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MOBILE BANKING ADOPTION IN BANKING SECTOR OF PAKISTAN

Zohra SALEEM[a]

Dr. Kashif RASHID[b]

ABSTRACT

Today, the advancement in the field of telecommunication has provided financial sector firms an opportunity to introduce new technological innovation in providing services to customers. Banks have adopted mobile banking as the key financial service to provide utility and ease to customers. Based on the literature related to technology acceptance, the study extends conceptual model in context to mobile banking. Questionnaires are used for data collection. The results show that customer's concerns about security and reliability of the technology are highly significant. Furthermore, the results imply that mobile banking adoption include sophisticated IT technology and service versatility to attract customers.

Keywords: *Mobile banking; Organizational flexibility; Strategic endorsement; Technological innovation; Functional performance; Economic cost.*

[a] Lecturer, Department of Management Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan, zohra@ciit.net.pk, Phone # 0336-5634596.

[b] Assistant Professor, Department of Management Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan.

1. Introduction

Mobile device is commonly known as cell phone and users commonly use it for communication and as a wireless delivery channel. In the field of commerce and business, mobile technology has brought a drastic increase in speed and cut down of cost. M-Commerce can be defined as a transaction with a monetary value which is conducted through mobile telecom network (Müller-Varese, 1999). M-commerce has opened additional channel for service delivery. According to Muller-Varese (1999), cell phones are a new tool of trade in the area of m-commerce. Mobile banking is generally defined as carrying out bank transactions and other related activities via mobile (hand-held) devices. According to Tiwari and Buse (2006) the services offered are listed below:

- Account operation (bill payments, money transfers etc.)
- Account administration (access administration, cheque book requests etc.)
- Account information (balance inquiries, statements of account)
- Financial information (interest- and exchange rates etc.)
- Brokerage (sale/purchase of stocks)

Mobile banking can also be defined as "a bridge that brings traditional banking services to users of handheld GSM mobile devices" (SanBoeuf, 2006). Mobile banking is termed as Anywhere, Anytime Banking as most of the traditional banking services can be availed irrespective of place and time (Watts, 2002). It is a service that allows customers to do banking transactions on mobile phone and 24/7 access to bank account (Tiwari and Buse, 2006).

Pakistan has successful growing economy and telecommunication industry of the country has advanced tremendously in the recent years. The higher use of mobile phone in an emerging market has intrigued foreign as well as local banks to provide mobile banking services to its customers.

The purpose of the study is to identify the dimensions (organizational flexibility, strategic endorsement, technological innovation, functional performance and economic cost) of mobile banking adoption in Pakistani banks and to find the impact of these factors on new technology adoption. A survey of bank employees is conducted and the data is analyzed. Descriptive analysis (mean and standard deviation) and quantitative analysis is performed (factor analysis, regression and correlation analysis). Finally, based on the analysis results, conclusion and recommendations are detailed.

The paper starts with the introduction, which is followed by Section 2 elaborating the literature review regarding the factors of mobile banking adoption. In Section 3 the discussion leads to the development of hypotheses. Section 4 describes the methodology adopted to conduct the research and Section 5 depicts the conceptual model. Section 6 consists of data analysis and discussion of results. Finally, Section 7 presents the conclusion of the research.

2. Literature Review

The rapid growth of technology and emergence of service innovation in all aspects of business has led to a dramatic change. It has increased competition among the firms and businesses to attract more and more customers and increase their profit share. Technological advancement has influenced the banking sector firms too, to enhance their services offered to customers. Apart from traditional banking services provided, banks have moved towards branchless mode of conducting transactions. E-commerce revolutionized the concept of traditional banking. Mobile banking is a subset of the broader domain of electronic-banking.

According to the definition of mobile banking, the services offered by the banks to its customers are: Account information (mini-statements and SMS alerts), payments and transfers (domestic and international fund transfers, mobile recharging, commercial and bill payment processing), investments (portfolio management services, real-time stock quotes and notifications on security prices), support services (status of requests for credit, cheque book and card requests, exchange of data messages and email) and content services (general information such as weather updates, news and location-based services) (Tiwari and Buse, 2006). There are basically two kinds of services offered to customers: Enquiry based and transaction based. Enquiry based services are those in which the customer inquire about certain information from the service providers as mini-statement, status of the request for credit, stock exchange rate etc. Similarly, transaction based services are those in which the customer performs a money transaction from one account to another for paying bills etc.

The study is significant because of the need for research on mobile banking and the impact of technology adoption. In Pakistan, mobile banking is a new area and there exists a need to analyze the critical aspects of technology adoption. As this technology is not yet exploited by the banks and customer awareness is comparatively low, therefore there is a need to conduct research on its adoption. To bridge this gap, the researcher intends to conduct a survey of those banks which have adopted mobile banking technology and have offered these services to customers. The study is significant at this initial stage when State Bank of Pakistan has released orders to all the banks to adopt the technology. This is a comprehensive study as an integrated model is developed and dynamic factors of technology adoption are incorporated. These include organizational, strategic, technological, functional and economic factors. The study will help banks to recognize these factors of technology adoption, as they proceed in technology enhancement. It will make financial sector firms realize the importance of technology adoption and enable banks to enhance IT development and arrange training sessions accordingly.

2.1 Mobile Banking Adoption

The literature collected from the work done by numerous researchers suggests that mobile banking is a part of m-commerce which has gained vital importance since last decade. The number of customers using a technology depicts its usage and popularity among clients. The literature related to customer satisfaction

provides evidence that perceived usefulness, risk and trust are the key elements which are related to consumer's value perception and adoption of a technology (Dahlberg and Mallat, 2002).

A bank must support major business strategies that strengthen customer service in order to adopt the technology and provide services to clients. On the other hand, employees also play a vital role in technology adoption. Resistance shown by the employees to adopt a new technology can lead to poor adoption and malfunctioning. Employees must be willing to learn and adapt with the shifting environmental needs. Similarly, time taken by customers to adopt the technology depends upon the ease of use and reliability of the technology. Customer's intention of mobile banking usage is affected by the security and privacy concerns. Bank's performance is measured on the basis of trust and reliability in providing services to customers.

The transaction between the customer and the bank has to be maintained secure which requires advance technological procedures to make the delivery channel safe. The fear of lack of security may cause reluctance in adopting mobile banking services and can act as a barrier to its adoption. Experience and expertise of decision makers enhances the credibility which has a significant impact on the development of willingness in customers to use mobile banking.

2.2 Factors of Mobile Banking Adoption

The study concentrates on the following factors of mobile banking adoption.

2.2.1 Organizational factor

Organization's size "refers to the capacity, number of personnel, outputs (customers, sales), resources (wealth)" as suggested by Borgatti (2001). In complex and uncertain environments, typically organizations differentiate so that each unit faces a smaller, more certain problem. Mobile banking is in the growing phase of the organizational life cycle. Banks follow different programs related to organizational development like employee training and development and hiring IT professionals. Competent staff is recognized by their expertise and qualification. Organizational development can be achieved through effective training and development which improve employee's performance, skills and knowledge. The reason of providing training is to make the employee eligible for the changing role of the organization (McNamara, 2007). The belief behind this is to increase employee's efficiency and capacity which result in financial gains. Thus, organizational factor contributes to easy adoption of technology.

2.2.2 Technological factor

Technological progress improves the quality of banking services. Financial sector firms have to ensure the privacy, security and integrity of customer's detail in all aspects. Risk of fraud, loss or theft may discourage people from relying on the bank. Thus, mobile banking as technology advancement in electronic banking has to offer reliable security measures to ensure adoption by the customers. Transactions happening on WAP access

via internet have to deal with the matter in a differentiated way. Threats from viruses, trojan horse and worms make the internet network unreliable (Ebling, 2005). Soroor and Toosi (2005) state some general security requirements which apply to electronic banking systems. The most important is confidentiality which means to "ensure that only authorized entities have access to the content of the exchanged information". This leads to the assumption that higher technological advancement enhances technology adoption.

2.2.3 Strategic factor

Customer loyalty and customer retention has importance over customer acquisition. The value of customer relationship management has become apparent in the competitive era of technological innovation. Trust is the backbone of any business (Shariq, 2006). If a bank fails to provide the services accurately as promised, the trust of the customer is broken which creates anxiety. As mobile network is an open network, the concerns increase intrinsically. Typical concerns include fraud (loss as the result of unauthorized transactions), loss of privacy (through inadequate data protection) and even loss of service. Therefore, strategic endorsement leads to increasing rate of technology adoption.

2.2.4 Functional factor

When customers evaluate the quality of service provided by the financial institution, their satisfaction depends upon the service features delivered. Thus, it is important to analyze the level of services offered to customers. Versatility in service offering is very important to attract customer. The number of services must always increase as well as the quality must improve. Features offered on SMS based alerts like on time delivery of SMS, authentication, reply option etc. and on WAP-enabled online internet access like navigation speed, download, content, design, interactivity and security features are added for the convenience and ease of users. While, problems such as slowness, poor navigational possibilities, and low interactivity with the service settings and critical incidents such as lack of help and empathy by service providers in service encounters all trigger considerable switching and anxiety in customers (Shariq, 2006). This suggests that enhanced functionalities lead to higher technology adoption.

2.2.5 Economic factor

Dahlberg and Mallat (2002) argued that cost paid by a customer to adopt technology usage comprises of three types: Direct cost which a customer invests to use a technology, indirect cost which incurs when the technology does not fulfill its function properly as desired and the third is psychological cost which a customer has to pay due to the fear that he might face a problem while executing. The author is of the view that customer satisfaction level increases as the cost to carry out a technology innovation decreases. The study emphasizes that adoption of mobile banking enhances the performance of bank in terms of reduction in costs

such as cost of transaction, administration, and promotion (Daghfous and Toufaily, 2007). This requires an environment which supports the technological innovation.

3. Conceptualization and Hypothesis development

Drawing on the relevant literature and empirical implications of the study, the conceptual framework and hypotheses are discussed as under.

3.1 Organizational factor

The organizational structure of a firm plays a pivotal role in new technology service adoption. Organizational setup constitutes human resource as its main foundation. Any change in the organization's internal process affects human resource considerably. Change management and organizational flexibility is the prime requirement for firm's success. Changes in services offered due to technology advancement requires change in certain managerial practices, such as flexibility in personnel assignments and extent of delegation of authority, which lay emphasis on results rather than procedures. Organizations whose structures are not fitted to the environment (which includes other organizations, communities, customers, governments, etc.) do not perform well and fail mostly within the first few years.

Organizational change is same as personnel growth. It affects the whole as well as each basic unit. The aim of business activity is profit generation through increasing customer retention and satisfaction. Adopting mobile banking was primarily intended to bring cost effectiveness in the banks. Ayadi (2006) has quoted organizational flexibility in the literature, as a factor to enhance productivity and profitability. The financial resources of a firm are the main assets and efficient utilization of resources is a critical issue. Decision-makers need to be prepared to build new strategies compatible with mobile usage environment. The cost of introducing a new technology, its management, promotion and support requires investment. Thus, higher the financial resources of a firm more likely it is to adopt new technology.

H1: There is a positive association between the level of organizational flexibility and mobile banking adoption.

3.2 Technological factor

Technology is a significant dimension of providing reliable services to customers. Technology must be authentic that it ensures general security concerns which increases customer satisfaction. Innovation in technology is adopted considerably when it is believed that the adoption increases the performance of the bank, "in terms of increase in market share, customer satisfaction and reduction in cost" (Daghfous and Toufaily, 2007).

On the basis of general understanding, it is highly accepted in the economy worldwide that higher technological advancement leads to more sophisticated customer service which leads to increase in number of

customers. Literature provides support that all the industries, which cater customer service, directly or indirectly, aim is to provide their best to the client. As discussed by Rogers and Shoemaker (1999) early adopters are those customers which are on the upfront to adopt a new technology. Adoption of a technology in customer's point of view is the ease and usefulness he considers to avail from it. As proposed by Davis (1986) the Technology Acceptance Model (TAM) "posits that perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use" (Rao, 2007; Malhotra and Galletta, 1999). The studies suggest that technically sound and reliable technologies are adopted by customers. In banking sector, mobile technology is one of the most recent advancement. It is adopted in order to enhance the services provided to customers. Customers demand a reliable, secure and efficient mechanism to access their accounts. Increasing technological advancement has a direct impact on adopting technology. Thus, it is postulated that technological authenticity has a positive impact on the adoption of mobile banking.

H2: There is a positive association between the technological innovation and mobile banking adoption.

3.3 Strategic factor

Business strategies are developed on the basis of firm's vision and mission. The underlying vision of a business is to generate profit but it is achieved through increasing number of satisfied customers. Businesses execute their activities mainly based on trust (Shariq, 2006). As mobile network is an open network the concerns regarding security increase intrinsically. The level of risk involved varies with the nature of the product offering. The security issues are involved in customer authentication and authorization through all the stages of wireless transmission. The perceived risk a firm refers to is the "level of uncertainty a firm can tolerate" (Daghfous and Toufaily, 2007).

Adopting innovative services and new technology to refine services and utility, is yet another strategic criterion to encourage customer retention and customer satisfaction. Customer choice is continuously changing and to cope up with the changing environment service sector firm are always busy in bring about innovation and creativity. New technology is adopted at higher rate comparatively by service sector firms. Banks being the central hub of financial setup are leading the rest in adopting innovative services.

Laukkanen (2005) says that customer needs and values have become more important for financial institutions, not only due to the changing environment but also because of changing customer behavior. According to Ebling (2005) research shows that "the more services the customer uses, the greater are the banks expected profits". Therefore, to ensure the versatility regular adoption of new technology is positively correlated to adoption of mobile banking.

H3: There is a positive association between the strategic endorsement and mobile banking adoption.

3.4 Functional factor

Functional diversification of each unit to specialize in its field is very important for a firm's progress. The benefits of adopting electronic banking are numerous which includes reduction in cost. It has a positive impact on the execution of operations, the cost is lowered for service access and improvement occurs in customer relationship (Daghfous and Toufaily, 2007).

Functional factor is yet another important aspect of a firm which determines the technology adoption measurement. Researchers argue that functional diversification and coordination is the key element for the firm's success. Banks which fail to adopt innovative technological advancement lose satisfied customers who may have "moved, retired, or no longer need certain services" (Cohen et al., 2006). As a consequence, retaining customers is the priority for banks, which requires creativity in its functional process and services offered to customers.

A review of literature suggests that importance of service quality, meeting customer expectations and satisfaction with the service is significant in market oriented and customer focused firms (Jamal and Naser, 2002). They further added that there are certain dimensions of service quality that affect the customer such as "reliability, tangibles, responsiveness, assurance and empathy". The association between the dimensions of service quality and customer satisfaction is significant as it suggests a positive relationship which leads to technology adoption. Banks pursue customer retention strategies and invest on research and related activities to bring diversification and versatility in the services offered.

H4: There is a positive association between the functional performance and mobile banking adoption.

3.5 Economic factor

Economic cost associated with technology based innovation is a prime factor of its acceptance or rejection. Numerous researches suggest that mobile banking has reduced the cost of executing a transaction; in terms of convenience to customers and reduced service charges (Dahlberg and Mallat, 2002; Daghfous and Toufaily, 2007).

Reduction in cost of doing business is the major attraction for the customers. The level of cost reduction depicts its significance in the business world. Polatoglu and Ekin (2001) argued that "more rapid diffusion occurs when customers can have low-cost or low-risk trial of the service". Adopting technology-based innovation can be costly as institutions require a complete setup of computers, network coverage and skilled workers to start up with. But mobile technology has advantage over other innovations as it acknowledges the existing infrastructure available in the market.

Budget allocation to purchase hardware and software accessories for technology adoption is another element to quantify the economic factor. Huge investment is required to start a new venture. But the concept of providing customers cheap access to the service must be given the highest priority while investing. Business risk is another important significant factor of technology adoption. According to Adongo et al. (2005) business risk "refers to the uncertainty of revenues and expenses associated with activities such as loan origination,

servicing and data processing". A technology reaches its critical mass when it is adopted by the economy as an accomplishment of profitability. The profit generated by the adoption of a technology is regarded as its success. Thus, lower economic cost leads to higher level of technology adoption.

H5: There is a negative association between the economic cost and mobile banking adoption.

Each variable with its operational definition is depicted in the Table 1.

Variables	Operational definition
Independent Variables	▪ Organizational Factor • Size of the bank • Type of decision making • Level of expertise • Availability financial resources • Technical infrastructure
	▪ Technological Factor • Reliable security measures • Ease of use • Sophisticated IT technology • Functional Boost • Learning new technology
	▪ Strategic Factor • Risk free technology • Trust building • Adopting innovative services • Perceived relative advantage • Degree of service expansion
	▪ Functional Factor • Functional division • Versatility of technology • Timely and reliable service • Feedback and customer inquiry • Complaint handling
	▪ Economic Factor • Cost of doing business • Market risk • Service charges • Budget allocation

	• Business risk
Dependent Variable	▪ Mobile Banking Adoption • Number of customers • Business strategies that strengthen customer service • Resistance shown by the employees • Time taken by customers to adopt • Barrier to adoption of mobile banking • Experience/expertise of decision makers

Table 1: Operational definition of observed variables

4. Research Methodology

This section encompasses the methodology used in the research. The sample frame and data collection mechanisms are discussed below.

4.1 Sampling and data collection

The study focuses on people who have had direct interaction with mobile banking technology. The focus group consists of bank employees, which are providing this utility to their customers. The study consists of quantitative research, with representative sample of Citibank N.A, Standard Chartered Bank of Pakistan and Untied Bank Limited.

Survey method is used for conducting the research and data is collected through questionnaire as a source of primary data collection. Questionnaire is developed according to likert scaling technique, consisting of initial demographic questions (See Appendix A). The sample size determined to conduct research is 150 responses from bank's employees.

4.2 Econometric Model

The dependent variable, Mobile Banking Adoption (MBA) is depicted as a function of independent variables: Organizational Factor (OF), Technological Factor (TF), Strategic Factor (SF), Functional Factor (FF) and Economic Factor (EF) in the following equation.

$MBA = \alpha 0 + \beta 1(OF) + \beta 2(TF) + \beta 3(SF) + \beta 4(FF) - \beta 5(EF) + \varepsilon$

where:

α0- intercept

ε- error term

5. Conceptual framework

The conceptual framework depicts the relationship between the dependent (mobile banking adoption) and independent variables (organizational factor, technological factor, strategic factor, functional factor and economic factor) based on the hypotheses for the study. The conceptual framework also depicts the direction of the relationship between the variables and is presented below in figure 1.

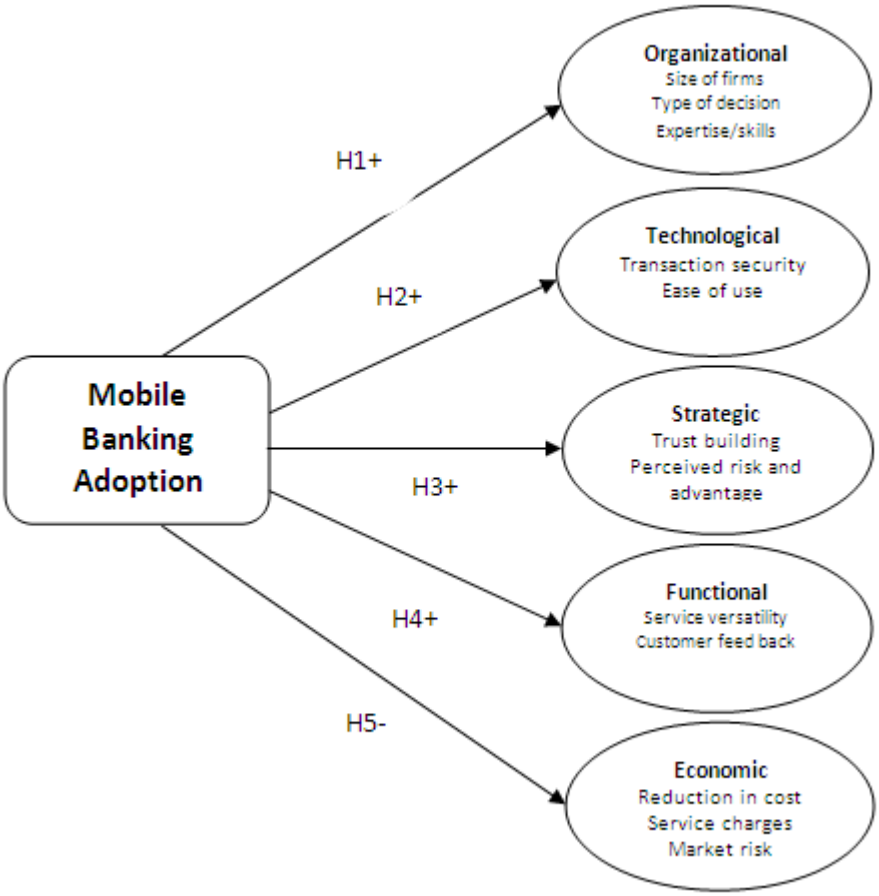

Figure: 1. Conceptual Framework

6. Research Findings

The data collected from the respondents is analyzed using Statistical Package for Social Sciences (SPSS 12 version). Analysis is based on three steps. Firstly, descriptive statistical analysis is conducted. Then, the reliability of data analysis is tested and finally, hypotheses testing are performed. The results of the analyses are discussed below.

6.1 Descriptive statistical analysis

The descriptive statistics of the dependent and the independent variables is depicted in the table 2

Variable	Statistic N	Mean	Standard Deviation	Variance	Skewness	Kurtosis
Organizational factor	150	80.44	10.29	105.98	-0.213	-0.608
Technological Factor	150	86.57	11.43	130.76	-0. 327	-1. 099
Strategic Factor	150	88.22	11.31	127.92	-0. 414	-1.089
Functional Factor	150	81.75	13.78	190.16	-0.741	-0.171
Economic Factor	150	64.11	7.44	55.35	-0.027	-0.439
Mobile Banking Adoption	150	87.86	11.69	136.66	-0.635	-0.203

Table 2: Descriptive statistical analysis

6.2 Reliability data analysis

Cronbach's alpha is used to verify reliability of the data. The results show that alpha value ranges from 0.624 to 0.678 which depicts that the scale is reliable. This value exceeds the recommended value of 0.6 (Nunnally, 1978; Lee, 2007), demonstrating sufficient internal consistency of the scale used for the research.

6.3 Hypotheses testing

The hypotheses testing techniques used in this study and the results are discussed as follows.

6.3.1 Factor analysis

Factor analysis is used as a tool for hypothesis testing and to find out the factor loading for each variable as performed by Sivanand et al. (2004) and Karjaluoto et al. (2002). Results for confirmatory factor analysis holding the eigenvalues and sum of squares loadings for the factors are displayed in Table 3.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.436	40.601	40.601	2.436	40.601	40.601	2.357	39.282	39.282
2	1.190	19.838	60.440	1.190	19.838	60.440	1.167	19.451	58.733
3	1.044	17.406	77.846	1.044	17.406	77.846	1.147	19.113	77.846
4	.721	12.023	89.868						
5	.498	8.305	98.173						
6	.110	1.827	100.000						

Extraction Method: Principal Component Analysis.

Table 3: Total variance explained

Table 3 shows the results of principal component analysis. The table depicts eigenvalues for each factor which represents the percentage of variance contributed by the factor. The first three factors contribute to 77.84% of the total variance and have eigenvalue greater than 1.0. Hence, according to Kaiser's criterian and Cartell's scree test the first two factors are extracted and further applied with varimax rotation as adopted by Malhotra and Galletta (1999), Lee (2007) and Sinkkonen et al. (2007).

Table 4 represents the extracted variables and their factor loadings. The results show that the first factor, exhibits heavy loading for strategic factor (0.943), mobile banking adoption (0.899) and technological factor (0.803). Hence, it can be named as "Business Factor". Second factor exhibits loading for organizational factor (0.848) and economic factor (0.636) and it can be called as an "Operational Factor". Third factor exhibit for functional factor (0.877) and named as "Service Factor".

Variable	Factor		
	1	2	3
Strategic Factor	**0.943**	0.060	0.024
Mobile Banking Adoption	**0.899**	0.139	0.170
Technological Factor	**0.803**	-0.066	-0.019
Organizational Factor	0.089	**0.848**	0.213
Economic Factor	-0.039	**0.636**	-0.551
Functional Factor	0.070	0.127	**0.877**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

Table 4: Rotated Component matrix

6.3.2 Correlation Analysis

Pearson correlation coefficient depicts the relationship between the dependent and independent variables which are depicted in Table 5.

Factors of Mobile Banking Adoption	Pearson Correlation (r)	Significance (2-tailed)
Organizational factor	0.680(**)	0.000
Technological Factor	0.732(**)	0.000
Strategic Factor	0.873(**)	0.000
Functional Factor	0.550(**)	0.000
Economic Factor	-0.071	0.388

r is Pearson correlation coefficient

** Correlation is significant at the 0.01 level (2-tailed)

Table 5: Correlation matrix

Analysis of the correlation matrix indicate that organizational factor has a significantly positive relationship with mobile banking adoption [r=.680, n=150, p<0.01], leading to acceptance of hypothesis H1. Similarly, technological factor shows strong positive association with dependent variable [r=0.732, n=150, p<0.01] which suggests hypothesis H2 is accepted as true. The result supports the findings of Malhotra and Galletta (1999) and Rao (2007), who suggested that adoption of the advanced technology by the firm leads to an increase in customer's ease and usage, increasing the level of satisfaction.

Furthermore, the correlation matrix also indicates that there is a strong and positive correlation between the two variables, mobile banking adoption and strategic factor [r=0.873, n=150, p<0.01] which suggests that strategic factor have a direct positive relationship with the dependent variable. It suggests the acceptance of hypothesis H3. Furthermore, the results also show a relatively weak but significant correlation between functional factor and mobile banking adoption [r=0.550, n=150, p<0.01]. The variables hold a positive correlation at a significance level of 0.05. The value shows that functional enhancement of a technology has a direct impact on the level of mobile banking adoption. This correlation strengthens the results of Jamal and Naser (2002) and Cohen et al. (2006), accepting the hypothesis H4.

There is a negative correlation depicted between the two variables, mobile banking adoption and economic factor [r=-0.071, n=150], which shows that low levels of economic cost is associated with higher levels of mobile banking adoption. The purpose of technology adoption in banks is to provide cheap and reliable channel to customers for service delivery. The results in table 5 show that adopting new technology has a negative association with economic standing of the bank as reduced service charges and expensive technology are negatively related. Therefore, hypothesis H5 is accepted, as argued by Gritti (2007)

6.3.3 Regression analysis

The results for regression analyses show that the value for the R squared is 0.865. It shows that the independent variables accounts for 86.5% change in the mobile banking adoption. The value for the R squared is significant at .0001 level, which shows that the findings are statistically robust. The co-efficient of correlation (R) is 0.888. The equation of the model relevant for the current study is as follows:

MBA= - 11.373 + 0.265 (OF) + 0.175 (TF) + 0.569 (SF) + 0.137 (FF) - 0.016 (EF) + ε

(where MBA= Mobile Banking Adoption, OF=Organizational Factor, TF=Technological Factor, SF=Strategic Factor, FF=Functional Factor, EF=Economic Factor and ε=error term)

The results of regression analysis are presented in Table 6 below.

Model		Unstandardized Coefficients		Standardized Coefficients	Significance
		B	Std. Error	Beta	
1	(Constant)	-11.373	4.564		0.014
	Organizational factor	0.265	0.040	0.248	0.000
	Technological Factor	0.175	0.044	0.173	0.000
	Strategic Factor	0.569	0.047	0.552	0.000
	Functional Factor	0.137	0.030	0.159	0.000
	Economic Factor	-0.016	0.042	-0.011	0.712

a. Dependent Variable: Mobile Banking Adoption

Table 6: Coefficients

The discussion of the results is presented as follows:

Organizational factor: The result shows that organizational factor has a coefficient value of 0.265 and the significance level of 0.000. The standardized coefficient value of 0.248 is relatively the low value for coefficient, depicting that one unit increase in organizational factor leads to 0.248 units increase in mobile banking adoption, holding the other variables. Therefore, the hypothesis Hi is accepted true.

Technological factor: The result shows unstandardized coefficient value of 0.175 significant at .000 level of confidence. The standardized coefficient value of 0.173 shows importance of the variable in the model. The findings support prior research of Malhotra and Galletta (1999), Luarn and Lin (2005) and Rao (2007), which shows that positive relationship exists between technological factor and the dependent variable. The results indicate that reliable security concern, ease of use, IT application, functional boost and learning new technology are needed to adopt the technology in order to enhance the level of technology adoption. Thus, the results confirm that hypothesis H2 is true and accepted.

Strategic factor: Based on the coefficient value (0.569) and significance level (0.000), it is suggested that strategic factor is the strongest predictor of mobile banking adoption among the rest of the variables. This is supported by the standardized coefficient value, which depicts that one unit increase in strategic factor leads

to 0.552 units increase in mobile banking adoption. This suggests to the acceptance of the hypothesis as there exists a positive relationship between strategic factor and mobile banking adoption as argued by Child (1975) and Cohen at al. (2006).

Functional factor: The result shows unstandardized coefficients value of 0.137 and standardized coefficient value of 0.159. The statistics are relatively weaker than the other variables but confirm a positive relationship between the independent and dependent variables at a significance level of 0.000. The statistics demonstrates that functional factor plays a relatively marginal role in explaining mobile banking adoption. The result shows that the relationship is not strong but it is positively associated. Functional diversification, versatility, timely and reliable service, customer inquiry and complaint handling depict the significant aspects contributing to the factor variance. The findings are consistent with the study done by Jamal and Naser (2002), Luarn and Lin (2005) and Cohen et al. (2006) which leads to the acceptance of hypothesis H4.

Economic factor: Economic factor is found to have a negative relationship with mobile banking adoption as shown by coefficient value of -0.016 with the significance level of 0.712. The result shows that there exists a negative relationship between the economic factor and mobile banking adoption confirming hypothesis H5, which is consistent with the previous studies of Luarn and Lin (2005) and Copercini (2007).

7. Conclusion

The paper presents an integrated model that demonstrates the impact of organizational factor, technological factor, strategic factor, functional factor and economic factor on mobile banking adoption. The findings prove that mobile banking is technologically a profitable option for the banks. Banks in Pakistan must adopt mobile banking as an attractive service provided to their customers in order to increase customer satisfaction. The results of regression support the hypotheses tested in this study. The results show that technological and functional aspects of the new service are to be ensured so that customers find ease in usage and understanding.

The findings show that organizational factor has a positive relationship with adopting mobile banking technology. Although the association is weak but still it ensures that aspects like technical infrastructure and type of decision making are the most significant contributing factors to the variable. The findings successfully confirm that technological factor accounts positively towards the adoption of mobile banking. Customers desire reliable, timely, effective and secure technology to perform money transaction. Traditional technological measures were found to be the important factors affecting customer behavioral intention to use mobile banking. These measures include sophisticated IT application and functional boost. The study furthermore, shows the most significant and strong positive association between the dependent variable and strategic factor. The key indicators are relative advantage of technology and the degree of service expansion. Furthermore, the results for correlation show that a weak positive relationship exists between functional factor and mobile banking adoption. The relationship is not strong but is positively correlated. Customer inquiry and complaint handling showed the most significant results contributing to the factor variance of functional aspect of mobile banking. Finally, the research findings show that there is a negative association between economic

factor and mobile banking adoption, the reason being the cost of doing business and market risk which have a tremendous impact on customer's behavioral intention to use a new technology.

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Appendix A

Mobile Banking Service

Mobile Banking is latest technological development in commerce and is yet to be exploited in terms of new technology adoption. This survey is part of my MS Degree Research Thesis. It's meant to detect factors affecting the adoption of Mobile Banking in Pakistan. **Instructions:** When filling out this form, please indicate, on a scale of 1 to 3, the option to which you agree with the following statements.

1. **Name** (Optional): _____
   * You may complete this questionnaire anonymously, if you like.
2. **Job Tile/ Designation:** _____
3. **Work Location/ Department**: _____
4. **Gender:** ☐ Male ☐ Female
5. **Age:** ☐20-30 years ☐31-40years ☐41-50 years ☐51 and above
6. **Marital Status:** ☐ Single ☐ Married
7. **Education Level:** ☐Undergraduate ☐Graduate ☐Postgraduate

Impact of Organizational Factor

8. The bank size is large enough to incorporate mobile banking adoption

Agree	Neutral	Disagree

9. Which type of decision making is carried out at the bank?

Decentralized	Combined	Centralized

10. What is the level of expertise or qualification of technical staff of the bank?

High	Average	Low

11. Mobile banking adoption is financially supported by the bank

Agree	Neutral	Disagree

12. Technical infrastructure of your bank is

Developed	Average	Under developed

Impact of Technological Factor

13. To what extent, is the bank successful in providing reliable security measures for mobile banking?

Successful	Average	Low

14. To what extent, is mobile banking technology complex?

Simple	Moderately complex	Highly complex

15. To what extent, has the bank embraced sophisticated IT applications?

High	Average	Low

16. Mobile banking technology is a functional boost for banking services

Agree	Neither agree nor disagree	Disagree

17. The employees are able to learn new technology applications quickly

Agree	Neutral	Disagree

Impact of Strategic Factor

18. What is the acceptable perceived risk at the bank?

Never	Seldom	Always

19. To what extent, is the bank successful in building customer's trust in mobile banking authenticity?

Successful	Appreciable	Unsuccessful

20. What is the rate of adopting innovative services and new technology?

Continuous	Seldom	Never

21. How much significant is the perceived relative advantage of mobile banking?

Very important	Fairly important	Unimportant

22. To what extent is the degree of service expansion done by the bank internationally?

Appreciable	Limited	Poor

Impact of Functional factors

23. The level of functional division or diversification of each unit or department is

High	Medium	Low

24. Are mobile banking services offered by the bank versatile?

Significant	Optimal	Limited

25. Are mobile banking services offered by the bank on time and reliable?

Always	Often	Seldom

26. Customer information inquiry and feedback mechanism is

Efficient	Reasonable	Inefficient

27. What is the level of complaints received regarding mobile banking problems?

Low	Medium	High

Impact of Economic factors

28. Has mobile banking reduced the cost of doing business?

Significant	Moderate	Minimal

29. By adopting mobile banking, the market share of the bank is?

Increasing	No effect	Decreasing

30. Service charges of mobile banking compared with traditional banking are

Less	Equal	More

31. For the past few years, the bank has allocated a generous budget for purchasing mobile banking technology hardware and software

Agree	Neutral	Disagree

32. Mobile banking service will reach critical mass

Agree	Neutral	Disagree

Mobile Banking adoption

33. The number of customers using mobile banking service is increasing

Highly	Average	Low

34. Mobile banking has supported business strategies that strengthen customer service

Agree	Neutral	Disagree

35. How much resistance is shown by the employees to adopt the new technology systems and applications?

Minimum resistance	Neutral	Highly Resistant

36. How long do you think will it take to customers to adopt mobile banking services

10+ Years	5-10 years	0-5 Years

37. Which of the following do you see to be the most significant barrier to adoption of mobile banking

Availability of capital	Security and fraud related issues	Consumer unawareness /lack of education

38. The international experience or expertise of decision makers/ technical staff is

Significant	Optimal	Low