

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT



***ASSESSMENT OF MOBILE BANKING ADOPTION PROJECT IN
NIB INTERNATIONAL BANK***

**A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF PROJECT
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Declaration

I, Solomon Ayele declare that this thesis project entitled **Assessment of mobile banking adoption project in Nib international bank** is the outcome of my own effort and study in which all sources of materials used for study has been duly acknowledged. I have produced it independently except the guidance and suggestion of the project advisors. I further confirm that the study has not been submitted for any degree in this or any other higher learning institution. It is offered for the partial fulfillment of the requirement for the degree in masters of project management.

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This is to certify that Solomon Ayele Assefa has carried out his research work on the topic entitled on Assessment of Mobile Banking adoption project in Nib International bank .This project work is original and is suitable for the submission for the reward of MA Degree in project management.

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ACRONYMS

ATM	Automatic Teller Machine
DIT	Diffusion innovation theory
E-Banking	Electronic Banking
ICT	Information communication technology
M-banking	Mobile banking
NBE	National Bank of Ethiopia
NIB	Nib International Bank
PEOU	Perceived ease of use
POS	Point of sale terminals
PU	Perceived usefulness
SMS	Short message services
TAM	Technology Acceptance Mode

Abstract

The purpose of this study was to assess the factors that affect mobile banking adoption project in Nib international bank. The study tried to build on two widely used models for technology adoption, the extended Technology acceptance model (TAM) and Diffusion innovation theory (DIT). By combining the two widely used models the study determined factors that affect mobile banking adoption project. These factors were: convenience (perceived usefulness and perceived ease to use), perceived cost, perceived trust, perceived risk, relative advantages and compatibility. Survey was conducted using 326 questionnaires usable out of 399 questionnaires that were distributed. The collected data were analyzed using statistical package for social science (SPSS). Purposive sampling and convenience sampling methods were used to select samples from Main branch, Tana , Adarash , Raquel, Gotera ibex, Gotera and Kality branches. The descriptive, correlation and multiple regressions on research analysis were used. The research results showed that convenience (perceived usefulness and perceived ease to use), perceived trust, relative advantages and compatibility had significant and positive correlation with adoption of mobile banking project. Perceived risks and perceived cost had significant and negative correlation of adoption mobile banking projects. Finally the study recommended Nib international bank to continuously create and invest better mobile banking options, highly safe guard technology and application to enhances users confidence and create public awareness by preparing and distributing information through brochures, flyers and booklets.

Key words: Adoption of mobile banking project, technology Acceptance Model, Diffusion Innovation Theory

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CHAPTER ONE

INTRODUCTION

1.1 Background

More recent development in information technology have provided the opportunity for customers to access Banking services without direct face to face contact with Bank personal. This external wave to technological developments has intensified in recent years and will further reduce financial institutional costs. (Mari 2003)

The banking sector includes a lot of key players, including retail and commercial banks, mobile (telecommunication) network operators, and financial institutions. Information Technology (IT) has changed how business is conducted, how individuals live, work and think, there is stiff competition amongst banks that has also paved way for many new and exciting banking products and services being offered nowadays for customers with so many banks to choose from. The banking sector has paved way for the use of IT in different ways namely the personal computer (PC), personal digital devices (PDAs), tablets, smart phones, automatic teller machines (ATM) and standalone machines within the banks. All the above technologies named assist the customer and employees to access bank account information they need at the present time. (Nadire and Dembuzo 2015)

Gardachew (2010) confirmed that technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a branch banking system. Mobile Banking is one of the emerging technologies that have changed the operations of the banking sector using mobile devices.

According to NBE directive, FIS -01-2012, mobile banking” means performing banking activities which primarily consists of opening and maintaining mobile/regular accounts and accepting deposits; furthermore, it includes performing fund transfer or cash in and cash out services using mobile devices;

1.2 Background of the organization

Nib international Bank (NIB) was established on 26 May 1999 under license no.LBB/007/99 in accordance with the commercial code of Ethiopia and the Proclamation for licensing and supervision of Banking Business Proclamation no.84/1994 with the paid up Capital of birr 27.6

million and authorized capital of Birr 150 million by 717 shareholders. The commenced its operation in 28 October 1999 by 27 employees. It joined the banking industry as the sixth private bank licensed in the country.

Among others the Bank has registered a steady growth and achievement in all aspects of its operation since its establishment. At the end of March 2018/19 its total deposits and loans and advances stood Birr 25.1 billion and birr 17.5 billion respectively. Total assets also grew to about birr 31.1 billion and paid up capital to birr 2.5 billion. The level of net profit tax reached birr 673.1 million in March 2018/19. The Banks employees reached more than 4797 as at March 2019.(WWW.nib bank). Nib international Bank launched mobile Banking services April 2015 as per NBE directives number FIS/01/2012. Mobile banking(M-banking or SMS banking) is termed used for performed in Nib International banks account inquiry , own and others fund transfer , local money transfer and beneficiary payment etc using any type of mobile phone with using options html and a mail applications. According to information from manager's channels implementation of the bank have 87579 mobile banking users up to February 2020. Therefore this study is tried to Assessment of the factors which affect customers to adoption mobile banking project in Nib international bank.

1.3 Statement of problem

The rapid growth of electronic payment system and mobile banking is now acting as means of carrying out banking transactions through cell phone and in logical steps the evolution of banking transactions as M-banking replaces the bank branches and internet replaces the mailed banking.

When we look at mobile phone penetration growth in Africa in general and moving up at high rate particularly Ethiopia. According to the report of Ethio-telecom 19 May 2018 the number of mobile phone subscribers has reached 64.4 million. Previously the challenges we have seen in providing access to banking services in sub-Saharan Africa in general and specially in Ethiopia can be addressed by using mobile banking technology and mobile phone as observed empirically in Kenya. Thus mobile banking is a better chance for the banks in Ethiopia to improve the potential market in the country where banking service is very low.

The use of technology and innovative financial service delivery channels such as mobile devices and agents have significant contribution in deepening financial service accessibility to the wider section of the population at an affordable price (NBE Directive 2012). According to NBE 2016 data even though mobile banking services operation began 2010 by Dash bank in Ethiopia and currently commercial banks in Ethiopia have started adoption of mobile phone based electronics banking systems to improve their operations and to reduce cost.

Mobile banking is a subset of electronic banking and the users enable to access banking services in the place where they are, without going anywhere. Nib international bank mobile banking services enable to access account inquiry, own and other fund transfer, local money transfer, beneficiary payment and cheque as well as get instant notifications on all accounts linked with mobile banking services using the XHTML, SMS and Downloadable application channel. (<http://www.nibbanksc.com> mobile banking/

Now a day's using of mobile phone among the population continues to grow in significant way. However the customers' adoption of mobile banking services within the banks is still very low. A number of studies were conducted on area of mobile banking in Europe, North America, Asia and Africa little attention in Ethiopian's mobile banking improvements. Ayana (2012) conducted research on mobile banking in electronic banking challenges and barriers. Garedachew (2010) also did research on electronic banking, practices, opportunities and challenges in Ethiopia. Although there are other researchers that studied the adoption of mobile banking on Commercial bank of Ethiopia, there were not more studies on the private banks. Private Banks such as Nib international bank is still untouched (not investigated) area of concerning factors that affect adoption of mobile banking. Therefore this study tried to fill some gaps and added some inputs to mobile banking service specifically on Nib international bank by focusing on special references factors such as convenience (perceived ease of use and perceived usefulness), perceived cost, perceived trust, perceived risk, relative advantages and compatibility.

1.4 Research questions

Based on the above statement problems the research questions were stated as follows:

- Do these factors such as convenience (PU, PEOU), perceived cost, perceived trust, perceived risk, relative advantages and compatibility affect the adoption of mobile banking project in NIB?
- What is the relationship between the factors convenience (PU, PEOU), perceived cost, perceived trust, perceived risk, relative advantage, and compatibility, in the adoption of mobile banking project?
- How do the factors above affect the adoption project of mobile banking?

1.5 Objective of the study

1.5.1 General Objective

The general objective of the study was to **assess the factors that affect mobile banking adoption project in Nib international bank.**

1.5.2 Specific objectives

- To assess the factors that affects the adoption project of mobile banking.
- To determine the relationship between these factors convenience (PU, PEOU), perceived cost, perceived trust, perceived risk, relative advantages and compatibility in the adoption of mobile banking project.
- To describe how the factors affect the adoption project of mobile banking.

1.6 Significance of the study

The Assessment of mobile Banking Adoption project in Nib international Banks is quite significant to Nib international Banks. In addition to this it has the following significances:

- The study assists planners, policy makers, economist, project managers and staff members by making them understand the factors that affect the mobile Banking adoption project.

- The study of the result gives important information to managers of the banks on how it mitigates negative factors on the adoption mobile banking project.
- The results of the study also lead forward what would be done in terms of customers' perceptions in the area of adoption or usage of mobile banking.
- The university can also use it as one of the references or sources of knowledge.

1.7 Scope of study

There are different E banking channels like internet banking, ATM, POS and Mobile banking. This study was conducted on mobile Banking Adoption project in Nib international Bank. The study was geographically restricted to customers of Nib international bank in Addis Ababa area branches and was limited only to six variables that were be Convenience (perceived usefulness and perceived ease of use), perceived cost, perceived trust, perceived risk, relative advantages and compatibility.

1.8 Limitation of the study

Mobile banking has seen launched in Nib international bank since April 2015. Due to financial and time constraints the area to that was covered by this study was reasonably small. Generally mobile banking service at its infant stage in Ethiopia then researchers fairly faced shortage of information available about the subject matter.

1.9 Organization of the study

The paper consisted of five chapters. The first chapter dealt with the introduction part that consisted of background of the study, background of organization, statement of the problem, objectives of the study, significant of the study, scope of the study and limitation of the study. The Second chapter contained reviews of the related literatures which includes both theoretical and empirical literatures, Chapter three Research methodologies, Chapter four the result and discussions of the study and the final chapter come up with the summary, conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

This chapter review of literature on definition of mobile banking, benefits of mobile banking, services of mobile banking and factors of adoption mobile banking. Specifically this chapter addresses theoretical framework, empirical framework, research gap, justification model and conceptual framework.

2.1. Theoretical literature

2.1.1. Definition of mobile banking

Mobile Banking refers the provision and a ailment of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information. (Tiwari and Stephan 2007), defined mobile banking (m-banking) in turn is a subset of e-banking in which customers access a range of banking products, such variety of savings and credit instruments, via electronic channels. M- Banking requires the customer to hold a deposit account to and from which payments or transfers may be made (Porteous 2006).

We define mobile banking (in the broader sense) as a type of execution of financial services in the course of which within an electronic procedure - the customer uses mobile communication techniques in conjunction with mobile devices. (Pousttchi and Schuring 2004).

Mobile banking” means performing banking activities which primarily consists of opening and maintaining mobile/regular accounts and accepting deposits; furthermore, it includes performing fund transfer or cash in and cash out services using mobile devices (Directives no. FIS/01/2012).

2.1.2. Benefits of mobile banking

The advantages of mobile banking even go as much further than electronic banking: The high penetration of mobile phones reaches all social levels, mobile applications disband the limitations of electronic banking as they allow using anytime-anywhere and the subjective and objective security of the device is higher than that of a personal computer (Pousttchi and Schuring 2004)

Mobile banking enables to reduce cost of courier, communication, paper works etc and banks can utilize the time saved by the channel migration of customers to mobile banking for expansion of business through better marketing and sales activities. (Sunil and Durga 2013) also says banks providing mobile services can have competitive advantages over those banks which are not providing this service. Also time saving , convenient , secure, easy access to your finances , increased efficiency and fraud reduction is the main significant benefits to customers and banks (Renju).According to (Loforet and Li 2005) Convenience , ubiquitous access and mobility are the main benefits that mobile banking confers to customers.

2.1.2.1. Benefits of Mobile Banking to Customers

Customers need not stand at the bank counter front offices for various enquire about their account. Customers can save their valuable time and traveling cost in reaching the bank for their financial transactions .It is a mobile service to have information's, all the 365 days, anytime, anywhere, about their account (Sunil and Durga 2013). Also Customers can pay their utilities bills on time and save themselves from penalties, since alerts are received from the bank. Plan funding their accounts the cheques issued to various customers, by taking advantages of balance enquiry /account status. Cheque book request can be made sitting at their work place. Deloitte says (2010) consumers more options for mobile banking without requiring access to bank branches is being able to access account information and perform transactions that helps to reduce no longer need to use scarce time and resources.

2.1.2.2. Benefits of Mobile Banking to Banks

Banks can utilize the time saved by the channel migration of customers to mobile banking for expansions of business through better marketing and sales activities. Mobile banking enables banks it reduces costs in setting up a branch and the research there to process transactions and also to reduce cost of courier, communication, paper works etc(Sunil and Durga 2013).Additional banks providing mobile services can have competitive advantages over those banks , which are not providing those services.

2.1.3. Services of Mobile Banking

Tiwari and Stephan (2007) Mobile Banking, as defined above, includes a wide range of services. These services may be categorized as following:

1. Mobile Accounting
2. Mobile Brokerage
3. Mobile Financial Information

2.1.3.1. Mobile Accounting

According to Tiwari and Stephan(2007) define Mobile Accounting as transaction-based banking services that revolve around a standard bank account and are conducted and/or availed by mobile devices.

Not all Mobile Accounting services however are necessarily transaction- based. Mobile Accounting represents basically that part of Mobile Banking which deals with utilizing account-specific banking services of non- informational nature via mobile telecommunication devices.

Mobile Accounting services may be divided in to two categories that differentiate between services that are essential to operate an account and services that are essential to administer an account. Additionally, services are required to inform a customer about his or her transactions and other activities involving his or her account. It is for this reason that Mobile Accounting is offered almost invariably in combination with services from the field of Mobile Financial Information.

Mobile Accounting	
Account Operation	Account Administration
Money remittances & transfers	Access administration
Standing orders for bill payments	Changing operative accounts
Money transfer to sub-accounts	Blocking lost cards
Subscribing insurance policies	Cheque book requests

Table 2.1 service in mobile accounting

2.1.3.1.1. Account Operation

The term Account Operation, as used in this paper means activities that involve monetary transactions. Such transactions may involve an external account, e.g. when paying bills, or an internal (sub-) account, e.g. when transferring money from own savings account to own securities account held with the same bank. Mobile services that are used to operate an account are.

1. Money remittances: Mobile devices may be used to instruct the bank to remit money in order to conduct one-time transactions, such as paying bills or transferring funds. This service can also include the facility to cancel an ordered remittance.
2. Issue standing orders for bill payments: The house bank may be entrusted with standing orders for payment of regularly recurring bills, e.g. payment of monthly rent or telephone bill.
3. Transfer funds to and from sub-accounts: Funds from one sub-account may be transferred to another as and when needed, for instance from savings account to securities account and vice versa (Sunil and Durga 2013).
4. Subscribing insurance policies: Standardized, low-cost insurance policies, e.g. a travel insurance policy may be purchased via mobile devices. This service could be particularly attractive in time-critical situations, for instance if a bank customer has to set out on an urgent, unplanned journey, he may still be able to subscribe to a travel insurance policy offered by his house bank.

2.1.3.1.2. Account Administration

The term Account Administration, as used in this study, refers to activities that are undertaken by an account-holder to maintain his or her account. This may involve activities like access administration and cheque book requests (Tiwari and Stephan 2007).

Mobile Accounting services that are used to administer the account are:

1. Access administration: Mobile devices may be used to administer the access to an account, e.g. to change the individual PIN or to request new Transaction Numbers (TAN).
2. Change operative accounts: Through this service a customer can change his default operative account and do transactions using a different account. This option is attractive for customers holding several sub-accounts. Funds of sub-accounts may be hereby utilized in a targeted manner without first transferring the amount to the default account.

3. Blocking lost cards: Mobile non-voice telecommunication systems (e.g. WAP, SMS) can be used round the clock to speedily block lost credit- and debit cards irrespective of the current geographic location.
4. Cheque book request: Customers using cheque books can order new cheque books via mobile devices, as and when required. This saves his or her valuable time and traveling cost in reaching the bank (Sunil and Durga 2013).

2.1.3.2. Mobile Brokerage

Tiwari and Stephan (2007) .Brokerage, in the context of banking- and financial services, refers to intermediary services related to the stock exchange centre, e.g. sell and purchase of stocks, bonds, funds, derivatives and foreign exchange among others. Mobile Brokerage thus means to mobile financial services of non informational nature revolving around a securities account. The Mobile Brokerage may be divided in to two categories to differentiate between services that are essential to operate a securities account and services that are essential to administer that account. Mobile Brokerage requires informational services in order to facilitate brokerage activities. For this reason, Mobile Brokerage is invariably offered in combination with services related to Mobile Financial Information.

Mobile Brokerage	
Account Operation	Account Administration
Selling & purchasing financial instruments (e.g. securities)	Access administration
	Order book administration

Table 2.2 services mobile brokerage

2.1.3.2.1. Account Operation

Operating a securities account is primarily concerned with selling and purchasing of financial instruments. Mobile Brokerage allows placing and cancellation of orders to sell as well as purchase securities and other financial instruments.

2.1.3.2.2. Account Administration

The following mobile services can be utilized to administer a securities Account.

1. Access administration: As with Mobile Accounting mobile devices may be used to administer the access to an account, e.g. to change the individual PIN or to request new TANs.
2. Administer order book: Orders to sell or purchase stocks, which are not yet carried out, can be modified via mobile devices that are allowed to access the customer order book. Additionally, new standing orders may be placed to sell/purchase a particular stock on reaching a predefined threshold value.

2.1.3.3. Mobile Financial Information

Mobile Financial Information refers to non-transaction based banking- and financial services of informational nature.

This sub-application may be divided into two categories:

1. Account information
2. Market information

Information services are an integral part of Mobile Accounting and Mobile Brokerage but can also be offered as an independent module, i.e. Mobile Financial Information can be offered without providing Mobile Accounting or Mobile Brokerage but vice versa is not feasible.

Mobile Financial Information services are generally provided by credit institutions and financial services institutions. However, there are other enterprises too that do not belong to either of this category but still provide market information via mobile devices.

Mobile Financial Information services include subsets from both banking and financial services and are meant to provide the customer with anytime, anywhere access to information. The information may either concern the bank and securities accounts of the customer or it may be regarding market developments with relevance for that individual customer. The information is customized on the basis of preferences given by the customer and sent with a frequency decided by him. The information should be provided, ideally, on both, pull and push basis

Mobile Financial Information	
Account Information	Market Information
Account Information	Market Information
Balance inquiries / Latest transactions	Foreign exchange rates
Statement requests	Market and bank-specific interest rates
Threshold alerts	Commodity prices
Returned cheques / cheque status	Stock market quotes and reports
Credit card information	Product information & offers
Branches and ATM locations	–
Helpline and emergency contact	–
Information on the completion status	–

Table 2.3 service in mobile financial information

2.1.3.3.1. Account Information

The term Account Information, as used here, refer to information that is specific to a customer and his bank, even though it does not necessarily involve a monetary transaction. Mobile services that belong to this category are:

1. Balance inquiries: Mobile devices may be employed to check the current financial status of own bank or securities accounts (Sunil and Durga 2013).
2. List of latest transactions: Mobile devices may be used to request a list of latest transactions performed on an account. This service works with a standard, pre-specified number of latest transactions that are reported, as and when demanded. Most of the banks provide a list of up to five latest transactions.
3. Statement requests: A statement request – unlike the request for a list of latest transactions – generates a list of all transactions in a given period, for instance in a week or in a month. Statements may be requested either manually, as and when needed. Alternatively the bank may be asked to automatically send statements regularly in pre-specified intervals, e.g. weekly. In Mobile Banking the account statements can be requested via and/or delivered on mobile devices.
4. Transaction thresholds: The bank may be instructed to automatically alert the customer via SMS whenever transactions (credits as well as debits) exceeding a certain amount are performed on the account.

5. Balance thresholds: A similar threshold alert may be activated for the balance status of the account. The customer may be informed via SMS whenever the balance falls below a certain predefined level. This service may be useful to help the customer avoid unpleasant situations of not being able to honor his commitments.
6. Threshold alerts for stock prices: The bank may be instructed to send an alert on mobile devices, via SMS, when prices of some particular stocks fall or jump to a predefined threshold value and ask for further instructions.
7. Returned cheques/cheque status: The customer may be informed with- out time-delay if one of his deposited cheques has not been honored and corrective steps are required.
8. Credit cards information: The customer may check anytime and any- where the current status of his credit cards and the amount that he may utilize at that given point of time.
9. Branch and ATM locations: Mobile devices may help finding the nearest branch or ATM affiliated to a bank. The current location of the customer may be determined by positioning the mobile device. This service may be particularly useful while travelling.
10. Helpline and emergency contact: Mobile devices may be provided with content that is required in emergency situations, for instance to block a lost credit card. The information may be either embedded in the telephone menu, e.g. in cooperation with a network carrier or the information may be provided on a WAP page analogue to a web page.
11. Information on the completion status of an order: The bank may use “push” services to inform the customer via his mobile device regarding whether or not his orders could be carried out. This ensures that urgent information can be provided to the customer while on the move.
12. Product information and offers: The bank can provide information about its products and new offers to a customer on the move. A customer can “pull” the information that he wishes to access. On the other hand the bank can “push” the information/offers that the customer has identified as interesting and is willing to receive.

2.1.3.3.2. Market Information

The term Market Information – as opposed to Account Information – refers to information with a macro scope. This information is not directly related to the customer account. It is generated either externally (Tiwari and Stephan 2007) e.g. exchange rates or central bank’s interest rates, or internally by the individual bank, e.g. bank-specific interest rates.

The individual bank-customer does not play a direct role in this process. The information may be later sorted out to cater to the individual needs and preferences of a particular, if so desired by him, and subsequently delivered on a mobile device of his choice, e.g. a mobile phone or a PDA.

Information in this category generally concerns:

1. Foreign exchange rates
2. Interest rates
3. Stock market news and reports
4. Commodity prices (e.g. gold and raw materials)

2.1.4. Technologies employed to provide mobile banking services

Mobile banking technologies can use customers from planning to pay their bills via their cell phones. According to (Tiwari and Stephan 2007) in mobile banking using the mobile technologies based on the three applications.

1. Browser based application
2. Messaging based application
3. Client based application

2.1.4.1. Browser based

According to Tiwari and Stephan (2007) applications generate the user interface on the server and transport it subsequently to the mobile device. This interface is then presented to the user graphically with the help of a browser. Primary examples of browser-based banking applications are services based on WAP and i-mode. The main advantage of a browser-based application is that data- processing is conducted solely on and by the server. There is, thus, no requirement for the presence of additional software or of significant processing power on the mobile device. Browser-based applications are hence suitable for mobile devices with low memory- or processing power, e.g. mobile phones (Dilg et al., 2004, p. 15). Secondly, the user does not need to be technology savvy to install software on his mobile device. Finally, the predefined user interface simplifies the interaction with the application and encourages the user to shed his inhibitions and disadvantages stay online all through the transaction process and could lead to higher cost for the customers is that required by the subscriber (customer).

2.1.4.2. Messaging –Based application (SMS banking)

Tiwari and Stephan (2007) put forward that in messaging-based applications the communication between the bank and the customer is carried out via text messages. These messages may be triggered automatically by the bank whenever certain predefined events occur, for instance whenever a transaction is performed on the account. Alternatively, the messages may be sent by the bank as a response/confirmation to customer requests. A customer message may contain either an instruction, e.g. to carry out a transaction, or an information request, e.g. for the account status (Dilg et al., 2004)

The term “SMS Banking” refers to the provision and a ailment of banking- and financial services via means of text messaging service, known as SMS. SMS Banking services are availed via text messages that are carried by SMS. The customer sends a customized SMS to the bank with predefined commands for each offered service. The server of the banks receives the SMS, decodes the commands and executes the instructions, if the request is found to be authorized. The authentication is carried out with the help of a special Mobile Banking Personal Identification Number (MPIN). Furthermore, the requests are only accepted from a mobile phone number that has been especially registered as authorized number for operating that particular bank account. The mobile banking server one can get all the financial and non financial information with the integration made.

2.1.4.3. Client Based application

Client-based Mobile Banking applications are those which require software to be installed on the mobile device. Transactions can be prepared offline (e.g. entry of necessary details (Tiwari and Stephan 2007). Once all necessary data have been keyed in, a connection to the server is established and the data transmitted. Before the data is transmitted a security check takes place by means of PIN and TAN. Client-based applications are attractive because a significant part of banking process is conducted offline reducing online connection time and costs (Dilg et al., 2004).

It is conceived that the possibility of entering data offline triggers a positive psychological effect for a customer as he does not feel the psychological pressure to be particularly fast during data entry in order to save costs. This reduces the probability of typing that is transmitted thereby helping the Mobile Banking win greater acceptability.

2.1.5. Factors affecting mobile Banking adoption

2.1.5.1. The theory of reasoned action (TRA)

According to the theory of reasoned action a person's intention is a function of two basic determinants (Ajzen and Fishbein 1980). One personal in nature and others reflect social influence. The personal factors are the individuals positive or negative evaluation to performing of behavior these factors is termed attitude towards the behaviors. It simply refers to the person's judgment of performing the behavior that is good or bad, that he is in favor of or against performing the behavior. People may differ for example in their evaluation of buying a video game, some having a favorable attitude and others an unfavorable attitude toward this behavior.

The second determination of intention is the person's perception of the social pressure put on him to perform or not to perform the behavior in question. Since it deals with perceived prescriptions this factor is termed subjective norm. The return to the act of buying a video game, we may believe that most people who are important to us think we should buy a video game on that think we should not do so.

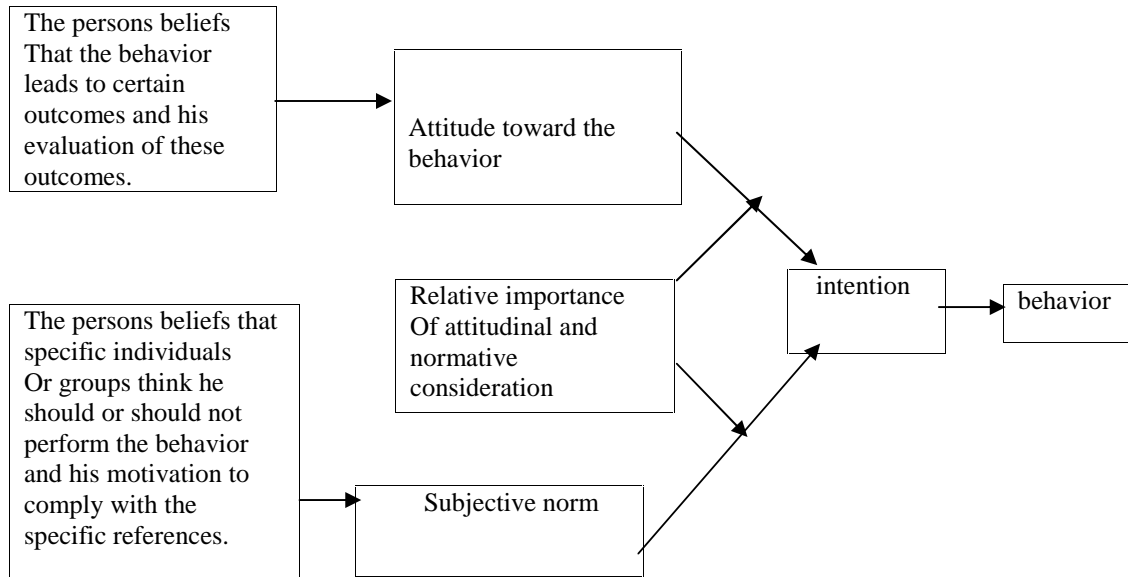


Figure1. Factors determining persons behavior sources, Ajzen and Fishbein1980

2.1.5.2. Theory of Planned behavior (TRB)

The theory of planned behavior is an extension of the theory of reasoned action made necessary by the original models limitations in dealing with behaviors over which people have incomplete volitional control (i.e. if the person can decide at will to perform or not perform the behavior). Although some behaviors may in fact meet this requirement quite well, the performance of most depends at least to some degree on such non- motivational factors as availability of requisite opportunities and resources.(Ajzen 1991)

In TPB (Ajzen 1991) the theory of planned behavior postulates three conceptually independent determinants of intention. The first is the attitude toward the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The second predictor is a social factor termed subjective norm; it refers to the perceived social pressure to perform or not to perform the behavior. The third antecedent of intention is the degree of perceived behavioral control which, refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles.

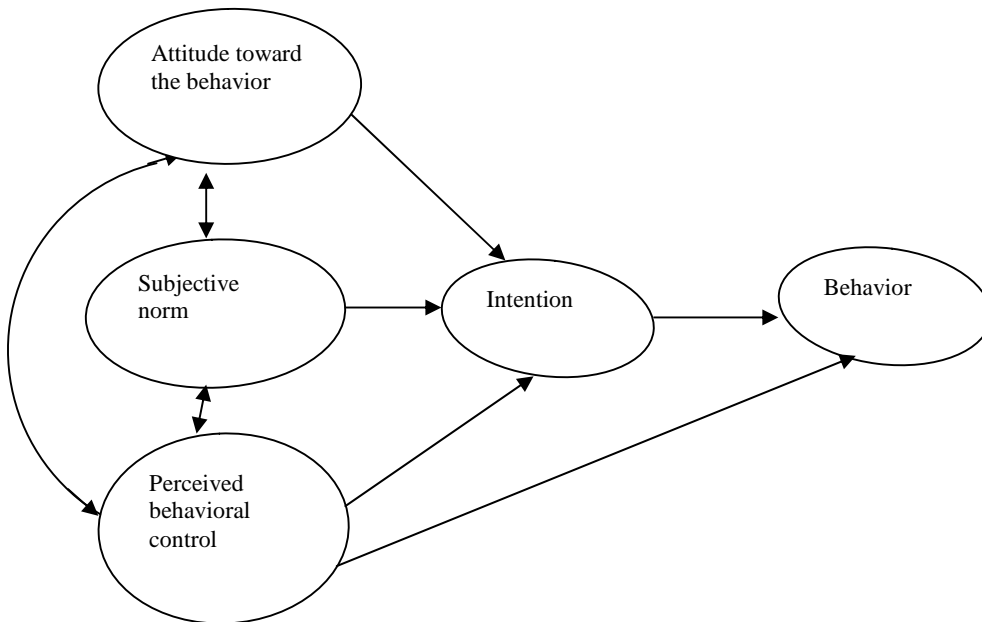


Figure 2, Theory of Planned behavior sources Ajzen 1991

2.1.5.3. Technology acceptance model (TAM)

Technology acceptance model was developed by Davis (1986) an extension of the theory of reasoned actions (TRA) model. This theory mainly based on the idea of technology adoption.

According to (Davis 1989) among the many variables that may influence system use, previous research suggests two determinants that are especially important. First, people tend to use or not use an application to the extent they believe it will help them perform their job better. We refer to this first variable as perceived usefulness. Second, even if potential users believe that a given application is useful, they may, at the same time believe that the systems is too hard to use and that the performance benefits of usage are out• weighed by the effort of using the application. That is, in addition to usefulness, usage is theorized to be influenced by perceived ease of use.

Perceived usefulness is defined here as the degree to which a person believes that using a particular system would enhance his or her job performance. (Davis 1986)

Perceived ease of use, in contrast, refers to the degree to which a person believes that using a particular system would be free of effort. This follows from the definition of "ease": "freedom from difficulty or great effort.

Davis (1989) says future research is needed to address how other variables are related to usefulness, ease of use, and acceptance. Generally these two determinants are not fully explaining the factors which predict the acceptance of technology application of mobile banking.

Perceived cost

Luran and Lin (2005) perceived cost is the extent to which a person believes that using mobile banking would be costlier. These costs could typically include the cost of the mobile devise, network charges, and transactions charges for bank costs as well as costs for data sent via the network infrastructure.

Perceived Trust

Mayer and schoorman (1995) trust is defined "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or.

A study by (Mayer and Schoorman 1995) provided a definition and three characteristics of a trustee appear of in literature: Ability, Benevolence and Integrity defined these as follows, Ability is that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain. The domain of the ability is specific because the trustee

may be highly competent in some technical area, affording that person trust on tasks related to that area.

Benevolence is the extent to which a trustee is believed to want to do good to the trust or, aside from an egocentric profit motive.

Integrity refers to The relationship between integrity and trust involves the trust or's perception that the trustee adheres to a set of principles that the trust or finds acceptable.

Perceived Risk

Bauer (1960) was the first to introduce the concept of 'perceived risk' to consumer behavior research. It is defined as consumers' perception of uncertainty and adverse consequences of engaging in a purchase activity and is treated as the antecedent which negatively affects consumers' purchase decisions.

2.1.5.4.. Innovation Diffusion theory

Diffusion of innovation theory (DIT) was developed by Rogers explain identifies five attributes of innovations by which an innovation can be described and showed that individual's perceptions of these characteristics are rate of adoption are relative advantages, compatibility, complexity, trial ability and observability (Rogers 2003).

Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes.(Rogers 1983) relative advantages may be measured as the degree of economic profitability, decreases in discomfort, time saving and effort but also social prestige factors, convenience and satisfactions also often important component.

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. An idea or with client needs of innovations can be compatible or incompatible with social culture prevalent values and beliefs. (Rogers 2003)

2.2. Empirical Literature

According to Kalkidan(2016) there are that factors influencing usage of mobile banking in Addis Ababa Ethiopia. Perceived usefulness, compatibility, relative advantage, perceived risk

and perceived trust as a major factor of influences usage of mobile banking adoption whereas perceive ease of use and awareness were found to have insignificant effect on factor influencing usage of mobile banking for customers in Addis Ababa a research uses of the TAM model and IDT model.

According to Wessels and Drennan(2010) an investigation of consumer acceptances of Banking , perceived usefulness , compatibility , perceived risk and cost significant effect on consumer acceptance of M-banking also attitude toward mobile Banking was considered as moderating variables.

Tigist (2018) conducted a study on an assessment of mobile banking adoption in case of commercial Bank. The researcher uses the models TAM model and IDT model. Her research results were perceived usefulness , perceived of ease of use, compatibility, perceived self-efficacy and perceived cost major influencing factors for adoption of mobile Banking in North Addis Ababa district where as perceived credibility was insignificant effect on mobile Banking usage for bank customers.

Grace(2014)conducted a study concerning the factors that influence customers Adoption of mobile Banking services in Tanzania by incorporating four constructs such as perceived risk, relative advantage (time and cost), trust and convenience (PEOU and PU) .Multiple regression analysis of the independent and dependent factors was used in order to carry out the study. After analyzing the results the study pointed out perceived risk, convenience and relative advantage as the most significant influencing factors in mobile banking adoption because they had a strong influence on adoption of mobile banking than any other variable, For that reason, mobile banking customers tend to use mobile banking services based on its perceived ease of use, perceived usefulness, time and cost. The results also confirmed that there existed a reasonable correlation between the independent variables (perceived risk, convenience and relative advantage) and the dependent variable meanwhile with Trust there was a negative correlation in influencing mobile banking adoption.

Hayat(2017) conducted a study on mobile Banking adoption in Ethiopia using TAM and IDT research models. The research results here focused on perceived usefulness , the perceived of ease of use , perceived self efficacy , perceived risk and relatives advantages as major influencing factors of mobile banking adoption whereas as perceived credibility or compatibility and perceived of cost were found insignificant effect of factors influencing adoption of mobile banking in Ethiopia.

2.3. Research Gap

A number of studies were conducted on area of mobile banking in Europe, North America, Asia and Africa little attention was given to the Ethiopian mobile banking improvement. Ayana(2012) conducted research on mobile banking in electronic banking challenges and barriers. Gardachew(2010) also did research on electronic banking practices, opportunities and challenges in Ethiopia. Although there are other researchers the studied the adoption of mobile banking on commercial bank of Ethiopia, As far as the researchers experience was concerned inadequate studies were conducted regarding the factors that affect the adoption project of mobile banking in Nib international bank. Therefore the study tried to fill the gaps and added some inputs to new technology to mobile banking adoption project particularly on Nib international bank by focusing on special reference factors such as convenience (PEOU and PU), perceived cost, perceived trust, perceived risk, relative advantage and compatibility.

2.4. Justifications of model used

Pauschel et al. (2010) affirm that taken individually the models have limited predictive power but integrating the two into a single framework results into more predictability. In their investigation of mobile banking adoption, Pauschel et al. (2010) have integrated elements from Davis technology acceptance model and Rogers's innovation diffusion theory. This study therefore combines technology acceptance model and innovation diffusion theory. As the results for this study assess the factors that affect of the mobile banking are convenience (PEOU, PU), perceived cost, perceived trust, perceived risk, relative advantages and compatibility.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the research methodology that I used in this study. It further describes research design, research approaches, population and sampling techniques, types and sources of data, data collection procedure and instruments, validity and reliability of the collection instruments, technique of data analysis and ethical consideration.

3.2. Research design

According to Kothari (2004) the research design is the conceptual structure within which the research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. To achieve the main objective of the study the researcher used described assessment of mobile banking adoption project; therefore the researcher used descriptive research design. Since descriptive research were helped to describe some aspects of phenomena. I.e. the status of a given phenomena and help understand a topic.

3.3. Research approach

Qualitative and quantitative approaches were employed in the research. The researcher used qualitative research approach to gain a deeper understanding and describe problem as this basically concerned with subjective assessment of attitudes, opinion, and behaviors (Kothari 2004). In addition, quantitative research method was also used to deal with quantifying and analyzing variables in order to analyze numerical data. This involves the utilization and analysis of numerical data using specific statistical techniques to answer questions like who, how much, what, where, when, how many, and how(Oberiri 2017). Therefore the researcher used the combination of both approaches.

3.4. Population and sampling techniques

The target population of the research was comprised of customers mobile banking in Nib international bank .Sampling is the process of using a small number of items or parts of a larger population to make conclusions about the whole population (Zikmund 2003).The bank which was be chosen in this paper was Nib international Bank, which is found in Addis Ababa. The Sampling design for this research was adopted two levels of sampling. These are purposive sampling and convenience sampling. Purposive sampling technique was used to select the bank branches based on larger number of customers and business activities. The selected branches are main branch, Tana , Adarashe , Goter Ibex, Raquel, , Gotera , and kality. Additionally, in achieving the objectives of the study the researcher used the second convenience sampling techniques. Convenience sampling techniques was used to select sample respondents from seven branches by the help of their staffs and managers as well as the preferred one by customers.

According to E-channel implementation division reports in February 2020 the total population of using mobile banking in Nib international bank is 87579.Based on work of Yamane (1967) formula stated below calculation of the sample size were 399 bank respondents in Addis Ababa and 57 questionnaires were used for each of the seven branches.

Assumptions

A 95% confidence level and $e=\pm 5\%$

$$\begin{aligned}n &= \frac{N}{1 + N(e)^2} \\ &= \frac{87579}{1 + 87579(0.05)^2} \\ &\approx 399\end{aligned}$$

Where N= Number of total population

n=Sample size required e= margin of errors 5%

3.5. Types and sources of data

In this study both primary and secondary data were used. Primary sources were collected through an structured questionnaire which was compiled by likert rating scale of 1 to 5 that are assigned to the each variables strongly Agree(SA)=5, Agree(A)=4, Neutral(N)=3, Disagree(D)=2, and Strongly Disagree(SD)=1. The use of likert scale is to make easier for respondents to answer

questions in simple way. In addition, secondary data like past findings, books, journals, annual reports from NIB, brushes and different materials were used to support the finding study.

3.6. Data collection procedure and Instruments

Questionnaires were used in the study to collect the data. This was done by distributing set of written questions on sheet for respondents to reply. All the questionnaires were closed –ended to make easy for the respondents. The questionnaire had three parts. The first part has six questions about respondent’s general information. The second and third part contains 22 questions that asked respondents about their perception of mobile banking adoption. The questions were adopted from review literature and modified to our context.

3.7. Validity and reliability of the data collection instrument

According to Kothari (2004) measuring instrument is reliable if it provides consistent results. The **reliability** of each these categories of the questionnaires were assessed by using Cronbach Alpha test using SPSS software. The issues of **validity** was considered by the researcher using the different literature for the questionnaires with some modification to fit the purpose of study and the questions were pretested with employees and managers of the bank at selected e-payment departments that were assumed to have close information on mobile banking services.. This helped to rectify ambiguous questions and confusing words and then confirm relevancy of the questionnaires.

3.8. Technique of data analysis

Descriptive statistical analysis was used through the analysis process. The analysis part combined all of the responses to obtain results from the respondent. The data which were collected from questionnaire were analyzed by using statistical package for social sciences (SPSS 20) and Microsoft Excel and that cleans categories and coded in a suitable way by electronically and manual analysis . Demographic characteristics of respondents answer was presented, analyzed in the form of tables and the analysis process will be interpreted by frequencies, percentages, Mean and standard deviation. In addition Personal correlation and multiple regressions were used to examine the relationship between dependent and independent variables.

3.9. Ethical consideration

Selected participant (respondents) was told strictly and politely on voluntary basis that their participation was needed to be honest and loyal. Measures were taken from of each the individual participant in the study to ensure the respect, dignity and freedom. The participants were told that they can only give their answer based on the free well.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the study based on the research methodology and the research objectives. The study sought to establish the determinants of the factors that affect the adoption of mobile banking in Nib international bank using correlation and regression analysis.

4.1. Response Rate

This study had targeted sample of 399 customers of Nib international bank. A total of 399 questionnaires were given to the respondents and 326 were completed collected and this was interpreted as 81.7% response rate. According to M.G.Saldivar (2012) in this case 80%-85% response rate regarded as good.

4.2. Reliability Analysis

Before analyzing the collected data of the main items of the questionnaire was tested reliability by using cronbach's alpha. According to Zikmundel.al (2010) the coefficient of reliability measures ranges from 0 to 1. Table 4.1 shows that for all items the Cronbach's Alpha is greater than 0.7, this indicates that, there is internal consistency in all items.

Table 4.1. Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Convenience	0.951	5
Perceive cost	0.927	3
Perceive trust	0.970	3
Perceive risk	0.974	4
Relative advantage	0.866	2
Compatibility	0.934	2
Adoption factor	0.951	3

Source: SPSS data 2020

4.3. General characteristics of respondents

This research was enclosed the main demographic characteristics such as gender, age , level of education , occupational status and marital status

Table 4.2.General characteristics of respondents

		frequency	percent
Gender	Male	208	63.8
	Female	118	36.2
Total		326	100
Age	18-25 years	14	4.3
	26-30 years	69	21.2
	31-40 years	189	58.0
	41-50 years	35	10.7
	above 51 years	19	5.8
Total		326	100
Level of education	High school completed	69	21.2
	diploma completed	110	33.7
	degree completed	133	40.8
	master and above	11	3.4
	Others	3	.9
Total		326	100
Occupation	Student	62	19.0
	Employed	246	75.5
	Unemployed	18	5.5
Total		326	100
Marital status	Married	176	54.0
	Unmarried	136	41.7
	Divorce	10	3.1
	Widowed	4	1.2
Total		326	100

Source: SPSS data 2020

As it indicated on the above table it appears that male respondents had a high response of 208 which comprises 63.8% and female respondents are 118 which comprise 36.2%. This implies that economic implication of gender inequality in the country.

Table 2 above show that the majority group of respondents was 58% which fall into 31 and 40 years age groups , the second large group falls into the 26 and 30 years age groups which was 21.2% which the other age group fall into the 41 and 50 years lagged behind the two age groups with 10.7%. Lastly represent 5.8% and 4.3% of the respondents fall into above 51 years and 18 and 25 years respectively. This asserted that majority of the respondents have potential work force between the ages 26 and 40 years actively using technology.

From above table from 326 respondents 133(40.8%) degree completed, the second was 110(33.7%) had a college diploma. This was followed by high school completed respondents 69(21.2%), 11(3.4%) respondents had master and above and 3(0.9%) who specified others.

In terms of occupational status above table the employed representing majority of the respondents 246(75.5%) of the total response and 62(19.0%) of the respondents were students and 18(5.5%) of the respondents were unemployed. This implies that employees can use this technology in their work places for various services without abusing work time.

The respondents were also requested to indicate the marital status 176(54%) and 136(41.7%) of the respondents were married and unmarried respectively while the divorce group was 10(3.1%) and the remaining of the respondents representing 4(1.2%) was widowed.

4.4. Access to actively use mobile banking services provided by your bank

Table 4.3 Access of mobile banking services provided by your bank

Do you use the mobile banking services provided by your bank?		
	Frequency	Percentage
Yes	314	96.3
No	12	3.7
Total	326	100

Source: SPSS data 2020

The number of active users of mobile banking services providers by your bank 314(96.3%) than inactive users 12(3.7%).

4.5. Descriptive Analysis

4.5.1. Convenience (perceived usefulness and perceived ease of use)

Table 4.4 summary of survey findings for **Convenience** (PU and POEU)

	Str. Dis.	Dis.	Neut.	Ag	Str Agr	Mean	Std.dev.
There is no time limit to access my bank account and information	5(1.5%)	21(6.4%)	46(14.1%)	83(25.5%)	171(52.5%)	4.21	1.01
I think it is easy to learn how to use mobile banking	6(1.8%)	13(4.0%)	31(9.5%)	173(53.1%)	103(31.6%)	4.09	0.86
Using mobile banking improves my performance of banking activities		3(0.9%)	36(11.1%)	148(45.4%)	139(42.6%)	4.29	0.69
I find mobile banking useful for my banking needs	3(0.9%)	6(1.8%)	13(4.0%)	115(35.3%)	189(58.0)	4.07	0.74
Overall, I think easy to use mobile banking			7(2.1%)	117(35.9%)	202(62.0%)	4.39	0.53
Average Mean						4.21	

Source: SPSS data 2020

As showed on the table 4.4. 1.5% of the respondents strongly disagree, 6.4% of the respondents disagree, 14.1% of the respondents were neutral, 25.5% of the respondents agreed and 52.5% of the respondents were strongly agreed when they were asked if there is no time limit to access their bank account and information. This indicated that majority of the respondents were found strongly agree that there is no time limit to access their bank account and information. When they were asked if they think it is easy to learn how to use mobile banking, 1.8% of them responded strongly disagreed, 4.0% the respondents answered disagree, 9.5% of the respondents remained neutral, 53.1% the respondents agreed and 31.6% of the respondents were strongly agreed. This indicated that majority of the respondents found agree that they thought it is easy to learn how to use mobile banking .The respondents, when they were further asked that using mobile banking improves their performances of banking activities, 0.9% of the respondents disagreed, 11.1% of the respondents were neutral, 45.4% of the respondents agreed and 42.6% of the respondents were strongly agreed. This indicated that majority of the respondents found agree that using mobile banking improves their performance of banking activities. When they were asked the usefulness of mobile banking for their banking needs, 0.9% of the respondents strongly disagree, 1.8% of the respondents disagree, 4.0% of the respondents neutral, 35.3% of

the respondents agree and 58.0% of the respondents strongly agreed. This indicated that majority of the respondents found strongly agreed on mobile banking usefulness for their banking needs. In addition, when they were further asked if they think it was easy to use mobile banking ,2.1% of the respondent’s neutral, 35.9% of the respondents agreed and 62.0% of the respondents were strongly agree. This indicated that majority of the respondents found strongly agreed about the easiness of using mobile banking.

When computed all the questions using mean under convenience (PU and POEU) the lowest was 4.07 and the highest was 4.39.The overall mean value of convenience factor item was 4.21. This showed that the respondents conveniences with that adoption mobile banking projects.

4.5.2. Perceived cost

Table 4.5 summary of survey findings for **Perceived cost**

	Str. Dis.	Dis.	Neut	Ag	Str Agr	Mean	Std.dev.
Its cost a lot to use mobile banking	181(55.5%)	112(34.4%)	27(8.3%)	6(1.8%)		1.81	0.72
I can get compensation from the bank when transactions errors occur due to system failure		174(53.4%)	86(26.4%)	41(12.5%)	25(7.7%)	2.75	0.95
Using mobile banking increases my banking costs	137(42.0%)	172(52.8%)	12(3.7%)	5(1.5%)		1.65	0.63
Average Mean						2.07	

Source: SPSS data 2020

As it is show on table 4.5 55.5% of the respondents strongly disagree, 34.4% of the respondents disagree, 8.3% of the respondent were neutral and 1.8% of the respondents were agree when they were asked it costs a lot to use mobile banking. This indicated that majority of the respondents found strongly disagree it costs a lot to use mobile banking. When they were asked can get compensation from the bank when transaction errors occurs due to system failure 53.4% of the respondents disagree, 26.4% of the respondents neutral , 12.5% of the respondents agree and 7.7% of the respondents were strongly agree. This indicated that majority of the respondents found disagree can get compensation from the bank when transaction errors occurs due to system failure.

In addition when they were further asked using mobile banking increases my banking costs 42.0% of the respondents strongly disagree, 52.8% of the respondents disagree, 3.7% of the respondents neutral and 1.5 %of the respondents were agree. This indicated that majority of the respondents found disagree using mobile banking increases my banking cost.

When computed all the questions using mean under perceived cost, the lowest was 1.65 and the highest was 2.75. The overall mean value of perceived cost item was 2.07. This showed that the respondents disagreed with that perceived cost items.

4.5.3. Perceived trust

Table 4.6 summary of survey findings for **Perceived trust**

	Str. Dis.	Dis.	Neut.	Ag	Str. Agr.	Mean	Std.dev.
Mobile banking services trustworthy	5(1.5%)	10(3.1%)	38(11.7%)	181(55.5%)	92(28.2%)	3.59	0.81
I believe the bank keeps its promises and commitments	5(1.5%)	8(2.5%)	56(17.2%)	156(47.8%)	101(31%)	4.04	0.85
I believe in the information provided by banks mobile banking transaction	4(1.2%)	15(4.6%)	65(20%)	169(51.8%)	73(22.4%)	3.89	0.84
Average Mean						3.84	

Source: SPSS data 2020

As it is show on table 4.6 1.5% of the respondents strongly disagree, 3.1% of the respondents disagree, 11.7% of the respondents neutral, 55.5% of the respondent agree and 28.2% of the respondents were strongly agree when they were asked mobile banking services trustworthy . This indicated that majority of the respondents found agree mobile banking services trustworthy. When they were asked if they the banks keeps its promises and commitments 1.5% of the respondents strongly disagree, 2.5% of the respondents disagree, 17.2% of the respondents neutral , 47.8% of the respondents agree and 31% of the respondents were strongly agree. This indicated that majority of the respondents found agree the banks keeps its promises and commitments. In addition when they were further asked if they believe it the information provided by banks mobile banking transactions 1.2% of the respondents strongly disagree , 4.6% of the respondents disagree , 19.9% the respondents neutral , 51.8% of the respondents agree and 22.4% of the respondents were strongly agree. This indicated that majority of the respondents found agree in the information provided by banks mobile banking transactions.

When computed all the questions using mean under perceived trust the lowest was 3.59 and the highest was 4.04. The overall mean value of perceived trust items was 3.84. This showed that the respondents agreed with that perceived trust items.

4.5.4. Perceived risk

Table 4.7 summary of survey findings for **Perceived risk**

	Str. Dis.	Dis.	Neut	Ag	Str Agr	Mean	Std.dev.
I have no confidence to use mobile banking because if I made incorrect transaction I will lose my money	56(17.2%)	95(29.1)	127(39.0%)	28(8.6%)	20(6.1%)	2.57	1.05
I am worried about using mobile banking services because others people may be able to access my account	50(15.3%)	124(38.1%)	117(35.9%)	22(6.7%)	13(4.0%)	2.67	0.96
I conceive that the privacy is not guaranteed when using mobile banking	47(14.4%)	127(39.1%)	120(36.8%)	17(5.2%)	15(4.6%)	2.47	0.95
I believe mobile banking services are more risky than others banking options	81(24.8%)	53(16.3%)	109(33.4%)	51(15.7%)	32(9.8%)	2.69	0.98
Average Mean						2.60	

Source: SPSS data 2020

As it is show on table 4.7 17.2% of the respondents strongly disagree, 29.1% of the respondents disagree, 39% of the respondents neutral , 8,6% of the respondents agree and 6.1% of the respondents were strongly agree when they were asked they have no confidence to use mobile banking because of they made incorrect transaction they will lose their money. This indicated of the majority of the respondents found neutral they have no confidence to use mobile banking because if they made incorrect transactions they will lose their money. When they were asked they are worried about using mobile banking because other people may be able to access their account 15.3% of the respondents strongly disagree, 38.1% of the respondents disagree, 35.9% of the respondents neutral , 6.7% of the respondents agree and 4.0% of the respondents were strongly agree. This indicated that majority of the respondents found disagree they were worried about using mobile banking because other people may be able to access their account. The respondents when they were further asked if they conceive that the privacy is not guaranteed when using mobile banking 14.4% of the respondents strongly disagree, 39.1% of the respondents disagree, 36.8% of the respondents neutral , 5.2% of the respondents agree and 4.6%

of the respondents were strongly agree. This indicated that majority of the respondents found disagree they conceive that the privacy is not guaranteed when using mobile banking. In addition when they were further asked if they believe mobile banking services are 24.8% of the respondents strongly disagree, 16.3% of the respondents disagree , 33.4% of the respondents neutral , 15.7% of the respondents agree and 9.8% of the respondents were strongly agree. This indicated that majority of the respondents found neutral they were believe mobile banking services are more risky than banking options.

When computed all the questions using mean under perceived risk the lowest was 2.47 and the highest was 2.69. The overall mean value of perceived risk items was 2.60. This showed that the respondents disagreed with that perceived risk items.

4.5.5. Relative advantage

Table 4.8 summary of survey findings for **Relative advantage**

	Str. Dis.	Dis.	Neut.	Ag	Str. Agr.	Mean	Std.dev.
Using mobile banking is more accessible than other banking (i.e. internet banking, ATM service , visiting the bank)			50(15.3%)	69(21.2%)	207(63.5%)	4.48	0.71
Using mobile banking is faster than visiting a bank		5(1.5%)	11(3.4%)	52(16.0%)	258(79.1%)	4.66	0.59
Average Mean						4.57	

Source: SPSS data 2020

Out of the total respondent 63.5% strongly agree that using mobile banking is more accessible than other banking and 79.1% responded by strongly agree mobile banking is faster than visiting a bank. This showed that majority of mobile banking preferable due to ease of use and accessible than other banking technologies and the majority of customers of a bank found mobile banking have a relative advantage over other banking options (internet banking, ATM services, visiting bank).

When computed all the questions using mean under relative advantages the lowest was 4.48 and the highest was 4.66. The overall mean value of relative advantages items was 4.57. This shows that the respondents strongly agreed with that relative advantage items.

4.5.6. Compatibility

Table 4.9 summary of survey findings for **Compatibility**

	Str. Dis.	Dis.	Neut	Ag	Str Agr	Mean	Std.dev.
Using mobile banking is compatibility with my lifestyle	5(1.5%)	11(3.4%)	46(14.1%)	99(30.4%)	165(50.6%)	4.10	0.79
Using mobile banking services fits well with the way I like to control and manage my banking transactions		18(5.5%)	51(15.7%)	154(47.2%)	103(31.6%)	4.04	0.83
Average Mean						4.07	

Source: SPSS data 2020

As it is show the above table 50.6% of the respondents strongly agree, 30.4% of the respondents agree, 14.1% of the respondents were neutral , 3.4% of the respondents disagree and 1.5% of the respondents were strongly disagree when they were asked using mobile banking is compatibility with my lifestyle . This indicated that majority of the respondents found using mobile banking is compatible with my lifestyle. When they were asked using mobile banking services fits well with the way like to control and manage my transaction 31.6% of the respondents strongly agree, 47.2% of the respondents agree, 15.7% of the respondents were neutral and 5.5% of the respondents were disagree. This indicated that majority of the respondent found agree using mobile banking services fits well with the way I like to control and manage my banking transactions.

When computed all the questions using mean under compatibility the lowest was 4.04 and the highest 4.10. The overall mean value of compatibility item was 4.07. This showed that the respondents agreed with that compatibility items.

4.5.7. Adoption factors

Table 4.10 summary of survey findings for **Adoption Factors**

	Str. Dis.	Dis.	Neut	Ag	Str Agr	Mean	Std.dev.
I intend to use mobile banking in the future continuously		7(2.1%)	21(6.5%)	195(59.8%)	103(31.6%)	4.21	0.54
I will use mobile banking regularly in the future			11(3.4%)	187(57.3%)	128(39.3)	4.36	0.53
I will adopt mobile banking immediately possible			34(10.4%)	168(51.6%)	124(38.0%)	4.27	0.64
Average Mean						4.28	

Source: SPSS data 2020

As it is show on table 4.10 2.1% of the respondents disagree, 6.5% of the respondents neutral , 59.8% of respondents agree and 31.6% of the respondents were strongly agree when they were asked they were asked they intend to use mobile banking in the future continuously. This

indicated of the majority of the respondents found agree they intend to use mobile banking in the future continuously. When they were asked they will use mobile banking regularly in the future 3.4% of the respondents neutral, 57.3% of the respondents agree and 39.3% of the respondents were strongly agree. This indicated that majority of the respondents found agree they will use mobile banking regularly in the future. In addition when they were further asked if they will adopt mobile banking immediately possible 10.4% of the respondents' neutral, 51.6% of the respondents agree and 38.0% of the respondents were strongly agree. This indicated that majority of the respondents found agree they will adopt mobile banking immediately possible.

When computed all the questions using mean under adoption factors the lowest was 4.21 and the highest was 4.36. The overall mean value of adoption factor item was 4.28. This showed that the respondents agreed with that adoption factor items.

Table 4.11 Mean and standard deviation of mobile banking

Descriptive Statistics			
	No of respondent	Mean	Standard Deviation
Convenience	326	4.21	0.77
Perceived cost	326	2.07	0.76
Perceived trust	326	3.84	0.84
Perceived risk	326	2.60	0.99
Relative advantage	326	4.57	0.65
Compatibility	326	4.07	0.81
Adoption factors	326	4.28	0.57

Source: SPSS data 2020

From the above mean and standard deviations output relative advantages has the highest mean score 4.57 and followed by convenience 4.21, compatibility and perceived trust have 4.07 and 3.84 mean score respectively. Perceived risk has 2.60 mean score followed by perceived cost has least score value 2.07. The entire response based on the mean score were relatively good position.

4.6. Skewness and Kurtosis test

The test was overseen to measure the degree of asymmetry or departure from symmetry of a distribution and to measure peakedness. The results indicated below table 4.12 all variables in the acceptable range means between -2 and +2.

Table 4.12 Skewness and Kurtosis test

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Convenience	326	-.822	.135	.105	.269
Perceived Cost	326	.795	.135	-.088	.269
Perceived Trust	326	-.374	.135	-.302	.269
Perceived Risk	326	.633	.135	.051	.269
Relative Advantage	326	-1.271	.135	.786	.269
Compatibility	326	-1.241	.135	1.821	.269
Adoption of Mobile Banking	326	-.276	.135	-.322	.269
Valid N (listwise)	326				

Source: SPSS data 2020

4.7 .Multicollinearity test

Multicollinearity refers to the range to which an independent variable can be described by others independent variables in the analysis and if too high this can have harmful effect on regression.

Variance inflation factors used in place of tolerance as variance inflation factors is simply the reciprocal of tolerance and as a rule of thumb is the variance inflation factor >4 and tolerance <0.2 when multicollinearity is a problem (Garson G.David 2012).

Table 4.13 Multicollinearity test

Model		Collinearity Statistics	
		Tolerance	VIF
1	Constant		
	Convenience	0.375	2.667
	Perceived cost	0.389	2.573
	Perceived trust	0.667	1.499
	Perceived risk	0.849	1.178
	Relative advantages	0.591	1.691
	Compatibility	0.720	1.388

Source: SPSS data 2020

As indicated in table 4.13 above, results of diagnostic test for multicollinearity presents that the VIF values are below from value 4. This showed that there is no multicollinearity problem between the studies of independent variables.

4.8. Correlation between constructs

According Gujarati(2004) the degree of association between two variables measures by Bivariate correlations and the coefficient correlations which ranges from +1 to -1 is both a measure of the strength of the relationship and direction of the relationship. A coefficient of correlation of +1 describes a perfect positive relationship in which every changes of +1 in one variable is associated with a change of +1 in other variables and a coefficient correlation of -1 describes a perfect negative relationship in which every changes of -1 in one variables is associated with a changes of -1 in other variable.

Table4.14. **Pearson's Correlation Coefficient**

		Adoption of mobile banking	convenience	Perceived cost	Perceived trust	Perceived risk	Relative advantage	Compatibility
Adoption of mobile banking	Pearson correl.	1	.590**	-.605**	.525**	-.521**	.543**	.457**
	Sig.(2-tiled)		.000	.000	.000	.000	.000	.000
Convenience	Pearson correl.	.590**	1	-.758**	.403**	-.255**	.591**	.206**
	Sig.(2-tiled)	.000		.000	.000	.000	.000	.000
Perceived cost	Pearson correl.	-.605**	-.758**	1	-.373**	.296**	-.577**	-.262**
	Sig.(2-tiled)	.000	.000		.000	.000	.000	.000
Perceived trust	Pearson correl.	.525**	.403**	-.373**	1	-.282**	.341**	.476**
	Sig.(2-tiled)	.000	.000	.000		.000	.000	.000
Perceived risk	Pearson correl.	-.521**	-.255**	.296**	-.282**	1	-.207**	-.302**
	Sig.(2-tiled)	.000	.000	.000	.000		.000	.000
Relative advantage	Pearson correl.	.543**	.591**	-.577**	.341**	-.207**	1	.286**
	Sig.(2-tiled)	.000	.000	.000	.000	.000		.000
Compatibility	Pearson correl.	.457**	.206**	-.262**	.476**	-.302**	.286**	1
	Sig.(2-tiled)	.000	.000	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed). Source: SPSS data 2020

b. Listwise N=326

The results presented above table correlation results indicated that convenience factors (0.590**) has positive relationship with mobile banking adoption. According to the results of above table adoption of mobile banking has strongly negative correlation with perceived costs the coefficient value of (-0.605**) and the linear relationship between them is statistically significant at acceptable level. Also the correlation results indicated above table that perceived trust (0.525**) has strongly positive relationship with mobile banking adoption of customers towards the adoption of mobile banking. The correlation results indicated the table that perceived risk (-0.521**) has significant negative correlation with adoption mobile banking. Moreover the correlation results for relative advantage equals to (0.543**) the observed relationship is positive relationship with mobile banking adoption which means the relative advantages activities improves then adoption of mobile banking increases. Similarly the compatibility variables (0.457**) have a direct and statistically significant relationship with the adoption of mobile banking.

4.9. Model fitting

Table 4.15 model fitting

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.227	6	11.538	86.718	.000 ^b
	Residual	42.443	319	.133		
	Total	111.669	325			

a. Dependent Variable: Adoption of Mobile Banking project Source: SPSS data 2020

b. Predictors: (Constant), Perceived Risk, Relative Advantage, Compatibility, Perceived Trust, perceived cost, Convenience

The ANOVA table reports a significant F statistic (F= 86.718, P< 0.05), indicating that, the model best fit the data and using the model is better than simple guessing.

4.10. Regression Analysis

Table 4.16 model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.787 ^a	.620	.613	.36476	.620	86.718	6	319	.000

a. Predictors: (Constant), Compatibility, Convenience , Perceived Risk, Perceived Trust, Relative Advantage, Mobile Banking Cost

Source: SPSS data 2020

Table 4.16 shows that, Perceived Risk, Relative Advantage, Compatibility, Perceived Trust, Mobile Banking Cost and Convenience explain adoption of mobile banking by 62%. About 38% of the variability in adoption of mobile banking is unexplained. As a whole, More than half (62%) the variation in adoption of mobile banking is explained by the model.

Table 4.17. Regration coefficient summary

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	2.799	.315		8.873	.000	2.178	3.419		
	Convenience	.134	.043	.175	3.105	.002	.049	.218	.375	2.667
	Perceived Cost	-.140	.042	-.183	-3.298	.001	-.223	-.056	.389	2.573
	Perceived Trust	.120	.029	.173	4.087	.000	.062	.178	.667	1.499
	Perceived Risk	-.173	.022	-.291	-7.778	.000	-.216	-.129	.849	1.178
	Relative Advantage	.162	.043	.171	3.809	.000	.078	.246	.591	1.691
	Compatibility	.112	.029	.155	3.800	.000	.054	.170	.720	1.388

a. Dependent Variable: Adoption of Mobile Banking Source: SPSS data 2020

From the above regression output table 4.17, the Collinearity Statistics was analyzed and all predictors are free of multicollinearity problem. The tolerance is the percentage of the variance

in a given predictor that cannot be explained by the other predictors. Thus, the small tolerances show that, the variance in a given predictor can be explained by the other predictors. When the tolerances are close to 0, there is high multicollinearity and the standard error of the regression coefficients will be inflated. A variance inflation factor greater than 4 is usually considered problematic, and the highest VIF in the table is 2.573.

The multiple linear regression model of Adoption of Mobile Banking, from table 3 has a form of:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + \beta_n$$

When y is dependent variable

X1, X2, X3...An is independent variables

α = is constant and $\beta_1, \beta_2, \beta_3 \dots$ and β_n are regression coefficients

So the Adoption of Mobile Banking multiple linear regression models will be:

$\text{Adoption of Mobile Banking} = 2.799 + 0.134*\text{Convenience} - 0.140*\text{Perceived Cost} + 0.120*\text{Perceived Trust} - 0.173*\text{Perceived Risk} + 0.162*\text{Relative Advantage} + 0.112*\text{Compatibility}$

From the regression analysis, all factors Perceived Risk, Relative Advantage, Compatibility, Perceived Trust, Perceived Cost and Convenience are significantly (P < 0.05) affecting Adoption of Mobile Banking. As relative advantage of Mobile Banking increase by one unit likert scale the Adoption of Mobile Banking will increase by 0.162 with (P < 0.05) this shows that the relative advantage that a mobile banking have over the other alternative is significantly higher. However, the negative relationship was found between Adoption of Mobile Banking and Perceived Cost. As the cost of mobile banking decrease by 1 likert scale, Adoption of Mobile Banking will increase by 0.14 with (P= 0.001). Similarly, as the risk of mobile banking increase by 1 likert scale, the adoption of mobile banking will decrease by 0.173.on the contrary for unit increment in likert scale for convenience and compatibility the adoption of mobile banking will increase by 0.134 (P=0.002) and 0.112(P < 0.05) respectively.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

This paper developed a model of customers' adoption mobile banking project based on technology acceptance model (TAM) and diffusion of innovation technology (DIT) that attempted to explain the determination on factors that affect the adoption of mobile banking project. There were six factors that were considered in these models. These were convenience (perceived usefulness and perceived ease of use), perceived cost, perceived trust, perceived risk, relative advantages and compatibility .The research study was conducted on seven branches in Addis Ababa. These branches were Main branch, Tana , Adarash, Gotera Ibex, Raquel, Gotera and Kality.

The researcher employed descriptive research design, quantitative and qualitative methods, correlation and regression in order to assess the factors that affect mobile banking adoption project in Nib international bank. In addition the study used to purposive and convenience sampling techniques and used questionnaires as a data collection instruments. Also used descriptive mean, standard deviation, frequency was employed and person correlation coefficient and regression used as data analysis methods in the SPSS 20.

The results of the descriptive statistical using the SPSS 20 showed that relative advantages have the highest mean scored followed by convenience, compatibility, perceived trust, perceived risk and perceived cost.

The results of the correlation and regression analysis shows that there is a positive relation between convenience , perceived trust , relative advantages , compatibility respectively and adoption factors. There is negative relationship between perceived risk, perceived cost and adoption factors. And all convenience , perceived cost , perceived trust , perceived risk , relative advantages and compatibility have statistically significant.

5.2. Conclusion

Based on from this study the researcher concluded that

Convenience (perceived usefulness and perceived ease to use) has significant and positive influences on mobile banking adoption at Nib international bank. Customers at Nib international bank accepted mobile banking technology when the value and benefits of mobile banking is evident and perceived to be easy to use. Therefore it can be conclude that customers will adopt mobile banking technology services (perceived) mobile banking as convenient.

Perceived cost had a negative and significant impact on mobile banking adoptions at Nib international bank. This implied that when people understand that mobile banking cost , cannot be compensation from the bank due to errors occurred as a result of system failure and increased banking cost then mobile banking technology were not willing to be adopted. Hence it can be concluded that mobile banking adoption technology decreases when the perceived cost increases.

According to the output obtained perceived trust have a positive and significant relationship with mobile banking adoptions. These results indicated that when customers believe mobile services trustworthy and the bank keeps its promises and commitments. Therefore it can be concluded that when people feel banking services trustworthy and information provided by banks on the mobile banking transactions that motivates people to adopt mobile banking technology.

Perceived risk was found to have negative and significant effect on the adoption of mobile banking. The results indicated that when customers perceived high risks and uncertainty such as loss and access account of financial information's because of hacked system. Hence, customers are discouraged since the perceived risk increases when mobile banking adoption decreases.

Relative advantage was found to have a positive and significant effect on adoption of mobile banking. This implied that people perceived mobile banking has a significant relative advantage over visiting banking in accessing account from any location at any time.

Compatibility was found to have a positive and significant effect on the adoption of mobile banking. This showed that people have to perceive mobile banking as consistent with the existing values, past experiences, life styles and needs that should match with the current mobile banking technology. Thus it can be concluded that the adoption of mobile banking increases when customers need and compatibility level with mobile banking increases.

5.3. Recommendations

The study tried to come up with the following recommendation (remedies) based on the findings.

- Convenience (perceived usefulness and perceived easy to use) since both are highly proportional with mobile banking technology adoption, the bank (Nib international bank) should create and invest mobile banking services that provides various options to assist get more values from mobile banking services easy and convenient to use as this avoids complications (difficulty) and increases number of customers.
- Another important recommended I would to give for the bank is that it should safe guard the technology from unauthorized act, reduce uncertainties , risks , ambiguities and errors related to financial transactions while using technology that enhance the possibility of increasing customers adoption of mobile banking.
- Perceived cost is one of the factors that is negative correlated the using of mobile banking adoption. For this reason Nib international bank should give awareness to the community about mobile banking services that decreases its banking cost.
- The bank create public awareness by preparing and distributing information through brochures , flyers , booklets and electronic means such as website that give clear guidelines to make easier of using mobile banking for existing potential customers.

5.4. Future study

Further study can be done by emphasizing other related factors that affect mobile banking adoption. This study is limited only to the six determinant factors that affect mobile banking adoption. These are convenience, perceived cost, perceived trust, perceived risk, relative advantage and compatibility. Further research should be done to disclose other factors such as organizational and environmental factors.

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APPENDIX

**Addis Ababa University
College of Business and Economics
School of Commerce**

Questionnaire to be filled by respondents

Dear Sir/Madam

The purpose of this questionnaire is enable to me carry out a research on "Assessment of mobile Banking Adoption project in Nib International Bank "for the partial fulfillment of master degree in project management. Please be honest and objective while filling the questionnaire. The information you give is used only for academic purpose and will be kept confidential.

Thank in advance for your cooperation

General instructions

- There is no need for writing your name
- Answer all questions
- Please tick (✓) in appropriate boxes as provided

PART ONE: - General information

1. Gender Male Female
2. Age 18-25 year 26-30 years
 31-40 years 41-50 years
 Above 51 Years
3. Level of education completed
- High school completed Diploma completed
Degree completed Master and above
Others specify please.....
4. Occupational status
- Student Employed unemployed
5. Marital status
- Married Unmarried Divorce widowed
6. Do you use the mobile banking services provided by your bank?
- Yes No

PART TWO: Factors affecting Mobile Banking Adoption

Please tick (✓) your appropriate answer based on the following statements on a scale of 1 to 5.

1. =Strongly disagree 2= Disagree 3 = Neutral
 4. = Agree 5 = strongly agree

CONVENIENCE (perceived usefulness and perceived ease of use)		1	2	3	4	5
1	There is no time limit to access my bank account and information.					
2	I think it is easy to learn how to use mobile banking.					
3	Using mobile banking improves my performance of banking activities.					
4	I find Mobile banking useful for my banking needs					
5	Overall, I think easy to use mobile banking.					
PERCEIVED COST						
6	It cost a lot to use mobile Banking					
7	I can get compensation from the Bank when transactions errors occur due to system failure.					
8	Using mobile banking increases my banking costs					
PERCEIVED TRUST						
9	Mobile Banking services trustworthy					
10	I believe the bank keeps its promises and commitments.					
11	I believe in the information provided by banks mobile banking transaction					
PERCEIVED RISK						
12	I have no confidence to use mobile banking because if I made incorrect transaction I will lose my money.					
13	I am worried about using mobile banking service because other people may be able to access my account					

14	I conceive that the privacy is not guaranteed when using mobile banking.					
15	I believe mobile Banking services are more risky than others Banking options					

RELATIVE ADVANTAGE						
16	Using mobile banking is more accessible than other banking (i.e. internet banking , ATM service , visiting the bank)					
17	Using mobile banking is faster than visiting a bank					
COMPATIBILITY						
18	Using mobile banking is compatibility with my lifestyle					
19	Using mobile banking services fits well with the way I like to control and manage my banking transactions.					

III. Questions related to adoption of mobile banking

Please tick () your appropriate answer based on the following statements on a scale of 1 to 5.

1. =Strongly disagree 2= Disagree 3 = Neutral
4. = Agree 5 = strongly agree

20	I intend to use mobile banking in the future continuously					
21	I will use mobile banking regularly in the future					
22	I will adopt mobile banking immediately possible					

