

**FACTORS AFFECTING ADOPTION OF MOBILE BANKING BY COMMERCIAL
BANKS IN KENYA**

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DECLARATION

I declare that this research project is my original work and has not been submitted to any other university for academic award or to any examination body.

Sign..... Date.....

Godfrey Vuduma

This research project has been submitted for examination with my approval as the University supervisor.

Supervisor

Signature..... Date.....

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DEDICATION

This research project is dedicated to my Son: Leon Keya Vuduma and Parents: Mr. and Mrs. Margaret and Safania Keya for encouragement and prayers throughout my studies.

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ABBREVIATIONS AND ACRONYMS

ATM:	Automated Teller Machine
CBA:	Commercial Bank of Africa
CBK:	Central Bank of Kenya
IT:	Information Technology
KCB:	Kenya Commercial Bank
KPMG:	Klynveld Peat Marwick Goerdeler
PIN:	Personal Identification Number
SPSS:	Statistical Package for Social Sciences
TAM:	Total addressable market

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ABSTRACT

There has been increase of demand for internet connectivity over the past twenty years where behavioural patterns of customers' relationship with financial institutions and the guidelines for buying and selling banking products have changed. Banking provides the opportunity to cut costs, support unbanked consumers, retain competitive advantages and improve consumer access to financial mobile banking services. Research aimed at evaluating the factors that affect Kenyan banks' mobile adoption. The study was founded on Innovation Diffusion Theory, Financial Intermediation Theory and Modern Economics Theory. A descriptive design was applied in this research. The study targeted all account holders (customers) of all the commercial banks in Kenya. Stratified sampling method was utilised. A sample of 4 non-corporate customers was selected at random from the different banks. Kenya has 43 registered commercial banks as per the year 2018. The drop and pick method was utilised for respondents to have enough time to give well thought out responses. Cleaned, coded and systematically organized data was achieved using the Statistical Package for Social Sciences (SPSS). Descriptive statistics such as frequencies, mean and standard deviation were used for Quantitative analysis. To establish the association between various factors, regression analysis was conducted in order to determine the inferential statistics. The findings were presented in Tables. The multiple regression models were used to determine the relationship that exists between factors that influences adoption and the level of mobile banking adoption in the Kenya commercial banks. The research discovered that clients accepted mobile banking payments and accept to be paid through mobile banking; it is cheaper than normal banking; it helps in saving time to undertake transactions; and the limits for transactions allowed in mobile banking are sufficient for my transactions and that mobile banking saves them long distances they would have travelled to access banking services. The study concluded that perceived ease of use had the greatest influence on mobile banking adoption by Kenya commercial banks followed by customers' social influence, then financial accessibility while risk perception had the least influence. The study suggests that the bank managers and other providers need to reassess mobile banking services and recognize the tasks of knowing from their customers what services they want through mobile banking in order to attract and inspire them to subscribe to any solutions they give. The study also recommends that there should be more investments in promotional communication drives to educate and reassure the market of the safety of using mobile banking.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Gupta (2013) notes that the use of a digital mobile device connects mobile banking services and other financial institutions. There are several services that are rendered via mobile banking, these include; account balance enquiry, access to bank statement, withdrawal and deposit of cash, small loan services, instant notification for any transaction that happens in the account, among others. The global banking and payment industries have revolutionized mobile banking, providing existing clients with additional convenience and increasing the number of new clients registered by banks. The benefits and costs that are tagged along the provision of mobile banking technology controls the rate into which customers embrace and adopt this technology. According to Johnson et al. (2014), mobile banking is an advantage in creating a convincing and satisfying online customer experience from the perspective of the bank. The new customer experience increases sales and reduces operational costs to the bank.

Juniper Research (2009) noted that an added advantage from innovation and technology have led banks to make major mobile technology investments, creating smart telephone applications, such as remote checks, and educating customers. The mobile channel reduces transaction costs and increases customer engagement and retention. The effort of improving customers' experience in the banking industry, started years before with the introduction of ATM machines in 1969 by New York's Chemical Bank, then came internet banking in the mid-1990s that allowed customers access their financial accounts using a home computer with internet connection. The system did not grow as expected due to technological issues and built consumer trust. According to a report by KPMG (2015) there has been dramatic changes in the financial sector landscape in the world, first after commercial banks appreciated that lowering barriers to entry can increase retail accounts.

Sachombe (2015) states that despite the increased innovation and technological advancement by banks, the rate of adoption by the customers has been influenced or hindered by several factors. Factors that may also influence mobile banking adoption in Kenya include social cultural factors, the accessibility of the mobile banking system, the bank's level of technical advancements and the level of bank innovation. Holak & Lehmann (1990) are of the opinion that implementation of new innovation is like implementation of change which is faced with hurdles and open opposition.

People prefer working with what they are accustomed to and fear changes that would bring about uncertainties. That is why the use of mobile banking is being opposed by customers' quotas. It is also easy to use in comfort in your premises. Mobile banking has become a thing of the past with challenges from queuing on branches to going for long distances to reach bank facilities. This survey helps us to understand how these variables impact mobile banking in Kenya.

1.1.1 Adoption of Mobile Banking by Customers

Even though the development of mobile banking systems has had significant investments, studies on its use have shown potential users are not using their digital services as regularly as expected (Luarn & Lin, 2005). Gartner (2007) indicates that the penetration level of mobile banking only amounts to approximately 1 to 5% of the target population. In order to justify investments and operational expenses, the number of clients that developed mobile banking systems needs to be significantly improved from the standpoint of banks (Crabbe et al, 2009). Therefore, marketing managers should consider the determinants of user acceptance in mobile banking to return the initial cost of investment.

Kenya Bankers Association (2014) explains how mobile banking has been instrumental in enhancing financial inclusion in Kenya's banking industry. Mobile banking adoption has experienced categorical adoption of the technology. Commercial banks have increased their investment on mobile banking by creating mobile banking accounts that are safe and designed to meet the needs of their target clients. On the other hand, customers have different and varying attitudes towards embracing mobile banking. There are customers who find it difficult to use, others are concerned of the safety of the use of the entire system while others are not able to access and use mobile phones that can support mobile banking. Conducting bank facilities, stocking market transactions and accounts administration up to provision of the access of customized information are provided by mobile banking. Customers are therefore allowed to access their bank accounts through short messaging services (SMS), internet and smart phone applications (mobile apps).

The mobile networks that offer mobile banking services in Kenya are M-pesa that is offered by Safaricom company, Yu-cash offered by Essar, Orange money offered by Orange and Airtel money that is offered by Airtel. In its entirety the mobile network in Kenya commands a market size of about 17million users that transfer about Ksh. 2 billion daily of which M-pesa moves the highest amount since it has the highest number of users at 14million. Mobile banking partners with

commercial banks to boost and penetrate the large population of unbanked customers namely; Commercial Bank of Africa, Equity Bank, Cooperative Bank, among others (Kenya Bankers Association, 2014).

In Kenya the mobile banking giant remains to be Safaricom's M-pesa service which has acquired a customer base of 20.7 million in 2017, revenue from mobile data at Ksh 38.4 billion, data usage per customer grew to 56% with 90% of that data consumed through mobile bundles. It has acquired over 100,000 Lipa na M-Pesa merchants. The company also issued 3 (micro) loans every second through its banks' partners CBA (M-Shwari) and KCB's M-Pesa. Other innovations in the sector include Mobile Pay Ltd that was launched by Tangaza service and operates on all the mobile phone providers, a mobile payment platform by Family Bank to enable easy, convenient and fast payment of rent by tenants, launch of mobile apps that run on both android and ios phones among others (Bankelele, 2018).

1.1.2 Factors Affecting Adoption of Mobile Banking by Customers

Kazi & Mannan (2013) developed factors that influence mobile banking adoption. They stated them as social and cultural influence, perceived risk, perceived usefulness and perceived ease of use. They found out that social influence had the greatest impact on influencing adoption of mobile banking. On the other hand, Kimanyi & Ndung'u (2009) found out that the availability of cheaper and ease of access to mobile banking was a major driving force on the reason people embraced mobile banking. From these studies it is clear that several researchers have identified factors affecting adoption of mobile banking as social and cultural influence, perceived risk and perceived usefulness. Kenya has a wide variety of social and cultural practices, a good population still protect and preserve these practices if a study conducted by Njoroge (2001) is anything to be accepted. These practices inhibit adoption of change and new ways of undertaking different activities. Some customers do not trust that carrying transactions using mobile phone is safe enough. They prefer the old system of undertaking transactions, that is, physically in the bank. Illiteracy among the old generation also makes it difficult for the elderly to undertake their bank transactions while the young people would find it easier to use than queuing for long hours in the banks (Sachombe, 2017).

1.1.3 Banking Industry in Kenya

Mobile banking adoption is viewed by banks as a significant part of national and regional economic growth. Mobile banking improves the number of existing distribution channels that a bank employs in its delivery of services. In order to establish the success of a distribution channel, the bank looks on whether the channel increases its sales volume, reduces its costs of distribution and increases customer satisfaction. With these three objectives obtained, then the bank will strongly adopt the distribution channel. The commercial banks are also required to ensure that they have the relevant infrastructure in order to attract customers to use the facilities. Banks that have not invested in mobile banking infrastructure are prone to cyber-crimes, lack of proper fire walls that make it susceptible to fraud, increased down time and operational errors all reduce the rate of adoption of mobile banking. This study will therefore look at all these multifaceted factors namely; accessibility to mobile banking infrastructure, level of innovation by the bank and level of technology adopted by the bank (Kenya Bankers Association, 2014).

The mobile banking industry is a rapidly growing industry in Kenya. Mobile telephone technologies and offering quick and efficient services are being adopted by most banks in the world. With the prevalence of customers having mobile phones, mobile banking use has been employed (Kenya's Information and Communication Policy, 2011). The use of mobile banking has been introduced by several banks including the Co-operative Bank, the National Bank, Kenyan Commercial Bank and Equity Bank.

However, a relatively small number of bank clients adopting and actively using banks' mobile banking services remain (Kenya Information and Communication Policy, 2011). The aim for a comparably low use rate can be found in system limitations, compared to Internet banking and uncertainty about the security of wireless transitions (Luarn and Lin 2004) (minor screens and keypads, slower speeds). Although the technology and applications of mobile banking are available, global usage rates remain quite low. The banking sector therefore needs to identify the factors affecting customer intent to use mobile banking in order to broaden customer acceptance. There is overwhelming evidence by various researches on the success story of mobile banking in Kenya. Every bank in Kenya therefore has produced every effort to ensure that it embraces mobile banking (m-banking) as one of its channels. The adoption of these channels therefore solely

depends on the customers. This research will therefore investigate these factors that determine the adoption of mobile banking by customers in Kenya (Ndumba & Muturi, 2014).

1.2 Research Problem

Internet connectivity demand has risen during the last 20 years and the behavior pattern of customers in their connection to financial institutions and in their buying and selling guidelines for banking products has changed. It enhanced cutting of costs and serve unbanked customers; maintaining the competitive advantage and customized accessibility increase. banks have therefore focused on implementing mobile banking financial services. The theory of technology acceptability, which connects people's views, attitudes and purpose, can predict technology acceptability and rejection according to Davis (1989). However, Mathieson (2004) points out that only in order to study user acceptance technology is it inadequate to depend upon both concepts of perceived usefulness and perceived ease of use.

In comparison to the mobile phone transfer offered by mobile operators (Lule, Omwanz & Waema, 2012) Kenya mobile banking is still extremely low. Contrary to mobile money transfers, M-banking rights in saved assets, credit background and loan access are carried out by operators of mobile network operators. In spite of the enormous advantages mobile banking is still in its earliest stages and the banking sector must also take into account its unbanked customer.

Mobile banking studies have been conducted and have come out with interesting and definitely different results. Wamai & Kandiri (2015) sought to know the determinants of mobile banking adoption in Micro finance institutions in Nairobi County Kenya. The 210 randomly selected customers showed that mobile banking software is both considered to be beneficial and perceived as having a positive relationship and is positively affected. Perceived risk and perceived transaction costs were found to have negative correlation with the adoption of mobile technology.

Okiro & Ndung'u (2013) carried out a study examining the impact of the internet and mobile banking systems on the various financial institutions in Kenya. They found that a cash withdrawal was the most prevalent mobile banking transaction and the least was the purchase of goods. On the other hand, Kazi & Mannan (2013) investigated determinants that affect the implementation of mobile banking services in Pakistan, perceived risk, perceived ease of use and perceived usefulness significantly influenced adoption of mobile banking in Pakistan.

These studies approach the research question from different perspective in form of methodology and research design. They also have different scope and as such they all give different results from their respective studies. The studies were also carried out some times back and as such various things have changed since then; individual preferences, perception might have changed and loyalty to a certain regime might have shifted as well. This creates a research gap and hence the factors that determine adoption of mobile banking by customers in Kenya which includes perceived ease of use, usefulness perceived, perceived threat, and social impact was sought. The study sought to answer the following question: What are the factors affecting adoption of mobile banking by customers of banks in Kenya?

1.3 Research Objectives

The research aimed at identifying the factors which affect mobile banking adoption in Kenya by bank customers.

1.4 Research Questions

What are the factors that affect Kenya's customers ' mobile banking adoption?

1.5 Value of the study

We will appreciate the fact that mobile banking is an innovation that has come due to improved technology. The study would be very important to innovators as it will help in understanding the challenges that affect adoption of mobile banking technology.

This research will also aid the commercial banks management as they understand how mobile banking services are currently operating as a competitive tool as well as the factors that have led to their customer acceptance.

The regulator (Central Bank of Kenya) and the government will also find this study to be of great importance. It will help them in developing strategies and generating regulatory policies depending on whether the government or the regulator would like to encourage or discourage the adoption of new innovations in the industry. They will get to understand what has contributed to either adoption or lack of adoption of the new technology in the banking sector.

The study will also give future researchers value. The research contributed to the knowledge body and Set the foundation for future mobile banking researchers and academics.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The theoretical reviews, review of the independent variables of the study, empirical studies that are made up of both local and international studies, conceptual framework and finally summary and conclusions of the chapter are discussed in this chapter.

2.2 Theoretical Reviews

There are various theories that arose with development of new technology, innovation and adoption of the same technology in the organizations. It is evident that new technology has brought about change that has received both approval and objections at equal measure. Theorist have tried to explain how innovation has been used to enhance business and organization performance. They have also tried to explain ways in which organizations should position themselves in order to maximize value through innovation. Other theories try to explain how innovation and new technology relates to factors of production in an organization such as labour among others. This study acts either to strengthen these theories or critique the theories depending on the results and conclusions of this study.

2.2.1 Innovation Diffusion Theory

Innovation Diffusion theory was first brought to light by Rogers (1962), when he tried to illustrate how, when and at what level new technology and innovative ideas spread across a social system. The theory focused on innovations contrary to prior belief where people focused on change. He is of the opinion that it is not people who changes but the innovations themselves change in order to satisfy the needs better. Innovation is not seen from the point of view of changes in individuals but from the point of view of reinvention of products so that they satisfy people's needs in a better way. He also explained diffusion as a way of communicating these innovations in a certain way through channels to members of a social system. Innovation diffusion theory therefore focuses on how new ideas or innovations are spread from one society to another, or from one part to the other as members of the society derive benefits from the innovations when they adopt these innovations (Wani & Ali, 2015).

The theory further suggests that the adoption of new idea, behaviour or product is never simultaneous. Some people who are apt to the technology or the idea will first adopt it and then communicate to the others who are less apt to it; the spread then enhances innovation to take place. In the society there are people who adopt to a new technology faster than others do. Studies have shown that people who adopt to new technology faster than others have different characteristics than those who adopt to it later on. It therefore becomes paramount for champions of new innovations and ideas to understand their target group so as to record success in enhancing adoption of the new innovation or idea (Wani & Ali, 2015).

2.2.2 Financial Intermediation Theory

Financial intermediation theory states that in an economy where there are both surplus units and deficits units, intermediation plays the role of moving the surplus units to the part of the economy with deficit. The resources are transferred to the sector of the economy that most deserves the resources. Nonetheless, the transition should be carried out in the most cost-effective way to minimize operating costs and maximize gain at the same time. The theory highlights the function of mobile banking in the financial mediation process by making banking services accessible via telephones.

The study notes, in terms of their future consumption needs, that similar depositors run risks adverse and uncertain, according to Diamond and Dybvig (1983) researching the ability of banks to turn illiquid Assets into liquid liabilities. The study therefore found that financial intermediaries have a role to play in ensuring that shareholders are not tied up in highly leveraged lengthy-term investments which will pay a heavy price to future users. In conclusion, the important aspect about financial intermediaries is that it ensures continuously flow of resources form surplus to deficit units in the economy.

2.2.3 Modern Economics Theory

This theory has many different disciplines: microeconomics, macroeconomics, money and banking, international economics, public finance, growth economy, planning economics and social welfare economy. Modern economy suggests that money is created by commercial banks ' loans. A deposit matching in a bank account is created when a customer receives a credit from his bank. This concept is known as money creation that enhances the state of the economy through the money multiplier effect.

The central bank controls the monetary policy in the economy by setting a certain reserve price according to the desired objective of the central bank. However, banks lend depending on various factors including on how profitable lending opportunities are available for them determined by CBK's interest rate. The lending decisions made by the commercial banks will in turn influence the amount of bank deposits created by the overall banking system. The CBK will thereby make decisions on reserve requirements based on the bank deposits (broad money) created by commercial banks.

There are three factors limiting the money banks can generate. Firstly, since banks have to lend profitable in the competitive environment, they will restrict themselves on their lending decision by selecting those that reward highly. Secondly, money creation is constrained by households and business who use the new loans issued for repayment of existing loans. Thirdly, is the monetary policy laid down by the C.B.K. Mobile companies are known to compete with banks through offering of products similar to those of banks, that, loans and deposit services. This has had a negative impact in the banking sector of commercial banks due to loss of market share, example transaction fees charged on Mpesa users and commission based services like Mshwari.

2.3 Factors Affecting Adoption of Mobile Banking

This study will look at various factors that have been studied previously (Kazi and Mannan, 2013) (Kimanyi and Ndung'u, 2009) and (Njoroge, 2001). These factors have been identified to have some level of influence to recent innovation and new technology adoption. The factors that influence adoption of mobile banking includes social and cultural influence, perceived risk, perceived usefulness and financial accessibility.

2.3.1 Perceived ease of use

This refers to a person's belief that free effort would be made using a mobile banking system (Omwansa et al. 2012). It does not take much effort to use this particular system because it is simple and practical. As mobile banking is user friendly, customer satisfaction is increased while making a bank transaction rather than waiting in line at the bank counters. Sometimes the consumer assesses the right services that offer benefits and are easy to use. Mobile phones can be used and brought to any location, so that the user can always access the system for bank transactions. Lee et al. (2008) also reported a considerable impact on consumer readiness to utilize mobile banking. However, banks must simplify their use and develop application interfaces for mobile banking

services that are even more user friendly. When clients find it easier to understand and implement mobile banking, they intend to accept it (Zohra & Kashif, 2011).

Ezzi (2014) reveals that an application that is perceived to be easier to use than another is more likely to be accepted by users, as it will positively influence attitudes and subsequently intention to use. Thus the more a system is perceived to be used easily the more chances for that system to be accepted by users. Most users want a system that gives them less physical stress and little mental exercise while using it as this will determine their level of satisfaction with the usage. Perceived usefulness has been identified by several studies as an important adoption factor of innovation technologies. The 24-hour service availability, home access, world wide access, time savings and wide variety of services accessible are seen as drivers of convenience in electronic banking (Gerrard and Cunningham, 2003).

2.3.2 Financial Accessibility

Mobile Banking is a service that provides mobile telecommunication services to customers every time and anywhere in the world. Each mobile internet user can use this service very easily. It saves a lot of time as well. Due to mobile pin number support (m-pin), Mobile banking is safe and secure. Each mobile banking client has the first pin number issued by the bank, but users can change that number as many times as possible in response to customer needs. Through mobile banking, customers can easily control and encrypt account details of all transactions (Aggarwal, 2014).

Laukkanen (2007) points to price being an integral component in determining how commercial banks adopt mobile banking. Mobile banking access in Kenya reduced to the customers' ability to offer and own a smartphone with internet access and suitable software versions that support banking applications and other facilities. These smart phones are expensive and as such some customers, who may be willing to use mobile banking, are unable to access the facility due to lack of smart phones. The more consumers can connect phones that can be used for digital banking, the more mobile banking is adopted.

Some cultural practices in Kenya have quite an adverse effect on mobile banking adoption. Mobile phones access and other technological facilities have been discouraged in some cultures. According to Al-Jumeily, *et. al.* (2014) culture is defined as the common behaviour which is learned and acquired from the society into which one is born. Culture is composed of norms, beliefs

and customs which reflect the common set of values that are held and in most cases characterize the society in which a person is brought up. Social factors on the other hand are the facts and experiences that influence individuals' personality, attitudes and lifestyle.

Social and cultural influence are likely to influence the level of adoption of mobile banking in Kenya, this is from the aspect that culture influences a person's behaviour that moulds or makes up one's character. Cultural tendencies and practices that are quite opposed to change, are in most cases less likely to embrace mobile banking. Such cultural tendencies try to support the old order where activities are undertaken traditionally. New ways of performing activities are rarely embraced, or if they are embraced, much effort is required to convince the people concerned to change from the old ways of doing things. Social influence also affects the rate into which a person would adopt to new innovation, if the society one belongs to easily and warmly embraces mobile banking, one is then more likely to embrace and adopt mobile banking while the vice versa is true (Abdinoor & Mbamba, 2017).

2.3.3 Risk Perception

Mobile banking reflects an improvement in internet banking to boost the technology's ability to easily serve customers. The experience and sophistication of the evolving environment are the main challenges of mobile banking. Intolerance could open room for risk. Mobile banking faces risks like insecure networks, mobile malware, software from third parties and risky consumer behaviour. There are five different types of perceived risks: risk of performance, social risk, financial risk, time risk and safety risk that provided a better understanding of the risks to internet banking (Gerrard & Barton Cunningham, 2003).

Performance Risk refers to losses arising from mobile banking deficiencies or malfunctions. For example, mobile phones have limited battery life and may interrupt the wireless connection, which restricts mobile service use. When the system suddenly breaks down or disconnects, consumers feel the unsecurity of their bank account. These could be connected to customers' capacity in a reasonable time to operate the mobile bank services. Security or Privacy Risk is described as possible losses from fraud or hackers that affect mobile banking users' security. The portable PIN codes can be put on the device through hacking and other means. This can lead to possible security risks and privacy risks. Phishing is the latest way to steal consumer information. Phishers collect

sensitive information from consumers by masquerading it as a trusted entity through electronic communications such as the username, password, and the credit card information (Ezzi, 2014).

Time or Convenience Risk are the delays in receipt of payments or the difficulties with mobile banking (finding the appropriate services), mean the risk of time loss due to any inconvenience caused by payment delays. With regard to time, mobile banking infrastructure that can accommodate the speed of change without delay. Social risk applies to the absence of mobile banks when friends, family, communities or even media disagree or have a negative view. A possible social group loss of status from the adoption of a product or service reflects social risk. The financial risk refers to money loss potential caused by misuse of transactions or bank accounts. You worry about making mistakes with your own bank processes if you are using a computer or phone (Lule, Omwansa & Waema, 2012).

2.3.4 Social Influence

Mobile banking is possible if individual customer intentions are influenced by the thoughts of people. Social pressures such as work, friends, parents and family members arise when a consumer decides to follow mobile devices and use them (Kansal 2017). The perceived image can be characterized by using innovations as a level of image change or social status. Perceived photos of mobile banking have had a positive effect on technology (Johnson, Twilley, Zhang, Zhou & Wu, 2014).

Through M-Banking customers use this method for creating and maintaining a positive picture in others ' minds and how it influences their clients ' social status. Beliefs, misunderstandings, habits, and concerns need to be dealt with if people who are used to cash storage are required to store the money on the phone. This could be quite a challenge, therefore, which convinces you that the handset operates as a wallet, affecting the adoption of mobile banking. Therefore, adopting a digital cash individual would depend on how convenient it is (Khan, Akter & Akter, 2017).

Another factor affecting mobile banking adoption is the attitude towards transition. Mobile banking users ' personal characteristics decide their decision-making process. For example, the easiest and more convenient way to manage their money is increasingly sophisticated for customers or users. But savvier consumers are more likely to take charge. Therefore, they are more likely to take advantage of mobile banking flexibility as their confidence grows (Lai, 2016).

2.4 Empirical Reviews

There are both local and international empirical studies that have been undertaken on the issue of adoption of mobile banking or else on the issue of new innovation or technologies. The underlying and the consistent issue is that there are varying factors that enhance adoption of new innovations and new technology. The results of these studies therefore vary dependent on the innovation under study and the factors under study as well.

Eseonu and Egbue (2014) undertook a study that they were interested in determining the influence of social-cultural practices on technology adoption and sustainable development. They analysed the social technical success factors on both Silicon Valley and Silicon Glen by the use of socio-technical systems lens. They then classified data by use of Hofstede's cultural dimensions, diffusion innovations and a national entrepreneurship typology. They found that social cultural practices influenced adoption of technology in both Silicon Valley and Silicon Glen, and their findings enabled them to create a road map for the engineering managers, researchers and technical entrepreneurs in navigating Socio-technical challenges. This study concentrated on socio-cultural dimensions on technological adoption at Silicon Valley and Silicon Glen. However, there are other factors not considered including and not limited to accessibility of mobile banking infrastructure and ease of use of the same technology thus necessitating this research.

Khan et al. (2017) examined the causes, demographic variables and preferences of users that affect mobile banking adoption in Bangladesh. They also developed a self-administered questionnaire for a 4-year sample survey of 400 mobile banking users. The study found that the vast majority of mobile banking users were men between the ages of 20 and 24 years, and that, although it was viewed as complicated and vulnerable to network problems, mobile banking was confident, secured and cost-effective. They also discovered that demographics have no bearing on mobile banking use. However, it demonstrates the perception that mobile banking adopting affects security, cost, comfort and complexity. This study was undertaken in Bangladesh where perception and environmental issues are different from the current study which will be undertaken locally, that is, in Kenya.

Kansal (2016) looked into the factors that influences mobile banking in either being rejected or accepted. She stipulated a number of factors that included cost, trust and risk. She used perceived ease of use and perceived usefulness as mediating variables. She found that increased perceived

risk and perceived cost increased the chances of users rejecting adoption of mobile banking and trust had the greatest impact on whether to adopt or fail to adopt mobile banking. She recommended that India needed to pursue strategies that would help them gain trust of their clients in the banking segments. The variables under this study are different from the study to be undertaken which tends to determine socio-cultural factors, level of innovation, level of technology and accessibility to mobile banking infrastructure.

Abdinoor and Bamba (2017) used TAM to determine the level of adoption of mobile financial services in Tanzania. The research was based on individual awareness of mobile financial services, perceived benefits, perceived ease of use and implication of costs on adoption. They used random sampling to assess 200 participants from Dare Salam and analysis through a regression model was used. A positive relationship between the dependent variable and individual awareness, perceived benefit and perceived ease of use was found but a negative relationship between the dependent variable and cost implications was found. Demographic effects were found to be moderating the relationship. The study by Abdinoor and Bamba was based in Tanzania whereas the current study will be based in Kenya, where level of technological advancement vary between the two countries thus adoption will be affected by different factors.

Wamai and Kandiri (2015) undertook a local study on the factors that determined adoption of mobile banking by clients of micro finance institutions in Nairobi County. A sample size of 210 customers and TAM framework was used in analysing data collected. The perceived value of mobile banking and its perceived ease of use connect positively. On the other hand, there was a negative correlation between perceived risks and transaction costs and the adoption of mobile banking technology. This study seems similar to the current study though it concentrated on microfinance institutions, the study was conducted in the year 2015 and changes on the factors might have changed as well.

In order to determine the use of mobile and internet banking in financial institutions, Okiro and Ndung'u (2013) surveyed 30 financial institutions in Nairobi. It was established that in most cases the clients used internet banking on enquiring on the balances in their accounts. They also found out that the clients rarely used internet banking for bill payment. Researchers discovered that the most frequently used service was cash withdrawals while the least frequently used buying goods.

This study concentrated on the extent or on what mobile banking concentrated on, while the current study will concentrate on identifying the factors that influence the mobile banking adoption.

Achieng and Ingari (2015) examined factors that affect mobile banking in Kenya by commercial banks with specific aims to assess the perceived risk part of mobile banking, its influence on costs and its perceived ease of use. They have adopted a descriptive research design in which 169 respondents in the KCB Kilindini branch have been sampled. The study was carried out using SPSS technology and found that perceived risk and costs were the main factors preventing mobile banking, while mobile banking was considered to be easy to use. The focus of this study was on the Mombasa region and especially one Kilindini branch. Consequently, the results could not be easily extended to other industries of numerous social and cultural aspects.

A study conducted by Patel (2015) confirmed that TAM model beliefs on perceived usefulness and perceived ease of use influenced adoption of the use of IT and usage behaviour. However the inter correlation between these factors was unclear and how this influenced the intention to use technology. The researcher critiqued a number of models that were used severally by a number of researchers in determining factors that predicted technology adoption in Durban Ireland. Secondary data was utilised to review the literature and the findings of these researches. The study was based on the use of Information Technology (IT) and behavioural effects on the users, and not on its influence on mobile banking adoption, thus necessitating this study.

2.5 Conceptual Framework

The study consists of dependent and independent variables. The variable depending on the survey is the adoption of mobile banks, which can consist of the number of clients using mobile banking. The independent variables are the factors which influence this adoption that have been identified as the perceived usefulness, perceived risk, perceived ease of use and social and cultural factors. The figure below represents this conceptual framework.

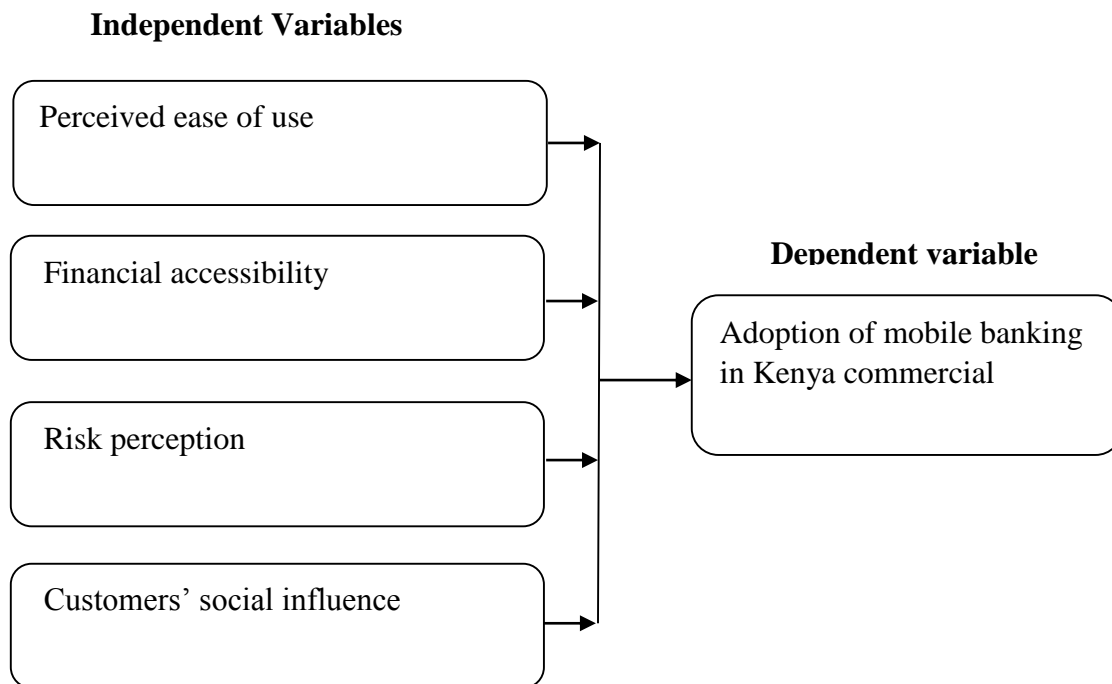


Figure 2. 1: Conceptual Framework

2.6 Summary and Conclusions

Controversies, differences, and confusion that surround new technology, mobile banking, are clear from this chapter. Theoretical evaluations indicate proposed and valid theories for this research. The theories and model (Innovations diffusion theory, theory of reasoned action and technical advanced models) show how level of technology advancement is adopted by various users. Some factors influence new technology users while other factors inhibit adoption of the new technology. These factors however differ from one population to the other, they also depend on one user and the level of perceived usefulness by one user over the other. It therefore becomes imperative to carry out this study as it would shed light on whether these factors also influence adoption of mobile banking in Kenya.

The local and international studies also give different outcomes and different conclusions. The factors under study have been studied in different populations with different cultural and social influence. The factors under study are also different in the different studies that have been conducted. This therefore increases the study gap that the researcher would like to achieve by understanding the factors that influence adoption of mobile banking in Kenya. This study will

examine factors such as accessibility of mobile banking infrastructure, level of technology and level of innovation as the factors that may affect adoption of mobile banking in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers research design, target population, sampling design, methodology for data collection and data analysis.

3.2 Research Design

Research design refers to the methods and procedures that are used in collecting and analysing data of the variables that were specified in the study variables. Through this, research question answers are provided. The methods of research design are; descriptive research design that tries to explain relationships between variables, correlational research design among others. Through descriptive research design, the relationship between the dependent variable and the independent variables is explained (Kothari, 2004).

3.3 Target Population

The research focused on all accounts of Kenya's commercial banks (customers). A study had shown that Kenya is 75% of Eastern Africa's biggest banking penetration.

3.4 Sample and Sampling Technique

A stratified method of sampling was employed. A sample from the different banks of four non-company customers were randomly chosen. Kenya has 43 registered commercial banks as per the year 2018 (Appendix II). According to Krejcie & Morgan (1970) a sample is important as it helps in making inference about the characteristics of the entire population from the characteristics of the sample. A sample should therefore contain about 10-30% of the population, meaning at least 10% but not more than 30% of the population. This study dealt with a big population and therefore the following formula was used to determine the sample size

$$\text{Sample size} = \frac{(Z_{\alpha/2})^2 \times P(1-P)}{E^2}$$

Where: $(Z_{\alpha/2}) = Z$ value

We shall use 1.96 in this case

P represents the percentage proportion of choice (10% used for sample size needed)

E represents the error margin set at (5%)

Using the assumptions made we therefore conclude the following:

Sample Size will be given by $(1.96)^2 \times 0.1 (1 - 0.1) / 0.05^2$

= $(3.8416 \times 0.09) / 0.0025$

= 138 respondents

3.5 Data Collection Method

The author received from the University an introductory letter that was addressed to the respondents. With the help of research assistants, the researcher delivered the questionnaires and gave the selected respondents' a maximum of 3 days after which the researcher collected the completed questionnaire for analysis. To give the respondents plenty of time to respond well, the drop-and-pick method was preferred for questionnaire administration.

3.6 Data Analysis

Cleaned, coded and systematically organized data was facilitated using the Statistical Package for Social Sciences (SPSS). Using descriptive statistics such as frequency, mean and standard deviation, quantitative analysis was employed. Regression analysis was to determine the relationship between different factors and adoption of mobile banking. The findings were presented in Tables.

3.6.1 Analytical Model

The multiple regression model used to determine the relationship between factors influencing adoption and the level of mobile banking adoption in Kenya commercial banks was in the form below.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y= Adoption of mobile banking in Kenya commercial banks

β_0 =constant

$\beta_1, \beta_2, \beta_3$ and β_4 = Beta coefficients

X_1 = Perceived ease of use

X_2 = Financial accessibility

X_3 = Risk perception

X_4 = Customers' social influence

ε = Error term

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF THE FINDINGS

4.1 Introduction

The chapter deals with the analysis for the data collected regarding factors affecting commercial banks' adoption of mobile banking in Kenya. The findings were presented in Tables with frequencies, percentages and descriptive statistics.

4.2 Response Rate

138 customers of commercial banks were targeted to for the research. Through follow-ups, 118 questionnaires were received back that represented a 85.5% response rate. As Gorard (2013) states, a questionnaire return rate which is more than 50% is adequate for analysis of data.

4.3 Background Information of the Respondents

This section present findings for respondents general information in terms of their age, gender, highest level of education and how long they have been a client in the bank.

4.3.1 Age of the Respondents

Regarding the respondents' age, Table 4.1 illustrated the responses.

Table 4. 1: Age of the Respondents

	Frequency	Percent
Below 25 years	27	22.9
25-30 years	36	30.5
31-39 years	28	23.7
40 years and above	27	22.9
Total	118	100

From the findings, majority of the respondents were aged between 25 and 30 years as shown by 30.5%. Other respondents indicated to be aged between 31 to 39 years (23.7%), below 25 years (22.9%) and 40 years and above (22.9%). It implies that all of the relevant age groups were covered by the data collection and therefore the data collected varied. The accuracy and knowledge of the subject studied were improved.

4.3.2 Gender of the Respondent

The interviewees were asked to verify their gender. The results are shown in Table 4.2.

Table 4. 2: Gender of the Respondent

	Frequency	Percent
Male	76	64.4
Female	42	35.6
Total	118	100

The results showed that 64.4% of survey participants were male while the rest as shown by 35.6% were female. This indicates that the researchers found a compilation of credible information on the matter for all respondents regardless of their gender.

4.3.3 Highest Level of Education

The respondents' highest education level was also sought. Table 4.3 provided their replies.

Table 4. 3: Respondents Highest Level of Education

	Frequency	Percent
Certificate	44	37.3
Diploma	40	33.9
Degree	31	26.3
Masters	3	2.5
Total	118	100

The results show that most of those surveyed had an educational certificate as shown by 37.3%. Others reported having a diploma as shown by a 33.9%, a degree (26.3%) and a master's degree (2.5%). This shows that most study participants were sufficiently learned to correctly answer the questions in the tool.

4.3.4 Period of Being a Client in the Bank

The period in which the respondents were bank clients was also sought. The replies are as displayed in Table 4.4.

Table 4. 4: Period of Being a Client in the Bank

	Frequency	Percent
Less than 1 year	25	21.2
1- 5 years	47	39.8
6-10 years	22	18.6
Over 10 years	24	20.3
Total	118	100

The findings reveal that majority of the respondents indicated that they have been a client in the bank for 1 to 5 years as shown by 39.8%, less than 1 year as shown by 21.2%, over 10 years as shown by 20.3% and others indicated that they have been a client in the bank for 6 to 10 years as shown by 18.6%. Most of the respondents were clients of the bank for sufficient time to recognize and describe the trends of the subject under study over the years.

4.4 Factors Affecting Adoption of Mobile Banking by Commercial Banks in Kenya

Factors affecting the mobile banking adoption in Kenya are included in this section. The factors include social and cultural factors, perceived usefulness and ease of use, perceived risk, transaction costs and financial accessibility. The findings are presented in various sub sections.

4.4.1 Adoption of Mobile Banking

In addition, the participants were asked to confirm that they agreed or disagreed with different statements on the adoption of commercial mobile banking in Kenya. Table 4.5 presents the findings.

Table 4. 5: Agreement with various Statements on Mobile Banking Adoption

	Mean	Std. Dev.
I transfer money from my account using mobile banking	4.087	0.814
I check my account balance through mobile banking	3.708	0.934
I make payments using mobile banking	3.661	0.416
I perform card services using mobile banking	4.162	0.917
I query my account information via mobile banking	3.076	0.612

It was found that the respondents agreed that they perform card services using mobile banking as shown by a score of 4.162, that they transfer money from their account using mobile banking as shown by a score of 4.087 and that they check their account balance through mobile banking as

illustrated by an average score of 3.708. Also, it was agreed that they make payments using mobile banking as shown by a score of 3.661 but were neutral that they query their account information via mobile banking as shown by a score of 3.076.

4.4.2 Social and Cultural Factors

The respondents were asked to indicate their level of agreement or disagreement with various statements on social and cultural factors using a likert scale 1 to 5. The findings are displayed in Table 4.6.

Table 4. 6: Agreement with various Statements on Social and Cultural Factors

	Mean	Std. Dev.
Personal Behaviour		
I have a smart phone that can use mobile banking services	4.009	0.956
I have the knowledge to use mobile banking services	3.907	0.867
I have the ability to use mobile banking service	4.051	0.846
It would take much time and effort to learn to use mobile banking services	3.500	0.903
Most of my friends use mobile banking	3.000	0.751
Social Influence		
People I value think I should use mobile banking services	3.932	0.803
People whose opinion I value think I should use mobile banking services	3.670	1.170
Most of the members in my community use mobile banking	4.568	0.497
Most members in the community feel I should use mobile banking too	3.932	0.688
I would use mobile banking for my banking needs without visiting the bank	3.441	1.173

As per the findings on personal behaviour, the study participants agreed that they had smart phones that can use mobile banking services as shown by a average of 4.009; they have the ability to use mobile banking service as shown by average of 4.051; they have the knowledge to use mobile banking services as shown by an average of 3.907 and it would take much time and effort to learn to use mobile banking services as depicted by an average of 3.500. Other respondents were neutral that most of their friends use mobile banking (3.000).

Most of the respondents agreed strongly on social influence that most of the members in their community use mobile banking as illustrated by an average score of 4.568. In addition, the respondents agreed that People they value think they should use mobile banking services as

illustrated by an average of 3.932, that most members in the community feel they should use mobile banking too as illustrated by an average score of 3.932 and that people whose opinion they value think they should use mobile banking services as illustrated by an average of 3.670. Moreover, the respondents were neutral on the fact that they would use mobile banking for their banking needs without visiting the bank as illustrated by a score of 3.441.

4.4.3 Perceived Usefulness and Ease of Use

Further, the respondents were asked to indicate their level of agreement or disagreement with various statements on perceived usefulness and ease of use affecting adoption of mobile banking using a Likert scale 1 to 5. The findings are as displayed in Table 4.7.

Table 4. 7: Agreement with various Statements on Perceived Usefulness and Ease of Use

	Mean	Std. Dev.
Perceived Usefulness		
Mobile banking helps in saving time to undertake transactions	3.542	0.636
Mobile banking is cheaper than normal banking	3.814	0.924
My clients accept mobile banking payments as I also accept to be paid through mobile banking	4.161	0.522
The limits for transactions allowed in mobile banking are sufficient for my transactions	3.542	0.636
Mobile banking saves me long distances I would have travelled to access banking services	3.509	0.624
Perceived Ease of Use		
Mobile banking is very simple to use	4.415	0.766
I am able to pay my bills conveniently using mobile banking	3.424	0.591
The process of making and receiving payments through mobile banking is simple and cheaper	3.390	0.796
Mobile banking is generally acceptable	3.873	0.833
Mobile banking has many processes that are difficult to follow	4.034	0.626

As per the findings on Perceived Usefulness, most of the respondents agreed that their clients accept mobile banking payments as they also accept to be paid through mobile banking as shown by a score of 4.161; It is cheaper than normal banking as shown by a average of 3.814; It helps in saving time to undertake transactions as shown by an average of 3.581; the limits for transactions allowed in mobile banking are sufficient for my transactions as shown by an average of 3.542 and mobile banking saves them long distances they would have travelled to access banking services as shown by a average of 3.509

Moreover on perceived ease of use, most of the respondents agreed that mobile banking is very simple to use as shown by a score of 4.415; has many processes that are difficult to follow as shown by a score of 4.034 and is generally acceptable as illustrated by an average score of 3.873. Additionally, the respondents were neutral that they are able to pay their bills conveniently using mobile banking as shown by a mean score of 3.424 and that the process of making and receiving payments through mobile banking is simple and cheaper as shown by a mean score of 3.390.

4.4.4 Perceived Risk

Further, the respondents were asked to indicate their level of agreement with various statements on perceived risk influence on mobile banking adoption using a likert scale 1 to 5. The findings are displayed in Table 4.8.

Table 4. 8: Agreement with various Statements on Perceived Risk

	Mean	Std. Dev.
Perceived Costs		
Mobile banking is more costly than other forms of banking	3.839	0.886
Internet is not easily accessible by use of my phone	4.229	0.767
Mobile banking involves use of many passwords that are difficult to remember	2.534	1.252
It is costly to obtain a mobile phone that can be used for mobile banking	4.000	0.806
There are other hidden costs in mobile banking that makes it unfavourable	4.339	0.669
Perceived Risk		
Use of mobile banking increases chances of other people to access my banking information	3.288	1.055
Mobile banking is prone to cyber-crimes and loss of money	4.288	0.642
It is possible to forget personal details in mobile banking that would lead to inaccessibility of one's account	3.517	0.884
Hacking and malwares make mobile banking risky	2.856	0.670
It is easy to send money to wrong accounts and wrong people by use of mobile banking	4.297	0.589

From perceived costs, it was agreed that there are further hidden costs in mobile banks that make it disadvantageous as demonstrated by a score of 4.339. The respondents agreed that it is not easy to access Internet via their telephones, which are demonstrated by an average of 4.229. It is costly to obtain a mobile phone that can be used for mobile banking as shown by a score of 4.000 and that mobile banking is more costly than other forms of banking as depicted by an average score of

3.839. In addition it was neutral to respondents that mobile banking uses numerous passwords which are difficult to remember, as demonstrated in average by 2.534.

Further on Perceived Risk, the respondents agreed that it is easy to send money to wrong accounts and wrong people by mobile banking use as shown by average of 4.297; mobile banking is prone to cyber-crimes and loss of money as shown by a score of 4.28 and that it is possible to forget personal details in mobile banking that would lead to inaccessibility of one’s account as shown by a score of 3.517. The respondents were neutral that use of mobile banking increases chances of other people to access my banking information as shown by a score of 3.288 and that hacking and malwares make mobile banking risky as shown by a score of 2.856.

4.4.5 Effect on Transaction Costs

The respondents were also asked to decide on a range of Impact on Transaction Costs Claims, with the scale of likert1 to 5. Table 4.9 shows the results.

Table 4. 9: Agreement with various Statements on Effect on Transaction Costs

	Mean	Std. Dev.
The cost of over the counter transactions discourage minimal cash transactions	4.068	0.713
Mobile banking service providers are fair in their conduct of customer transactions	3.339	0.972
When transaction errors occur, reversals are done more efficiently	4.170	0.617
Transferring money from one bank account to another is much cheaper	3.542	0.735
Mobile banking has increased the quality of my transactions	3.585	0.981
Mobile banking provides me with relevant and timely information about my bank accounts & transactions	4.373	0.760
Mobile Banking makes the payments of utilities much cheaper	4.000	0.806

The findings revealed that the respondents agreed that there is provision of accurate and timely data on their bank accounts and transactions as displayed by an average of 4.373; when payment errors occur, reversals are rendered more efficiently as demonstrated by an average of 4.170; over - the-counter transaction costs deter minimum cash transactions as illustrated by an average of 4.068 and the payments of utilities are much cheaper as displayed by an average of 4.000. The interviewees have accepted that the cost of their transactions has increased by an average of 3.585 and that money transfer from one bank to the other is much cheaper than shown by an average of

3.542. The respondents were neutral on the fact that the providers are honest in their quality of the customer transaction as seen by an average of 3.339.

4.4.6 Effect on Financial Accessibility

Agreement levels on the impact of financial accessibility with different statements on likert scales 1 to 5 was also sought. Table 4.10 shows the responses.

Table 4. 10: Agreement with various Statements on Effect on Financial Accessibility

	Mean	Std. Dev.
Access to mobile banking service encourages regular access to financial services	3.856	0.830
Mobile Banking makes it safer for me to pay or receive money (as opposed to cash or other forms of transactions)	2.729	1.051
I am worried about threat of fraud associated with the use of m-banking	2.661	0.475
Various services offered by mobile banking encourages the use of mobile banking	4.051	0.846
I find the Mobile Banking applications flexible to interact with	3.288	0.681
I find security and privacy as an issue while using mobile banking services	2.822	0.747

As per the findings, the survey participants agreed that various mobile banking services provided, promote the use of mobile banking as demonstrated by an average of 4.051 and the access to mobile banking enables daily access to financial services as indicated by an average of 3.856. Nonetheless, the respondents are neutral that the mobile banking applications were easy to communicate with an average of 3.288; security and privacy were a problem when using mobile banking services as displayed by an average of 2.822; through mobile banking it easier for payment or receiving of cash (as opposed to cash or other types of transactions) as illustrated by an average of 2.729 and customers are worried that the use of m-banking is associated with a threat of fraud as illustrated by a mean score of 2.661.

4.5 Correlation Analysis

The study conducted Pearson correlation analysis to establish the strength of the relationship between various factors affecting the mobile banking adoption by Kenya commercial banks. The findings are displayed in Table 4.11.

Table 4. 11: Correlation Matrix

		Adoption of mobile banking	Perceived ease of use	Financial accessibility	Risk perception	Customers' social influence
Adoption of mobile banking	Pearson Correlation	1				
	Sig. (2-tailed)	.				
Perceived ease of use	Pearson Correlation	.714	1			
	Sig. (2-tailed)	.023	.			
Financial accessibility	Pearson Correlation	.611	.513	1		
	Sig. (2-tailed)	.027	.026	.		
Risk perception	Pearson Correlation	.522	.423	.0327	1	
	Sig. (2-tailed)	.028	.012	.018	.	
Customers' social influence	Pearson Correlation	0.672	.533	.520	.431	1
	Sig. (2-tailed)	.042	.009	.002	.014	.

According to the Table 4.11, commercial banks' mobile banking adoption in Kenya and perceived ease of use have a positive relationship as demonstrated by a 0.714 coefficient and was significant since the p-value was $.023 < 0.05$. Further, there was a positive relationship between commercial banking adoption in Kenya and financial accessibility as revealed by a coefficient of 0.611 and a p of $.027 < 0.05$, hence significant.

There existed a positive relationship between commercial banking adoption in Kenya and risk perception as its coefficient was .522 and $p = .028 < 0.05$, therefore was significant. Also, there was a positive relationship between commercial banking adoption in Kenya and customers' social influence as illustrated by a coefficient of 0.672, which was also significant since $.042 < 0.05$. Therefore, all the variables were significant.

4.6 Regression Analysis

The researcher carried out a multiple regression analysis so as to establish the variable relationship. Table 4.12 expresses the model summary.

Table 4. 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.830	0.689	0.678	1.103

The results showed that the statistically significant independent variables predicted the dependent variable as the adjusted R square was 0.678. This means that 67.8% of the changes in commercial banks ' adoption in Kenya could be explained by the perceived ease of use, financial accessibility, risk perception and customers' social influence. Other factors influencing Kenya commercial banks ' mobile banking adoption accounted for 32.2 percent hence formed the basis for further studies since they were not covered in this study.

Table 4. 13: ANOVA Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	312.873	4	78.218	62.646	.000
	Residual	141.089	113	1.249		
Total		453.962	117			

From the ANOVA table the p-value was 0.000 and the F-value was 62.646. Since p-value was less than 0.05 and the F-calculated was greater than F-critical (2.452), the regression relationship was significant in determining how perceived ease of use, financial accessibility, and risk perception and Customers' social influence affects the Kenya commercial banks ' mobile banking adoption.

Table 4. 14: Coefficients of Determination

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.267	0.182		3.317	.001
Perceived ease of use	0.812	0.321	0.714	2.530	.014
Financial accessibility	0.712	0.278	0.611	2.561	.013
Risk perception	0.568	0.208	0.462	2.731	.007
Customers' social influence	0.771	0.312	0.672	2.471	.016

The equation derived for the research was:

$$Y = 1.267 + 0.812X_1 + 0.712X_2 + 0.568X_3 + 0.771X_4$$

Where: -

Y= Adoption of mobile banking by commercial banks in Kenya

X₁= Perceived ease of use

X₂= Financial accessibility

X₃= Risk perception

X₄= Customers' social influence

The above regression equation has shown that taking (perceived ease of use, financial accessibility, risk perception and Customers' social influence) constant at zero, commercial banks' adoption of mobile banking in Kenya will be 1.267. The results presented also indicate that increased perceived ease of use contributes to an increase of 0.812 in the score of Kenya commercial banks' mobile banking adoption if all other variables are held constant. Because 0.014 was less than 0.05, this factor was significant. The adoption of mobile banking by commercial banks was also found to increase by 0.712 if financial accessibility is increased. As $0.013 < 0.05$, the variable was significant.

However, it was found that a unit increase in management support scores led to an increase of 0.568 in the score of adopting mobile banking in Kenya. Since 0.007 was less than 0.05, this variable was significant. Further, a unit increase in the scores of social influence of customers would result in an increase of 0.771 in the scores of adopting mobile banking. Since $0.016 < 0.05$, this variable was significant.

Overall, perceived ease of use had the greatest influence on adoption of mobile banking by commercial banks in Kenya followed by customers' social influence, then financial accessibility while risk perception had the least influence. P-values were less than 0.05 hence all the variables were significant.

4.7 Discussion of Findings

The study found that most of bank clients have a smart phone that can use mobile banking services and have the ability to use mobile banking service. In addition, it was found that customers are aware of the use of mobile banking services and the time and effort to learn to use mobile banking services. Further, most of the members in their community use mobile banking, that most members in the community feel they should use mobile banking too and that people whose opinion they value think they should use mobile banking services. Moreover, the study found that banks clients

would use mobile banking for their banking needs without visiting the bank. The results of this study are in line with Lai (2016), who argues that it is usually used as users in m-banks to create, maintain and thus to decide how the image affects the social role of one.

The study established that clients accept mobile banking payments as they also accept to be paid through mobile banking; mobile banking is cheaper than normal banking; it helps in saving time to undertake transactions; there are sufficient mobile banking limits for transactions allowed for transactions and that mobile banking saves them long distances they would have travelled to access banking services. It was also established that mobile banking is very simple to use; has many processes that are difficult to follow and is generally acceptable. The customers were found to be able to pay their bills conveniently using mobile banking and the process of making and receiving payments through mobile banking is simple and cheaper. These findings are in line with Eseonu and Egbue (2014) who undertook a research that determined the influence of social-cultural practices on technology adoption and sustainable development and found that social cultural practices influenced adoption of technology in both Silicon Valley and Silicon Glen, and their findings enabled them to create a road map for the engineering managers, researchers and technical entrepreneurs in navigating Socio-technical challenges.

The study found that there are other hidden costs in mobile banking that makes it unfavourable, that internet is not easily accessible by use of their phone, that it is costly to obtain a mobile phone that can be used for mobile banking and that mobile banking is more costly than other forms of banking. Additionally, the study found that mobile banking involves use of many passwords that are difficult to remember. The study also found that sending money was simple through mobile banking to false accounts and people, that mobile banking is prone to cyber-crime and loss of money, and that personalized information on mobile banking can be forgotten, resulting in the unavailability of your account. These results refer to Khan et. al. (2017) examined factors, demographic variables and user perception which have an impact on the adoption of mobile banking in Bangladesh and found that demographic characteristics have no effect on mobile banking adoption. This showed, however, that security expectations, prices, usability and complexity in mobile banking affect mobile banking adoption.

The study found that appropriate, timely information was provided about your bank accounts and transactions; reversals are done more efficiently when transaction errors occur; minimal cash transactions are discouraged due to over the counter transactions costs and payments of utilities are much cheaper. Transactions performance has also increased; cheaper money transfers from bank to bank account and equality in the conduct of consumer transactions for mobile banking providers. These findings are in line with Kansal (2016) looked into the factors that influences mobile banking in either being rejected or accepted and found that that increased perceived risk and perceived cost increased the chances of users rejecting adoption of mobile banking and trust had the greatest impact on whether to adopt or fail to adopt mobile banking.

The study established that mobile banking services use through the offered services and regular access to financial services is encouraged. Mobile banking systems have been found versatile to work with; security and privacy are problems with the introduction of mobile banking services; they are easier to pay and receive cash (in comparison to cash or other forms). These findings are in line with Wamai and Kandiri (2015) who stated that there is a positive correlation between perceived usefulness and perceived ease of use that affects mobile banking adoption. On the other hand perceived risk and perceived transaction costs had negative correlation with mobile banking adoption.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The presentation of the key data findings discussion, drawn conclusions and recommendation made there-to were entailed in this chapter. The study objectives addressed drew the conclusions and recommendations.

5.2 Summary of The Findings

The research established the effect of perceived ease of use on adoption of mobile banking. The study showed that customers welcome mobile banking payments, that mobile banking is cheaper than normal banking, that mobile banking helps save time in transactions, that the transaction limits permitted in mobile banking are sufficient for my transactions, and that mobile banking can save long distances from mobile banking. The analysis also found that mobile banking is easy to use, often difficult to follow and generally acceptable. It was found that clients can easily pay their bills using mobile banking and that transactions are easier and cheaper to receive through mobile banking.

The research was aimed at evaluating the effect on financial accessibility of mobile banking. In the report, different mobile banking services promote mobile banking and the promotion of daily financial services through mobile banking services . Access to mobile banking services. The study found that mobile banking apps are flexible for interaction, that security and privacy is a problem in mobile banking services, that mobile banking makes payment or receipt of money safer and that the threat of fraud associated with m-banking is concerning

The study sought to establish the effect of risk perception on adoption of mobile banking. The study found that there are other hidden costs in mobile banking that makes it unfavourable, that internet is not easily accessible by use of their phone, that it is costly to obtain a mobile phone that can be used for mobile banking and that mobile banking is more costly than other forms of banking. Additionally, the study found that mobile banking involves use of many passwords that are difficult to remember. The study also established that it is easy to send money to wrong accounts and wrong people, it is prone to cyber-crimes and loss of money and it is possible to forget personal details in mobile banking that would lead to inaccessibility of one's account

The research further aimed at identifying how the social impacts of customers influence mobile banking adoption. The report revealed that most bank customers have a smart smartphone that is capable of using mobile banking services. Bank customers are also aware of the use of mobile banking and that it takes time and effort to learn how to use mobile banking services. Many members of their groups also use mobile banking, most of the community feel they also need mobile banking and people who believe that mobile banking services should also be used to their benefit. In addition, the study found that banks ' clients would use mobile banking without visiting the bank for their banking needs.

5.3 Conclusions

The study concluded that perceived ease of use significantly influences the adoption of mobile banking. It is clear that most bankers accept payments from mobile banking as they accept payment through mobile banking as well. Customers often know mobile banking is cheaper than normal banking and that mobile banking saves them long journeys to access banking services through having small transactions in mobile banking. The use of mobile banking is easy and it enables bank customers to conveniently pay their bills through mobile banking and makes payment processing and receipt via mobile banking easier and cheaper.

The study concluded that financial accessibility contributes significantly to mobile banking adoption by Kenya commercial banks. Different services provided by mobile banking facilitate the use of mobile banking and enable daily financial services access through mobile banking. The mobile banking applications use which are interacting with more flexible makes it safer for mobile banking services and mobile banking to pay for or receive money (rather than cash or other forms of transactions).

The study also concluded that risk perception significantly influences commercial banks ' adoption of mobile banking in Kenya. There are other hidden costs in mobile banking that makes it unfavourable, that internet is not easily accessible by use of their phone and it is costly to obtain a mobile phone that can be used for mobile banking and that mobile banking is more costly than other forms of banking. The study also revealed that it is easy to send money to misrepresented accounting or wrong persons through use of mobile banking. It revealed that mobile banking is vulnerable to cyber crimes and the loss of funds.

Further, the study found that commercial banks in Kenya are majorly impact by customers' social influence. Most of the bank's customers have a smartphone which is capable of using mobile banking services and mobile banking. Bank customers are therefore aware that it takes a lot of time and effort to understand how to use mobile banking services. Most members were also founded to use mobile banking in their communities.

5.4 Limitations

Due to the design of the study, the study used multiple regression analysis, yet it holds assumptions that may not be carried regularly. The research was restricted to commercial banks; for the collection of data, the study was confined to account-holder (clients).

In addition, the study results were restricted to the degree to which respondents were prepared to provide correct, objective and reliable information. The researcher examined the consistency of the data and tested their reliability.

The study was confined to primary data from account holders (customers). The small sample size could also have limited confidence in the results and generalizations may be limited to other situations.

5.5 Recommendations

As the majority of account holders are aware of the way electronic banking services are used, banks must try to notify account holders of their advantages through the taking up of these services. The Bank should also give existing clients the best services to encourage their co-workers, friends and relatives to take on the service.

It should be encouraged for clients to use mobile banking as it gives them access to their funds whenever they want and also offers cost-effective unbanked banking services. To convince more customers to take up the service, the bank must ensure that the transaction costs are lower than the counter costs.

The Management of these banks and other service providers should reassess their mobile banking services and the mission to locate the services that they want to access through mobile banking from their customers so that any solutions they provide are more customer-friendly and encouraging them. The issues outlined are also recommended to service providers to provide

consumers with valuable experience as they take up this technology, as it continues to be explored thoroughly and easily.

Given that access to financial services is one of the 6 priority sectors of the economy, the government needs this as an opener of views and guidance on how far it has moved, and what can be done to have a financial sector that is all-inclusive, within the country's Millennium Development Goal and vision for 2030. Firms considering launching mobile services in Kenya can get meaningful and valuable insights by analysing the results of the study. This can be achieved by developing better functions in terms of flexibility, security and accessibility features to enhance consumers' confidence to adopt mobile banking services.

The research recommends that commercial banks spend more on marketing efforts to inform the mobile banking security market and encourage it. The study also suggests that commercial banks focus more on how mobile banking transactions can be reduced cost effectively to attract more people. Creating awareness should be improved to make mobile banking more accessible. Banks should make sure that their levels of satisfaction are increased by the various services provided by mobile banking. The various threats found and the appropriate measures to remove them should be examined.

As the perceived risk has a significant influence on the introduction of mobile banking, safety is thus a key factor in encouraging customers' confidence in the adoption of mobile banking services. In the monetary process, mobile banking providers should consistently increase the security features by practicing transparency management. It is important in this regard to develop a trustworthy reputation for business in a long term.

5.6 Suggestions for Further Research

This study focused only on commercial banks, therefore, further studies should be done with reference to other financial institutions like Saccos and Micro finance institutions

Moreover, there is need to find out why some bank customers have adopted mobile banking and are still very present in the banking halls. Additionally, research must be carried out on factors other than those discussed in this study which affect the decision to adopt mobile banks. Research is also necessary to determine the effect of mobile adoption on the profitability of financial institutions.

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APPENDICES

Appendix I: Questionnaire

This survey aims to identify and analyze the factors that impact mobile banking adoption by commercial bank customers in Kenya. Please reply by choosing the answer from the choices which best reflect your opinion.

(A) Personal Information

Please indicate the set of information which accurately reflects you, please use a tick (✓)

1. Kindly state the bank that you hold an account in _____

2. Age

- Below 25 years
- 25-30 years
- 31-39 years
- 40 years and above

3. Gender

- Male
- Female

4. Highest Level of Education

- Certificate
- Diploma
- Degree
- Masters
- PhD

5. How long have you been a client in the bank

- Less than 1 year
- 1- 5 years
- 6-10 years
- over 10 years

(B) Social & cultural factors

Using a Likert scale of 1= Strongly Disagree 2- Disagree, 3= Neutral, 4 =Agree, 5= Strongly agree, indicate your level of agreement with the outline statements influence on mobile banking adoption.

PERSONAL BAHAVIOUR		1	2	3	4	5
1	I have a smart phone that can use mobile banking services					

2	I have the knowledge to use mobile banking services					
3	I have the ability to use mobile banking service					
4	It would take much time and effort to learn to use mobile banking services					
	SOCIAL INFLUENCE					
5	Most of my friends use mobile banking					
6	People I value think I should use mobile banking services					
7	People whose opinion I value think I should use mobile banking services					
8	Most of the members in my community use mobile banking					
9	Most members in the community feel I should use mobile banking too					
10	I would use mobile banking for my banking needs without visiting the bank					

(C) Perceived Usefulness and ease of use affecting adoption of mobile banking

	Perceived Usefulness	1	2	3	4	5
1	Mobile banking helps in saving time to undertake transactions					
2	Mobile banking is cheaper than normal banking					
3	My clients accept mobile banking payments as I also accept to be paid through mobile banking					
4	The limits for transactions allowed in mobile banking are sufficient for my transactions					
5	Mobile banking saves me long distances I would have travelled to access banking services					
	Perceived Ease of Use					
6	Mobile banking is very simple to use					
7	I am able to pay my bills conveniently using mobile banking					
8	The process of making and receiving payments through mobile banking is simple and cheaper					

9	Mobile banking is generally acceptable					
10	Mobile banking has many processes that are difficult to follow					

(D) Perceived Risk and how it influences adoption of mobile banking

	Perceived Costs	1	2	3	4	5
1	Mobile banking is more costly than other forms of banking					
2	Internet is not easily accessible by use of my phone					
3	Mobile banking involves use of many passwords that are difficult to remember					
4	It is costly to obtain a mobile phone that can be used for mobile banking					
5	There are other hidden costs in mobile banking that makes it unfavourable					
	Perceived Risk					
6	Use of mobile banking increases chances of other people to access my banking information					
7	Mobile banking is prone to cyber-crimes and loss of money					
8	It is possible to forget personal details in mobile banking that would lead to inaccessibility of one's account					
9	Hacking and malwares make mobile banking risky					
10	It is easy to send money to wrong accounts and wrong people by use of mobile banking					

E) Effect on transaction costs

	Effect on Transaction Costs	1	2	3	4	5
a	The cost of over the counter transactions discourage minimal cash transactions					
b	Mobile banking service providers are fair in their conduct of customer transactions					
c	When transaction errors occur, reversals are done more efficiently					

d)	Transferring money from one bank account to another is much cheaper					
e)	Mobile banking has increased the quality of my transactions					
f)	Mobile banking provides me with relevant and timely information about my bank accounts & transactions					
g)	Mobile Banking makes the payments of utilities much cheaper					

F) Effect in financial accessibility

Financial Accessibility		1	2	3	4	5
a)	Access to mobile banking service encourages regular access to financial services					
b)	Mobile Banking makes it safer for me to pay or receive money (as opposed to cash or other forms of transactions)					
c)	I am worried about threat of fraud associated with the use of m-banking					
d)	Various services offered by mobile banking encourages the use of mobile banking					
e)	I find the Mobile Banking applications flexible to interact with					
f)	I find security and privacy as an issue while using mobile banking services					

Adoption of Mobile Banking

Adoption of Mobile Banking		1	2	3	4	5
a)	I transfer money from my account using mobile banking					
b)	I check my account balance through mobile banking					
c)	I make payments using mobile banking					
d)	I perform card services using mobile banking					
e)	I query my account information via mobile banking					

Appendix 2: List of Commercial Banks in Kenya and number of account holders

Below table shows the banks and account holders per bank; (<http://fortuneofafrica.com>)

BANK	MARKET SHARE (%)	NO. OF ACCOUNT HOLDERS
1. KCB Bank	13.1	5,764,000
2. Equity bank	9.3	4,092,000
3. Co-operative bank	8.6	3,784,000
4. standard chartered bank (k) ltd	8.4	3,696,000
5. Barclays Bank of Kenya Ltd	7.9	3,476,000
6. CFC Stanbic Bank Ltd	5.7	2,508,000
7. NIC Bank Ltd	4.4	1,936,000
8. Diamond Trust Bank (K) Ltd	4.1	1,804,000
9. Commercial Bank of Africa Ltd	4.3	1,892,000
10. Citibank NA	3.0	1,320,000
11. I & M Bank Ltd	3.9	1,716,000
12. National Bank of Kenya Ltd	2.9	1,276,000
13. Bank of Baroda	2.0	880,000
14. SBM Bank (Kenya) Ltd	2.1	924,000
15. Dubai Islamic Bank (Kenya) Ltd	0.1	44,000
16. Ecobank Limited	1.4	616,000

17. Spire Bank	0.6	264,000
18. Bank of India	1.1	484,000
19. Family Bank Ltd	1.3	572,000
20. Fidelity Bank	0.5	220,000
21. Development bank of Kenya	0.6	264,000
22. First Community Bank Ltd	0.4	176,000
23. Guardian Bank Ltd	0.5	220,000
24. Gulf African Bank Ltd	0.6	264,000
25. Habib Bank A.G. Zurich	0.4	176,000
26. Housing Finance Company Ltd	1.7	748,000
27. Imperial Bank Ltd (In Receivership)	1.5	660,000
28. ABC Bank	0.8	352,000
29. Jamii Bora Bank Ltd	0.1	44,000
30. Fina Bank	0.7	308,000
31. Giro Bank	0.5	220,000
32. M Oriental Bank Ltd	0.3	132,000
33. Bank of Africa	2.1	924,000
34. Credit bank	0.3	132,000
35. Paramount Universal Bank Ltd	0.3	132,000

36. Prime Bank Ltd	1.9	836,000
37. Middle East bank of Kenya	0.3	132,000
38. Victoria commercial Bank	0.4	176,000
39. Habib Bank ltd	0.3	132,000
40. K-Rep bank	0.4	176,000
41. Consolidated Bank of Kenya	0.8	352,000
42. Transnational Bank Ltd	0.4	176,000
43. UBA Kenya Bank Ltd	0.1	44,000
Total	100%	44,000,000

<http://fortuneofafrica.com>