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August 2019

THE USAGE OF MOBILE FINANCIAL SERVICES IN BANGLADESH

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August 16, 2021

Abstract

With increasing mobile and internet penetration rates (51% and 56% respectively) and a significant increase in mobile phone and internet usage, the adoption of MFS is increasing too.

This paper focuses on the usage of Mobile Financial Services in Bangladesh. For the purpose of the paper, respondents consisted of 198 participants, 129 of which were users.

The findings revealed that 46% preferred cash as their method of money transaction with MFS at a second 33%, purpose of usage was mostly to recharge their phones (30.8%) and transferring money (25.8%), with 34.8% of them being non-account holders. The demographic profile of the respondents was 31% female and 69% male, with a mean age of 23.8 and a mean monthly income of BDT 31,400. The most significant factor in the determination of usage was the perception that MFS is easy to use, with other important factors being- convenience, ease of recharge and proximity of agents. While the mean perception of male and female respondents was unequal, perception was not related to age, monthly income, education level or occupation. Taking everything into account, a number of recommendations were suggested which included- offering further features from banks and MFS providers to increase usage, adoption of mobile application interface to ensure smooth customer experience, effective deployment of agents to ensure optimal coverage, promotions and cash-back offers and lastly, ensure reliability and security by limiting transactions per day. To conclude, the overall perception on MFS in Bangladesh is positive however room for improvement still lingers.

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1 INTRODUCTION

Technology has undoubtedly started leaving its dominant stance in all aspects of business and its adoption is essential for organizations to keep up with the changing business world. As with almost all industries, the banking sector is no exception. Technology is already having a profound influence on how banks operate and have a significant say in how it will operate in the future. Hence, this paper on Mobile Financial Systems (MFS) aims to explain how it works and provides an analysis of its usage and hence its stance in Bangladesh as a whole.

Among the banks in, foreign commercial banks have proven to be pioneers in the shift towards MFS implementation, with Private Commercial Banks progressing as a close second. However, currently almost all banks in Bangladesh are providing electronic services to its users to some degree, if not through complete digitization. The penetration rate of telecommunication in Bangladesh currently stands at 51% (GSMA, 2018) and is increasing at a rapid pace. According to the Telecommunication Regulatory Commission (TRC), the internet penetration stands at 56% and a whopping 87% of the population use mobile phones.

Consequently, this increases in mobile phone usage, promoted by the increased range of coverage of Mobile Network Operations, opened a new channel for banking service expansion through implementation of mobile financial services. The aforementioned MFS in Bangladesh consist of components such as mobile top-ups, utility bill payment, salary disbursement, person-to-person payments, cash out, cash in and inward foreign remittance. Its usage ranges from payment through individual e-wallets or through agents with wallets (or mobile banking accounts) to transfer of payments between people with no wallet (Pure over-the-counter transaction).

As with all kinds of new technology adaptations, the sector faces various challenges in the adoption of MFS. Despite increased investments in this sector, many users still opt out of using it, most prominently seen in developing countries including Egypt, Pakistan, Kenya and Bangladesh. Although MFS allows increased efficiency, accessibility and ease of use, people opt out due to issues of trust and privacy concerns of the system, while a huge proportion still remain unaware of its usage and benefits due to lack of appropriate education.

To summarize, resistance towards implementation of technological change is inevitable however its adoption is essential for growth nonetheless. Even though Bangladesh still has a long way to go in terms of fully implementing and extracting value out of MFS usage, through the right consumer market analyses and measures to counter the factors resisting complete adoption of MFS, the nation can aim to grow economically as a whole. Hence, this exploratory

research aims to uncover the usage factors and understanding the overall scene regarding the usage of Mobile Financial Services in Bangladesh.

2 LITERATURE REVIEW

According to Nabi (2012), a survey with respondents from 28 districts of Bangladesh saw that among users from urban areas, 10% were from Dhaka, 11% from Comilla and 7% from Chottogram. However, the overall representation was increasing as it reached many other parts of Bangladesh even rural areas. A study by The Boston Consulting Group (2011) coupled with the study by The Bangladesh Bank and University of Dhaka (2017) showed that Bangladeshi consumers used it extensively to conduct the following functions namely- money transfer (60 percent), savings (29 percent), bill payment (7 percent) and balance inquiry (3 percent) however not so much in areas including credit and insurance. Moreover, the same study pointed out that the major benefit of mobile banking services was convenience while the major drawback was extra charge and weak networks. According to research by Islam (2013), the factors affecting the usage of MFS in Bangladesh were as follows- security and privacy, tendency to be more comfortable with dealing money physically, lack of understanding of technical devices and overall resistance to change. However, several factors act towards the use of MFS such as the low cost of utilizing MFS, remote connectivity and overall ease of conducting financial functions (Dona, Mouri, Hasan and Abedin 2014). According to a report on Mobile Financial Services by Bangladesh's Central Bank (2012), Bangladesh Bank aims to ensure market development with service providers, conduct test-runs on variegated technologies, use different kinds of agent networks and maintain a wide range of products to entertain consumer's affinity towards wide choice range.

Globally 245 mobile money services are active in 84 countries, 52 markets have two or more Mobile Financial Services (MFS) services and it's now available in most developing and emerging markets (Sultana 2014). The challenges faced by most South-Asian countries include- lack of awareness, lack of trust, low literacy rate and lack of proper infrastructure. Moreover, in countries with high number of online businesses, there could be increased challenges of fraud and cyber crime. The same study comparing South Asian countries found that banking penetration was highest in Sri Lanka (69%) with the lowest being Pakistan at 10%. According to a study by Abdinoor & Mbamba (2017), the factors influencing MFS adoption in Tanzania included perceived usefulness, perceived benefits and costs of its usage. Moreover, several global analyses using Technology Acceptance Models (K.P. 2017) have concurred with similar results. With World Bank's initiative to reach universal financial inclusion by 2020 and its work in making it a reality, rise in rate of MFS adoption is pertinent and hence is an

unavoidable path for banking institutions in order for them to keep up and utilize maximum returns from its technological resources.

As per a survey conducted by Md. Rabiul Islam and Syed Zabid Hossain (2018) on 442 users from Dhaka, Rajshahi and Chottogram, it was found that cost, time, convenience, reliability, safety and usefulness still pose to be prominent factors in the adoption of MFS. However, there was a concern of misuse of the service when used over the counter rather than personally which was reflected by the survey results showing 42.5% MFS users using it only 1-2 times a month and only 5% using it more than 10 times. Regardless, the value creation through MFS by enabling banking needs to a large number of people has indeed directed Bangladesh towards the right path of economic prosperity and growth. Consequently, this shift has caused the emergence of 'Bkash' in Bangladesh as a prominent driver of this sector with a market share of 81% in terms of transaction volume (Bangladesh Bank Annual Report, 2018). It has not only promoted financial inclusion, economic growth and enhanced income distributions, but also caters to socio-economic development of rural people by also facilitating their receipt of foreign remittance, empowering women through finances, enhanced living standards and development of SMEs.

However, a number of challenges still persist, with its core form being perceived credibility of the service (Islam, 2017). While security concerns still pose as a major threat to the implementation of MFS, claims were made that people lost money through Bkash's poor security services which further confirmed the mistrust. Other than that, personal innovativeness poses as a factor, assessing people's eagerness to try out new technology. Regardless, the ensuing resistance can be overcome with the right kind of adjustments and thereby build a more established MFS usage in the country. Currently, cell phones are considerably more appealing than other conventional financial framework (Dona, Mouri, Hasan and Abedin, 2014) and its ability to provide services in remote areas where banking offices couldn't otherwise reach before has made it all the more attractive. With its low transaction costs, ease of use and accessibility throughout the country, MFS is becoming all the more popular among the people of Bangladesh.

Currently, there are approximately 76 million registered mobile financial service accounts in Bangladesh however only 34 million of them are active users. This disparity reflects the country's existing resistance towards its usage. Subsequently, the identified problems regarding the usage of Mobile Financial Services are as follows:

- Psychological factors including perceived associated risk of privacy breach and lack of trust in MFS

- Maintenance and customer service issues of companies currently providing MFS services

- Lack of information dispersion to create sufficient awareness of MFS services

The increased adoption of technology and its significant impact in the economic growth of banking sectors worldwide has made it essential for Bangladesh to adopt such practices for the sake of keeping up and extracting value out of this resource. Ever since the establishment of Mobile Financial Services since 2001, it has proven to be a significant tool for boosting efficiency worldwide. With over 84 countries and 245 service providers making use of MFS, it is ardent to identify the readiness of our country's population to avail this service and thereby analyze the factors affecting its usage. This report aims to do just that with some added insight on ensuring that the right steps are being taken to foster this Service. Furthermore, this research aims to serve as a basis for conducting future research regarding Mobile Financial Services as well as to analyze how MFS can be further improved and upgraded for the users' convenience.

3 OBJECTIVES

3.1.1 Broad Objective

To explore and understand the public perception of usage of Mobile Financial Services in Bangladesh

3.1.2 Specific Objectives

General Usage and Opinion-based Perception
- To determine the general usage patterns of MFS in Bangladesh
- To determine the significance of trust on their usage of MFS
- To determine how ease-of-use affects their usage of MFS
- To determine how the usefulness of the service affects their usage of MFS

Relationship between Demographic Factors and Usage of MFS
- To determine the relationship between gender and usage of MFS
- To determine the relationship between age and usage of MFS
- To determine the relationship between monthly income and usage of MFS
- To determine the relationship between education level and usage of MFS
- To determine the relationship between occupation and usage of MFS

4 METHODOLOGY

The aim of this study is to conduct a quantitative analysis to probe into the usage of MFS. A convenience sampling method was used for our questionnaire distribution around the city. It was distributed amongst individuals of different age groups, around the city and throughout the internet for maximum reach. The size of our target population is immense and spread out over the country, making it very strenuous for us to reach all of them. Thus, for the purpose of our report, non-probabilistic convenience/ accidental sampling method, limited only to Dhaka city, was used. An optimal sample size of 385 was calculated, however, due to limited scope and restriction, the study could reach out to 198 respondents, out of which only 129 were usable because the rest were non account holders of MFS.

4.1 Data

4.1.1 Primary data collection

The primary survey tool used in our data collection was a structured questionnaire based on the variables that we have identified in the coordination schema, which is included in our appendix. It was circulated among households and individuals of various socio-economic and demographic backgrounds.

The questionnaire consisted primarily of close-ended questions and the variables in it were rated on a 5-point Likert Scale.

Non-probabilistic convenience sampling was used to administer this study. 198 participants responded to our survey out of which 129 were users of MFS, who are the main premise for our study.

4.1.2 Secondary data collection

For secondary research, we resorted to a multitude of books, journals, articles, reports and thesis papers relevant to usage of MFS. Quantitative data, such as mobile and internet penetration rate in Bangladesh, were obtained from the Bangladesh Bureau of Statistics (BBS). The literature review section of our report covers the information obtained from these sources.

5 LIMITATIONS

- *Use of a close-ended questionnaire*: If the respondent's actual response is not in the options, they would be forced to pick another option, and so it will be difficult to obtain a true picture.
- *Geographical Constraints*: Our research was confined to respondents from only Dhaka. Hence, our information cannot provide a comprehensive view of mobile financial services for the whole nation. Furthermore, we did not categorize respondents based on their area of residence such as Dhanmondi, Uttara, Gulshan, etc.
- *Differences in Perception*: A majority of the information gathered for this report required subjective answers on the part of the respondents. As a result, two people who have the same general view, might have been forced to give varying responses on the quantitative scale.

- *Lack of Co-operation from Respondents*: Due to the extensive length of our questionnaire, a few respondents decided not to fill up the questionnaire completely, or gave half-hearted answers, which skewed our results to some extent.

6 RESULTS AND DISCUSSION

6.1 Analysis of General Usage Patterns of MFS in Bangladesh

6.1.1 Preferred method of money transaction

After conducting frequency analysis on the 198 respondents when asked about their preferred method of money transaction, a majority of 91 (46%) respondents said they preferred cash, with the second method being MFS with 66 (33.3%) respondents. Lastly, a minimal number of 41 (20.7%) responded with card as their preferred method of transaction.

Table 1 Frequency Analysis: Preferred method of money transaction

	Frequency	**%**
Cash	91	46.0
Card	41	20.7
MFS	66	33.3
Total	**198**	**100.0**

6.1.2 Frequency of usage

In the question regarding the frequency of usage of MFS, a Likert scale was used with 1 being 'rarely' and 5 being 'regularly'. The responses were varied extensively with the highest response consisting of 56 (28.3%) respondents choosing 4 with a close second being 43 (21.7%) respondents choosing 1 which meant rarely. 41 (20.7%) respondents chose 3 with 32 (16.2%) choosing 2. Lastly, remaining 26 (13.1%) respondents chose 5 which indicated that they used MFS regularly.

Table 2 Frequency Analysis: MFS usage

	Frequency	**%**
1 (Rarely)	43	21.7
2	32	16.2
3	41	20.7
4	56	28.3
5 (Regularly)	26	13.1
Total	**198**	**100**

6.1.3 Purpose of usage

Here, the highest number of people i.e., 61 (30.8%) respondents said they use MFS to recharge their mobiles. 51 (25.8%) respondents answered that they use it mostly for transferring money whereas 46 (23.2%) respondents said they used it for merchant payments including groceries, movie tickets, etc. Lastly, remaining 40 (20.2%) respondents use it to pay utility bills.

Table 3 Frequency Analysis: Purpose of MFS usage

	Frequency	%
Mobile Recharge	61	30.8
Merchant Payments (Groceries/Movie Tickets/ Shopping/ Restaurants, etc.)	46	23.2
Money Transfer	51	25.8
Pay Utility Bills (Electricity/Water etc.)	40	20.2
Total	**198**	**100**

6.1.4 Number of MFS users with and without accounts

Here, from the 198 respondents, a total of 69 (34.8%) respondents did not hold accounts while the remaining 129 (65.2%) did. The main focus of our research was to evaluate the perception of users of MFS i.e. the account holders. Hence, we focused solely on the 129 account holders for the analyses.

Table 4 Frequency Analysis: Number of MFS users with & without accounts

	Frequency	%
Has an account	129	65.2
Doesn't have an account	69	34.8
Total	**198**	**100**

6.2   Analysis of the Perception of Account Holders

Based on the coordination schema (Appendix A), the usage of MFS can be analyzed by assessing certain factors which directly give the link between each factor and perception.

A five-point Likert scale was developed to rate the opinion of the respondents based on the simple variables such as "Convenience", "Reliability", "Ease of use" etc. that contribute to people using MFS. Here, all recorded replies were given a value between one to five with 1 representing "Strongly Agree" and 5 representing "Strongly Disagree". If we analyze the means we observe that:

Table 5 Opinions of MFS account-holders

	Mean	Standard Deviation
MFS is easy to use	1.70**	.697
MFS is convenient	1.74**	.595
MFS is secured and reliable	2.25**	.912
MFS is time consuming	3.35**	1.108
MFS requires users to be educated	2.48**	.916
MFS requires technological knowledge	2.64**	.946
MFS- based Offers, Discounts & Cash-backs push me to use MFS	2.41**	.966
MFS offers various services	2.04**	.658
It is easy to recharge my MFS account	2.07**	.846
I feel safe sharing my personal data on MFS	2.54**	1.134
I find MFS transactions secure	2.18**	.892
I find MFS to be efficient	2.21**	.952
MFS agents are easy to find in close proximity	2.19**	.894

**Significant at 5% level of significance

For account holders, the perception that MFS is easy to use (1.70) ranked the highest out of all the others. All the perceptions were statistically significant implying that they played an important role in determining the frequency at which the account holders used MFS.

Perception about how convenient MFS is (1.74), different services offered by MFS (2.04), ease of recharging account (2.07), security of MFS transactions (2.18), proximity of agents (2.19) and efficiency of MFS (2.21) are other significant reasons why account holders use MFS more frequently.

6.3 Analysis of Relationship of Demographic Factors & MFS Usage

6.3.1 Effect of gender

Table 6 Effect of gender on MFS usage

Simple Variable	Level of significance, α
Perceived Ease of Use	0.173
Perceived convenience of using MFS	0.192
Perceived security and reliability	0.894
Perception of how time-consuming MFS is	0.842
Perceived need for education for using MFS	0.165
Perceived need of technological knowledge for MFS	0.144
Perception whether promotional offers/cashbacks prompt use of MFS	0.056*
Perception whether MFS offers sufficient services	0.212
Perceived ease of recharging MFS account	0.048**
Perceived security of personal data	0.986
Perceived transaction security	0.062*
Perception of how efficient MFS is	0.307
Perceived ease of finding agents in close proximity	0.768

*Significant at 10%, ** significant at 5% level of significance

The Independent Samples *t* Test conducted, compares the means of genders with their corresponding responses of account holders regarding the MFS system in order to determine whether there is statistical evidence that the associated population means are significantly different.

6.3.2 Effect of age

A bivariate correlation test of age with perceptions of account-holders was done using a significance level of 5%. The hypotheses used were:

H_0: There is correlation between age and perception between account-holders
$H1$: There is no correlation between age and perception between account-holders

Table 7 Effect of age on MFS usage

Variables	Pearson Correlation
Perceived ease of use	-0.071
Perceived convenience of using MFS	-0.110
Perceived security and reliability of MFS	0.065
Perception of how time-consuming MFS is	0.051
Perceived need for education for using MFS	0.043
Perceived need of technological knowledge for MFS	0.176**
Perception whether promotional offers/cashbacks prompt use of MFS	0.133
Perception whether MFS offers sufficient services	-0.068
Perceived ease of recharging MFS account	0.048
Perceived security of personal data	0.255**
Perceived transaction security	0.016
Perception of how efficient MFS is	-0.123*

Perceived ease of finding agents in close proximity	-0.058

The level of significance for this correlation test was 5%. Apart from the variables-Technological knowledge and Private security, all the hypotheses have to be rejected because the significance value is above 5%. However, those two variables only show a weak correlation between age and these specific perceptions among account-holder. Thereby, we can say there is no correlation between these two parameters.

6.3.3 Effect of monthly income

A bivariate correlation test of monthly income with perceptions of account-holders was done using a significance level of 5%. The hypotheses used were:

H_0: There is correlation between monthly income and perception between account-holders
H_1: There is no correlation between monthly income and perception between account-holders

Table 8 Effect of monthly income on MFS usage

Variables	Pearson Correlation
Perceived ease of use	0.031
Perceived convenience of using MFS	-0.146*
Perceived security and reliability of MFS	-0.040
Perception of how time-consuming MFS is	0.114
Perceived need for education for using MFS	-0.051
Perceived need of technological knowledge for MFS	-0.030

Perception whether promotional offers/cashbacks prompt use of MFS	0.157*
Perception whether MFS offers sufficient services	0.010
Perceived ease of recharging MFS account	0.053
Perceived security of personal data	0.114
Perceived transaction security	-0.034
Perception of how efficient MFS is	-0.174**
Perceived ease of finding agents in close proximity	0.109

*Significant at 10%, ** significant at 5% level of significance*

The only acceptable hypothesis among these variables is the one about Efficiency of MFS, which again has a weak correlation co-efficient of only -0.174. So the hypotheses for the correlation between monthly income and perceptions of account-holders have to be rejected.

6.3.4   4.3.4 Effect of education level

An investigation of the obtained responses of the different simple variables had varying answers among different education levels (Primary/Secondary, Higher Secondary, Undergraduate and Master's/PhD).

For account-holders, the means of the variables of each education level was measured on a Likert scale and compared. 5% level of significance was taken for this test as well. If the significance value was less than 5% then the null hypotheses mentioned below would be rejected.

H_0: Mean value of respondents of every education level for account-holders is the same
H_1: Mean value of respondents of every educational level for account-holders is not the same

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Table 9 Effect of education level on MFS usage

Variables	Level of significance, α.
Perceived ease of use	0.356
Perceived convenience of using MFS	0.005
Perceived security and reliability of MFS	0.585
Perception of how time-consuming MFS is	0.882
Perceived need for education for using MFS	0.947
Perceived need of technological knowledge for MFS	0.680
Perception whether promotional offers/cashbacks prompt use of MFS	0.513
Perception whether MFS offers sufficient services	0.747
Perceived ease of recharging MFS account	0.900
Perceived security of personal data	0.004***
Perceived transaction security	0.412
Perception of how efficient MFS is	0.100
Perceived ease of finding agents in close proximity	0.253

*significant at 10%, ** significant at 5% level of significance*

The only variable with a significance value below 5% in this table is security of personal data, so we have to reject the hypothesis for this variable. A reason for this might be because people with different educational background might feel the need of different levels of data protection. Apart from that, all the variables have significance values above 5% thus accepting their null hypotheses. This might be because the basic functions of the MFS are designed to cater to people of all educational backgrounds.

6.3.5 Effect of occupation

We analyzed and investigated if the responses of the different simple variables had varying answers among different occupational classes (Student, Business, Private Service, Academia, Unemployed, Teacher, and Engineer).

For account-holder the means of the variables of each occupational class was measured on a Likert scale and compared. 5% level of significance was taken for this test. If the significance value was less than 5% then the null hypotheses mentioned below would be rejected.

H_0: Mean value of respondents of every occupation for account-holders is the same

$H1$: Mean value of respondents of every occupation for account-holders is not the same

Table 10 Effect of occupation on MFS usage

Variables	Level of significance, α.
Perceived ease of use	0.688
Perceived convenience of using MFS	0.463
Perceived security and reliability of MFS	0.403
Perception of how time-consuming MFS is	0.88
Perceived need for education for using MFS	0.309
Perceived need of technological knowledge for MFS	0.261
Perception whether promotional offers/cashbacks prompt use of MFS	0.729
Perception whether MFS offers sufficient services	0.386
Perceived ease of recharging MFS account	0.113
Perceived security of personal data	0.235
Perceived transaction security	0.749
Perception of how efficient MFS is	0.27
Perceived ease of finding agents in close proximity	0.858

*significant at 10%, ** significant at 5% level of significance*

All of the variables for account holders were above 5%. Thereby we cannot reject the hypothesis that mean value of respondents of every occupation for account-holders is the same. This means that occupation is not a factor that impacts the perception of people about MFS.

$H_0: \mu_1 = \mu_2$, *The mean of responses for male and female are equal*
$H_1: \mu_1 \neq \mu_2$, *The mean of responses for male and female are not equal*

The table above shows that out of the 13 simple variables associated with the perception of account holders, only one simple variable, "Perceived ease of recharging MFS account", has a mean that is significantly different among the two genders. The significance value, 0.048, is less than our level of significance of 0.05. Hence, we have sufficient evidence to reject the null hypothesis. The mean of responses for male and female regarding their perception of ease of recharging MFS account is statistically different.

The only acceptable hypothesis among these variables is the one about Efficiency of MFS, which again has a weak correlation co-efficient of only -0.174. So the hypotheses for the correlation between monthly income and perceptions of account-holders have to be rejected.

6.4 Identifying Direct Factors Which Correspond to Usage Patterns

The thirteen statements about the perception on the usage of Mobile Banking Services (mentioned in our questionnaire) were analyzed using the principal component analysis with a varimax rotation method to determine further underlying and overlapping factors.

The Kaiser-Meyer-Olkin (KMO) measure of the sample adequacy was 0.589 for account-holders and 0.594 for non-account holders. For both the values, Bartlett's test of sphericity was found to be at the significance level of 0.000.

These values suggested that the use of **factor analysis** was appropriate.

Table 11 Factor Analysis

Component	Extraction Sums of Squared Loadings		
	Eigen Values	Variance Explained (%)	Cumulative Variance Explained (%)
1	2.611	20.085	20.085
2	1.768	13.599	33.685
3	1.300	10.003	43.688
4	1.283	9.872	53.560
5	1.046	8.047	61.607

As summarized in the table above, the 5 components that were identified for account holders were done so based on each of their individual statements that were a part of the questionnaire which was administered. The individual factors are mentioned below with details regarding each factor loading.

- *Factor 1 "Perceived convenience"*

The first factor explains 20.1% of the variability and consists of four variables. The high factor loading explains strong correlation of the variables with the factor. All these variables are linked with the perceived convenience of MFS.

Table 12 Factor Analysis: Perceived Convenience

Sl. No.	Variable Name	Factor Loading
1	*Perceived convenience of using MFS*	0.826
2	*Perceived ease of use*	0.808
3	*Perception of how time-consuming MFS is*	-0.469
4	*Perceived security and reliability of MFS*	0.382

- *Factor 2 "Perception of personal competency"*

The second factor explains 13.6% of the variability and consists of two variables. The high factor loading explains strong correlation of the variables with the factor. All these variables are linked with the perception of personal competency of the account holder of MFS.

Table 13 Factor Analysis: Personal competency perception

Sl. No.	Variable Name	Factor Loading
1	*Perceived need for education for using MFS*	0.834
2	*Perceived need for technological knowledge*	0.788

- *Factor 3 "Perception of MFS benefits"*

The third factor explains 10% of the variability and consists of two variables. The high factor loading explains strong correlation of the variables with the factor. All these variables are linked with the perception of MFS benefits to account holders.

Table 14 Factor Analysis: MFS benefit perception

Sl. No.	Variable Name	Factor Loading
1	*Perception whether promotional offers/cashbacks prompt use of MFS*	0.792
2	*Perception whether MFS offers sufficient services*	0.726

- *Factor 4 "MFS utility"*

The fourth factor explains 9.87% of the variability and consists of two variables. The high factor loading explains strong correlation of the variables with the factor. All these variables are linked with MFS utility.

Table 15 Factor Analysis: MFS Utility

Sl. No.	Variable Name	Factor Loading
1	*Perceived transaction security*	0.629
2	*Perception of how efficient MFS is*	0.761

- *Factor 5 "Ease-of-use"*

The fifth factor explains 8.05% of the variability and consists of three variables. The high factor loading explains strong correlation of the variables with the factor. All these variables are linked with the ease of use of account holders.

Table 16 Factor Analysis: Ease-of-use

Sl. No.	Variable Name	Factor Loading
1	*Perceived ease of finding agents in close proximity*	0.746
2	*Perceived ease of recharging MFS account*	0.582
3	*Perceived security of personal data*	0.565

7   SUMMARY OF FINDINGS

The factor analysis that was done on users of MFS to determine the factors which had the most significant effect on the usage of MFS revealed the following variables: perceived convenience, perception of personal competency, perception of MFS benefits, MFS utility and ease of use. The cumulative variability of these components was found to be 61.607%.

The table below summarizes the factor loading of the variables of the components we identified and their meaning:

Table 17 Factor Analysis Result

Component	Variables	Factor Loading	Result
Perceived Convenience	Perceived convenience of using MFS	0.826	*Very Strong Presence*
	Perceived ease of use	0.808	*Very Strong Presence*
	Perception of how time-consuming MFS is	-0.469	*No Presence*
	Perceived security and reliability of MFS	0.382	*Moderate Presence*
Perception of personal competency	Perceived need for education for using MFS	0.834	*Very Strong Presence*
	Perceived need for technological knowledge	0.788	*Strong Presence*
Perception of MFS Benefits	Perception whether promotional offers/cashbacks prompt use of MFS	0.792	*Strong Presence*
	Perception whether MFS offers sufficient services	0.726	*Strong Presence*
MFS Utility	Perceived transaction security	0.629	*Strong Presence*
	Perception of how efficient MFS is	0.761	*Strong Presence*

Component	Variables	Factor Loading	Result
Ease of use	Perceived ease of finding agents in close proximity	0.746	*Strong Presence*
	Perceived ease of recharging MFS account	0.582	*Strong Presence*
	Perceived security of personal data	0.565	*Strong Presence*

Summarizing the effects of the relationship between demographic factors on account-holders' perception, we get:

Table 18 Demographic Data Results

Classification Data	Type of Data Analysis	Result
Gender	Independent t-test	Mean perception of male and female respondents was statistically unequal
Age	Bivariate Correlation	No correlation was found between age and perception
Monthly Income	Bivariate Correlation	No correlation was found between monthly income and perception
Education Level	ANOVA	No significant role of education level was found in perception
Occupation	ANOVA	No significant role of occupation was found in perception

8   RECOMMENDATIONS AND CONCLUDING REMARKS

The level of MFS penetration shows how consumers are accepting and embracing this technology. However, based on our research, we can still offer some further suggestions and recommendations that could prospectively accelerate the adoption of MFS in Bangladesh.

Currently, the range of options available for consumers are not utilizing the true potential of MFS. We believe that the further features can be offered from banks and MFS providers such as Bkash, which will in turn increase use of MFS. For this to be successful, barriers to opening accounts to enjoy MFS would need to be reduced substantially, so that consumers, and potential consumers will not feel as if they need a certain level of financial literacy in order to open accounts and use their accounts. This can be done by integrating modern aspects of MFS with traditional uses of banking. This way consumers who would be making the switch from traditional banking to modern ways of dealing with financial affairs would be able to familiarize themselves with the technology, offering the best of both worlds.

A major hindrance to the use of MFS is that consumers feel the interface is too complicated and cumbersome. MFS providers can adapt the mobile application interface to ensure a smooth experience for the consumers. Minimum amounts of lag or bugs in the applications will encourage consumers to use this service more.

The availability of MFS agents are a salient factor in the adoption of MFS. To make the use of MFS more convenient, service providers must ensure that agents are deployed to effectively cover large areas of the cities.

Promotions and cash-back offers are tremendous stimulants to prompt the use of MFS. From the vantage point of marketing, the usage of MFS can be increased through marketing schemes including promotions and discounts, which correlate with reduced transaction fees in order to increase demand for the service as shown in our findings.

One of the main factors holding consumers back before using MFS is whether MFS can provide reliable security. Alternatives to the use of conventional Personal Identification Number (PIN) may eliminate the perception that MFS is not safe. One such method may include introducing transaction limits per day, which will restrict individuals from moving excessively large amounts of money from one account to another. Another way could be to implementing limits to the recharging of accounts.

To increase the usage of MFS, it could be made compatible with international banks, allowing for a cross country transactions.

Fostering and developing strategic alliances with telecommunications companies can position MFS providers as more flexible, increasing its overall adoption.

Our research leads us to conclude that Bangladeshis have an overall positive perception on MFS, and they are open to adopting this technology. The MFS industry is still in its latent stage and will grow in the future. We understand that the vast majority of the Bangladeshi population has adopted the use of mobile devices, and from our findings, we posit that the current rate of MFS adoption is gaining momentum.

The construction of this report has helped us learn a multitude of things that one must know about the methods of research. It has also given us an overview of the usage of MFS in Bangladesh. We have gathered data regarding the perceptions of account holders and the effect of demographic factors on the usage of MFS.

The implementation of MFS in Bangladesh is truly an important step towards a digital future. With the advent of automation and Artificial Intelligence looming over the horizon, failure to stay up to date threatens to slow down growth, and stagnate the progress of a country. Financial stability is a cornerstone of an economy, and the smooth facilitation of financial affairs contributes to the prosperity of a nation.

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10 APPENDIX

10.1 Appendix A: Coordination Schema

PARAMETER	COMPLEX VARIABLE	SIMPLE VARIABLE	Mean Index	Standard Deviation
Perception of Account Holders on the usage of Mobile Financial Services	Trust	Reliability	2.24	0.913
		Privacy Risk	2.54	1.136
		Transaction Security	2.17	0.893
	Ease-of-Use	Technological knowledge	2.65	0.939
		Ease of availing services such as recharge	2.07	0.844
		Ease of finding MFS agents	2.20	0.894
	Usefulness	Convenience	1.74	0.597
		Efficiency	2.20	0.946
		Sufficient Services	2.05	0.654
		Sufficient Offers, Discounts and Cash-backs	2.42	0.962
	Demographic Factors	Gender	0.69	0.465
		Age	23.8	6.5
		Monthly Income	31400	5700
		Education Level	3.99	0.714
		Occupation	1.89	1.69