	(27.25)	(27.25)	(27.25)	(27.25)	
	16	3	52	38	109
A	(17.25)	(17.25)	(17.25)	(17.25)	
	24	5	14	26	69
AD	(21.25)	(21.25)	(21.25)	(21.25)	
	12	61	8	4	85
SD	(14.25)	(14.25)	(14.25)	(14.25)	
	28	11	6	12	57
Total	80	80	80	80	320

Source: Table no. 15. Computed by researcher.

Table 16 Contingency Table on Hypothesis Two

	Fo	**Fe**	**Fo – Fe**	**(Fo –Fe)²**	$\mathbf{x^2 = \sum \frac{(fo-fe)^2}{fe}}$
	16	27.25	-11.25	126.6	4.6
	3	27.25	-24.25	588.1	21.6
	52	27.25	24.75	612.6	22.5
	38	27.25	10.75	115.6	4.2
	24	17.25	6.75	45.6	2.6
	5	17.25	-12.25	150.1	8.7
	14	17.25	-3.25	10.6	0.6
	26	17.25	8.75	76.6	4.4
	12	21.25	-9.25	85.6	4.0
	61	21.25	39.75	1580.1	74.4
	8	21.25	-13.25	175.6	8.3
	4	21.25	-17.25	297.6	14.0

	28	14.25	13.75	189.1	13.3
	11	14.25	-3.25	10.6	0.7
	6	14.25	-8.25	68.1	4.8
	12	14.25	-2.25	5.1	0.4
Total	320				189.1

Source: Table no. 16. Computed by researcher.

Table no. 16 shows that the calculated Chi-square value in this case is 189.1, the degree of freedom is 3, and the tabulated Chi-square value is 7.81. At the 5% level of significance, 7.81 is, therefore, less than 189.1. Thus, it is decided to reject the null hypothesis. Consequently, it may be said that expectations exist for how mobile banking will develop going forward.

- **H_3 : There are no factors that could hinder implementation of mobile banking in Bangladesh.**

$$2 = (fo - fe)2$$

$$X = \sum \frac{}{fe}$$

Where:

- x^2 = Chi square
- fo = Observed frequency
- fe = Expected frequecny
- $\sum$ = Summation.

Table 17 Data for Testing H_3

Responses	**Technical and security standard**	**Business And legal issues**	**Regulatory and supervisory issues**	**Total**
SA	(37.3)	(37.3)	(37.3)	
	43	31	8	112
A	(24)	(24)	(24)	
	27	19	26	72
AD	(7.3)	(7.3)	(7.3)	
	4	14	4	22
SD	(11.3)	(11.3)	(11.3)	
	6	16	12	34
Total	80	80	80	240

Source: Table no. 17. Computed by researcher

Table 18 Contingency Table on H_3

	Fo	**Fe**	**Fo – Fe**	**(Fo –Fe)²**	$x^2 = \sum \frac{(fo - fe)^2}{fe}$
	43	37.3	6	36	1
	31	37.3	-6.3	39.7	1.1
	38	37.3	0.7	0.49	0.01
	27	24	3	9	0.4
	19	24	5	25	1.0
	26	24	2	4	0.2
	4	7.3	-3.3	10.9	1.5
	14	7.3	7	49	6.7
	4	7.3	-3.3	10.9	1.5
	6	11.3	-5.3	28.1	2.5
	16	11.3	5	25	2.2
	12	11.3	0.7	0.49	0.04
Total	**240**				18.15

Source: Table no. 18. Computed by researcher.

Table no. 18 shows that with 3 degrees of freedom and a calculated Chi-square value of 18.15, the tabulated Chi-square value in this instance is 7.81. 7.81 are, therefore, less than 18.15 at the 5% level of significance. As a result, the null hypothesis is decisively rejected. So, it's possible to argue that certain things might make it more difficult for mobile banking to be implemented in Bangladesh.

Findings

Based on the hypothesis -1 outcome, it may be concluded that the alternative hypothesis—which states that there are drawbacks for clients using mobile banking has been accepted. According to the hypothesis-2 outcome, the alternative hypothesis which states that 'there are opportunities for the future development of mobile banking' has been accepted. The results of hypothesis 3 demonstrate that the alternative hypothesis which states that 'there are some problems that might prevent mobile banking from being implemented in Bangladesh' has been accepted and the null hypothesis has been rejected.

3.10. Prospects

3.10.1. Some prospects were discovered throughout this research and they are as follows:

- It is easy and dependable to utilize mobile banking. Because of the time and money savings, clients can live simpler, more routine lives.
- Consumers consider them safe and convenient means to transfer money, despite certain security and connectivity issues.
- The financial inclusion of Bangladesh's whole population could undergo a revolution thanks to mobile banking.
- Mobile banking also offers the promise of ensuring the unbanked in remote locations.
- Customers and bankers can benefit from mobile banking as it facilitates more transactions and allows for efficient, accurate, and timely account maintenance for banks. This is how our economy eventually develops.

3.10.2. Some Challenges are found and they are as follows

- Based on the investigation, the researcher observed that older adults use mobile banking at a lower rate than persons in other age groups, such as those between the ages of 21 and 30 and 31 and 40.
- Regarding professions, the usage rate is quite low for students and other professions outside of service providers and merchants.

- When asked about respondents' understanding of mobile banking, none of them knew about all of the services available, and some banks still don't provide all of the services.
- Certain features that would make mobile banking more alluring include rapid data transfer and affordable usage but there are shortcomings of these issues.
- Mobile banking presents several drawbacks, like cost, privacy concerns, complexity, and so forth.
- Certain important challenges, such as technical and security standards, business and regulatory issues, etc., may provide a barrier to the future of mobile banking.

Recommendations

The study's conclusions have implications for Bangladesh's current mobile banking offerings. The fact that bank clients view mobile banking as a new banking option that raises their standard of living is noteworthy. To achieve this objective, the following recommendations could be useful means of resolving issues and encouraging bank clients to use mobile banking:

- According to studies, there is a variation in the utilization rate of mobile banking among different age groups. Therefore, the bank should prioritize this issue. Everyone should be able to utilize the operating system more effortlessly. Additionally, all forms of mobile banking apps and services are improved so that all professionals can take advantage of them.
- Banks ought to engage in more public relations campaigns and promotional efforts about mobile banking to raise general public awareness of the advantages of this service. In rural areas, bankers must to be accessible to offer mobile banking services.
- In order to ensure effective construction and enforcement of safety measures in mobile banking systems, banks should ensure that firewalls, intrusion detection systems, and other relevant security designs are in place. Moreover, financial institutions ought to mandate that mobile banking take personal identification number (PIN) privacy seriously. The technological procedures need to be unambiguous and appropriate for both economy and widespread use.
- Mobile banking should be included in the current bank regulatory framework. As a regulatory body, Bangladesh Bank must continue to enforce strict error policies and payment method safeguards as necessary to ensure the safety and soundness of the financial system.
- The customer's phone and the third-party service provider/telecom company both use encrypted messages and sessions. The transaction must meet the minimum encryption standards to be designated as banking.

As part of its routine examination of banks, Bangladesh Bank ought to offer instructions on how to use mobile banking and safeguard against all associated hazards. It is recommended that Bangladesh Bank push banks to implement robust technological information control and security measures to ensure the confidentiality and integrity of financial transactions. In Bangladesh, this can lower operational risks and boost trust in mobile banking services

4. Conclusion

Today mobile banking has opened door to enable financial services to a huge unbanked sector which allowed new windows of prosperity and inspiration to Bangladeshi people. As mobile banking is still relatively new in Bangladesh, an understandingof the prospects and challenges to use mobile banking may influence its implementation. The findings of this study offer insight the banks in Bangladesh in promoting the use of mobile banking among bank customers. The study results indicate that there are some problems and prospects of banking services via mobile phone. The capability to access account balance enquiries by a mobile phone is the most effective consumer banking service, next by mobile fund transfers. A second-stage of mobile banking opportunities includes reports for potentially fraudulent behavior, which consider some of the security issues around mobile banking and stock market information. The customer's cognition has found to be conquering positive. The most prospered feature was ubiquity and the overviewof bank account. Security concern has found to be extensive followed by the cost of using mobile banking services. This means that the technology utilized must be secured and economy and at the same time suitable to use .The another is lower cost has found to be the proposed factor that will make mobile banking more attractive. This is followed by superior speed of datatransmission. Various factors including technical and security standards, regulatory and supervisory issues, and business and legal issues have found to be the main factors that may obstacle mobile banking implementation in Bangladesh. Connectivity and securecommunication platform and encrypted messaging system have found to be the factors that will improve mobile banking implementation in Bangladesh. So, Bangladeshi banks should try enlarging of m-banking in the country and also emphasis of the factors that can make the m-banking service more congenial and beneficial to the general people of the country.

Limitations of the Study

There are just thirty questions, which is a small quantity for a study of this kind. A total of eighty individuals aged eighteen to fifty-one were selected at random to fill out the three-page survey; a larger sample size could yield more precise results. Together with certain basic respondent data, such as age, gender, occupation, and level of education, there is also the general demographic variable. There can be further problems. Just 100 people have agreed to accept 10 Bangladeshi banks' offers of e-banking services, making up the population under study. A larger population may yield more satisfactory outcomes. There is only the Chi-square method used. To acquire an accurate result, several techniques could be applied.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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