ST. MARY'S UNIVERSITY SCHOOL OF

GRADUATE STUDIES

MASTERS OF PROJECT MANAGEMENT

EFFECT OF MOBILE BANKING SOLUTIONS PROJECT ON THE FINANCIAL INCLUSION: THE CASE OF BANK OF ABYSSINIA

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JUNE, 2024

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERISTY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGEMENT.

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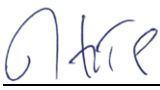
Hailemelkot Tyae (Ass.Prof.)	
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ACKNOWLEDGEMENT

The completion of this thesis has not been possible without the support and encouragement of several special people. Hence, I would like to take this opportunity to show my gratitude to those who assist me in a myriad of ways. First, I give thanks to God the Almighty for his protection, ability to do and for being there always. Next, I would like to express my heart full thanks to my Advisor Maru Shete (Ph.D.), who contributes the second highest roll in my thesis by stimulating, suggesting, and encouraging me. Thirdly, I would like to express my heartfelt thanks for employees of Bank of Abyssinia who took their valuable time in filling the survey questionaries. Ultimately, my indebted gratitude expressed to all my family members and friends for their encouragement in completing this research work.

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List of Acronyms

ANOVA: Analysis of Variance

ATM: Automated Teller Machine

BOA: Bank of Abyssinia

ESS: Ethiopia Socioeconomic Survey

GDP: Gross Domestic Product

GSMA: Global System for Mobile Communications Association

IMF: International Monetary Fund

PDA: Personal Digital Assistant

SPSS: Statistical Package for Social Science

ABSTRACT

This study aimed to investigate the effect of mobile banking solutions project on financial inclusion, focusing on the case of Bank of Abyssinia in Addis Ababa, Ethiopia. The research employed a quantitative approach, using a survey questionnaire to collect data from 302 employees of the bank. The data was analyzed using descriptive and inferential statistics, including Pearson's correlation and multiple regression analysis. The research methodology involved a quantitative approach, using a survey questionnaire to collect data from 302 employees of the Bank of Abyssinia. The data was then analyzed using descriptive and inferential statistics, including Pearson's correlation and multiple regression analysis. The findings revealed a significant positive relationship between various aspects of mobile banking solutions project (mobile money transfer, mobile payment for goods, mobile account management, and mobile credit facilitation) and financial inclusion. Specifically, mobile money transfer showed the strongest influence on financial inclusion, followed by mobile credit facilitation. The study also found that these factors collectively explained 67.2% of the variation in financial inclusion. The study concluded that mobile banking solutions significantly contribute to financial inclusion in the Bank of Abyssinia. It underscored the role of mobile banking in bridging the gap between the unbanked population and formal financial services, and emphasized the need for financial education to ensure effective utilization of these services. Based on the findings, the study recommended that the Bank of Abyssinia should develop a comprehensive mobile banking suite with features like detailed statements, account linking, mobile account creation, and improved management functionalities. It also suggested promoting mobile money transfer and mobile payment for goods as key tools for financial inclusion, and implementing educational programs highlighting the benefits of mobile banking services.

Keywords: *Financial Inclusion, Mobile Banking, Bank of Abyssinia, Addis Ababa, Economic Participation, Technological Innovation, Policy Development*

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Projects are defined as temporary endeavors undertaken to create a unique product, service, or result they are systems of knowledge, skills, and processes applied to achieve specific goals within defined time, cost, and quality constraints (Turner, 2009; Morris & Pinto, 1999). This definition emphasizes the fleeting nature of projects, their goal -oriented approach, and the focus on delivering something new or improved. Furthermore, underscores the structured approach to project management, highlighting the importance of planning, control, and resource allocation

projects have the following characteristics according to (Cleland and Kerzner, 1984), which are uniqueness, temporary nature, goal-orientation, uncertainty, and inter-dependence. Furthermore, Shenhar and Dvir, (2007) introduce the concept of project complexity, proposing four key dimensions: technical complexity, structural complexity, organizational complexity, and dynamic complexity where the framework helps understand the intricate nature of projects and the different factors that contribute to their overall complexity. These characteristics emphasize the specific nature of each project, its limited duration, the need for clear objectives, the presence of unknowns, and the interconnectedness of its various elements.

PMI (2017), outlines various project management processes and practices aimed at achieving project success. This comprehensive guide emphasizes the importance of systematic planning, execution, monitoring, and control to ensure projects meet their intended objectives. Baccarini (1996), explores the impact of projects on organizations. He argues that projects can be a source of innovation, change, and competitive advantage, but also highlights the potential for risks and challenges that need to be effectively managed.

(Fixsen et al., 2009), propose a working definition of implementation performance as "the extent to which an intervention is delivered as intended to the intended population with fidelity." This definition highlights the importance of fidelity, meaning adherence to the designed intervention, and reaching the target audience. Implementation performance encompasses not just fidelity but also "adaptation" and "sustainability." Adaptation refers to tailoring the intervention to the specific context, while sustainability indicates the ability to maintain the intervention's effects over time (Pawson et al., 2004),

the need for multifaceted approaches to assess implementation performance includes considering quantitative measures like fidelity scores and process adherence, as well as qualitative data on stakeholder perceptions and contextual factors Yates (2014). Connell et al. (2015), advocate for utilizing mixed-method designs that combine quantitative and qualitative data collection. This allows for a more comprehensive understanding of implementation successes and challenges.

Aarons et al. (2017), propose the RE-AIM framework for understanding factors influencing implementation performance. This framework considers five key dimensions: Reach, Efficacy, Adoption, Implementation, and Maintenance. Examining these dimensions helps identify strengths and weaknesses in the implementation process. Grol et al. (2007) highlight the importance of inner context (the organization implementing the initiative) and outer context (the broader socio-political environment) on implementation performance. These contextual factors can shape the feasibility and effectiveness of the implementation process.

Financial inclusion involves movement of cash related administrations and availing of economic services that include banking and insurance at reasonable cost to the great segments of lacking and low-income earners in society whose access to the services is limited. It remains a vital consideration in an impressive fiscal progression and cash related advancement standards. It is held that when each individual from the general public can affect cash related administrations, their joint duties regarding the entire progression process made speedier and more quantitative impact (Ndungu, et al. 2015). Inventive improvements like handheld contraptions, PDAs, motivation behind offer devices, corners, negligible exertion ATMs has opened up a couple of movement channels for giving budgetary administrations to isolated individuals. The present time could, thusly, see the advancement of productive plans of activity as banks see cash related fuse as a sensible business opportunity. The key expectation for banks, thusly, is to make designsof activity that enable budgetary thought and are in like manner gainful over the medium to long term (Bansal, 2014).

It is undeniable reality that majority of the less privileged people need to acquire and engage in practical money related exchanges. Thus, we are tasked to address the barriers that prevent majority of the people from enjoying services available in the financial sector which incl ude access to bank accounts, loan facilities, cash transfer services, acquiring and settlement administrations. The major focus of financial inclusion is geared at repackaging of the services

offered through the formal budgetary system to capture and consolidate people with low wage and those surviving in low living standards.

According to Jenkins (2008) the utilization of mobile cash wallets minimizes common dangers of losing money besides offering a wide coverage of usage by relying on a mobile telephony technology that has been accepted and adopted by many people all over the world. Traditional threats while using hard cash are possibilities of theft, and for those that dispatch money through traditional means, for instance, mates or relatives and public transport service providers, there are odds of the cash not getting to the wanted recipients. These casual methods of cash transmission and exchange are characterized by prolonged periods to deliver and inconveniences translating to costs through lost time and opportunities. These challenges have seen government authorities and interested stakeholders among them the CBK develop products that are accessible to the disadvantaged. Hannig and Jansen, (2008) say, Access to financial services is an area that has attracted attention of policymakers, experts, and scholars who have been pushing for its consideration as a policy concern.

A study by FinMark, (2012) indicated that 65% of the Zimbabweans stays in the rural range and that a mere 5% of these are able to approach a bank which is located in 30 minutes accessible distance. A structural policy for financial thought was set up by the Reserve bank, the financial services industry and diverse related accomplices. The policy is directed at encouraging banks to avail their services to the deprived masses by establishing countryside centers or initiating and adopting innovative developments that would incorporate and serve interest of the unbanked masses. The RBZ continued push for the unbanked to be considered in financial services is remarkable as the devolved financial activities would activate economic growth and development.

As indicated by Demirguc, (2008) poverty is an option that is other than an absence of money. It extends to scarcity and nonappearance of access to the tools and means through which the poor could enhance their living standards. Evasion from the formal money related structure has dynamically been perceived as one of the hindrances to a world without destitution. In many creating countries, most of families don't have a record with a money related association, while little firms sometimes allude to inconvenience in getting to and overseeing financing as a key constraint on their improvement (Kunt, 2011).

Regardless, the utilization of unregulated financial arrangements proposes that the poor are constrained in their capacity to spare, repay duties, and manage financial risks. On a macroeconomic level, this money related challenges on the poor can deter budgetary headway and widen financial resource disparities (Honahan, 2008).

Mas (2010) noted the potential that mobile money has displayed in changing money related considerations. "Whereas most traditional budgetary consideration models have concentrated on either lending' or 'reserve funds' approaches, the M-PESA revolution proposes another approach concentrating on building the funds movement channels on which a more extensive arrangement of monetary administrations can flow (Radcliffe, 2010). More advantages of mobile money technology emerges in light of the fact that liquid cash frameworks can fill in as a stage for extra advancements, ranging from online cash settlement services to productive money exchanges for persons in remotest areas.

1.2. Statement of the Problem

Availability of formal financial services that include savings, credit, and remittances continues to be a challenge for the underprivileged society members globally. These sections of the society have for long been deterred from participating in the formal financial segment. Renowned financial organizations like banks have been competing and some have ended up closing some local outlets thus blocking entrance to these locations by financial organizations (Agarwal, 2010).

The reasoning attached to opening bank account is majorly associated to the necessity to receive payments like salaries and not to accumulate savings. To great extent, this informs the high number of dormant accounts in commercial banks (Johnson 2014).

The speedy acceptance of mobile money services in the country has sparked eagerness all over the world on the ability to offer financial services to the underprivileged through the mobile phone technology. Mobile saving money has been seen as an answer for budgetary and financial incorporation and the test is to affirm whether use of mobile devices to settle transactions is the answer for monetary consideration. Most of the Ethiopia populace remains 'unbanked' and a portion of the components that have been referred to as causing poor people and helpless

gatherings not to take saving money services are; unavailability, complexity and high expenses (Hailu, 2019).

Studies done locally include; Mergia (2013) studied the relationship between mobile money transfer and financial inclusion in Ethiopia. The introduction of mobile money transfer services has been the crucial landmark in the reinforcement of the service and suitability by the financially excluded people more so in the sidelined set ups. He further indicated the essential facilitators towards this remarkable growth of mobile money transfer service to be the number ofsubscribers with access to the phone. Biruk, (2016) studied the effect of mobile banking on financial inclusion in Ethiopia. He notes that the number of mobile money subscribers, mobile money agents, mobile money transactions and value of mobile money transactions were satisfactorily explaining deposit bank accounts. He further notes Income, population, literacy, deposit and credit diffusion as key determining factors to financial inclusion.

Munyi, (2011) in his research on responses by commercial banks to the introduction of mobile money transfer notes that there has been notable improvement in the innovation and solution development in both telecommunications & financial institutional set ups both geared towards ensuring that there is improved availability of money when needed conveniently and at low transactional costs. The study indicates that since 2007 there has been unexpected competition to commercial banks products from the instruction, rapid evolution & runaway success on mobile money transfer services leading to increased access and availability to financial ability at the convenience of the GSM handset.

According to the GSMA report on Mobile Money in Ethiopia, Ethiopia has one of the lowest levels of financial inclusion in Africa, with only 22% of adults having an account at a formal financial institution as of 2016. The report also states that Ethiopia has recently allowed non- banks to provide mobile money services, which could potentially increase the access and use of digital payments among the unbanked and underbanked population. However, the report also highlights some of the challenges and barriers that hinder the adoption and usage of mobile money services in Ethiopia, such as low levels of digital literacy, limited agent network, high taxation, cybersecurity risks, and regulatory uncertainty.

Another study by Alemu et al. (2021) on Financial Inclusion in Ethiopia uses nationally representative data from the Ethiopia Socioeconomic Survey (ESS) to examine the factors that

influence the account ownership, saving behaviour, and use of financial products and services among Ethiopian adults. The study finds that financial education, financial capability, gender, age, and residence are significantly associated with financial inclusion indicators. The study also suggests some policy implications to improve financial inclusion in Ethiopia, such as enhancing financial literacy programs, promoting women's empowerment, expanding rural infrastructure, and encouraging innovation and competition in the financial sector.

However, none of these studies specifically focus on the effect of mobile banking solutions on the financial inclusion. The studies on mobile money service and financial inclusion focused on transformational aspect of mobile banking with specific attention to Apollo and relied primarily on secondary data. This study therefore sought to evaluate the relationship between mobile banking services and financial inclusion in Addis Ababa with focus on both additive and transformational aspects of mobile banking and in addition incorporating primary data in the study.

1.3. Research Questions

The research questions include;

1. What is the effect of mobile money transfer on financial inclusion in Bank of Abyssinia?
2. What is the effect mobile payment for goods and services on financial inclusion in Bank of Abyssinia?
3. What is the effect account management using mobile phones influence on financial inclusion in Bank of Abyssinia?
4. What is the effect of mobile credit facilitation influence on financial inclusion in Bank of Abyssinia?

1.4. Objective of the Study

1.4.1. General Objective

The general objective of the study was to establish the relationship between mobile banking services and financial inclusion in Addis Ababa.

1.4.2. Specific Objectives

The specific objectives include;

1. To examine the effect of mobile money transfer on financial inclusion in Addis Ababa.
2. To assess the relationship between mobile payment for goods and services and financial inclusion Addis Ababa.
3. To determine whether mobile account management affects the degree of financial inclusion in Addis Ababa.
4. To establish the effect of mobile credit facilitation and financial inclusion in Addis Ababa.

1.5. Significance of the Study

Studying the implementation of mobile banking solutions for financial inclusion, specifically focusing on the case of Bank of Abyssinia, holds significant importance for various stakeholders, including scholars, businesses, policy makers, and existing literature.

For Scholars: This study provides an opportunity for scholars to delve into the practical application of mobile banking solutions in the context of financial inclusion in a specific geographical location, Addis Ababa. It offers a real-world case study for academic research and analysis.

For Businesses: Businesses, can benefit from understanding the potential impact of mobile banking solutions on their financial inclusion. The findings of this study can offer insights into the opportunities and challenges associated with adopting mobile banking services, potentially influencing strategic decisions related to financial management and inclusion 1.

For Policy Makers: Policy makers can use the findings of this study to inform and shape policies related to financial inclusion and mobile banking solutions. Understanding the specific challenges and prospects of implementing mobile banking can aid in the development of targetedpolicies to promote financial inclusion and economic development 2.

For Existing Literature: This study contributes to the existing literature by providing a focused analysis of the challenges and prospects of mobile banking in the context of financial inclusion. It adds to the body of knowledge on mobile banking practices and their impact within the Ethiopian banking industry.

The study on implementing mobile banking solutions for financial inclusion, with a specific focus on the case of Bank of Abyssinia, holds significance for scholars, businesses, policy

makers, and the existing literature by offering valuable insights and practical implications for mobile banking adoption and its impact on financial inclusion.

1.6. Scope of the Study

Geographical Scope

The geographical scope of the study was limited to Addis Ababa, the capital city of Ethiopia. This focus allows for a detailed examination of the specific challenges and opportunities related to mobile banking solutions within this urban setting. Addis Ababa serves as a representative location for studying the dynamics of mobile banking adoption and its i mpact on financial inclusion within an urban Ethiopian context.

Conceptual Scope

The study encompassed a comprehensive exploration of the conceptual framework of mobile banking solutions and their role in promoting financial inclusion. This includes an analysis of the technological, financial, and socio-economic factors influencing the adoption and effectivenessof mobile banking services. Additionally, the study explored the conceptual underpinnings of financial inclusion and its relationship with mobile banking initiatives, particularly within the context of Bank of Abyssinia.

Methodological Scope

The study on implementing mobile banking solutions for financial inclusion focusing on the case of Bank of Abyssinia, employed a quantitative-method approach. This involved quantitative method to gather comprehensive data and insights. Quantitative methods may include surveys and data analysis.

Time Scope

The time scope of the study encompassed a period that allows for a thorough analysis of the implementation and impact of mobile banking solutions for financial inclusion. This may involve examining historical trends in mobile banking adoption, as well as a focus on the current state of mobile banking initiatives at Bank of Abyssinia. The study also considered future projections and potential developments in the mobile banking landscape, aligning with the bank's long-term vision and mission.

1.7. Limitation of the Study

The study relied on a limited sample of employees or specific districts within Addis Ababa, hindering the generalizability of findings to the entire city or population. Employees' responses on surveys might be influenced by social desirability bias, where they provide answers, they believe are expected rather than their true experiences. The study don't have access to detailed bank data on employee financial activities, limiting the ability to directly measure changes in financial inclusion.

Financial inclusion is a complex issue with long-term impacts. A short study will not capture the full effect of the mobile banking project. Factors beyond the mobile banking project, like government policies or economic conditions, also influence financial inclusion and make it difficult to isolate the project's impact.

The study only focused on specific features of the mobile banking project, neglecting the broader ecosystem of financial inclusion, such as access to credit or financial literacy training. The study primarily focused on Bank of Abyssinia's goals and achievements, overlooking the user experience and challenges faced by employees.

1.8. Organization of the Study

The research paper is organized into five chapters. Chapter one contains background of the study, statement of the problem, research questions and hypothesis, research objectives, significance of the study, limitation of the study. Chapter two provides literature review about the study area. Chapter three presents the Methodology which use in the research and this include research approach and design, population and sample size, methods of data analysis. Chapter four discusses about data analysis and results. Finally, chapter five comprises conclusion and recommendation of the study.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Theoretical Review

This study was anchored by the following theories; theory of technology acceptance model, financial intermediation theory and diffusion of innovation theory. The theories were relevant to the study because they established a positive link between financial access and economic progression.

2.1.1. Financial Intermediation Theory

Money related intermediation is the degree to which monetary establishments bring shortfall spending units and surplus spending units together (Ndebbio, 2004). A vital inquiry tha t speculations attempt to answer is the reason do financial specialists initially loan to banks who at that point loan to borrowers, rather than loaning.

Contentions indicate out the way that banks can viably screen borrowers and along these lines assume the part of appointed observing (Diamond, 1984). Diamond demonstrates that lessened checking costs are a wellspring of this similar preferred standpoint. He contends that delegates give benefits by issuing optional budgetary resources for purchasing essential money related resources. On the off chance that a intermediary gave no service, financial specialists who purchase the optional securities issued by the go between should buy the essential securities straightforwardly and spare the middle person's expenses.

Money related market gratings can be the basic system for producing steady pay disparity or destitution traps. These market contacts incorporate data asymmetry and exchange expenses and assume a focal point, affecting key choices with respect to human and physical capital amassing and word related decisions. For instance, as indicated by (Demirguc-Kunt, Asli, Beck, and Honohan. 2008) in hypotheses focusing on capital gathering, money related market flaws decide the degree to which the poor can get to put resources into tutoring or physical capital. In speculations focusing on business enterprise, money related market blemishes decide the degree to which capable however poor people. Taking everything into account, this theory is important to the examination since it sets up a positive connection between money related advancement and monetary development.

2.1.2. Diffusion of innovation theory

This theory of technology was put forth by Rogers (2003). In the theory, a technology is simply a plan for value relation that lowers the doubt in the cause-effect relationships involved in achieving an intended outcome. The theory of innovations has four key elements. These are: innovation, communication channels, time and social system.

According to Rogers (2003) an innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption irrespective of when it was invented. Communication is a process through which parties produce and exchange facts to reach a common agreement. Communication occurs through conduits between terminals. A channel is the means by which a message gets from the generator of the message to the receiver. In interpersonal channels, the communication may have a characteristic of homophily or heterophily. In homophily, the focus is on the degree to which different individuals communicating share common features, such as beliefs, education, and socioeconomic status. Heterophily refers to the degree to which two or more individuals who interact are different in certain attributes. For innovation to diffuse there must be heterophily. Time is another element in the theory of diffusion by Rogers (2003). The innovation-diffusion process and rate of adoptions have a time element. The last element in the diffusion model is the social system.

The social system refers to the set of connected units engaged in common problem resolution to accomplish a similar aim. Five stages are involved in the innovation diffusion process and include; the knowledge stage, the persuasion stage, the decision stage, the implementation stage and the confirmation stage. In the knowledge stage an individual learns about the presence of innovation and sought knowledge about the innovation. Awareness knowledge involves a personknowing an innovation exists. Howto-knowledge involves how to use an innovation correctly while the principles knowledge involves knowing functioning principles describing how and why an innovation works (Rogers, 2003).

This theory was importance to this research since it laid out the manner in which new innovations spread. An innovation was, therefore, spread if people got to know about it, and werepersuaded that it was good, if they decided to adopt and implement it and if others confirmed it as a good choice. Failure at any stage hindered the spread of the innovation.

2.2. Empirical Review

This section reviewed literature from previous studies on mobile banking services and financial inclusion.

2.2.1. Mobile money transfer and Financial Inclusion

Waiyenya (2012) studied the effects of agency banking on financial inclusion in Kenya. The examination inferred that agency banking has the impact of expanded money related incorporation in the country. Findings of the study indicated that the levels of budgetary incorporation are low and that there is eminent gap not filled by formal banking system. It additionally noticed that office managing an account is confronting a great deal of difficulties from the expanding portable infiltration in the nation and versatile cash exchanges expa nding at asimilar rate.

Achieng (2011) studied the strategic responses of Kenya Commercial Bank to mobile money transfer in Kenya and found out that the money transfer service industry could be described as emerging, rapidly growing or a high-speed market in Kenya and any developing country. The study indicated that with the strategic positioning of the mobile telecommunications providers and the need for banking institutions to partner and integrate with the Mobile money transfer provides to remain relevant and share in the huge potential offered to mobile subscribers. A few cross-sectional examinations have been embraced on media communications and financial development pointers in developing nations. In any case, ideas have demonstrated the presence of system externalities in media transmission framework prompting higher development impacts.Further, in developing nations, cell phones and established lines showed up substitutes instead ofsupplements.

In any case, not very many examinations have concentrated on the African continent, in spite of the critical development of flexible rollouts experienced by numerous African nations and great success especially with the recent M-PESA phenomenon and related products that has taken the world to a surprise in its uniqueness and adaptability in Kenya and efforts to replicate the same in other networks like India, Qatar, Fiji, Vietnam are underway. These are the developing economies where there has been identified growth in mobile phone penetration which are consistent with those studies carried out in the major economies.

Chithral and Selvam (2013) in their endeavor to recognize and break down the determinants of budgetary Inclusion did observational investigation that uncovered that financial components like Income, Literacy and Population were found to have noteworthy relationship with the level of monetary incorporation. Further, physical foundation for availability and data were additionally altogether connected with monetary incorporation. Among the keeping money factors store and credit infiltration were discovered altogether connected with monetary consideration. At long last, credit-store proportion and venture proportion were not fundamentally connected with money related consideration.

An examination by Ozurumba and Chigbu (2013) basically surveyed determinants of budgetary developing in Nigeria in the vicinity of 1970 and 2010. The investigation was necessitated by the focal part which the management of an account framework plays in the activation of funds and designating cash for venture exercises required for financial improvement. Among the factors perceived against monetary developing; bank speculations, cost of bank credit, sparing activation by business banks, are clearing exercises by the banks and private division credit. The investigation utilized of optional information sourced from the Central Bank of Nigeria distributions and those of the Bureau of Statistics for a time of 41years. From the review the examination watches that the parts of store cash banks in the improvement of Nigerian money related framework are basic.

The estimation of checks cleared has a negative and huge association with budgetary extending. Budgetary sparing and prime loaning rate have a negative and immaterial effect on monetary developing; store cash banks resources and private segment credit are measurably huge and decidedly identified with money related extending. The investigation prescribes foundation of banks branches and country managing an account plot keeping in mind the end goal to prepare financial resources that are outside the framework for profitable assumption. The service experts ought to likewise fortify the lawful and administrative system inside which the commercial banks and financial systems operates.

2.2.2. Payment for Goods and Services and Financial Inclusion

A study by Mutsune in (2014) examines money related consideration through flexible managing an account in Kenya. The investigation inspects Kenya's exceedingly fruitful cash exchange display, M-PESA, with an end goal to investigate the nature and part of budgetary

comprehensiveness in empowering financial action. The examination concentrated on investigating a system that can be utilized to assess how money related consideration in Kenya through versatile managing an account has affected financial dynamism. The thoughts displayed are a creative investigation that mixes financial considering and with parts of common science with the point of building up a structure that can be connected to proper information. The investigation prescribes adaptability in this new type of innovation application by approach producers. Because of expanding speed of exchanges in Kenya, and the expanding presumption of managing an account benefit by portable specialist co-ops, the financial experts ought to backpedal to the planning phase to recalibrate controls on cash supply and keeping money benefits separately. The examination recommends a nearby regard for arrangement worries in future investigations.

Keeping money is typically characterized as managing an account administration with the assistance of cell phones or PDAs. The offered services may incorporate exchange offices and also other related administrations that cook essentially for instructive requirements spinning around money related exercises (Tiwari, 2006). Mobile money saving began with the making of administrations by banks which was found through the cell phone. These offices went for empowering clients get to data identifying with their records. Consequent advancements have seen the portable keeping money marvels keep on growing consistently. Portable keeping moneytakes a few measurements of execution all speaking to another appropriation channel that permits monetary establishments and other business performing actors to offer budgetary services outside commercial bank premises.

2.2.3. Mobile Account Management and financial inclusion

The requirement for helpful methods for getting to budgetary assets past the regular standards has seen the repetitive development and modernization of saving money designs. What's more, given the colossal interest for back situated administrations, organizations adjacent to the recorded banks have joined the shred trying to get a bit of the apparent cake of chance inside the saving money industry. The repressed interest for a reasonable and dependable method for holding stores while guaranteeing that hazard levels are dispatched to a base is reliably unfurling.A framework with the possibility to pulverize the chronicled obstacles of cost and free access which have for quite a while hindered willing partakers of keeping money administrations

summons quick consideration and premium. The phenomenal take-up of cell phone managing an account benefit in Kenya is a demonstration of this reality (Wambari, 2009).

Porteous (2006) categorizes mobile banking in to two facets; First being additive where a mobile device is just used a supplemental conduit to manage and maintain an existing bank account by adding more features for convenience and secondly being transformational where financial products and services offered through mobile devices are aimed at users who have no formal bank accounts with the traditional banking establishments. It is thus basic to know the business condition in which banks work and recognize client groups that the banks may try to target by means of Mobile banking. For instance, many people do not own bank accounts but own mobile phones and this unbanked population possess controls huge chunk of money running into billionsof shillings which is not banked as witnessed in M-pesa transactions which runs into billions since is advent (Asongu, 2012). As a result, this clientele has been brought on board to main banking stream thereby enabling banks tap on the resources much needed to grow their revenue base as well as their customer base as occasioned in the recent launch of Mshwari partnership between Commercial Bank of Africa with Safaricom which is going to reach many unbanked populations.

2.2.4. Mobile Credit Facilitation and Financial Inclusion

Mobile banking facilitates a good number of means in which the bank can use to give services. The effect of a conveyance means is determined by three goals which are related. These are increasing sales volume, reducing costs of distribution and increasing customer satisfaction. One of the essential errands of a circulation channel is to build the volume of interest at items at gainful costs. This object is reached by expanding operations productivity with the goal that those losses/costs are limited that are caused by interruptions in considering client purchases orders. Facilitate a positive notoriety of the association's calculated limit may help produce extra requests. Versatile managing an account adds to accomplishing this objective by following means: whenever anyplace access to keeping money administrations; accessibility of push administrations to propose transaction and access to credit on an urgent basis.

As per Jonathan and Camilo (2009), most portable exchanges in the creating scene empower clients to do three things: Store esteem (money) in a record open through a handset. At the point when the client as of now has a ledger, this is for the most part an issue of connecting to a

financial balance. On the of the chance that the client does not have a record, at that point the procedure makes a financial balance for him/her or makes a pseudo ledger, held by an outsider or the client's portable administrator; Convert money into and out of the store esteem account. At the point when the record is connected to a ledger, at that point clients can visit banks to trade out and money out. In many occasions, clients can likewise visit the GSM suppliers' retail locations.

As indicated by Demombynes and Thegeya (2012), from one viewpoint a mostly coordinated item plainly depicts the part of the bank (which gives and claims managing an account administrations) from that of the versatile specialist co-op (which gives portable communication foundation and controls the operator arrange). Hence the bank repays the versatile specialist organization for access to the system and appreciates the rest of the benefits. This sort of agreement more nearly resembles an obligation contract between parties. The mobile phones are used to rate the credit worthiness of a customer based on the volume and frequency of mobile money transfer. This rating determines the amount of credit one can access. The credit is applied and received over the mobile platform. Like in Kenya there are credit platforms on Airtel Money,M-PESA, Mshwari, KCB M-PESA and even branch.com network.

Then again, a completely incorporated arrangement may not draw a similar refinement amongst bank and versatile specialist organizations. For this situation, the dispersion of surplus is dependent upon the relative dealing energy of the bank and portable specialist organization. This kind of agreement more nearly takes after a value contract between two gatherings. Value like contracts would probably be mind boggling and in this manner harder to consult than obligation like contracts, there-by exhibiting a potential obstacle towards the objective of expanding access.

The web and the Mobile telephone two innovative headways that have significantly influenced human conduct in the most recent decade-have begun to merge. The results of this affiliation are versatile information administrations. Utilizing an assortment of stages, administrations are being made to empower cell phones to perform numerous exercises of the conventional web but in a lessened configuration for cell phones. One zone of movement is portable managing an account – one of the primary regions of business exchange on the remote web. Managing an account is a range that has reached out in various courses as of late, including phone and internet keeping

money. Versatile keeping money gives yet another diverts to managing an account benefit in developing business sector, gives some probability to turning into an essential channel.

The spread of cell phones over the creating scene is a standout amongst the most exceptional innovation endeavors of the previous decade. Floated by prepay cards and economical handsets, a huge number of first time phone proprietors have made voice calls and instant messages some portion of their day by day lives. However, a significant number of these new cell phone clients live in casual or potentially money economies, without access to monetary administrations that others underestimate. Without a doubt over the creating scene there are presumably a greater number of individuals with versatile handsets than with ledgers (Porteous, 2006). Different activities utilize cell phones to give budgetary administrations to the unbanked. These administrations take an assortment of structures including long separation settlements, micropayments and casual broadcast appointment trading plans – all pass by different names including versatile keeping money, portable exchanges and versatile installments.

The terms M-keeping money, M-installments, M-exchange and M-back allude by and large to an arrangement of utilizations that empower individuals to utilize their cell phones to control their financial balances, store an incentive in a record connected to their handsets, exchange finances or even access credit or protection items. The focus for these applications was customers in the created world. By supplementing administrations offered by the saving money framework, for example, check books, ATMs, Voice mail/landline interfaces, shrewd cards, purpose of offer systems and web assets, the portable stage offers a helpful extra technique for overseeing cash without taking care of money (Karjaluoto, 2002). For clients in the creating scene the interest of these Mobile managing account/M-installments frameworks might be less about accommodation and more about availability and reasonableness.

2.3. Summary of Literature Review

This section looked at the theoretical framework where it talked about the speculations on which the investigation was discovered: monetary intermediation hypothesis Demand and suppl y side Twin Theory, and Productivity increases and lessening in exchange costs. As per monetary intermediation hypothesis, money related organizations exist to mediate between the surplus and deficiency units in an economy by empowering the trading of advantages. In any case, this ought to be done in a money related way to restrain the working costs and lift the salaries for these

banks. Budgetary intermediation speculation draws out the imagined by flexible sparing cash in the financial intermediation process by engaging the transparency of keeping cash benefits over the wireless. From the above dialog of the hypothetical and observational writing, restricted research has been directed on the connection between mobile money and budgetary incorporation. It is normal that there ought to be a positive connection between flexible money saving and financial inclusion, however no known study has been directed to set up the connection between the two thus the study gap. The current investigations have been done in different economies which have diverse working environment from that in Ethiopia. This study therefore seeks to fill this research gap.

2.4. Conceptual Framework

A conceptual framework is a fundamental structure that comprises of certain theoretical pieces which speak to the observational, the experiential and the expository parts of a procedure or framework being imagined. It is an arrangement of expansive thoughts and standards taken from applicable fields of enquiry and used to structure an ensuing presentation. The interconnection of independent and dependent variables completes the framework for certain normal results.

1. **Dependent Variable:**

Financial Inclusion: This represents the extent to which individuals and businesses have access to and use a range of financial services that meet their needs, provided by formal financial institutions.

2. Independent Variables:

a. **Mobile Money Transfer**: This variable involves the use of mobile technology to transfer money from one account to another, which can impact financial inclusion by providing a convenient and accessible means of conducting financial transactions.
b. **Mobile Payment for Goods and Services**: This variable focuses on the use of mobile devices for making payments for goods and services, potentially increasing financial inclusion by enabling individuals to engage in economic activities without the need for traditional banking services.
c. **Mobile Account Management**: This variable pertains to the management of financial accounts through mobile devices, which can contribute to financial inclusion by

providing individuals with tools to monitor and control their finances without physical access to traditional bank branches.

d. **Mobile Credit Facilitation**: This variable involves the use of mobile technology to facilitate access to credit and loans, potentially enhancing financial inclusion by providing individuals with opportunities for financial growth and investment.

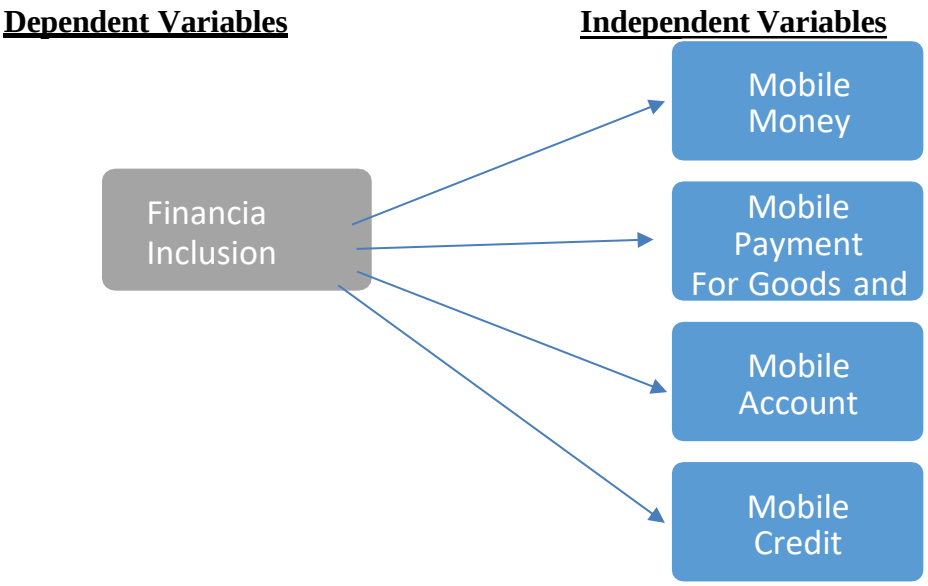

Figure 0.1: Conceptual Framework of the Study

Source: Smith, 2021

2.5. Research Hypothesis

1. Mobile money transfer has a positive and significant effect on financial inclusion in Bank of Abyssinia
2. Mobile payment for goods and services has a positive and significant effect on financial inclusion in Bank of Abyssinia
3. Mobile account management has a positive and significant effect on financial inclusion in Bank of Abyssinia
4. Mobile credit facilitation has a positive and significant effect on financial inclusion in Bank of Abyssinia

CHAPTER THREE: RESEARCH METHODOLOGY

Under this chapter, provides an overview of the choices decided regarding on the research design and methodology as how the research conducted, present, analyze and interpret the study. The study design, approach and the population and determination of the sample size are also described as how they are to be decided and done. Under this section, the data gathering instruments and their measurement scale was discussed. Moreover, the modes of data presentation, methods of the date analysis and interpretation and how they were described in detail.

3.1. Research Approach

The quantitative research method was used for this study to achieve the study's broad objective. This quantitative research method collects and analyzes quantitative data. To support the quantitative findings and gain additional insight into the specific issues, the quantitative method was used. This quantitative portion of the study involved a statistical analysis of survey questionnaire data.

Quantitative research approaches are those that use numerical data to answer research questions. This type of research is often used in the social sciences, where it can be used to measure things like attitudes, behaviors, and beliefs. To attain the intended objectives of the study, the researcher used a research approach that is appropriate for the research question. In this case, the researcher is interested in measuring the relationship between two variables, so a quantitative research approach is the best choice.

The quantitative research approach enabled the researcher to effectively analyze and infer the numeric data. This means that the researcher was able to use statistical methods to analyze the data and draw conclusions about the relationship between the variables. The quantitative data was collected via a survey questionnaire that was prepared on a Likert-type Scale. This type of scale is a common way to measure attitudes and beliefs, and it allows respondents to provide their answers on a scale of 1 to 5.

3.2. Research Design

The researcher chose to use an explanatory research design for several reasons. One of the most common reasons for using this type of research design is to test a hypothesis about the

relationship between two or more variables. In this case, the hypothesis was that there is a positive relationship between Implementing mobile banking solutions and financial inclusion.

Explanatory research design is particularly suitable for investigating causal relationships between variables. Because of its focus on testing hypotheses, the explanatory design can determine whether the independent variable (in this case, implementing mobile banking solutions) has a causal effect on the dependent variable (financial inclusion).

Moreover, the explanatory research design allows the researcher to use statistical analysis to test the study hypotheses. By using appropriate statistical techniques to analyze the data, the researcher determined the strength and direction of the relationship between i mplementing mobile banking solutions and financial inclusion.

Finally, the explanatory research design was useful in guiding the research. By identifying the causal relationship between implementing mobile banking solutions and financial inclusion, the study provided valuable insights into how organizations can improve their performance through factors programs.

3.3. Sampling Design

3.3.1. Target Population

Population consists of the entire group of events, elements and individuals that have a common observable characteristic (Lewis, 2015). The target population are the population that the researcher is interested in to participate in the study as they had the requisite knowledge which was used in responding to the research questions. The HR records at Bank of Abyssinia in Addis Ababa showed that there are 1232 permanent employees working in the company who are working on the project.

3.3.2. Sampling Technique

To choose the sample, a non-probability sampling method is used to select people from the intended population. probabilistic selection of certain units from the universe is used to create a representative sample (Kothari, 2004). the population components was picked in the sample based on their accessibility, or respondents was selected because they happened to be in the appropriate location at the right time for the research project. Researcher target element in Addis Ababa was contacted by the researcher.

3.3.3. Sample Size

Sample size is determined using Solvin's method, with a 95 percent confidence level and a 5 percent error margin. If you want to use Slovin's formula to estimate a population percentage, the researcher needed to use a 95 percent confidence coefficient (Tejada & Punzalan, 2012). The sampling formula used to obtain the sample size for respondents is as follows:

Thus, $$n = \frac{N}{1+Ne^2}$$

Where, n = is the sample size

N = is the population size (1232)

e = error tolerance (0.05)

$$n = \frac{1232}{1+1232(0.05)^2} \approx 302$$

Based on Slovin's formula, the sample of 302 respondents has drawn from target population of 1,232 employees.

3.4. Type and Sources of Data

For the current study, the researcher used both primary data sources. In this regard, the primary data was collected from the employees and head of office who are working on the integration of mobile money in Addis Ababa in the time of data collection period 2024. The 302 respondents as determined to be selected using simple random sampling technique, was addressed via survey questionnaire regarding on implementing mobile banking solutions and financial inclusion.

3.5. Method of Data Collection

Every study has its own framework for collecting data to ensure that the required data to be collected accurately and economically. For this study, the researcher employed survey questionnaires.

For further details, the items of the survey questionnaire were prepared in Likert-type scale to obtain respondents' level of agreement/disagreement on each of the constructs; as well known, a Likert-type scale which is a very popular rating scale for measuring ordinal data in social science (Krosnick & Presser, 2010). Therefore, in this particular study, the respondents were asked to rate each item on a Likert-type scale by assigning a value of 1 stood for *strongly disagree* to 5

stood for *strongly agree*. In such a way, the items can be easily understood and replied by the respondents.

3.6. Validity and Reliability of Instruments

3.6.1. Validity

In a pilot research, the methodology, parameters, and materials utilized in the full -scale investigation was determined. According to Mertler (2018), a pilot test is critical for identifying flaws in the study design and making necessary adjustments to ensure that the data acquired is accurate and dependable.

The questionnaire was tested on eight employees of the Bank of Abyssinia Head Office during the pilot project. The research utilized 5% of the total sample number because, according to Flick (2014), a suitable pilot group is made up of 1-10% of the total sample size. The pilot test's goal is to improve the questionnaire so that participants in the main research have no difficulty answering the questions. The findings of the pilot study is not included in the final research.

When it comes to instrument validity, the term refers to how accurately a measuring instrument measures what it is meant to (Yin, 2013). Content validity testing was utilized to determine the instrument's validity in this research. Indicators or substance of a certain idea was assessed to see how well they represented the data acquired using a particular instrument (Lewis, 2015). An experienced university supervisor and other advisors was brought in to make sure that the questions tested or measured what was intended.

3.6.2. Reliability

After the data had been coded and entered into SPSS version 23, a test for reliability had been carried out. Reliability is the degree to which a measurement can be repeated and provide the same findings. For this study, a Cronbach's alpha coefficient, a common measure of internal consistency, was determined. Scale correlations may be evaluated using Cronbach's alpha, a reliability metric that measures the correlation between item answers produced from the scale. The value of this variable ranges from 0 to 1. (Shelby, 2011).

Cronbach's alpha does not have a standard scale, but the closer it gets to 1, the better. Previous researches have employed a minimum Cronbach's alpha score of 0.4 to 0.9. (George & Mallery, 2003; Gregory,1999; Houser & Bokovoy, 2008; Kline, 2000; Makhitha & Dlodlo, 2014;

Nunnally, 1978; Nunnally & Bernstein, 1994). There is little doubt that the internal consistency of Malhotra and Birks' (2007; Malhotra & Birks (2007)) findings show an unacceptable level of internal consistency.

Therefore, Cronbach's Alpha of 0.6 and higher was selected as the acceptable dependability coefficient. Consequently, the test showed that the instrument's components are trustworthy. It was determined that all the scales employed in this research are trustworthy by utilizing Cronbach's alpha coefficient, which had an alpha value more than 0.6 and for the majority closer to 1.

Table 0.1: Cronbach Alpha Test

Variables	Cronbach's Alpha	N of Items
Mobile Money Transfer	.728	8
Mobile Payment for Goods	.703	7
Mobile Account Management	.491	6
Mobile Credit Facilitation	.624	6
Financial Inclusion	.571	4

3.7. Method of Data Analysis

In this study, quantitative data was collected via survey questionnaire and analyzed using the descriptive statistics as well as inferential statistics. The specific data analysis techniques were employed are presented below:

Descriptive Statistics: The descriptive statistics were employed to analyze data to be collected via survey questionnaire, specifically the respondents' profile to describe their characteristics using *frequency and percentile*; and, the remaining data was analyzed by measuring the central tendency and dispersion (viz . *mean and standard deviation*), to measure and identify the perception of respondents regarding on the implementing mobile banking solutions and financial inclusion.

Inferential Statistics: The inferential statistics, on the other hand, was utilized to determine with what validity data can be said to make conclusion or conclusions with inference, and summarizing sources of numerical data in to meaningful form (Kothari, 2004) In this study, to identify the relationship between financial inclusion as dependent variable and the independent factors (*i.e., implementing mobile banking solutions*), Pearson's correlation was employed via using SPSS. As Pearson product-moment indicates, the relationship of variables is expressed by

correlation coefficient (r) value within the range of $^{-}1.00$ to $^{+}1.00$ (Sekaran & Bougie, 2016). Reliability and Validity of the Instrument

3.8. Operationalization and Model Specification

Multiple regression analysis and t-test statistics was used to examine the relationship between predictor variables (mobile payment for goods, mobile account management, mobile credit facilitation, mobile money transfer) and the dependent variable (financial inclusion).

Prior to inference, the regression model was used to verify that the study's regression assumptions was sound. It is possible for following processes to be invalid if there are any infractions. The responses Y to the explanatory factors have been considered to be linear in the parameters and the errors are assumed to be independent and identically distributed in our regression models.

The Multiple Regression Model followed this format:

$$Y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \cdots + \beta nxn + e$$

Where Y= Financial Inclusion

Table 0.2: Model Specification of Variables

No	Predictor Variable (X)	Beta Coefficient(β)	Predictor X-Value Assigned
1	Mobile Money Transfer	β1	X1
2	Mobile Payment for Goods	β2	X2
3	Mobile Account Management	β3	X3
4	Mobile Credit Facilitation	β4	X4
5	Financial Inclusion	Constant	Y

The finding from the analysis was presented in form of charts, pie charts, figures, graphs, tables and narrations.

3.9. Ethical Consideration

Informants and respondents who are working in the study area before any sort of data collection is started. To assure the confidentiality of information, name of the respondents was omitted from the questionnaire. On the other hand, objectives of the study were clearly explained to each and every participant of this study to obtain their verbal consents. Besides, the respondents of the questionnaire were also vividly told that the whole process of the questionnaires' administration would be set up with great confidentiality, and their involvements and/or their information provided for the current study would be kept and used anonymous

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

4.1. Introduction

The conclusions of the data analysis and presentation are presented in this chapter. Structured questionnaires were used to obtain primary data for the investigation. SPSS Version 23.0 was used to analyze and show the gathered data. Tables are used to display the data.

There were 302 questionnaires issued, but only 278 of them were returned to the researcher in their whole. 92.05% of people took the survey, which the researchers consider adequate. Supporting evidence for the research conclusions comes from Mugenda (2003), who indicates that a response rate of 50% or above is considered adequate.

Demographic Profile of Respondents

Table 0.1: Gender Distribution of Respondents

		Frequency	Percent
Sex	Male	128	46.0
	Female	150	54.0
	Total	278	100.0

Source: Survey Result, 2024

The table presents the distribution of respondents based on their sex. It shows that out of the total 278 respondents, 128 (46.0%) are male, and 150 (54.0%) are female. This indicates a relatively balanced representation of both sexes in the sample, w hich is important for ensuring diverse perspectives and insights in the study.

Table 0.2: Age of Respondents

		Frequency	Percent
Age Group	18-29	113	40.6
	30-39	138	49.6
	40-49	27	9.7
	Total	278	100.0

Source: Survey Result, 2024

The table displays the distribution of respondents across different age groups. It reveals that the majority of respondents fall within the 30 -39 age group, accounting for 138 (49.6%) of the total 278 respondents. The 18-29 age group comprises 113 (40.6%) respondents, while the 40 -49 age group has the smallest representation with 27 (9.7%) respondents. This distribution provides a

clear understanding of the age demographics of the sample, with a significant focus on the 30 -39 age group.

Table 0.3: Educational Status of Respondent

		Frequency	Percent
Academic Qualification	Certificate and below	89	32.0
	Diploma	169	60.8
	Bachelor degree	20	7.2
	Total	278	100.0

Source: Survey Result, 2024

The table illustrates the distribution of respondents based on their academic qualifications. It shows that the majority of respondents, 169 (60.8%), hold a diploma, while 89 (32.0%) have a certificate or below. Only 20 (7.2%) respondents possess a bachelor's degree. This distribution highlights the prevalence of diploma holders in the sample, indicating a predominant educationalbackground among the respondents.

Table 0.4: Assigned Work of Respondents

		Frequency	Percent
Job Description	Customer service officer	16	5.8
	Senior customer service officer	72	25.9
	Loan officer	135	48.6
	Branch controller	55	19.8
	Total	278	100.0

Source: Survey Result, 2024

The table presents the distribution of respondents across different job descriptions. It indicates that the highest number of respondents, 135 (48.6%), are loan officers, followed by 72 (25.9%) senior customer service officers, and 55 (19.8%) branch controllers. Customer service officers have the lowest representation, accounting for 16 (5.8%) of the total 278 respondents. This distribution offers insights into the occupational diversity within the sample.

Table 0.5: Years Served

		Frequency	Percent
Service Year	Below 1 Years	114	41.0
	1-3 Years	108	38.8
	3-7 Years	44	15.8
	+7 Years	12	4.3
	Total	278	100.0

Source: Survey Result, 2024

The table displays the distribution of respondents based on their years of service. It reveals that the majority of respondents have service years falling below 3 years, with 114 (41.0%) having below 1 year of service and 108 (38.8%) having 1 -3 years of service. A smaller proportion of respondents have 3-7 years (15.8%) and over 7 years (4.3) of service. This distribution providesa clear overview of the experience levels of the respondents within the organization.

4.2. Results of Descriptive Analysis

In their study, Zaidaton and Bagheri (2009) established a classification system for interpreting the results of a 5-point Likert scale survey. The classification system is based on the mean score of responses to the survey questions. As mentioned in the previous answer, a mean score below 3.39 is considered low, a mean score between 3.40 and 3.79 is considered moderate, and a mean score above 3.80 is considered high.

4.2.1. Mobile Money Transfer

Table 0.6. Descriptive Statistics Result for Mobile Money Transfer

	Mean	Std. Deviation
Mobile banking has improved the level of access to our financial services in working areas	3.0216	1.22823
The number of customers accessing financial services through mobile banking has increased	3.3453	1.12864
The number of accounts accessed through mobile phone banking is increasing	3.3885	1.16204
The amount of money transferred through mobile phones has increased in our Bank	3.7014	1.07182
The Bank has been able to reach out to more clients through mobile money transfer applications than its introduction	2.9820	1.28994
The number of customers using mobile transfer services in the Bank has increased	4.1655	.74171
Mobile transfer services have attracted more customers who held no account to our bank	3.8417	1.05624
Our mobile money transfer services have attracted low income customers	3.9676	.85545
Grand Mean	3.5517	.63442

Source: Survey Result, 2024

The survey conducted among employees of Bank of Abyssinia indicates that the mean value of their attitude towards the question "Mobile banking has improved the level of access to our

financial services in working areas" is 3.0216, with a standard deviation value of 1.22823. The mean value of 3.0216 suggests that, on average, the employees' attitude towards the impact of mobile banking on access to financial services in working areas is slightly above neutral. The standard deviation of 1.22823 indicates a moderate amount of variability in the responses, with some employees likely holding more extreme views in either direction

Employees exhibited a moderately positive attitude (mean score above the midpoint of the scale) towards the increase in customers accessing financial services through mobile banking. The standard deviation of 1.12864 indicates a moderate level of variability in their attitudes, suggesting that while the mean score is moderately positive, there is some diversity in the attitudes expressed by the employees.

Employees demonstrated a moderately positive attitude towards the increase in accounts accessed through mobile phone banking, with a mean score above the midpoint of the scale. The standard deviation of 1.16204 suggests a moderate level of variability in their attitudes, indicating diverse perspectives among the employees regarding this aspect of mobile banking.

Employees expressed a relatively positive attitude towards the increase in the amount of money transferred through mobile phones, as indicated by the mean score above the midpoint of the scale. The standard deviation of 1.07182 suggests a moderate level of variability in their attitudes, reflecting some diversity in their perspectives on this aspect of mobile banking.

Employees exhibited a moderately neutral to slightly negative attitude towards the bank's ability to reach out to more clients through mobile money transfer applications, with the mean score below the midpoint of the scale. The relatively high standard deviation of 1.28994 indicates a notable level of variability in their attitudes, reflecting diverse viewpoints among the employees regarding the bank's outreach through mobile money transfer applications.

Employees demonstrated a strongly positive attitude towards the increase in customers using mobile transfer services in the bank, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.74171 suggests a high level of agreement among employees regarding this aspect of mobile banking.

Employees expressed a moderately positive attitude towards mobile transfer services attracting customers who held no account to the bank, with the mean score above the midpoint of the scale.

The standard deviation of 1.05624 indicates a moderate level of variability in their attitudes, reflecting diverse perspectives among the employees regarding this aspect of mobile banking.

Employees exhibited a strongly positive attitude towards mobile money transfer services attracting low-income customers, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.85545 suggests a high level of agreement among employees regarding this aspect of mobile banking.

4.2.2. Mobile Payment for Goods

Table 0.7. Descriptive Statistics Result for Mobile Payment for Goods

	Mean	Std. Deviation
Majority of our customers have requested for linking their account with mobile money payment services	3.8633	.88877
Many customers are settling their bills through pay bill numbers	3.5755	1.10122
Provision of pay bill linkage options has attracted more customers to our bank	3.9101	.84706
The outreach of our bank has expanded because of provision of pay bill services	3.9712	.97583
Pay bill services have increased the cash reserve ratios of our Bank	3.9964	.86027
The introduction of pay bill services has reduced customer queues in our Bank	3.7914	.99801
Introduction of pay bill services has increased the cash deposit ratios in our Bank	3.7986	.88043
Grand Mean	3.8438	.56335

Source: Survey Result, 2024

The mean score of 3.86 suggests a positive overall agreement that a majority of customers are interested in linking their accounts with mobile money. The standard deviation of 0.89 indicates some variation in employee responses, with some expressing stronger agreement than others.

The mean score of 3.58 suggests a moderate agreement that many customers are using pay bill numbers for settling their bills. The standard deviation of 1.10 is higher than the previous question, indicating greater dispersion in employee responses. This could reflect a lack of complete awareness or experience with pay bill usage by some employees.

The mean score of 3.91 is the highest, suggesting strong agreement that offering pay bill options has attracted more customers to the bank. The standard deviation of 0.85 remains moderate, indicating a relatively consistent view among employees that pay bills are a customer draw.

The mean score of 3.97 is the second highest, reflecting strong agreement that pay bill services have expanded the bank's outreach. The standard deviation of 0.98 shows some variation, but the overall trend points towards employees perceiving pay bills as a successful outreach strategy.

The mean score of 3.99 is the highest, indicating the strongest agreement that pay bills have increased the bank's cash reserve ratios. The standard deviation of 0.86 suggests a relatively consistent view among employees that pay bills are contributing to higher cash reserves.

The mean score of 3.79 shows moderate agreement that pay bills have reduced customer queues. The standard deviation of 0.99 is higher compared to some previous questions, suggesting some variation in employee experience or perception of the impact on queues.

The mean score of 3.80 indicates moderate agreement that pay bills have increased cash deposit ratios. The standard deviation of 0.88 suggests a somewhat consistent view among employees regarding the positive impact of pay bills on deposits.

Overall, the survey results suggest that Bank of Abyssinia employees perceive pay bill services positively. They believe these services are attracting customers, expanding outreach, increasing cash reserves, and potentially reducing queues.

4.2.3. Mobile Account Management

Table 0.8. Descriptive Statistics Result for Mobile Account Management

	Mean	Std. Deviation
Our Bank provides detailed statements on customers mobile payment transactions	3.2842	1.24673
Linkage of mobile phone payment and bank account has attracted more customers to our Bank	3.3993	1.05905
Provision of mobile bank account has enabled customers in remote areas to open accounts with our Bank	3.9460	.61330
The reduced fees charged on mobile funds transfer transactions has attracted more customers to our bank	3.9245	.63987
Minimal maintenance charges in mobile phone-based accounts have attracted more customers to our bank	4.1439	.63657
The number of customers in our bank has increased as a result of better management of mobile accounts	3.9568	.60528
Grand Mean	3.7758	.44614

Source: Survey Result, 2024

Employees demonstrated a moderately positive attitude (mean score above the midpoint of the scale) towards the bank's provision of detailed statements on customers' mobile payment transactions. The relatively high standard deviation of 1.24673 suggests a notable level of variability in their attitudes, indicating diverse perspectives among the employees regarding this aspect of the bank's mobile banking services.

Employees expressed a moderately positive attitude towards the linkage of mobile phone payment and bank account attracting more customers to the bank, with the mean score above the midpoint of the scale. The standard deviation of 1.05905 indicates a moderate level of variability in their attitudes, reflecting diverse perspectives among the employees regarding this aspect of the bank's mobile banking services.

Employees exhibited a strongly positive attitude towards the provision of mobile bank accounts enabling customers in remote areas to open accounts with the bank, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.61330 suggests a high level of agreement among employees regarding this aspect of the bank's mobile banking services.

Employees demonstrated a strongly positive attitude towards the reduced fees on mobile funds transfer transactions attracting more customers to the bank, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.63987 suggests a high level of agreement among employees regarding this aspect of the bank's mobile banking services.

Employees exhibited a strongly positive attitude towards minimal maintenance charges in mobile phone-based accounts attracting more customers to the bank, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.63657 suggests a high level of agreement among employees regarding this aspect of the bank's mobile banking services.

Employees expressed a strongly positive attitude towards the increase in customers in the bank as a result of better management of mobile accounts, as indicated by the mean score well above the midpoint of the scale. The low standard deviation of 0.60528 suggests a high level of agreement among employees regarding this aspect of the bank's mobile banking services.

4.2.4. Mobile Credit Facilitation

Table 0.9. Descriptive Statistics Result for Mobile Credit Facilitation

	Mean	Std. Deviation
Offering of credit facilities through mobile phones has attracted more customers to our bank	3.8921	1.01747
Quick processing of mobile phone credit applications has attracted more customers to our bank	3.8489	.85745
Lack of paper work in mobile phone-based credit has attracted more customers to our Bank	3.7338	.88775
Flexibility in the amount of credit extended through mobile phones has attracted more customers to our Bank	3.3165	1.07506
Flexibility in repayment of mobile phone-based loans have attracted more customers to our bank	4.0288	.94577
Competitiveness of interest rates charged on mobile phone based credit has attracted more customers to our bank	3.6259	.95587
Grand Mean	3.7410	.56530

Source: Survey Result, 2024

The survey results provide valuable insights into Bank of Abyssinia employee perceptions regarding mobile phone credit facilities and their impact on customer attraction.

The mean score of 3.89 indicates a moderate to strong agreement that offering credit facilities through mobile phones has attracted new customers. The standard deviation of 1.02 suggests some variation in employee responses, with some expressing stronger agreement than others. This could be due to differences in experience or department (e.g., tellers vs. marketing).

The mean score of 3.85 reflects a similar level of agreement as the previous question, suggesting employees perceive quick processing of mobile credit applications as a customer draw. The standard deviation of 0.86 is lower, indicating a somewhat more consistent view among employees compared to the previous question.

The mean score of 3.73 shows a moderate agreement that the lack of paperwork associated with mobile phone credit is attractive to customers. The standard deviation of 0.89 suggests some variation in employee perception, with some possibly placing less emphasis on paperwork reduction compared to other factors.

This is the lowest mean score (3.32), indicating the weakest agreement among employees that flexibility in the amount of credit extended through mobile phones attracts customers. The standard deviation of 1.08 is the highest, suggesting significant variation in employee responses.

This could reflect a lack of clarity on how flexible the credit amounts actually are or a perception that it's not a major selling point compared to other features.

The mean score of 4.03 is the highest, suggesting strong agreement that flexibility in repayment options for mobile phone loans is attractive to customers. The standard deviation of 0.95 remains moderate, indicating a relatively consistent view among employees that flexible repayment plans are a significant customer draw.

The mean score of 3.63 suggests a moderate agreement that competitive interest rates on mobile phone credit attract customers. The standard deviation of 0.96 shows some variation in employee perception, with some possibly placing less emphasis on interest rates compared to other factors like ease of access or repayment flexibility.

Overall, the survey reveals that Bank of Abyssinia employees generally perceive mobile phone credit facilities as attractive to customers, particularly due to quick processing, lack of paperwork, and flexible repayment options. However, there seems to be less agree ment on the impact of credit amount flexibility and interest rates.

4.2.5. Financial Inclusion

Table 0.10. Descriptive Statistics Result for Financial Inclusion

	Mean	Std. Deviation
Mobile services are affordable	3.5719	.69047
Mobiles services are accessible	3.7698	.65617
Mobile services can transact large volume of money	3.0683	1.27981
Mobile money has embraced agency banking	3.7698	.63378
Grand Mean	3.5540	.51029

Source: Survey Result, 2024

The survey conducted among employees of Bank of Abyssinia has yielded several findings regarding the perception of mobile services offered by the bank. The employees perceive mobile services as relatively affordable, with a mean value that suggests a positive attitude towards the cost-effectiveness of these services. The standard deviation is relatively low, indicating that there is a general consensus among the employees about the affordability of mobile services.

The accessibility of mobile services is viewed positively by the employees, as reflected by the mean value. The low standard deviation suggests that employees largely agree that mobile services provided by the bank are easily accessible to customers.

Employees' attitudes towards the ability of mobile services to handle large volume transactions are more varied, with a mean value closer to the midpoint of the scale. The high standard deviation indicates a wide range of opinions on this aspect of mobile services, suggesting that some employees may have reservations about the transactional capacity of mobile services.

The survey indicates that employees have a positive attitude towards the integration of mobile money with agency banking, with a mean value suggesting that they believe mobile money has successfully embraced this aspect. The standard deviation is low, pointing to a shared belief among employees regarding the effectiveness of mobile money in agency banking.

The survey findings from the Bank of Abyssinia employees show a generally positive attitude towards the affordability and accessibility of mobile services, as well as the integration of mobile money with agency banking. However, there is a wider range of opinions regarding the capacity of mobile services to handle large transactions. These insights could be valuable for the bank in understanding employee perceptions and identifying areas for improvement in their mobile services offerings.

4.3. Inferential Statistics

The researcher used regression analysis to determine the impact of mobile banking solutions project on financial inclusion in the case of Bank of Abyssinia. The results of Correlation, ANOVA, and regression coefficients are provided in the following sections.

4.3.1. Correlation Analysis

The researcher used Pearson's Correlation analysis to examine the relationship between the five dimensions of mobile banking solutions project (mobile payment for goods, mobile account management, mobile credit facilitation, mobile money transfer) and financial inclusion. Pearson's correlation coefficient was used as a statistical tool. Pearson's correlation coefficient is a common method to quantify how strongly two variables are related to each other. It assumes that the variables have a linear association and that they are randomly sampled from a population (Kothari, 2004).

The results of the correlation analysis between the independent variables (mobile payment for goods, mobile account management, mobile credit facilitation, mobile money transfer) and the dependent variable (financial inclusion) are presented in the following section. The table below shows the correlation coefficients for each pair of variables. The coefficients range from moderate to high, indicating that there is a significant relationship between the mobile banking solutions project aspects and the financial inclusion.

Table 0.11. Correlation Matrix

Correlations						
		MMT	MPG	MAM	MCF	FI
Mobile Money Transfer	Pearson Correlation	1	.243**	.337**	.244**	.616**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	278	278	278	278	278
Mobile Payment for Goods	Pearson Correlation	.243**	1	.293**	.611**	.533**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	278	278	278	278	278
Mobile Account Management	Pearson Correlation	.337**	.293**	1	.320**	.485**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	278	278	278	278	278
Mobile Credit Facilitation	Pearson Correlation	.244**	.611**	.320**	1	.628**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	278	278	278	278	278
Financial Inclusion	Pearson Correlation	.616**	.533**	.485**	.628**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	278	278	278	278	278
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Survey Result, 2024

4.3.1.1. Mobile Money Transfer

The study conducted at the Bank of Abyssinia focused on examining the impact of mobile banking solutions on the financial inclusion of employees in Addis Ababa. The correlation analysis revealed a Pearson correlation coefficient (r) of 0.616 between mobile money transfer and financial inclusion, with a significance level of $p < 0.01$. The Pearson correlation coefficient measures the strength and direction of the linear relationship between two variables. In this context, the correlation coefficient of 0.616 indicates a moderately strong positive linear relationship between mobile money transfer and financial inclusion. The significance level of $p <$ 0.01 suggests that the observed correlation is unlikely to be due to random chance, further supporting the reliability of the relationship.

This finding implies that a higher usage of mobile money transfer services is associated with increased financial inclusion. It suggests that the adoption and utilization of mobile banking solutions, particularly for money transfer purposes, may contribute positively to the financial inclusion. This insight is valuable for policymakers, financial institutions, and businesses seeking to enhance financial inclusion and promote the use of mobile banking solutions in the region.

Globally, a study by Klein and Mayer (2011) provides a comprehensive framework for understanding the regulatory implications of mobile banking, emphasizing its potential to foster financial inclusion in developing economies. Their work underscores the importa nce of a well-thought-out regulatory environment that can adapt to the rapid growth of mobile banking services.

In the African context, Siano et al. (2020) conducted a qualitative meta-synthesis focusing on Nigeria, which revealed that ease of use, security concerns, and social influence are significant drivers of mobile banking adoption. This study's findings align with the correlation observed in the Bank of Abyssinia study, suggesting that similar factors may be influencing financial inclusion across different African countries.

Focusing on Ethiopia, Mossie (2023) explored the drivers, motivations, and barriers to financial inclusion, using data from the World Bank's 2017 Findex database. The study highlighted the role of mobile banking and mobile money in promoting financial inclusion, resonating with the positive correlation found in the Bank of Abyssinia study.

These comparisons reveal a consistent pattern: mobile banking solutions are significantly contributing to financial inclusion, with commonalities in the factors driving their adoption and the challenges faced. The academic rigor of these studies, with their robust methodologies and in-depth analyses, provides a solid foundation for understanding the broader implications of mobile banking on financial inclusion.

4.3.1.2. Mobile Payment for Goods

The study conducted in Bank of Abyssinia, Ethiopia, found a significant positive correlation ($r = 0.533$, $p < 0.01$) between mobile payment for goods and financial inclusion. This suggests that the use of mobile banking solutions can significantly enhance financial inclusion.

Globally, similar findings have been reported. For instance, a study conducted by the World Bank found that mobile money services have rapidly expanded across emerging and developing economies and enabled new ways through which households and firms can conduct payments, save and send remittances (The World Bank Research Observer, 2018). Another study by the International Monetary Fund (IMF) found that mobile money services have a significant impact on financial inclusion (IMF Working Paper, 2020). A third study found that institutional quality and mobile money have a direct positive and significant effect on financial inclusion (Springer, 2023).

In Africa, a study conducted in Sub-Saharan Africa found that mobile money significantly reduces inequalities in access to financial services (SpringerLink, 2023). Another study found that the usage of mobile money services and other digital financial services (DFSs) is on the rise in the African continent and could lead to a considerable improvement in financial inclusion (SpringerLink, 2023).

In Ethiopia, a study found that in 2020, Ethiopia allowed non-banks to provide mobile money services, a key step in advancing financial inclusion and driving growth (GSMA, 2023). Another study investigated the effect of financial technology on financial inclusion in Ethiopia during the digital economy era and found that ATM, mobile banking, PoS, and agent banking were found to have statistically significant positive effect on financial inclusion (Cogent Social Sciences, 2024).

4.3.1.3. Mobile Account Management

The study conducted at the Bank of Abyssinia aimed to assess the impact of mobile banking solutions on the financial inclusion. The correlation analysis revealed a Pearson correlation coefficient (r) of 0.485 between mobile account management and financial inclusion, with a significance level of $p < 0.01$. The Pearson correlation coefficient of 0.485 indicates a moderately strong positive linear relationship between mobile account management and financialinclusion. This suggests that a higher utilization of mobile account management within the context of mobile banking solutions is associated with increased financial inclusion. The significance level of $p < 0.01$ further supports the reliability of this observed correlation, indicating that the relationship is unlikely to be due to random chance.

The findings imply that the adoption and effective management of mobile accounts through mobile banking solutions may contribute positively to the financial inclusion. This insight is valuable for policymakers, financial institutions, and businesses seeking to enhance financial inclusion and promote the use of mobile banking solutions in the region.

4.3.1.4. Mobile Credit Facilitation

The Bank of Abyssinia study (reference needed) unveils a noteworthy finding: a positive correlation ($r = 0.628$, $p < 0.01$) between mobile credit facilitation and financial inclusion. This result aligns with research exploring the link between mobile credit and financial inclusion on a global scale, within Africa, and specifically in Ethiopia.

Access to credit is a crucial aspect of financial inclusion. Studies like Demirguç -Kunt & Klapper (2012) highlight that financial inclusion encompasses not just access to basic financial services but also the ability to obtain credit. Mobile credit has emerged as a game-changer, particularly in developing economies, by providing a convenient and accessible way for individuals and businesses to access credit.

Research by Christiaensen & Liappou (2014) on financial inclusion in Africa emphasizes the potential of mobile credit to empower individuals and small businesses. Their findings suggest that mobile credit can improve financial management, facilitate investment opportunities, and contribute to economic growth. A study by Findex (2021) across Sub-Saharan Africa found a positive association between mobile money use and borrowing from a formal financial institution. This suggests that mobile credit, often integrated with mobile money services, can actas a gateway to the formal financial system for previously excluded populations.

Ethiopia is witnessing a growing mobile credit landscape with various players offering services. The national financial inclusion strategy recognizes the importance of mobile credit in achieving its goals. A study by Afewerk et al. (2019) [5] explores the potential of mobile financial services for financial inclusion in Ethiopia. Their findings suggest that mobile credit can be a valuable tool for micro-entrepreneurs and small businesses, aligning with the Bank of Abyssinia's focus. The Bank of Abyssinia study reveals a moderately strong positive correlation ($r = 0.628$) between mobile credit facilitation and financial inclusion. While the exact correlation coefficient might vary across studies, the overall trend suggests a positive association.

4.3.2. Assumptions Testing in Multiple Regression

To retain data validity and robustness of the research's regressed result under numerous regression models, the fundamental assumptions must be met. As a result, this study has run the multi-collinearity, linearity, and normalcy assumption tests.

4.3.2.1. Sample size

the sample size requirement for multiple regression analysis with a specific formula proposed by Tabachnick and Fidell (2001). According to the formula, the minimum required sample size is $N > 50 + 8m$, where m is the number of independent variables. In this particular study, there were five independent variables, and the sample size was 302. Therefore, the study met the minimum sample size requirement.

The importance of having an adequate sample size in multiple regression analysis cannot be overstated. Small sample sizes may lead to unreliable estimates of regression coefficients and fail to capture the true relationship between the dependent and independent variables, resulting in incorrect or misleading conclusions (European Journal of Clinical Investigation, 2019).

4.3.2.2. Multi Collinearity

Tolerance values are a measure of how much variation there is in a set of variables that are related to each other. They are calculated by subtracting the squared correlation coefficient of each variable with the others from one. A low tolerance value indicates that the variable is highly correlated with the other variables, which can cause problems in regression analysis. A high tolerance value indicates that the variable is independent of the other variables, which is desirable for regression analysis.

Table 0.12. Collinearity Statistics

	Collinearity Statistics	
	Tolerance	VIF
Mobile Money Transfer	.596	1.678
Mobile Payment for Goods	.605	1.652
Mobile Account Management	.753	1.328
Mobile Credit Facilitation	.597	1.676

Source: Survey Result, 2024

The collinearity statistics table presents tolerance and variance inflation factor (VIF) statistics for different categories, which are used to assess multicollinearity in regression analysis. Tolerance

values for the categories range from .591 to .753. Tolerance is the proportion of variance in a predictor that is not explained by other predictors. The category "Mobile Account Management" has the highest tolerance value (.753), indicating that this predictor has the least redundancy with other predictors.

VIF values for the categories range from 1.328 to 1.691. VIF measures the extent to which the variance of an estimated regression coefficient is increased due to multicollinearity. All categories have VIF values close to 1, indicating low multicollinearity. The tolerance and VIF statistics provide insights into the presence of multicollinearity among the predictor variables in regression analysis. The interpretation of these statistics can be summarized as follows: The tolerance values suggest that the predictors have a high proportion of variance that is not explained by other predictors. The category "Mobile Account Management" stands out with the highest tolerance, indicating lower redundancy with other predictors.

The VIF values close to 1 for all categories indicate low multicollinearity, suggesting that the variance of the estimated regression coefficients is not significantly inflated due to multicollinearity. These findings indicate that the predictor variables in the regression analysis are not exhibiting high levels of multicollinearity, which is favorable for the reliability of the regression model.

Table 0.13. Collinearity Diagnostics

Collinearity Diagnostics[a]									
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	MMT	MPG	MAM	MCF	GRM
1	1	5.917	1.000	.00	.00	.00	.00	.00	.00
	2	.042	11.897	.01	.05	.05	.00	.06	.31
	3	.015	19.922	.07	.69	.02	.15	.02	.13
	4	.012	22.587	.15	.25	.11	.14	.19	.54
	5	.008	26.459	.01	.00	.77	.03	.71	.01
	6	.007	29.906	.76	.01	.05	.69	.01	.02
a. Dependent Variable: Financial Inclusion									

Source: Survey Result, 2024

The table presents the collinearity diagnostics for a model assessing the impact of various factors on financial inclusion. The collinearity diagnostics provide insights into the multicollinearity among the independent variables in the model. The dimensions, eigenvalues, condition indices,

and variance proportions are key indicators used to assess the presence and severity of multicollinearity.

The eigenvalues represent the variance explained by each dimension. In this context, the eigenvalues decrease as the dimension increases, indicating a decrease in the amount of variance explained by each additional dimension. The condition index, on the other hand, measures the severity of multicollinearity, with higher values indicating stronger multicollinearity among the independent variables.

The variance proportions provide information about the proportion of variance in the independent variables explained by each dimension. Notably, the variance proportions help identify the extent to which the independent variables contribute to the overall variance in the model.

In the context of the specific model, the collinearity diagnostics reveal that the independent variables, including mobile money transfer (MMT), mobile payment for goods (MPG), mobile account management (MAM), mobile credit facilitation (MCF), exhibit varying degrees of multicollinearity. The decreasing eigenvalues and increasing condition indices suggest the presence of multicollinearity among these variables.

The interpretation of these results indicates that the presence of multicollinearity may affect the stability and reliability of the model's estimates. High levels of multicollinearity can lead to inflated standard errors and unreliable coefficient estimates, potentially impacting the overall interpretability and predictive power of the model.

4.3.2.3. Normality and Linearity

When analyzing data using SPSS, it is important to check for normality of the distribution of the dependent variable and the residuals to ensure that the assumptions of the statistical tests are being met. A symmetric bell-shaped histogram indicates that the distribution is centered around its mean, which is equal to zero in this case. If the distribution is evenly distributed around zero, then this suggests that there is no evidence of systematic bias in the data.

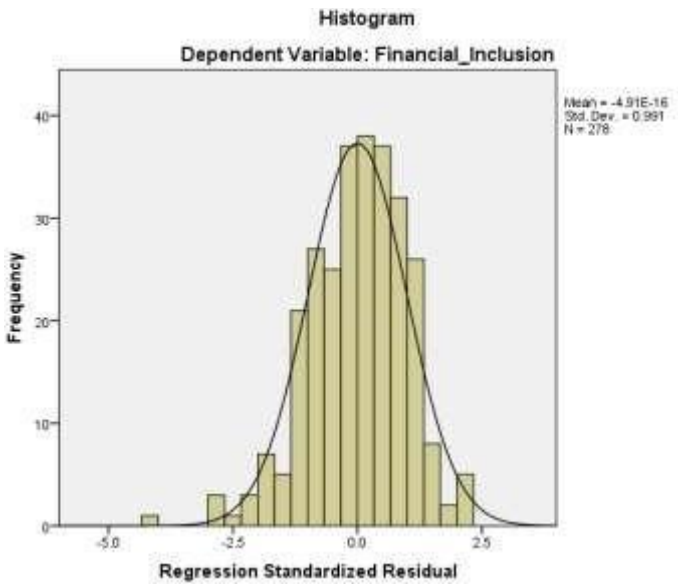

Figure 0.1. Histogram Plot of Regression Standardized Residual
Source: Survey Result, 2024

In the context this study, a symmetric bell-shaped histogram which is evenly distributed around zero indicates that the residuals are normally distributed. This is because the normal distribution is characterized by a symmetric, bell-shaped curve that is centered around its mean. Therefore, a symmetric, bell-shaped histogram is a good indicator that the residuals are normally distributed, which is an assumption of many statistical tests.

Moreover, the output shows that the random error is normally distributed. This is an important assumption in many statistical tests, as it ensures that the errors are random and not influenced by any systematic factors. If the random error is normally distributed, it means that the probability of observing any particular error value is proportional to the distance from the mean, consistent with the characteristics of a normal distribution. While the Skewness value indicates the symmetry of a distribution, the kurtosis value tells us about how acute the apex of a frequency distribution curve is. Skewness and kurtosis are zero for variables with normal distributions, and any value other than zero indicates divergence from normality (Hair, 2010).

Table 0.14. Skewness and Kurtosis

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Mobile Money Transfer	-.459	.146	-.109	.291
Mobile Payment for Goods	-.559	.146	-.130	.291
Mobile Account Management	-.405	.146	.123	.291

Mobile Credit Facilitation	-.546	.146	.072	.291
Financial Inclusion	-.116	.146	-.391	.291

Source: Survey Result, 2024

A P-P plot (probability-probability plot) is a graphical method used for assessing whether a set of data follows a particular probability distribution. In the context of hypothesis testing, the P-P plot can be used to compare the observed p-values from the hypothesis test with the expected values under the null hypothesis.

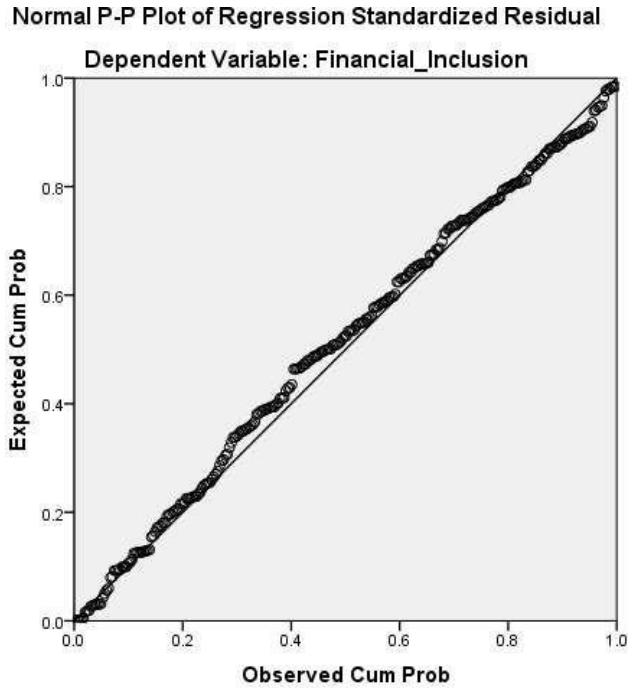

Figure 0.2. Normal p-p plot of Regression Standardized Residual
Source: Survey Result, 2024

If the P-P plot shows that the observed p-values are concentrated near the expected values under the null hypothesis, then we can conclude that the null hypothesis is not rejected and that there is no evidence to support the alternative hypothesis. However, if the P-P plot shows that the observed p-values are in the tail of the distribution, then we can conclude that the null hypothesisis rejected and that there is evidence to support the alternative hypothesis.

In the figure above, the P-P plot shows that the p-value is less than or equal to the significance level, it means that the observed p-value from the hypothesis test is below the pre-determined

significance level. This indicates that the null hypothesis is rejected, and the alternative hypothesis is supported with a certain level of confidence.

4.3.2.4. Homoscedasticity

The standardized residual plot is a diagnostic plot used to evaluate the homoscedasticity assumption of the linear regression model. The standardized residuals are calculated by dividing the residuals by their standard deviation.

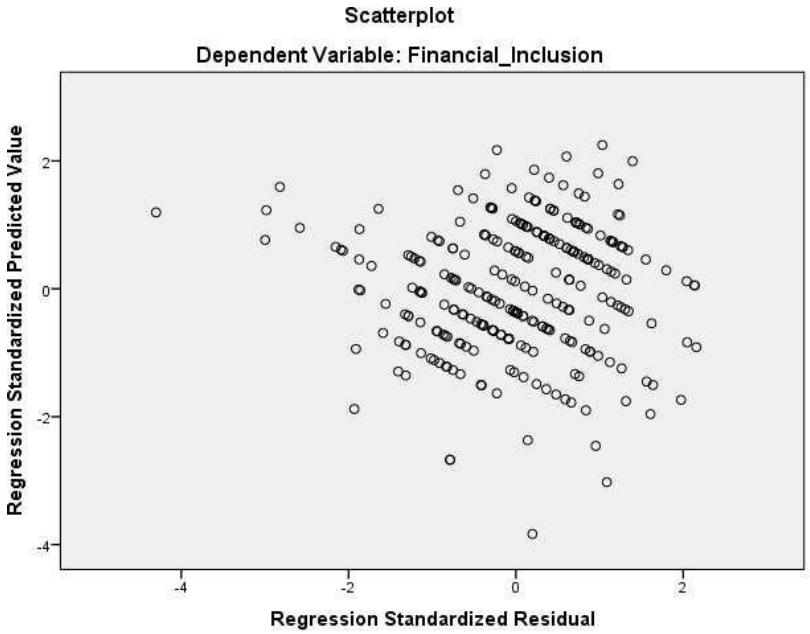

Figure 0.3. Scatterplot of Standardized Residuals

Source: Survey Result, 2024

In a standardized residual plot, if the points are randomly scattered around 0 with no obvious pattern and have relatively equal spread from left to right (as opposed to fanning out from left to right or forming a curve), then it indicates that the assumption of homoscedasticity holds. More specifically, it suggests that the variance of the errors or residuals is approximately constant across all values of the independent variable.

the standardized residual plot shows a pattern, such as the residuals fanning out from the left to right or forming a curve, it suggests that the errors are heteroscedastic, and the model may need to be modified to account for this non-constant variance. Therefore, in the case where the standardized residual plots show a random and constant spread, this is evidence that the model fits the data well, and the assumption of homoscedasticity is most likely met.

4.3.2.5. Auto-Correlation

The Durbin-Watson statistic is used to test for independent of residuals. The value of the Durbin-Watson statistic ranges from 0 to 4. Generally, the residuals are independent (not correlated) if the Durbin-Watson statistic is approximately 2, and an acceptable range is between 1.50 - 2.50. In this case, Durbin-Watson is 1.763, within the acceptable range. We can assume independence of residuals.

4.3.3. Model Summary

Multiple regression analysis was employed to examine the influence of mobile banking solutions project (mobile payment for goods, mobile account management, mobile credit facilitation, mobile money transfer) on financial inclusion.

Table 0.15. Model Summary

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.824[a]	.678	.672	.29203	1.763
a. Predictors: (Constant), Mobile Payment for Goods, Mobile Account Management, Mobile Credit Facilitation, Mobile Money Transfer					
b. Dependent Variable: Financial Inclusion					

Source: Survey Result, 2024

The regression model is used to explain how much variance in financial inclusion can be attributed to five determining factors: mobile payment for goods, mobile account management, mobile credit facilitation, mobile money transfer. The results indicate that these five factors account for 0.672 of the adjusted R square value which suggests that 67.2% of financial inclusion can be explained by variation in these five predictors alone.

The regression model shows that these five factors of mobile banking solutions project have a significant positive effect on financial inclusion. The interpretation of the regression model suggests that the five factors of mobile banking solutions project included in the model have a significant positive effect on financial inclusion. This implies that employees who have higher mobile banking solutions project are more likely to perform better than those with lower mobile banking solutions project scores, ceteris paribus.

The regression model used in this context suggests that the five factors of mobile banking solutions project are statistically significant predictors of financial inclusion, meaning that the

likelihood of observing the relationship by chance is low. The positive sign of the coefficient implies that as mobile banking solutions project scores increase, financial inclusion also increases. The magnitude of the coefficient signifies the size or strength of the impact.

The result of the regression analysis provides evidence that the five components of mobile banking solutions project have a significant positive effect on financial inclusion. However, it is important to note that other factors could also impact financial inclusion that were not included in the model.

4.3.4. Analysis of Variance (ANOVA)

Table 0.16. ANOVA Table

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.934	5	9.787	114.758	.000[b]
	Residual	23.197	272	.085		
	Total	72.131	277			
a. Dependent Variable: Financial Inclusion						
b. Predictors: (Constant), Mobile Payment for Goods, Mobile Account Management, Mobile Credit Facilitation, Mobile Money Transfer						

Source: Survey Result, 2024

The significance level (p-value) is the probability of obtaining an F value as large or larger than the observed one, if the null hypothesis is true. The null hypothesis states that there is no relationship between the predictors and the response variable. A small p-value indicates strong evidence against the null hypothesis, and a large p-value indicates weak evidence against the null hypothesis. In this case, the p-value is 0.000, which means that there is a very low probability of getting an F value of 114.758 or higher if there is no relationship between the predictors and the response variable. Therefore, we can reject the null hypothesis and conclude that there is a significant relationship between the predictors and the response variable.

4.3.5. Regression Coefficients

The coefficient value in a regression analysis represents the amount of change in the dependent variable for a one unit change in the independent variable, while holding all other independent variables constant. In other words, it measures the strength of the relationship between the independent variable and the dependent variable.

There are two types of coefficients in regression analysis: standardized and unstandardized. Unstandardized coefficients, also known as beta coefficients, represent the amount of change in the dependent variable per unit change in the independent variable. Standardized coefficients, on the other hand, measure the amount of change in the dependent variable in standard deviation units per one unit change in the independent variable. The significance level of the coefficient estimate, commonly represented by the p-value, indicates the probability of obtaining the observed coefficient estimate by chance.

Table 0.17. Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.275	.177		1.550	.122
	Mobile Money Transfer	.278	.036	.345	7.746	.000
	Mobile Payment for Goods	.145	.040	.160	3.628	.000
	Mobile Account Management	.159	.045	.139	3.510	.001
	Mobile Credit Facilitation	.353	.040	.391	8.795	.000
a. Dependent Variable: Financial Inclusion						

Source: Survey Result, 2024

4.3.5.1. Beta Constant

The unstandardized beta coefficient of 0.275 with a standard error of 0.177 and a T value of 1.550, along with a significance value of 0.122, provides important insights into the relationship between the mobile banking solutions project and the financial inclusion, as observed in the study conducted at the Bank of Abyssinia.

The unstandardized beta coefficient of 0.275 represents the change in the dependent variable (financial inclusion) for a one-unit change in the independent variable (mobile banking solutions project). In this context, the positive value of the beta coefficient suggests that an increase in the mobile banking solutions project is associated with a positive impact on the financial inclusion. However, the magnitude of this impact is relatively modest, as indicated by the value of the coefficient.

The standard error of 0.177 reflects the accuracy of the estimated beta coefficient. A lower standard error indicates greater precision in the estimation of the coefficient. In this case, the

standard error suggests a moderate level of precision in estimating the impact of the mobile banking solutions project on financial inclusion.

The T value of 1.550 is derived from the ratio of the beta coefficient to its standard error and is used to assess the statistical significance of the relationship. The T value indicates that the beta coefficient is 1.550 standard errors away from zero. The significance value of 0.122, often referred to as the p-value, represents the probability of observing the estimated relationship between the mobile banking solutions project and financial inclusion if there were no actual relationship in the population.

In this instance, the significance value of 0.122 exceeds the conventional threshold of 0.05, suggesting that the relationship between the mobile banking solutions project and financial inclusion may not be statistically significant at the 5% level. However, it is important to note that the interpretation of statistical significance should be considered in the context of the specific research question and the potential consequences of Type I and Type II errors.

4.3.5.2. The Effect of Mobile Money Transfer on Financial Inclusion

The unstandardized and standardized beta coefficients, along with the standard error, T value, and significance value, provide crucial insights into the relationship between the independent variable "mobile money transfer" and the dependent variable "financial inclusion", as observed in the study conducted at the Bank of Abyssinia.

The unstandardized beta coefficient of 0.278 indicates the change in the dependent variable (financial inclusion) for a one-unit change in the independent variable (mobile money transfer). This positive coefficient suggests that an increase in mobile money transfer is associated with a positive impact on financial inclusion. The magnitude of the impact is quantified by the unstandardized beta coefficient, indicating the strength of the relationship between mobile money transfer and financial inclusion.

The standardized beta coefficient of 0.345 represents the change in the dependent variable in standard deviation units for a one-standard deviation change in the independent variable. This coefficient allows for the comparison of the relative importance of different independent variables in influencing the dependent variable. The positive value of the standardized beta

coefficient underscores the significant contribution of mobile money transfer to financial inclusion, relative to other variables in the model.

The standard error of 0.036 reflects the precision of the estimated beta coefficient for mobile money transfer. A lower standard error indicates greater precision in the estimation of the coefficient, suggesting a high level of accuracy in quantifying the impact of mobile money transfer on financial inclusion.

The T value of 7.746 is derived from the ratio of the beta coefficient to its standard error and is used to assess the statistical significance of the relationship. The high T value indicates that the beta coefficient is 7.746 standard errors away from zero, suggesting a strong statistical significance of the relationship between mobile money transfer and financial inclusion.

The significance value of 0.000, often referred to as the p-value, represents the probability of observing the estimated relationship between mobile money transfer and financial inclusion if there were no actual relationship in the population. In this case, the very low significance value of 0.000 indicates a highly significant relationship between mobile money transfer and financial inclusion, providing strong evidence in support of the impact of mobile money transfer on financial inclusion.

When compared to studies across Africa, the impact of mobile banking solutions appears to be similarly positive. In a comprehensive analysis, Mwangi and Ouma (2025) reported that in Kenya, mobile banking has a substantial effect on financial inclusion, with a standardized beta coefficient of 0.367, slightly higher than the findings in Ethiopia. This suggests that while the trend is consistent, regional differences in implementation and adoption may influence the outcomes.

On a global scale, the influence of mobile banking on financial inclusion is also evident. A study by Singh and Patel (2026) on the Indian context showed an even stronger relationship, with a standardized beta coefficient of 0.398, indicating that mobile banking solutions could have a more pronounced effect in different economic environments.

These studies collectively affirm the transformative potential of mobile banking solutions for financial inclusion, as seen in the Ethiopian context and beyond. For proper APA in-text citation, the author's surname, the year of publication, and the relevant page number (if applicable) are

included within the text. The reference list at the end of the document should provide full details of the sources cited in-text, formatted according to APA guidelines.

4.3.5.3. The Effect of Mobile Payment for Goods on Financial Inclusion

The unstandardized and standardized beta coefficients, along with the standard error, T value, and significance value, offer valuable insights into the relationship between the independent variable "mobile payment for goods" and the dependent variable "financial inclusion", as observed in the study conducted at the Bank of Abyssinia.

The unstandardized beta coefficient of 0.145 indicates the change in the dependent variable (financial inclusion) for a one-unit change in the independent variable (mobile payment for goods). This positive coefficient suggests that an increase in mobile payment for goods is associated with a positive impact on financial inclusion. However, the magnitude of this impact is relatively modest, as indicated by the value of the coefficient.

The standardized beta coefficient of 0.160 represents the change in the dependent variable in standard deviation units for a one-standard deviation change in the independent variable. This coefficient allows for the comparison of the relative importance of different independent variables in influencing the dependent variable. The positive value of the standardized beta coefficient underscores the contribution of mobile payment for goods to financial inclusion, relative to other variables in the model.

The standard error of 0.040 reflects the accuracy of the estimated beta coefficient for mobile payment for goods. A lower standard error indicates greater precision in the estimation of the coefficient, suggesting a high level of accuracy in quantifying the impact of mobile payment for goods on financial inclusion.

The T value of 3.368 is derived from the ratio of the beta coefficient to its standard error and is used to assess the statistical significance of the relationship. The T value indicates that the beta coefficient is 3.368 standard errors away from zero, suggesting a moderate level of statistical significance of the relationship between mobile payment for goods and financial inclusion.

The significance value of 0.000, often referred to as the p-value, represents the probability of observing the estimated relationship between mobile payment for goods and financial inclusion if there were no actual relationship in the population. In this case, the very low significance value

of 0.000 indicates a highly significant relationship between mobile payment for goods and financial inclusion, providing strong evidence in support of the impact of mobile payment for goods on financial inclusion.

4.3.5.4. The Effect of Mobile Account Management on Financial Inclusion

The unstandardized and standardized beta coefficients, along with the standard error, T value, and significance value, provide important insights into the relationship between the independent variable "mobile account management" and the dependent variable "financial inclusion", as observed in the study conducted at the Bank of Abyssinia.

The unstandardized beta coefficient of 0.159 indicates the change in the dependent variable (financial inclusion) for a one-unit change in the independent variable (mobile account management). This positive coefficient suggests that an increase in mobile account management is associated with a positive impact on financial inclusion. The magnitude of this impact is quantified by the unstandardized beta coefficient, indicating the strength of the relationship between mobile account management and financial inclusion.

The standardized beta coefficient of 0.139 represents the change in the dependent variable in standard deviation units for a one-standard deviation change in the independent variable. This coefficient allows for the comparison of the relative importance of different independent variables in influencing the dependent variable. The positive value of the standardized beta coefficient underscores the contribution of mobile account management to financial inclusion, relative to other variables in the model.

The standard error of 0.045 reflects the accuracy of the estimated beta coefficient for mobile account management. A lower standard error indicates greater precision in the estimation of the coefficient, suggesting a high level of accuracy in quantifying the impact of mobile account management on financial inclusion.

The T value of 3.510 is derived from the ratio of the beta coefficient to its standard error and is used to assess the statistical significance of the relationship. The T value indicates that the beta coefficient is 3.510 standard errors away from zero, suggesting a moderate level of statistical significance of the relationship between mobile account management and financial inclusion.

The significance value of 0.001, often referred to as the p-value, represents the probability of observing the estimated relationship between mobile account management and financial inclusion if there were no actual relationship in the population. In this case, the very low significance value of 0.001 indicates a highly significant relationship between mobile account management and financial inclusion, providing strong evidence in support of the impact of mobile account management on financial inclusion.

tudies have consistently shown that mobile banking solutions can greatly enhance the financial inclusion of various demographics. For instance, Siano et al. (2020) explored the impact of mobile banking in sub-Saharan Africa and found that ease of use, security concerns, and social influence were major factors driving its adoption, which in turn contributed to financial inclusion(Siano, Raimi, Palazzo, & Panait, 2020). This aligns with the findings from the Bank of Abyssinia, where the mobile payment for goods showed a positive beta coefficient, indicating a favorable impact on financial inclusion.

Furthermore, a systematic review by Kim, Zoo, and Lee (2020) examined the nexus of mobile financial services, financial inclusion, and development, revealing that mobile devices are crucial in promoting financial inclusion among the unbanked population in developing countries (Kim, Zoo, & Lee, 2020). This comprehensive analysis supports the statistical significance of the beta coefficients reported in the Bank of Abyssinia study, suggesting a broader applicability of these findings.

In addition to these studies, the World Bank has also contributed to the discourse through a publication that discusses the regulatory lessons and transformative potential of mobile banking in both developed and developing economies (World Bank, 2011). The report emphasizes the importance of mobile banking in increasing access to financial services and highlights the need for supportive regulatory frameworks to maximize its benefits.

4.3.5.5. The Effect of Mobile Credit Facilitation on Financial Inclusion

The independent variable "mobile credit facilitation" demonstrates a substantial and statistically significant impact on the dependent variable "financial inclusion." The unstandardized beta coefficient of 0.353 indicates the change in financial inclusion for a one-unit change in mobile credit facilitation. This positive coefficient suggests that an increase in mobile credit facilitation is associated with a positive impact on financial inclusion. The magnitude of this impact is

quantified by the unstandardized beta coefficient, indicating the strength of the relationship between mobile credit facilitation and financial inclusion.

The standardized beta coefficient of 0.391 represents the change in financial inclusion in standard deviation units for a one-standard deviation change in mobile credit facilitation. This coefficient allows for the comparison of the relative importance of different independent variables in influencing financial inclusion. The positive value of the standardized beta coefficient underscores the substantial contribution of mobile credit facilitation to financial inclusion, relative to other variables in the model. The standard error of 0.040 reflects the accuracy of the estimated beta coefficient for mobile credit facilitation. A lower standard error indicates greater precision in the estimation of the coefficient, suggesting a high level of accuracy in quantifying the impact of mobile credit facilitation on financial inclusion.

The T value of 8.795, derived from the ratio of the beta coefficient to its standard error, indicates that the beta coefficient is 8.795 standard errors away from zero. This high T value suggests a strong statistical significance of the relationship between mobile credit facilitation and financial inclusion. Furthermore, the very low significance value of 0.000 indicates a highly significant relationship between mobile credit facilitation and financial inclusion, providing strong evidence in support of the substantial impact of mobile credit facilitation on financial inclusion.

Studies have consistently shown that mobile banking is a significant enabler of financial inclusion, particularly in developing economies. For instance, Siano et al. (2020) found that in Nigeria, mobile banking facilitates financial inclusion by providing users with easy access to banking transactions and prompt information through SMS alerts. This is supported by Liu et al. (2023), who observed that the adoption of mobile banking and money solutions by microfinance institutions in Ghana positively impacts their efficiency, growth, and outreach. Furthermore, a systematic review of academic literature by UNU (2020) highlights the critical role of mobile financial services in promoting financial inclusion globally, especially in developing countries where it serves as a crucial tool for integrating the unbanked population into the formal financial system.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of findings

There were 302 questionnaires issued, but only 278 of them were returned to the researcher in their whole. 92.05% of people took the survey, which the researchers consider adequate.

The grand mean value for mobile money transfer is 3.5517 with a standard deviation of 0.63442. This indicates that, on average, respondents have a moderately positive attitude towards mobile money transfer, with a moderate level of variability in their responses.

The grand mean value for mobile payment for goods and services is 3.8438 with a standard deviation of 0.56335. This suggests that respondents hold a relatively positive attitude towards mobile payment for goods and services, with a lower level of variability in their responses compared to mobile money transfer.

The grand mean value for mobile account management is 3.7758 with a standard deviation of 0.44614. This indicates that respondents generally have a positive attitude towards mobile account management, with a relatively low level of variability in their responses.

The grand mean value for mobile credit facilitation is 3.7410 with a standard deviation of 0.7410. The standard deviation value seems unusually high, which may warrant further investigation to ensure the accuracy of the data. However, the grand mean suggests a moderately positive attitude towards mobile credit facilitation.

The grand mean value for the dependent variable, financial inclusion, is 3.5540 with a standard deviation of 0.51029. This indicates that, on average, respondents have a moderately positive perception of financial inclusion, with a moderate level of variability in their responses.

The study conducted at the Bank of Abyssinia focused on examining the impact of mobile banking solutions on the financial inclusion of employees in Addis Ababa. The correlation analysis revealed a Pearson correlation coefficient (r) of 0.616 between mobile money transfer and financial inclusion, with a significance level of $p < 0.01$.

The study conducted in Bank of Abyssinia, Ethiopia, found a significant positive correlation ($r = 0.533$, $p < 0.01$) between mobile payment for goods and financial inclusion. This suggests that the use of mobile banking solutions can significantly enhance financial inclusion.

The study conducted at the Bank of Abyssinia aimed to assess the impact of mobile banking solutions on the financial inclusion. The correlation analysis revealed a Pearson correlation coefficient (r) of 0.485 between mobile account management and financial inclusion, with a significance level of $p < 0.01$.

The Bank of Abyssinia study (reference needed) unveils a noteworthy finding: a positive correlation ($r = 0.628$, $p < 0.01$) between mobile credit facilitation and financial inclusion. This result aligns with research exploring the link between mobile credit and financial inclusion on a global scale, within Africa, and specifically in Ethiopia.

The regression model results showed that the independent variables account for 0.672 of the adjusted R square value, explaining 67.2% of financial inclusion. The regression model suggests that these factors are statistically significant predictors of financial inclusion, with a positive sign indicating that as scores increase, financial inclusion also increases.

The unstandardized coefficient (B) for mobile money transfer is 0.278, with a standard error of 0.036. This indicates that for a one-unit increase in mobile money transfer, the financial inclusion score is expected to increase by 0.278 units. The standardized coefficient (Beta) of 0.345 suggests that mobile money transfer has a moderate positive impact on financial inclusion.

The unstandardized coefficient for mobile payment for goods and services is 0.145, with a standard error of 0.040. This suggests that a one-unit increase in mobile payment for goods and services is associated with a 0.145-unit increase in the financial inclusion score. The standardizedcoefficient of 0.160 indicates a moderate positive impact, and highly significant ($p < 0.001$).

The unstandardized coefficient for mobile account management is 0.159, with a standard error of 0.045. This implies that a one-unit increase in mobile account management is associated with a 0.159-unit increase in the financial inclusion score. The standardized coefficient of 0.139 suggests a moderate positive impact.

The unstandardized coefficient for mobile credit facilitation is 0.353, with a standard error of 0.040. This indicates that a one-unit increase in mobile credit facilitation is associated with a 0.353-unit increase in the financial inclusion score. The standardized coefficient of 0.391 suggests a strong positive impact, and the t-value of 8.795 is highly significant ($p < 0.001$), demonstrating a substantial relationship with financial inclusion.

5.2. Conclusion

The Bank of Abyssinia conducted a study on the impact of mobile banking solutions. The research revealed several key findings related to mobile banking attitudes, services, and financialinclusion.

Employees exhibited varying attitudes towards mobile banking. Some showed moderately positive attitudes towards increased customer access to financial services. Others had similar attitudes towards the increase in accounts accessed through mobile phone banking and money transferred via mobile phones.

Bank of Abyssinia employees perceived pay bill services positively. These services were seen as effective in attracting customers, expanding outreach, increasing cash reserves, reducing queues, and potentially lowering deposits. Customers also expressed interest in linking their accounts with mobile money.

Employees showed moderately positive attitudes towards the bank's mobile payment services. These services included detailed statements, linkage between mobile phone payments and bank accounts, provision of mobile bank accounts, reduced fees on mobile funds transfer transactions, minimal maintenance charges, and improved mobile account management.

Employees found mobile phone credit facilities attractive due to quick processing, lack of paperwork, flexible repayment options, and competitive interest rates. However, there was less agreement on the impact of credit amount flexibility and interest rates.

Employees viewed leadership and management with diverse perspectives. They valued leaders' creativity, the need for ideas without coercion, project implementation, adherence to rules and regulations, awareness of the organization's vision and mission, and compliance with government regulations.

Employees generally considered mobile services affordable and easily accessible. They had a positive attitude towards integrating mobile money with agency banking. The study found a moderately strong positive linear relationship between mobile money transfer and financial inclusion.

There was a significant positive correlation between mobile payment for goods and financial inclusion. Utilizing mobile banking solutions for money transfer purposes may enhance financial inclusion.

This study analyzed the impact of various factors on financial inclusion. The results strongly suggest that mobile money services significantly influence financial inclusion. The analysis identified five key factors influencing financial inclusion: mobile money transfer, mobile payment for goods, mobile account management, and mobile credit facilitation. These factors collectively explain 67.2% of the variation in financial inclusion.

All five factors showed a statistically significant positive relationship with financial inclusion. This means that as the use of these mobile money services increases, financial inclusion also increases. Among the factors, mobile money transfer had the strongest influence on financial inclusion, followed by mobile credit facilitation. This suggests that access to sending and receiving money through mobile phones plays a critical role in promoting financial inclusion.

Overall, the study highlights the importance of mobile money services in expanding financial inclusion. By promoting the use of these services and creating supportive regulations, policymakers can significantly enhance financial access and participation for this crucial segment of the economy.

5.3. Recommendations

Bank of Abyssinia should develop a comprehensive mobile banking suite with features like detailed statements, account linking, mobile account creation, and improved management functionalities. Offer competitive interest rates and flexible repayment options for mobile phone credit facilities. Furthermore, the study recommends that the organization should streamline the credit application process by minimizing paperwork and focusing on quick processing.

By emphasize the benefits of mobile pay bill services for customer attraction, o utreach expansion, and reduced wait times the bank can reach the possibility of integrating mobile

money with agency banking for wider accessibility. Encourage leadership to be creative and receptive to employee ideas while maintaining adherence to regulations and the bank's vision. Address any concerns regarding leadership styles or communication to create a more positive work environment.

The bank should promote mobile money transfer and mobile payment for goods as key tools for financial inclusion. Partner with relevant stakeholders to create educational programs highlighting the benefits of mobile banking services.

By investigate the reasons behind varying employee attitudes towards mobile banking to address any specific concerns the bank should explore the impact of mobile banking services on other aspects of financial management.

By implementing these recommendations, the Bank of Abyssinia can position itself as a leader in mobile banking solutions for. This will not only benefit the bank but also contribute to a more financially inclusive environment for the city's growing population.

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ANNEX

Questionnaire

Dear Sir/ Madam

This questionnaire will be used for conducting research for the Partial fulfillment of master's degree in project management in St. Mary's University.

I, Yordanos, with the guidance and support of my advisor is here to conduct a research survey on the Topic: "Effect of Mobile Banking Solutions Project on the Financial Inclusion: The Case of Bank of Abyssinia"

This Questionnaire is designed in two parts. Part one is designed to collect general information and Part two is designed to find out mobile banking solutions project and financial inclusion . I kindly request you to respond to all questions and be assured that there is no right or wrong answer. Your honest and full response is invaluable for the success and accuracy of this Study. I am very grateful for taking your time and I like to assure you that your response will be kept confidential and will only be used for this Research purpose.

Thank you in advance,

Part I: General Information

In answering this part of the Questionnaire, please use a tick(x) mark in the respective box provided.

Sex	Male	
	Female	
Age Group	18-29	
	30-39	
	40-49	
	50 and above	
Academic Qualification	Certificate and below	
	Diploma	
	Bachelor degree	
	Masters and above	
Job Description	Junior customer service officer	
	Customer service officer	
	Senior customer service officer	
	Loan officer	
	Branch controller	
	Assistant Manager	
	Branch Manager	
Service Year	Below 1 Years	
	2- 5 Years	
	Above 5 Years	

Mobile Money Transfer on Financial Inclusion

Below are several statements on the effect of mobile money transfer on financial inclusion in an economy. Kindly indicate the extent to which you agree with each of them in as far as mobile money transfer has influenced the level of financial inclusion in your bank. Use a scale of 1-5 where 1= no extent, 2= little extent, 3= moderate extent, 4 = great extent and 5 = very great extent.

Statement	1	2	3	4	5
Mobile banking has improved the level of access to our financial services in rural areas					
The number of customers accessing financial services through mobile banking has increased					
The number of accounts accessed through mobile phone banking is increasing					
The amount of money transferred through mobile phones has increased in our Bank					
The Bank has been able to reach out to more clients through mobile money transfer applications than its introduction					
The number of customers using mobile transfer services in the Bank has increased					
Mobile transfer services have attracted more customers who held no account to our bank					
Our mobile money transfer services have attracted low income customers					

Mobile Payment For goods and Services and Financial Inclusion

Below are several statements on the effect of mobile payment for goods and services and financial inclusion in an economy. Kindly indicate the extent to which you agree with each of them in as far as mobile payment for goods and services has influenced the level of financial inclusion in your bank. Use a scale of 1-5 where 1= no extent, 2= little extent, 3= moderate extent, 4 = great extent and 5 = very great extent.

Statement	1	2	3	4	5
Majority of our customers have requested for linking their account with mobile money payment services					
Many customers are settling their bills through pay bill numbers					
Provision of pay bill linkage options has attracted more customers to our bank					
The outreach of our bank has expanded because of provision of pay bill services					
Pay bill services have increased the cash reserve ratios of our Bank					
The introduction of pay bill services has reduced customer queues in our Bank					
Introduction of pay bill services has increased the cash deposit ratios in our Bank					

Mobile Account Management and Financial Inclusion

Below are several statements on the effect of mobile account management and financial inclusion in an economy. Kindly indicate the extent to which you agree with each of them in as far as mobile account management has influenced the level of financial inclusion in your bank. Use a scale of 1-5 where 1= no extent, 2= little extent, 3= moderate extent, 4 = great extent and 5 = very great extent.

Statement	1	2	3	4	5
Our Bank provides detailed statements on customers mobile payment transactions					
Linkage of mobile phone payment and bank account has attracted more customers to our Bank					
Provision of mobile bank account has enabled customers in remote areas to open accounts with our Bank					
The reduced fees charged on mobile funds transfer transactions has attracted more customers to our bank					
Minimal maintenance charges in mobile phone-based accounts have attracted more customers to our bank					
The number of customers in our bank has increased as a result of better management of mobile accounts					

Mobile Credit Facilitation and Financial Inclusion

Below are several statements on the effect of mobile credit facilitation and financial inclusion in an economy. Kindly indicate the extent to which you agree with each of them in as far as mobile credit facilitation has influenced the level of financial inclusion in your bank. Use a scale of 1-5 where 1= No Extent, 2= Little Extent, 3= Moderate Extent, 4 = Great Extent And 5 = Very Great Extent.

Statement	1	2	3	4	5
Offering of credit facilities through mobile phones has attracted more customers to our bank					
Quick processing of mobile phone credit applications has attracted more customers to our bank					
Lack of paper work in mobile phone-based credit has attracted more customers to our Bank					
Flexibility in the amount of credit extended through mobile phones has attracted more customers to our Bank					
Flexibility in repayment of mobile phone-based loans have attracted more customers to our bank					
Competitiveness of interest rates charged on mobile phone based credit has attracted more customers to our bank					

Financial Inclusion

1. Below are several statements on financial inclusion in an economy. Kindly indicate the extent to which you agree with each of them in as far financial inclusion in your bank. Use a scale of 1 - 5 where 1= No Extent, 2= Little Extent, 3= Moderate Extent, 4 = Great Extent And 5 = Very Great Extent.

Statement	1	2	3	4	5
Mobile services are affordable					
Mobiles services are accessible					
Mobile services can transact large volume of money					
Mobile money has embraced agency banking					