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**THE ROLE OF DIGITAL BANKING IN ENHANCING FINANCIAL
INCLUSION IN ADDIS ABABA (ETHIOPIA)**

**A THESIS SUBMITTED TO THE ST. MARY'S UNIVERSITY SCHOOL OF
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DEGREE OF MASTER OF ARTS IN BUSINESS ADMINISTRATION.**

BY

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**SCHOOL OF GRADUATE STUDIESDEPARTMENT OF BUSINESS
ADMINASTRATION PROGRAM**

**THE ROLE OF DIGITAL BANKING IN ENHANCING FINANCIAL INCLUSION IN
ADDIS ABABA (ETHIOPIA)**

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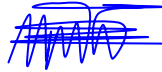
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Statement of Certification

This is to certify that Kebeki Urgessa has carried out his research work on the topic entitled The Role of Digital Banking in Enhancing Financial Inclusion in Addis Ababa (Ethiopia). The work is original in nature and is suitable for submission for the award of Master's Degree in Business Administration.

Advisor: Alazar Amare (PhD)

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Date: _____

Statement of Declaration

I hereby declare that The Role of Digital Banking in Enhancing Financial Inclusion in Addis Ababa (Ethiopia) project is wholly the work of Kebeki Urgessa. I have carried out the present study independently with the guidance and support of the research advisor, Alazar Amare (PhD). Also any other contributors or sources have either been referenced in the prescribed manner or are listed in the acknowledgements together with the nature and the scope of their contribution. And the study has not been submitted for award of any Degree or Diploma Program in this or any other Institution. It is in partial fulfillment to the requirement of the program Master's Degree in Business Administration.

Kebeki Urgessa

Signature: _____

Date: _____

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Acronym

ATMs=Automated Teller Machines

DFI = Digital Financial Inclusion

DF = Digital Finance

DFS = Digital Financial Services

DPS = Digital Payment System

FS = Financial Service

MB=Mobile banking

SDGs=Sustainable Development Goals

SME= Small and Medium-sized Enterprises

SMS=Short Messaging service

Abstract

This research paper examines the pivotal role of digital banking in enhancing financial inclusion in Ethiopia, with a particular focus on its implications for the country's economic development. The research objectives center on elucidating the significance of digital banking in bridging the gap between the unbanked and formal financial systems, exploring effective strategies for its promotion, and assessing its impact on poverty reduction, gender equality, and rural development. Key findings underscore the transformative potential of digital banking, revealing that it not only improves access to financial services but also reduces costs for users and institutions while accelerating economic growth. Furthermore, digital banking has been shown to economically empower women, provide vital support for small and medium-sized enterprises (SMEs), and enhance resilience to economic shocks. By facilitating easier access to credit and savings mechanisms, digital banking plays a crucial role in fostering entrepreneurship and innovation among underserved populations. The review highlights the necessity of addressing challenges such as the digital divide, regulatory complexity, and data privacy concerns to fully realize the benefits of digital banking. It emphasizes the importance of creating a robust regulatory framework that promotes innovation while safeguarding consumer rights. By integrating digital financial services with broader socio-economic initiatives, stakeholders can create a comprehensive ecosystem that supports sustainable development goals. Ultimately, this research advocates for a holistic approach that integrates technology with socio-economic initiatives, ensuring that the benefits of digital banking reach all segments of society and contribute to sustainable development goals. By leveraging digital banking as a tool for empowerment and growth, Ethiopia can pave the way for a more equitable and prosperous future.

Key words: Digital banking; financial inclusion; economic development; mobile money; regulatory reforms; rural development; data security; financial infrastructure.

CHAPTER ONE

INTRODUCTION

Introduction

This chapter introduces the reader to the study of the role of digital banking in enhancing financial inclusion in Addis Ababa (Ethiopia). In addition the statement of the problem, basic research questions, objective of the study, definition of terms, significance of the study, scope of the study, limitation of the study and organization of the study are discussed.

1.1. Background of the Study

Ethiopia's financial landscape is characterized by a diverse range of economies, from highly developed financial sectors to those with emerging financial systems. The Ethiopia's financial infrastructure includes a mix of traditional banking institutions, microfinance, and emerging digital banking platforms. Historically, Ethiopia has been excluded from formal financial services due to inadequate infrastructure, limited access to traditional banks, and low-income levels (Demirgüç-Kunt & Klapper, 2012). This has created a significant portion of the population outside the formal financial sector. The role Digital banking refers to using digital technologies and platforms to provide financial services, including but not limited to online and mobile banking, digital wallets, and electronic payment systems (Sardana & Singhania, 2018). Digital banking offers a convenient and efficient means of conducting financial transactions, often without a physical presence at a bank branch (Barquin & Hv, 2015). On the other hand, financial inclusion is a broader concept encompassing the accessibility and usage of financial services by all segments of the population, especially those previously excluded due to various socio-economic factors (Mukalayi & Inglesi-Lotz, 2023). It provides affordable and accessible financial services to individuals and businesses, enabling them to save, borrow, invest, and manage financial resources effectively. For several reasons, the role of digital banking in enhancing financial inclusion in Ethiopia's socio-economic development. Access to financial services empowers people to save, invest, and protect their assets. This, in turn, helps individuals and families break the cycle of poverty by providing a safety net during emergencies and opportunities for economic growth. Financial inclusion facilitates access to credit, which is crucial for small and medium-sized enterprises (SMEs) that are the backbone of Ethiopian

economies. These businesses can expand, create jobs, and contribute to economic growth when they have access to financing (Kleih et al., 2013; Oshora et al., 2021).

The role of digital banking in enhancing financial inclusion in Ethiopia allows families to save for education and healthcare expenses. It can also enable the provision of micro insurance and other financial products that mitigate the financial burden of healthcare emergencies and education costs. Financial inclusion can help reduce income and wealth disparities by providing access to financial services. It empowers marginalized populations, such as women and rural communities, by giving them the tools to participate in the formal economy (Ozili, 2021). Digital banking, a key enabler of financial inclusion, encourages innovation in financial services. Mobile money platforms and fintech solutions have the potential to leapfrog traditional banking infrastructure, providing financial access to even the most remote areas. A financially inclusive society is more resilient to economic shocks. People can better weather financial crises and participate in recovery efforts with access to savings and payment mechanisms. Financial inclusion aligns with many United Nations' Sustainable Development Goals (SDGs) (Hannig & Jansen, 2010). It can be a powerful tool for governments to achieve poverty reduction, economic development, and social well-being Objectives. The primary research objectives of this study are dual. First, to comprehensively analyse the impact of digital banking on financial inclusion in Ethiopia, examining the extent to which the adoption of digital banking technologies and services has contributed to the broader goal of making financial services more accessible to previously underserved populations. Second, to identify and critically assess the challenges and opportunities associated with digital banking adoption in Ethiopia nations, considering factors such as infrastructure, regulatory environments, and the role of private sector stakeholders. By following these objectives, the research aims to provide valuable insights into the dynamics of digital banking and financial inclusion in Ethiopia, shedding light on the successes and obstacles encountered in this critical development area. Additionally, this study seeks to evaluate the strategies employed by Ethiopian governments, financial institutions, and companies to promote financial inclusion through digital banking. By investigating these strategies, the research offers practical recommendations and policy insights that can further guide stakeholders in enhancing financial inclusion across the Country. Ultimately, this research actions to contribute to a deeper understanding of the intricate relationship between digital banking and financial inclusion in

Ethiopia and provide a foundation for informed decision-making in the realms of policy, business, and technology, with the overarching goal of fostering more inclusive and sustainable economic development throughout the country(Hannig & Jansen, 2010).

The rise of digital technologies has transformed various sectors globally, including banking. In Ethiopia, mobile phone penetration has increased significantly, creating opportunities for digital banking solutions to reach underserved populations. Services such as mobile money, online banking, and digital wallets have the potential to provide easier access to financial services. The Ethiopian government has initiated several policies aimed at promoting financial inclusion and digital transformation. This includes the National Financial Inclusion Strategy, which outlines goals for increasing access to financial services through innovative technologies (Molla and Lema , 2020).

Traditional banking systems in Ethiopia often face challenges such as limited branch networks, long distances to banking facilities, and bureaucratic hurdles. Digital banking can help mitigate these issues by providing services remotely and reducing the need for physical infrastructure.

Research conducted by (Molla and Lema ,2020) highlighted that mobile banking services have effectively penetrated rural areas, allowing individuals who previously lacked access to formal financial institutions to engage in banking activities. Similarly, (Abate and Assefa, 2021) found that digital payment systems have significantly improved the financial capabilities of smallholder farmers, enabling them to receive payments directly and efficiently. These findings underscore the crucial role digital banking plays in providing a gateway to financial services for marginalized populations, thereby promoting economic empowerment and resilience. However, despite these promising insights, there remains a notable gap in the literature regarding a comprehensive examination of the multifaceted impacts of digital banking on financial inclusion specifically within the Ethiopian context. Existing research often focuses on isolated aspects or specific demographics without addressing the broader interplay between digital banking and financial inclusion as a cohesive framework. This study aims to bridge this gap by offering an in-depth analysis that not only evaluates the effectiveness of digital banking in enhancing access to financial services but also explores its transformative effects on the economic landscape for underserved communities in Ethiopia. By illuminating these dynamics, this research will contribute valuable insights into the ongoing discourse on financial inclusion and inform

policymakers and stakeholders about the critical areas that require further attention and intervention.

In summary, the background of this study emphasizes the intersection of economic development, technological advancement, government policy, and social dynamics in Ethiopia. By exploring the role of digital banking in enhancing financial inclusion, the study aims to contribute valuable insights that can inform policymakers, financial institutions, and stakeholders involved in promoting inclusive economic growth (Ozili, 2022).

1.3. Statement of the Problem

Despite significant advancements in technology and the growing penetration of mobile phones in Ethiopia, financial inclusion remains a critical challenge. A substantial portion of the population, particularly in rural areas, lacks access to formal financial services, which hampers economic growth and poverty improvement. Traditional banking systems are often unable to meet the needs of underserved communities due to geographic barriers, high transaction costs, and limited financial literacy. Digital banking has emerged as a potential solution to bridge this gap by providing accessible, affordable, and convenient financial services through mobile and online platforms. However, several barriers still impede the effective implementation and adoption of digital banking in Ethiopia. These include inadequate infrastructure, regulatory constraints, low levels of digital literacy, cultural resistance to using technology for financial transactions, and concerns about security and trust in digital platforms (Molla and Lema , 2020).

Furthermore, while various fintech companies and banks have introduced digital banking solutions, there is limited understanding of their impact on enhancing financial inclusion among different demographic groups. There is also a lack of comprehensive data on user experiences, challenges faced during adoption, and the overall effectiveness of these solutions in improving access to financial services. Thus, this study seeks to investigate the role of digital banking in enhancing financial inclusion in Ethiopia, identifying the challenges and opportunities that exist within this rapidly evolving landscape. By addressing these issues, the research aims to provide insights that can inform policymakers, financial institutions, and stakeholders on how to effectively leverage digital banking as a tool for promoting financial inclusion and economic development in the country. Previous research has demonstrated the transformative potential of digital banking in enhancing financial inclusion across various contexts. For

instance, a study conducted in Kenya by Jack and Suri (2011) highlighted the significant impact of mobile money services, such as M-Pesa, on improving access to financial services among underserved populations. The findings revealed that mobile money not only facilitated transactions but also encouraged savings and investment among users, leading to improved economic stability and resilience. Similarly, in South Africa, research by Pazarbasioglu et al. (2019) illustrated how digital banking solutions have expanded access to credit for small businesses, enabling entrepreneurs to invest in their ventures and contribute to economic growth. These studies underscore the critical role that digital banking can play in bridging the financial services gap, particularly in regions where traditional banking infrastructure is lacking.

In the Ethiopian context, emerging studies have begun to explore the implications of digital banking on financial inclusion. For example, a study by Molla and Lema (2020) emphasized the importance of mobile banking in reaching rural populations, where conventional banks are often absent. Their research indicated that mobile banking platforms have not only provided essential financial services but have also fostered a sense of empowerment among users, allowing them to manage their finances more effectively. Additionally, Abate and Assefa (2021) found that digital payment systems have improved the financial capabilities of smallholder farmers, enabling them to engage more effectively in the market economy. Despite these promising findings, there remains a significant gap in understanding the comprehensive effects of digital banking on financial inclusion across diverse demographic groups in Ethiopia.

The existing literature predominantly focuses on isolated aspects of digital banking or specific user experiences without providing a holistic view of its overall impact on financial inclusion. Furthermore, there is a lack of comprehensive data regarding the challenges faced by users during the adoption of digital banking solutions and the effectiveness of these platforms in addressing the unique needs of various demographic segments. This study aims to fill this gap by conducting an in-depth analysis of how digital banking can enhance financial inclusion in Ethiopia while identifying both the barriers and opportunities present within this evolving landscape. By addressing these critical issues, the research will offer valuable insights for policymakers and stakeholders, ultimately guiding efforts to leverage digital banking as a powerful tool for promoting financial inclusion and fostering economic development in Ethiopia.

1.4. Research Questions

1. What factors influence the accessibility of digital banking services in Addis Ababa of Ethiopia?
2. What are the current adoption rates of digital banking services among different demographic groups in Addis Ababa, and what factors contribute to these rates?
3. How aware are potential users of digital banking services in Addis Ababa, and what role does financial literacy plays in their understanding and usage of these services?

1.5. Research Objectives

1.5.1. General Research Objectives

The general objective of this research was to examining the role of digital banking in enhancing financial inclusion in Addis Ababa(Ethiopia) by investigating how digital banking services have broadened access to financial products for underserved populations, including low-income individuals, exploring the factors influencing the adoption of digital banking services among different demographics, including age, gender, education, and socioeconomic status and Examine the challenges and obstacles that hinder individuals and businesses from fully utilizing digital banking services, such as technological, infrastructural, and cultural barriers.

1.5.2. Specific Research Objectives

Specific research objectives focused on the role of digital banking in enhancing financial inclusion in Addis Ababa (Ethiopia):

1. Evaluate Accessibility of Digital Banking Services:
2. Analyse Adoption Rates of Digital Banking:
3. Assess the factors on Financial Behaviour:

1.6. Hypothesis

Here are some hypotheses related to the role of digital banking in enhancing financial inclusion in Ethiopia:

- H₁: Higher digital financial literacy level among Bank customers will have a positive impact on DFI.
- H₂: Availability and quality of Digital infrastructure has positive impacton DFI.

H₃: Building and application of regulatory framework is positively influence implementation and adoption of DFS.

1.7. Significance of the Study

Firstly, this study will help me to acquire my academic award of Masters of Arts (MA) Degree, Secondly; Findings from this study will assist academicians in broadening of the prospectus with respect to this study hence providing understanding of the critical digital banking service quality that has effect on customer satisfaction in banking industry. In addition Result from this research project can be used as a reference point for further studies in the related issues. After the research has been completed, its output will contribute a lot to those parties who have similar objectives and seek information on issues related to the study under investigation.

1.8. Scope of the Study

The scope of a study on digital banking in enhancing financial inclusion in Addis Ababa (Ethiopia) can be defined through several key components:

- 1. Geographical Scope:** The study can focus on specific sub-cities within Addis Ababa (Ethiopia), to analyse how digital banking services are accessed and utilized differently based on location.
- 2. Target Population:** The research can examine different demographic groups, including women, youth, low-income households, and smallholder farmers, to understand how digital banking affects financial inclusion across diverse segments of the population.
- 3. Digital Banking Services:** The scope should encompass various digital banking services, such as mobile banking, internet banking, digital wallets, and payment systems. This includes examining the features, accessibility, and usability of these services.
- 4. Financial Inclusion Indicators:** The study can define specific indicators of financial inclusion to assess the impact of digital banking. These may include access to financial services (e.g., bank accounts, credit), usage of financial products (e.g., savings, loans), and the quality of services provided.
- 5. Barriers to Access:** The research can identify and analyse barriers that hinder the adoption and use of digital banking among different population groups. These barriers may include technological challenges, lack of financial literacy, regulatory issues, and socio-cultural factors.

6. Impact Assessment: The study can evaluate the impact of digital banking on financial behaviour, savings rates, borrowing patterns, and overall economic empowerment among users. This may involve both quantitative data analysis and qualitative interviews or focus groups.

7. Regulatory Framework: The scope can include an examination of the existing regulatory environment governing digital banking in Ethiopia. This involves assessing how policies promote or hinder financial inclusion efforts through digital channels.

8. Technological Infrastructure: Analysing the technological infrastructure supporting digital banking services, such as internet penetration, mobile network coverage, and cyber security measures, is essential for understanding the feasibility and sustainability of these services.

9. Case Studies: The study can incorporate case studies of successful digital banking initiatives within Ethiopia or similar contexts to highlight best practices and lessons learned that could be applied to enhance financial inclusion.

10. Comparative Analysis: The research may also consider comparisons with other countries that have successfully leveraged digital banking for financial inclusion, drawing lessons that could be applicable in the Ethiopian context.

11. Future Trends: Finally, the scope can include an exploration of emerging trends in digital banking and their potential implications for financial inclusion in Ethiopia, such as the rise of fintech companies and innovations in block chain technology.

The study can provide a comprehensive understanding of how digital banking can enhance financial inclusion in Ethiopia while addressing specific challenges and opportunities within the context.

1.9. Organization of the Study

This study was organized into five chapters, chapter one incorporated about the introduction, background of the study, statement of the problem, objectives of the study, and research question, hypothesis, significance of the study, and scope of the study. Chapter two provided a literature review analysis of the existing literature which included definitions of terms, theoretical, empirical related literature review and conceptual framework of the study. Chapter three presented the methodology which included the research approach as well as described the data collecting and analysis methods. The fourth chapter presented the findings of the study and a discussion of the findings within the context of previous studies and the theories that reinforce the study. The final chapter presented summary of the findings, conclusions, and

recommendations aroused from the study. At the end of the thesis, references and a set of appendices including the questionnaires of the survey forms to collect primary data for the study and other extra documents of the study included.

1.10. Summary

As a summary, in this chapter, the general background of this study has been discussed in detail. It included a statement of the problem, objectives of the study, and research question, hypothesis, the significance of the study, the scope of the study, and organizations of the study was stated. The next chapter presents a review of related literature.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

The literature review for a study on digital banking in enhancing financial inclusion in Ethiopia should encompass several key themes and areas of research. Below is a structured approach to developing this literature review, including relevant topics, findings, and gaps in existing research.

Definition and Importance: Financial inclusion refers to the accessibility and usage of financial services by individuals and businesses, particularly those underserved by traditional banking systems. It is crucial for poverty alleviation, economic growth, and social equity.

2.1. The Concepts and Definitions

The literature review for a study on digital banking in enhancing financial inclusion in Ethiopia should encompass several key themes and areas of research. Below is a structured approach to developing this literature review, including relevant topics, findings, and gaps in existing research. Digital banking in Ethiopia has experienced remarkable growth and transformation over the past few periods. This evolution, driven by technological advancements, changing consumer preferences, and a growing need for financial inclusion, has reshaped the continent's financial landscape. In this study, I will explore the historical development of digital banking in enhancing financial inclusion in Ethiopia, highlighting key milestones and significant trends that have marked its progress. Financial inclusion refers to the accessibility and usage of financial services by individuals and businesses, particularly those underserved by traditional banking systems. It is crucial for poverty alleviation, economic growth, and social equity. Digital banking encompasses the digital delivery of banking services through various platforms (e.g., mobile banking, online banking, fintech applications). The rise of digital banking has transformed the financial landscape, particularly in developing countries, by providing innovative solutions to traditional banking challenges Of fiong, and Mendie (2017).

The roots of digital banking in enhancing financial inclusion in Ethiopia can be traced back to the late 20th century when the first automated teller machines (ATMs) were introduced across the continent (Agwu& Carter, 2014). These machines gave Ethiopia access to basic banking

services such as cash withdrawals and balance inquiries outside of traditional bank branches. While ATMs and Mobile banking (MB) were a significant step forward, their availability was limited to urban areas, leaving rural populations underserved (Breckenridge, 2010). The real breakthrough in digital banking came with the production of mobile phones in the early 2000s. Mobile banking, driven by the widespread adoption of cell phones, allowed individuals to perform basic financial transactions, such as checking balances and transferring funds, using text messages (SMS) and later mobile apps (Barnes & Corbitt, 2003; Weber & Darbellay, 2010). This innovation revolutionized banking accessibility, reaching even remote and unbanked populations. Research indicates that digital banking can significantly increase access to financial services for unbanked populations by overcoming geographical barriers and reducing costs.

Global Context: Various studies highlight the global importance of financial inclusion in promoting sustainable development goals (SDGs) and reducing income inequality.

One of the most transformative developments in Ethiopia digital banking was the emergence of mobile money services (Rutten & Mwangi, 2012). Kenya's M-Pesa, launched in 2007 by Safaricom, was a pioneering example. M-Pesa allowed users to deposit, withdraw, and transfer money using mobile phones, turning phones into digital wallets (Morawczynski, 2009). The service rapidly gained popularity and reached millions of previously unbanked individuals. It also served as a model for similar services across the continent, including MTN Mobile Money in Ghana and Eco Cash in Zimbabwe. Mobile money services addressed critical barriers to financial inclusion, such as the lack of physical bank branches, inadequate infrastructure, and the need for a formal bank account (Maune, Nyakwawa, & Magara, 2022). These services empowered individuals to save, send, and receive money, fostering economic opportunities and financial stability for a broader population segment. Beyond person-to-person transactions, mobile money platforms also enabled payments for goods and services, utility bills, and even access to credit (Svotwa, Makanyeza, & Wealth, 2023).

A critical factor in the success of digital banking in Africa was the recognition and support of governments and regulatory authorities. Many African nations recognized the potential of digital banking to drive financial inclusion and economic growth and introduced enabling policies and regulations. These measures aimed to ensure the safety and security of digital transactions, promote competition and encourage innovation. For instance, the Central Bank of Kenya played a pivotal role in the success of M-Pesa by creating a favourable regulatory environment (Burns,

2018). In 2009, it introduced the National Payment System Act to regulate mobile money services, providing legal clarity and consumer protection. Other countries followed suit, tailoring regulations to their specific contexts. This regulatory support encouraged the entry of traditional financial institutions and fintech start-ups into digital banking (Bara, 2013).

Fintech innovation has been a driving force behind the evolution of digital banking in Ethiopia. Start-ups and technology companies have introduced a wide range of solutions that go beyond basic mobile banking. These innovations include digital lending platforms, savings and investment apps, insurance services, and more. Innovation hubs and accelerators have sprung up across the continent, nurturing a culture of entrepreneurship in the fintech sector. Notable examples include the African Fintech Foundry in Nigeria and the CcHub in Kenya. These hubs provide resources, mentorship, and funding to fintechstart-ups, helping them develop and scale their solutions (Molamu, 2021).

As digital banking services continued to evolve, the expansion of internet connectivity and smartphone adoption further accelerated their growth. The proliferation of affordable smartphones and improved network infrastructure allowed more Africans to access advanced digital banking services. In particular, deploying 3G and 4G networks in urban and rural areas increased internet penetration (Wewege, Lee, & Thomsett, 2020). This expansion allowed users to access mobile banking apps, conduct online transactions, and benefit from a broader array of financial services. Smartphone ownership became increasingly common, with manufacturers catering to diverse budget segments, ensuring accessibility for various income groups.

While the historical development of digital banking in Africa has been remarkable, it has not been without challenges. Key challenges include limited access to reliable electricity and internet connectivity in some regions has hindered the adoption of digital banking services; developing and harmonizing regulatory frameworks across countries can be complex, as they must strike a balance between promoting innovation and ensuring consumer protection. As digital banking services expanded, so did cyber security threats. Protecting users' financial information and transactions remains a top priority. Many users, particularly rural users, may lack the financial literacy to use digital banking services effectively Offiong, and Mendie (2017).

Nevertheless, these challenges have also presented opportunities for growth and improvement. Innovations such as offline mobile banking apps, digital ID systems, and partnerships between governments and the private sector have addressed some of these challenges.

Previous studies have explored the relationship between digital banking and financial inclusion in various contexts, highlighting factors such as user trust, technological literacy, regulatory frameworks, and the socio-economic status of individuals. Understanding these factors is crucial for assessing the specific context of Ethiopia. The literature review should conclude by summarizing the key findings from existing research while highlighting the need for further investigation into specific areas related to digital banking and financial inclusion in Ethiopia. This will set the stage for the research questions and objectives of your study, emphasizing its relevance and potential contributions to the field(Lauer & Lyman, 2015)

2.2. Social Awareness

The social awareness surrounding the study of digital banking and its role in enhancing financial inclusion in Ethiopia is critical for understanding the broader implications of these initiatives. Here are several key aspects of social awareness that are relevant to this field: Identifying Barriers: Social awareness helps identify the barriers that contribute to financial exclusion in Ethiopia, such as lack of access to traditional banking services, low financial literacy, and socio-economic disparities Atkinson and McKay (2007).

Demographic Insights: Recognizing which populations (e.g., rural communities, women, and youth) are most affected by financial exclusion can guide targeted interventions.

Educating Communities: Social awareness emphasizes the need for financial literacy programs that educate individuals about digital banking services, their benefits, and how to use them effectively.

Empowerment: Increasing financial literacy empowers individuals to make informed financial decisions, fostering greater engagement with digital banking solutions.

Cultural Context: Understanding the cultural dynamics in Ethiopia is essential for designing digital banking solutions that resonate with local customs and practices.

Trust Building: Awareness of cultural norms can help build trust between service providers and users, which is crucial for the adoption of digital banking technologies.

User-Centric Solutions: Social awareness encourages the development of digital banking products that are inclusive and accessible to all segments of society, including marginalized groups (Durai & Stella, 2019).

Feedback Mechanisms: Engaging with communities to gather feedback on digital banking services ensures that solutions meet their specific needs and preferences.

Data Privacy and Security: Social awareness highlights the importance of protecting users' data and ensuring secure transactions in digital banking.

Fair Practices: Ensuring that digital banking services are offered without discrimination and those fees are transparent and fair is vital for building a responsible financial ecosystem.

Economic Empowerment: Recognizing the potential of digital banking to enhance economic opportunities for individuals and small businesses can drive support for these initiatives.

Community Development: Increased access to financial services can lead to improved livelihoods, entrepreneurship, and overall community development, fostering a more inclusive economy.

Multi-Stakeholder Engagement: Social awareness involves recognizing the roles of various stakeholders, including government agencies, non-profits, technology providers, and financial institutions, in promoting financial inclusion through digital banking.

Partnerships: Collaborative efforts can simplify the impact of digital banking initiatives by combining resources, expertise, and outreach capabilities.

Raising Awareness: Advocacy efforts can help raise awareness about the importance of financial inclusion and the role of digital banking in achieving it, influencing public policy and regulatory frameworks.

Supporting Policy Development: Engaged with policymakers to create supportive environments for digital banking can enhance its effectiveness in promoting financial inclusion.

Social awareness is crucial in the study of digital banking's role in enhancing financial inclusion in Ethiopia. By understanding the barriers to financial access, promoting financial literacy, ensuring cultural sensitivity, advocating for ethical practices, and fostering collaboration among

stakeholders, initiatives can be more effectively designed and implemented. This holistic approach not only addresses immediate challenges but also contributes to sustainable economic development and social equity in Ethiopia Beck and Smits (2018).

2.3. Relationship Management

The relationship management aspect of studying digital banking in the context of enhancing financial inclusion in Ethiopia is multifaceted and involves various stakeholders, including financial institutions, customers, regulatory bodies, and technology providers. Here are some key components of this relationship management:

Understanding Customer Needs: Effective relationship management requires financial institutions to understand the unique needs and challenges of different customer segments, including unbanked populations, women, and small business owners. **Personalized Services:** By leveraging data analytics, banks can offer personalized products and services that cater to the specific financial behaviours and preferences of their customers, enhancing customer satisfaction and loyalty Shofawati (2019).

Transparency and Communication: Establishing trust is vital for the adoption of digital banking services. Banks must communicate transparently about fees, data usage, and security measures to build confidence among users.

Customer Support: Providing robust customer support, including education on how to use digital banking platforms, can help alleviate concerns and foster trust in these services.

Collaboration with NGOs and Community Organizations: Partnering with local organizations can help banks reach underserved populations, providing education and resources to encourage the adoption of digital banking.

Government Partnerships: Collaborating with government agencies can facilitate the development of policies that promote financial inclusion and support the regulatory environment for digital banking.

User Feedback: Establishing channels for customer feedback allows banks to continuously improve their services based on user experiences and needs.

Community Engagement: Engaging with communities through workshops, surveys, and focus groups can provide valuable insights into how digital banking can be better tailored to meet local needs.

Collaboration with Fintechs: Partnering with fintech companies can enhance the technological capabilities of traditional banks, allowing them to offer innovative digital banking solutions that are more accessible and user-friendly.

Infrastructure Development: Working with technology providers to improve internet access and mobile connectivity in rural areas is essential for ensuring that digital banking services reach all segments of the population.

Financial Literacy Initiatives: Banks should invest in educational campaigns that inform potential users about the benefits of digital banking, how to use these services, and the importance of financial literacy.

Community Workshops: Hosting workshops in local communities can demystify digital banking technologies and empower individuals to take advantage of these services. **Adhering to Regulations:** Maintaining a good relationship with regulatory bodies is crucial for banks to ensure compliance with laws governing digital banking and financial inclusion initiatives.

Advocacy for Supportive Policies: Engaging in dialogue with regulators can help shape policies that foster an inclusive financial ecosystem. **Monitoring and Evaluation:** Establishing metrics to assess the impact of digital banking on financial inclusion helps stakeholders understand what works and what needs improvement Karlan et al., (2016).

Reporting Outcomes: Sharing success stories and data on how digital banking has improved access to financial services can attract further investment and support for these initiatives.

The relationship management aspect of studying digital banking in enhancing financial inclusion in Ethiopia is crucial for fostering trust, understanding customer needs, engaging stakeholders, and promoting effective collaboration. By focusing on building strong relationships with customers, community organizations, technology partners, and regulatory bodies, financial institutions can create a more inclusive financial ecosystem that leverages digital banking to empower underserved populations. This comprehensive approach not only enhances access to

financial services but also contributes to broader economic development goals in Ethiopia Onwe (2013).

2.4. Theoretical Review

A theoretical review of the study on digital banking in enhancing financial inclusion in Ethiopia encompasses various frameworks and theories that explain the relationship between digital banking technologies, financial services accessibility, and the socio-economic factors influencing financial inclusion. Here are some key theoretical perspectives relevant to this topic:

The Technology Acceptance Model suggests that perceived ease of use and perceived usefulness significantly influence users' decisions to adopt new technologies.

In the context of digital banking, understanding how Ethiopian consumers perceive the usability and benefits of digital banking platforms can provide insights into their willingness to adopt these services. Factors such as user interface design, accessibility, and customer support play crucial roles in acceptance Jaksic and Marinc (2015).

This theory, proposed by Everett Rogers, explains how new ideas and technologies spread within a society. It identifies factors such as the perceived attributes of innovations, communication channels, social systems, and the rate of adoption.

Analysing how digital banking technologies are adopted in Ethiopia can help identify barriers and facilitators to financial inclusion. Understanding the role of community leaders, social networks, and early adopters can inform strategies for promoting digital banking. Overview: Various frameworks define financial inclusion as access to useful and affordable financial products and services. These include savings accounts, credit, insurance, and payment services. A financial inclusion framework can be used to assess how digital banking contributes to providing essential financial services to underserved populations in Ethiopia. This includes evaluating access, usage, and quality of digital financial services. Socio-economic theories examine how social and economic factors influence individual behaviour and access to resources. Factors such as income level, education, gender, and geographic location play a significant role in financial inclusion Jaksic and Marinc (2015).

Understanding the socio-economic context of Ethiopia is crucial for identifying barriers to digital banking adoption. For instance, rural populations may face challenges such as limited internet access or low digital literacy, which need to be addressed for effective financial inclusion. Economics explores how psychological factors influence economic decision-making. It considers biases, heuristics, and social influences that affect individuals' financial choices. Insights from behavioural economics can help design digital banking services that align with user behaviour and preferences in Ethiopia. For example, understanding how people perceive risk or reward can inform product offerings that encourage savings or investment (Demirguc Kunt, Klapper, Singer, & Oudheusden, 2015).

Institutional theory examines how institutions (both formal and informal) shape social behaviour and organizational practices. It emphasizes the role of regulations, norms, and culture in influencing financial systems.

In Ethiopia, institutional factors such as regulatory frameworks, government policies, and cultural attitudes towards banking can significantly impact the success of digital banking initiatives aimed at enhancing financial inclusion.

Network theory focuses on the relationships and interactions among various actors within a system. It emphasizes the importance of social networks in facilitating information flow and resource access.

Application: Analysing how networks (e.g., family, community groups) influence the adoption of digital banking can provide insights into strategies for promoting these services. Leveraging existing social networks can enhance outreach efforts.

The theoretical review of digital banking in enhancing financial inclusion in Ethiopia highlights the importance of understanding various factors influencing technology adoption and financial behaviour. By integrating insights from multiple theories-such as the Technology Acceptance Model, Diffusion of Innovations Theory, Financial Inclusion Framework, Socio-Economic Theory, Behavioural Economics, Institutional Theory, and Network Theory-researchers can develop a comprehensive understanding of the challenges and opportunities associated with digital banking in promoting financial inclusion in Ethiopia. This theoretical foundation can

guide policymakers and practitioners in designing effective interventions that leverage digital banking to empower underserved populations (Cull, Ehrbeck, &Holle, 2014).

2.4.1. Supportive Theory

In the context of digital banking and its role in enhancing financial inclusion in Ethiopia, several supportive theories can be employed to understand and analyse the dynamics at play. These theories provide a framework for examining how digital banking can address barriers to financial access and inclusion. Here are some key supportive theories: This theory posits that access to financial services is a critical component of economic development and poverty alleviation. It emphasizes the importance of providing affordable and accessible financial products to underserved populations (Aguera, 2015).

In Ethiopia, digital banking can enhance access to various financial services such as savings accounts, loans, and insurance, particularly for rural and low-income populations. By reducing physical barriers (e.g., the need to visit a bank branch), digital banking facilitates greater access to finance. This framework focuses on individuals' ability to understand and use financial services effectively. It encompasses knowledge, skills, and confidence in managing financial resources (Sahay et al., 2015).

Digital banking initiatives in Ethiopia can be designed to improve financial literacy and capability among users. By providing educational resources and user-friendly interfaces, digital banking can empower individuals to make informed financial decisions. Social capital theory emphasizes the importance of social networks and relationships in facilitating access to resources, including financial services. Trust and social connections can influence individuals' willingness to engage with financial institutions (Gabor & Brooks, 2017).

In Ethiopia, leveraging social capital can enhance the adoption of digital banking. Community-based approaches, such as peer-to-peer lending or group savings initiatives facilitated by digital platforms, can encourage participation and build trust in digital financial services.

Behavioural finance explores how psychological factors affect financial decision-making. It examines biases, heuristics, and social influences that shape individuals' financial behaviours.

Understanding behavioural finance can help design digital banking products that align with users' psychological tendencies. For example, features such as satisfaction or personalized savings goals can motivate users to engage with digital banking services.

This theory explains how new technologies and innovations spread within a society. It identifies factors that influence the adoption rate of innovations, including perceived benefits, compatibility, complexity, and observe ability. Analysing the factors that affect the diffusion of digital banking in Ethiopia can provide insights into strategies for promoting financial inclusion. Addressing concerns about technology literacy and demonstrating the benefits of digital banking can enhance adoption rates. Institutional economics examines how institutions (rules, norms, and organizations) shape economic behaviour and outcomes. It highlights the role of regulatory frameworks and governance in facilitating or hindering access to financial services Dorfleitner and Roble (2018).

Understanding the institutional context in Ethiopia is crucial for implementing effective digital banking solutions. Supportive policies, regulations, and infrastructure development are necessary to create an enabling environment for digital financial services.

This theory addresses the gap between individuals who have easy access to digital technologies and those who do not. It emphasizes that disparities in technology access can lead to inequalities in opportunities. In Ethiopia, addressing the digital divide is essential for ensuring that all segments of the population can benefit from digital banking. Initiatives aimed at improving internet connectivity, mobile access, and digital literacy is vital for enhancing financial inclusion

These supportive theories provide a comprehensive framework for understanding how digital banking can enhance financial inclusion in Ethiopia. By examining the interplay between access to finance, financial capability, social capital, behavioural factors, innovation diffusion, institutional contexts, and the digital divide, stakeholders can develop targeted strategies to promote the adoption of digital banking solutions that empower underserved populations and foster inclusive economic growth (Eton, Mwosi, Ogwel, et al., 2018).

2.5. Empirical Review

An empirical review of digital banking in enhancing financial inclusion in Ethiopia reveals several key findings and themes based on existing studies, reports, and data. Here's an overview of the empirical evidence regarding the impact of digital banking on financial inclusion in Ethiopia:

Increased Accessibility: Digital banking has significantly increased access to financial services for previously unbanked populations, particularly in rural areas. Studies indicate that mobile banking platforms, such as M-BIRR and Hello Cash, have enabled users to perform transactions without needing to visit a physical bank branch (Sarma & Pais, 2011).

Mobile Money Adoption: The introduction of mobile money services has facilitated easier access to savings, loans, and remittances. Research shows that mobile money has been particularly effective in reaching low-income individuals who may lack traditional banking services.

Transaction Volume: Empirical studies have shown a rise in transaction volumes among users of digital banking services. Reports from the National Bank of Ethiopia indicate a steady increase in mobile money transactions, reflecting growing acceptance and usage.

Demographic Engagement: Research highlights that younger populations and tech-savvy individuals are more likely to adopt digital banking solutions. However, there is also evidence of older adults gradually adopting these services as awareness increases Damodaran (2013).

Financial Education Initiatives: Digital banking platforms often include educational components aimed at improving financial literacy. Empirical studies suggest that users who engage with these educational resources are more likely to utilize digital banking services effectively. **Barriers to Usage:** Despite the benefits, challenges remain such as low financial literacy levels among some demographics, which can hinder full participation in digital banking Dr. Tabitha Durai (2019).

Microfinance and Small Enterprises: Digital banking has been linked to improved access to credit for small and micro-enterprises, enabling them to grow and contribute to the economy. Studies indicate that entrepreneurs using digital banking services report higher business performance due to better access to funds.

Women's Empowerment: Research shows that digital banking has had a positive impact on women's financial inclusion. Women who use mobile banking services report increased control over their finances and greater participation in economic activities.

Infrastructure Issues: Empirical reviews highlight that inadequate internet connectivity and electricity supply in rural areas pose significant barriers to the widespread adoption of digital banking. **Regulatory Environment:** The regulatory framework governing digital banking in Ethiopia has evolved but still presents challenges. Studies suggest that clearer regulations could enhance trust and encourage more institutions to offer digital services.

Security Concerns: Concerns about cyber security and fraud have been noted as barriers to the adoption of digital banking. Empirical evidence indicates that users are wary of potential risks associated with online transactions. **Policy Support:** Government initiatives aimed at promoting digital financial services have been crucial. Empirical studies suggest that supportive policies can lead to a more conducive environment for digital banking growth.

Partnerships with Telecom Companies: Collaborations between banks and telecom operators have been instrumental in expanding digital banking services. Evidence shows that these partnerships leverage existing mobile networks to reach underserved populations.

The empirical review indicates that digital banking has the potential to significantly enhance financial inclusion in Ethiopia by increasing access to financial services, improving economic empowerment, and promoting financial literacy. However, challenges such as infrastructure limitations, security concerns, and regulatory issues must be addressed to fully realize this potential. On-going research and monitoring will be essential to assess the long-term impacts of digital banking on financial inclusion in the country Federico L and Ross P. (2015).

2.5.1. Effects of Social -Awareness on Digital Banking Service

Social awareness, the ability to understand and empathize with the digital banking service plays a crucial role within the context of digital banking and enhancing financial inclusion in Ethiopia. Here are several ways social awareness can impact digital banking service and contribute to the goal of improving financial inclusion:

Empathy in Service Delivery: Employees with high social awareness can better understand the diverse needs of customers, particularly in underserved communities. This empathy allows them to tailor services and products that meet specific financial needs, thus enhancing customer satisfaction.

Cultural Sensitivity: Socially aware employees recognize cultural differences and adapt their communication and service approaches accordingly, making banking services more accessible to various demographic groups Abbas & Weigand, (2017).

Community Relations: Understanding the local context enables employees to build strong relationships with community leaders and organizations, facilitating outreach efforts that promote financial literacy and inclusion.

Clear Messaging: Employees who understand the socio-economic barriers faced by potential clients can communicate complex financial concepts in simpler terms, making it easier for customers to engage with digital banking services.

Enhanced Teamwork: Social awareness fosters a collaborative environment where team members respect diverse perspectives and work together more effectively. This collaboration can lead to innovative solutions for enhancing financial inclusion.

Innovative Solutions: By understanding the challenges faced by under banked populations, socially aware employees can contribute ideas for new products or services that address these gaps, driving innovation in digital banking.

Alignment with CSR Goals: Employees who are socially aware are more likely to engage in initiatives that align with their organization's corporate social responsibility goals, such as promoting financial literacy programs or community development projects.

Volunteerism and Outreach: Socially aware employees may take the initiative to participate in or lead outreach programs aimed at educating underserved populations about digital banking options, furthering the goal of financial inclusion.

Social awareness significantly influences digital banking service in the banking sector in Ethiopia, especially concerning enhancing financial inclusion. By fostering a deeper understanding of customer needs, building trust, improving communication, encouraging

collaboration, enabling proactive problem-solving, engaging in CSR initiatives, and social awareness equips employees with the tools necessary to effectively contribute to financial inclusion efforts. Organizations that cultivate social awareness among their workforce are better positioned to develop inclusive financial services that meet the diverse needs of the Ethiopian population.

2.6. Conceptual Framework

The conceptual framework of digital banking in enhancing financial inclusion in Ethiopia can be structured around several key components that interact to facilitate access to financial services for underserved populations. This framework encompasses the technological, regulatory, socio-economic, and educational dimensions that together create an environment conducive to financial inclusion through digital banking. Below is a detailed outline of this conceptual framework:

Digital Platforms: The availability of mobile banking apps, online banking portals, and other digital platforms that provides easy access to financial services.

Internet and Mobile Connectivity: The penetration of internet and mobile networks, especially in rural areas, which is crucial for accessing digital banking services.

Cyber security Measures: Robust security protocols to protect user data and build trust in digital banking solutions.

Supportive Policies: Government policies that encourage the development of digital banking, including regulations that promote competition and innovation.

Consumer Protection Laws: Legislation that safeguards consumers against fraud and ensures fair treatment, enhancing trust in digital banking.

Financial Technology (Fintech) Regulations: Guidelines that facilitate the operation of Fintech companies, which often play a critical role in providing innovative financial solutions.

Diverse Offerings: A range of financial products tailored to meet the needs of different segments of the population, including savings accounts, microloans, insurance products, and remittances.

Affordable Services: Pricing strategies that ensure services are affordable for low-income individuals and small businesses (World Bank, 2021).

Income Levels: Understanding the economic status of target populations to design products that are accessible to low-income individuals.

Cultural Attitudes: Addressing cultural perceptions and attitudes towards banking and financial services to encourage adoption. **Gender Considerations:** Initiatives aimed at promoting women's access to financial services, recognizing the unique barriers they may face.

Financial Literacy Programs: Initiatives to educate potential users about digital banking products and their benefits, as well as basic financial management skills.

Community Engagement: Outreach programs that involve local communities in discussions about the importance of financial inclusion and how digital banking can meet their needs.

Public-Private Partnerships: Collaboration between government agencies, banks, Fintech companies, and non-governmental organizations (NGOs) to create a more inclusive financial ecosystem.

Community-Based Organizations: Engaging local organizations that understand the needs of specific populations to facilitate access to digital banking services.

User-Friendly Interfaces: Designing digital banking platforms that are intuitive and easy to use for individuals with varying levels of technological proficiency.

Multilingual Support: Providing services in multiple languages to cater to Ethiopia's diverse linguistic landscape.

Data Collection and Analysis: Implementing systems to gather data on user experiences, service usage, and outcomes related to financial inclusion efforts. **Impact Assessment:** Regular evaluations of the effectiveness of digital banking initiatives in enhancing financial inclusion, informing future strategies.

The conceptual framework for digital banking in enhancing financial inclusion in Ethiopia highlights the interconnectedness of various elements that contribute to successful implementation. By addressing technological infrastructure, regulatory environments, product

diversity, socio-economic factors, education, partnerships, user experience, and monitoring mechanisms, stakeholders can create a comprehensive strategy that promotes greater access to financial services for all Ethiopians. This holistic approach is essential for overcoming barriers to financial inclusion and fostering sustainable economic growth in the country (Königsheim, Lukas & Nöth, 2017).

Conceptual framework: The Role of Digital Banking in Enhancing Financial Inclusion in Ethiopia

2.7. Conclusion

The literature on digital banking and financial inclusion in Ethiopia underscores the transformative potential of digital financial services in addressing the long-standing challenges of access to banking for underserved populations. Key findings from various studies indicate that digital banking offers a viable pathway for enhancing financial inclusion, particularly in rural and remote areas where traditional banking infrastructure is limited.

Accessibility and Convenience: Digital banking significantly improves access to financial services by leveraging mobile technology, which is widely adopted in Ethiopia. This accessibility allows individuals to conduct transactions, save money, and access credit without the need for physical bank branches.

Cost-Effectiveness: Digital banking solutions often reduce transaction costs for both providers and users. Lower fees associated with digital transactions make financial services more affordable for low-income individuals and small businesses, thereby promoting greater usage.

Innovative Financial Products: The rise of Fintech companies has led to the development of tailored financial products that meet the specific needs of different demographic groups, including women and youth. These innovations are crucial in addressing barriers related to traditional banking services. **Regulatory Support:** The Ethiopian government has recognized the importance of digital banking for financial inclusion and has introduced supportive policies and regulations. However, continuous efforts are needed to create a more enabling environment that fosters innovation while ensuring consumer protection (Tchouassi, G., 2012).

Challenges Remain: Despite the progress made, several challenges persist, including issues related to digital literacy, cyber security concerns, and socio-cultural barriers that may hinder the adoption of digital banking services. Addressing these challenges is essential for maximizing the impact of digital banking on financial inclusion (Tchouassi, G.,2012).

Need for Comprehensive Strategies: The literature emphasizes the importance of a multi-faceted approach that combines technological advancements with education, community engagement, and partnerships between various stakeholders. Such strategies are vital for building trust in digital banking systems and ensuring that they effectively serve the needs of marginalized populations.

In summary, the literature indicates that while digital banking holds significant promise for enhancing financial inclusion in Ethiopia, concerted efforts from government, financial institutions, and community organizations are necessary to overcome existing barriers and fully realize its potential. Future research should focus on longitudinal studies to assess the long-term impacts of digital banking on financial behaviour and economic empowerment among previously excluded groups.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

Financial inclusion is a critical driver of economic development, particularly in developing countries like Ethiopia. It refers to the process of ensuring access to financial services for all segments of the population, including the underserved and unbanked. In recent years, digital banking has emerged as a transformative force, offering innovative solutions to bridge the financial inclusion gap. Examining Digital Banking Services: Analyzing the types of digital banking services available and their adoption rates among various population groups. Identifying Barriers to Adoption: Investigating the challenges faced by individuals and businesses in utilizing digital banking services. Evaluating Impact on Financial Behavior: Understanding how digital banking influences savings, credit access, and overall financial behavior among users. The study will employ a mixed-methods approach, combining quantitative and qualitative research methodologies to provide a comprehensive understanding of the impact of digital banking on financial inclusion. Surveys: Structured questionnaires will be distributed to a representative sample of the Ethiopian population, focusing on their access to and usage of digital banking services. Data Analysis: Statistical techniques were used to analyze survey data, identifying trends and correlations between digital banking usage and financial inclusion indicators.

This research methodology aims to provide a robust framework for investigating the impact of digital banking on financial inclusion in Ethiopia. By employing a mixed-methods approach, the study seeks to uncover valuable insights that can inform policymakers, financial institutions, and other stakeholders in their efforts to promote financial inclusion through digital innovations.

3.1. Research Approach

Research can be done essentially using three different methods or approaches such as mixed method, Qualitative method and Quantitative method (Creswell, 2009; Creswell & Plano, 2007). The quantitative techniques were accurately measure the impact digital banking on enhancing financial inclusion in Addis Ababa. The study uses quantitative methods to evaluate and analyze the role of digital banking in financial inclusion in Addis Ababa.

Design and distribute surveys to various demographics (sub-cities, different income levels) to gather data on banking habits, access to digital banking services, and perceived barriers to financial inclusion. Use statistical methods to analyze survey data, looking for correlations between the use of digital banking services and indicators of financial inclusion (e.g., savings rates, loan uptake).

Analyze existing data from financial institutions, government agencies, or NGOs regarding the growth of digital banking users and their financial behaviors. Conduct in-depth interviews with stakeholders such as bank officials, policymakers, and customers to gain insights into the challenges and opportunities presented by digital banking.

3.2. Research Design

Designing a research study to investigate the impact of digital banking on enhancing financial inclusion in Ethiopia involves several key components. Below is a comprehensive outline of a potential research design: To evaluate the impact of digital banking services on financial inclusion among different demographics.

Certain demographic factors (e.g., age, income, education) significantly influence the adoption of digital banking. Barriers such as lack of digital literacy and infrastructure negatively impact the use of digital banking.

Approach: Combining both quantitative and qualitative methods to provide a comprehensive understanding of the research problem.

The study was target individuals across various sub-cities in Addis Ababa(Ethiopia). Determine an appropriate sample size using statistical power analysis to ensure representativeness. Use stratified random sampling to capture diverse demographic groups (age, gender, income level, education).

Surveys: Develop a structured questionnaire focusing on demographics, awareness, usage of digital banking services, and financial behaviors. Distribute surveys through online platforms and in-person interviews. Conduct semi-structured interviews with stakeholders, including bank representatives, policymakers, and users of digital banking services. Focus Groups: Organize focus group discussions with community members to explore their experiences and perceptions

regarding digital banking. Use statistical software (e.g., SPSS, Stata) to analyze survey data. Employ descriptive statistics to summarize data and inferential statistics (e.g., regression analysis) to test hypotheses.

Use thematic analysis for interview regarding barriers and facilitators of digital banking adoption.

This research design aims to provide a robust framework for understanding the role of digital banking in enhancing financial inclusion in Ethiopia. By employing a mixed-methods approach, the study will capture both quantitative trends and qualitative insights, ultimately contributing valuable knowledge to policymakers, financial institutions, and researchers interested in promoting inclusive financial systems.

3.3. Source of Data Collection

The sources of data for studying the impact of digital banking on enhancing financial inclusion in Ethiopia can be categorized into primary and secondary sources. Here are the details of each:

1. Primary Data Sources

Conduct structured surveys targeting various demographic groups to gather quantitative data on awareness, usage, and perceptions of digital banking services.

- **Interviews:** Perform semi-structured interviews with key stakeholders, such as bank officials, fintech representatives, policymakers, and users of digital banking services.

- **Focus Groups:** Organize focus group discussions with community members to explore their experiences and challenges related to digital banking.

- **Field Observations:** Observe the usage of digital banking services in different settings to gain insights into user behavior and accessibility.

2. Secondary Data Sources

- **Government Reports:** Utilize reports from the National Bank of Ethiopia, Ministry of Finance, and other governmental agencies that provide statistics on financial inclusion and digital banking initiatives.

- **Academic Research:** Review existing literature and studies conducted on financial inclusion, digital banking, and economic development in Ethiopia.
- **Financial Institution Reports:** Analyze annual reports and publications from banks and fintech companies operating in Ethiopia that discuss their digital banking services and outreach efforts.
- **International Organizations:** Access reports and datasets from organizations such as the World Bank, International Monetary Fund (IMF), and United Nations Development Program (UNDP) that focus on financial inclusion metrics in Ethiopia.
- **Market Research Firms:** Leverage studies and market analysis reports from firms that specialize in financial services research, particularly those focusing on emerging markets.
- **Demographic and Socioeconomic Data:** Use data from national censuses or demographic surveys conducted by the Central Statistical Agency of Ethiopia to understand the socioeconomic context of users.

3. Online Platforms and Databases

- **Social Media and Online Forums:** Monitor discussions and feedback regarding digital banking services on social media platforms to gauge public sentiment and user experiences.
- **Mobile App Analytics:** If available, analyze usage statistics from mobile banking applications to understand user engagement and service adoption trends.

Combining these primary and secondary data sources will provide a comprehensive understanding of how digital banking influences financial inclusion in Ethiopia. This multifaceted approach will allow for triangulation of data, enhancing the validity and reliability of the research findings.

3.4. Data Collection Tools

Digital banking has the potential to significantly enhance financial inclusion in Ethiopia; a country where a large portion of the population remains unbanked or under banked. Various data

collection tools play a crucial role in this process. Here are some key tools and methods used in digital banking to enhance financial inclusion:

1. Mobile Banking Applications: These apps allow users to access banking services via their smartphones. They collect data on user behavior, transaction patterns, and demographics, which can help banks, tailor their services to meet the needs of underserved populations.

2. USSD (Unstructured Supplementary Service Data): This technology enables users to access banking services via basic mobile phones without needing internet connectivity. Data collected through USSD transactions can help identify areas with low banking penetration and inform targeted outreach efforts.

3. Digital Wallets: Platforms like mobile money services collect data on user transactions, preferences, and usage patterns. This information can be analyzed to develop strategies for reaching unbanked individuals and promoting financial literacy.

4. Customer Relationship Management (CRM) Systems: These systems gather data on customer interactions, feedback, and service usage. By analyzing this data, banks can improve customer service and develop products that better meet the needs of marginalized groups.

5. Block chain Technology: While still emerging, block chain can provide secure and transparent transaction records that enhance trust among users, especially in rural areas where traditional banking might be viewed with skepticism.

6. Data Analytics and Machine Learning: Advanced analytics can process large volumes of transaction data to identify trends, risks, and opportunities for financial inclusion. Machine learning algorithms can help predict customer behavior and tailor services accordingly.

7. Partnerships with NGOs and Community Organizations: Collaborating with local organizations can provide valuable insights into the financial needs of specific communities. Data collected through these partnerships can inform product development and outreach strategies.

Finally a combination of technological tools, data analytics, and community engagement strategies is essential for digital banking to effectively enhance financial inclusion in Ethiopia.

By leveraging these data collection methods, banks can better understand and serve the financial needs of underserved populations

3.5. Population and Sampling Design

3.5.1 Population

Population According to Hair (2006), a target population is a specific set of people or objects for whom questions can be asked or observations made in order to build necessary data structures and information. The population for this survey was included individuals and businesses in Addis Ababa who are potential users of digital banking services. This could encompass:

- Eligible individuals aged 18 and above who have access to mobile phones or the internet.
- Small and medium enterprises (SMEs) that may use digital banking services for transactions.
- Unbanked individuals who are not currently using any formal banking services but may benefit from digital banking are chosen as a population for this study.

3.5.2 Sampling Design

1. Sampling Method: Stratified random Sampling: Given the diversity of the population, stratified sampling was employed to ensure representation across different demographic and geographical segments. Cluster Sampling: In rural areas where populations are dispersed, cluster sampling may be useful. Select specific sub-city or communities as clusters and then sample individuals within those clusters.

2. Sample Size: Sample size determination for a study, from a population had been shown in many books e.g. Cochran (1977), Mark (2005) and Singh and Chaudhury (1985). The aim of the calculation was to determine an adequate sample size which can estimate results for the whole population with a good precision. To strategically determine a representative sample size from the target population, different strategies were used according to the necessity of the research work. Use of various formulae for determination of required sample sizes under different situations was one of the most important strategies. For instance Cochran (1977) developed a formula to calculate a representative sample size whiles the target for proportions as:

$n = \frac{Z^2 pq}{e^2}$ this is to estimate sample size when the population is infinite

$n = \frac{N}{1 + \frac{N-1}{n_0}}$ where the population is known (finite)

Where, n_0 is the sample size, z is the selected critical value of the desired confidence level (usually 1.96 at 95% confidence level), p is the estimated proportion of an attribute that is present in the population (usually 0.5), $q = 1-p$ (1-0.5) and e is the desired level of precision (error term)

So we can estimate sample size as $n = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2} = 384.16 \approx 385$

Table 3.1 Addis Ababa Sub- City Digital Banking Users by Sub-City

No	Sub- City	Approximate No of Target Population	Proportion of sample	Sample size
1	Addis Ketema	335795	335795/3569246*385	36
2	AkakiKaliti	238355	238355/3569246*385	26
3	Arada	278194	278194/3569246*385	30
4	Bole	406425	406425/3569246*385	44
5	Gulele	351935	351935/3569246*385	38
6	Kirkos	291001	291001/3569246*385	31
7	KolfeKeranio	564007	564007/3569246*385	60
8	Lideta	265286	265286/3569246*385	29
9	Nifas Silk Lafto	416624	416624/3569246*385	45
10	Yeka	421624	421624/3569246*385	46
Total		3569246		385

3.5.2.1 Sampling Design

Designing a sampling strategy for a study on the impact of digital banking on enhancing financial inclusion in Ethiopia involves several key steps. Below is an outline of an appropriate sampling design:

1. Define the Population: Identify the target population, which includes unbanked and underbanked individuals, small and medium enterprises (SMEs), rural and urban populations, youth, women, and financial service providers.

2. Sampling Frame: Develop a sampling frame that includes lists or databases of potential respondents. This may include: National census data for demographic information. Lists from microfinance institutions, cooperatives, and fintech companies.

3. Sampling Method: Choose an appropriate sampling method based on the research objectives and population characteristics:

a. Stratified Sampling: Divide the population into strata based on key characteristics such as:

- Geographic location (rural vs. urban), Socioeconomic status, Gender & Age groups (youth vs. adults).

Randomly select samples from each stratum to ensure representation across different segments.

b. Cluster Sampling: If the population is widely dispersed, consider using cluster sampling by selecting specific geographical areas (clusters) and then surveying all individuals or households within those clusters.

c. Purposive Sampling: For qualitative aspects of the study, purposive sampling can be employed to select specific individuals or organizations (e.g., fintech companies, NGOs) that have relevant experience or insights into digital banking and financial inclusion.

4. Sample Size Determination: Calculate the sample size needed to achieve statistically significant results. This can be done using power analysis based on the expected effect size, confidence level (typically 95%), and margin of error (e.g., $\pm 5\%$).

5. Data Collection Methods: Use a combination of quantitative and qualitative data collection methods. Surveys/Questionnaires: To gather quantitative data from a large number of respondents about their access to digital banking services and financial behaviors.

Interviews/Focus Groups: To obtain qualitative insights from specific groups (e.g., SMEs, women) regarding their experiences and challenges with digital banking.

6. Pilot Testing: Conduct a pilot test of the survey instruments to identify any issues with question clarity or data collection methods, and make necessary adjustments before full deployment.

7. Data Analysis Plan: Outline how the collected data will be analyzed, including statistical techniques for quantitative data (e.g., regression analysis) and thematic analysis for qualitative data.

The sampling design for studying the impact of digital banking on financial inclusion in Ethiopia should be comprehensive, ensuring representation from various segments of the population while also allowing for in-depth exploration of specific experiences and challenges related to digital banking. By employing a combination of stratified, cluster, and purposive sampling methods, researchers can gather robust data to inform policy and practice in enhancing financial inclusion through digital banking initiatives.

3.5.2. 2.Target Groups

The sampling frame should include various target groups that are directly or indirectly affected by digital banking and financial inclusion.

1. Data Sources

National Census Data: Use demographic information from the latest national census to identify and stratify the population based on age, gender, geographic location, and socioeconomic status.

Financial Institution Records: Obtain lists from banks, microfinance institutions, and fintech companies regarding their clients, particularly focusing on those who are unbanked or under banked.

Community Organizations and NGOs: Collaborate with local organizations working on financial inclusion initiatives to access their beneficiary lists or contact databases.

Mobile Network Operators (MNOs): Since mobile money is a significant component of digital banking in Ethiopia, MNOs can provide insights into users of mobile financial services.

Market Research Firms: Leverage existing studies or databases from firms that have conducted research on financial behaviors in Ethiopia.

3. Geographic Coverage: Ensure that the sampling frame includes diverse geographical areas: Urban Center: Such as Addis Ababa, where digital banking services are more accessible.

4. Inclusion Criteria: Individuals must be over a certain age (e.g., 18 years and older). Must have some level of awareness or experience with digital banking services. SMEs should meet specific criteria regarding size (number of employees, annual revenue) to qualify.

5. Exclusion Criteria: Identify any groups or individuals to exclude from the sampling frame:

- Individuals with no interest or experience in financial services.
- Those living in areas with no access to digital banking infrastructure.

The sampling frame for studying the impact of digital banking on financial inclusion in Ethiopia should be comprehensive and diverse, capturing various demographics, geographic areas, and types of respondents. By utilizing multiple data sources and defining clear inclusion/exclusion criteria, researchers can create a robust sampling frame that ensures representative data collection for the study.

3.5.2. 3. Sampling Technique

A systematic selection of representative examples from a wider population is referred to as sampling (Orodho, 2002). A sample is thus defined as a representative group that includes all of the attributes or traits prevalent in the population (Wambugu et al., 2015). Because the whole population could not be employed in data collecting due to a lack of resources and time, it became essential to pick a representative sample from the available population that could readily be analyzed and inferences drawn to the wider population. The goal of sampling is to obtain reliable empirical data at a fraction of the expense of investigating all conceivable situations. The respondents were chosen using a basic random selection procedure in this investigation. According to Orodho (2002), no clear standards for obtaining an appropriate sample have been developed. He claims that in a homogeneous condition, a small sample is needed, but in a heterogeneous variable environment, a big sample is needed.

When conducting a study on the impact of digital banking on enhancing financial inclusion in Ethiopia, selecting an appropriate sampling technique is crucial to ensure that the results are representative and reliable. Here are some suitable sampling techniques that can be employed:

1. Stratified Sampling: Stratified sampling involves dividing the population into distinct subgroups (strata) based on specific characteristics such as demographics (age, gender, income level), geographic location (urban vs. rural), or banking status (unbanked, under banked, banked). This technique ensures that each subgroup is adequately represented in the sample, allowing for more accurate comparisons and insights.

- **Implementation:** Identify key strata relevant to financial inclusion and digital banking. Randomly sample individuals from each stratum proportional to their representation in the overall population.

2. Cluster Sampling: Cluster sampling can be particularly useful in a geographically diverse country like Ethiopia. In this technique, the population is divided into clusters (e.g., neighborhoods, districts), and a random sample of these clusters is selected. All individuals within chosen clusters can then be surveyed.

3. Purposive Sampling: Purposive (or judgmental) sampling involves selecting individuals based on specific criteria relevant to the study. This technique can be useful when targeting specific groups that have particular experiences with digital banking.

4. Snowball Sampling: Snowball sampling is useful for reaching populations that may be hard to access, such as unbanked individuals or those in informal financial systems. In this technique, existing participants refer new participants.

5. Systematic Sampling: In systematic sampling, researchers select every n th individual from a list of the population. This method can be effective if there is a comprehensive list of potential respondents.

6. Mixed Methods Sampling: Combining different sampling techniques can enhance the robustness of the study. For example, you might use stratified sampling to ensure representation

across different demographics and then apply purposive sampling within those strata to target specific groups.

The choice of sampling technique for studying the impact of digital banking on financial inclusion in Ethiopia should consider the research objectives, available resources, and the characteristics of the population. A well-thought-out sampling strategy will help ensure that the findings are valid, reliable, and applicable to broader discussions on financial inclusion in the country.

3.6. Measurement of Variables

Measuring the impact of digital banking on financial inclusion in Ethiopia involves identifying and defining key variables. Here's a breakdown of relevant variables, their definitions, and possible measurement methods:

1. Digital Banking Adoption: The extent to which individuals or businesses utilize digital banking services.

2. Financial Inclusion: Access to and usage of financial services by individuals or businesses.

- Access to Financial Services:
 - Percentage of adults with a bank account.
 - Number of financial products used (savings accounts, loans, insurance).
- Usage of Financial Services:
 - Frequency of transactions (e.g., deposits, withdrawals).
 - Amount of money saved or invested through digital means.

3. User Satisfaction: The degree to which users are satisfied with digital banking services.

4. Barriers to Adoption: Factors that hinder the adoption of digital banking services.

5. Demographic Variables: Characteristics of respondents that may influence their use of digital banking.

- Age, Gender, EducationLevel, IncomeLevel, Geographic Location (urban vs. rural)

6. Economic Impact: The effect of digital banking on personal or household economic conditions.

7. Technological Infrastructure: The availability and quality of the technological environment supporting digital banking.

8. Regulatory Environment: The policies and regulations that govern digital banking practices.

Data Collection Methods: To gather quantitative data from a large sample regarding their experiences and attitudes toward digital bank.

- Interviews/Focus Groups: For qualitative insights into user experiences and barriers.
- Secondary Data Analysis: Using existing reports and studies on financial inclusion and digital banking in Ethiopia.

By carefully measuring these variables, researchers can gain a comprehensive understanding of how digital banking enhances financial inclusion in Ethiopia. Combining quantitative and qualitative methods will provide a richer data set for analysis and conclusions.

3.6.1. Measurement of Independent Variables

When measuring the independent variables of digital banking that may enhance financial inclusion in Ethiopia, it is crucial to identify specific aspects of digital banking and how they relate to financial inclusion. Here's a breakdown of key independent variables, their definitions, and measurement methods:

1. Access to Digital Banking Services: The availability of digital banking platforms and services to users.

Availability of Services: Percentage of the population with access to mobile banking apps, online banking, and digital wallets.

Geographic Coverage: Number of regions or localities where digital banking services are offered.

Device Ownership: Percentage of the population owning smartphones or devices capable of accessing digital banking.

2. User Awareness and Education: The level of knowledge and understanding of digital banking services among potential users.

3. Technological Infrastructure: The quality and reliability of the technology supporting digital banking services.

4. User Experience and Interface Design: The ease of use and accessibility of digital banking platforms. User Satisfaction Surveys: Use Likers scales to measure satisfaction with interface design, ease of navigation, and overall experience.

5. Trust and Security Perceptions: Users' trust in the security and reliability of digital banking services.

7. Regulatory Support: The extent to which government policies support digital banking initiatives.

8. Availability of Financial Products: The range of financial products offered through digital banking platforms.

9. Marketing and Promotion Efforts: The strategies used to promote digital banking services to potential users.

By systematically measuring these independent variables, researchers can assess how different aspects of digital banking contribute to enhancing financial inclusion in Ethiopia. Combining quantitative data collection methods (like surveys) with qualitative insights (like interviews) will provide a comprehensive understanding of the factors influencing the success of digital banking initiatives in promoting financial inclusion.

3.6.2. Dependent Variable Measures

When examining the impact of digital banking on enhancing financial inclusion in Ethiopia, the dependent variable typically focuses on various outcomes related to financial inclusion itself. Here are key dependent variable measures that can be used.

These dependent variable measures provide a comprehensive framework for assessing how digital banking enhances financial inclusion in Ethiopia. By analyzing these outcomes, researchers can better understand the effectiveness and impact of digital banking initiatives on various segments of the population, particularly those traditionally excluded from formal financial systems.

3.8. Data Analysis Methods

Data analysis methods for studying the impact of digital banking on enhancing financial inclusion in Ethiopia can be categorized into quantitative and qualitative approaches. Here are some specific methods that can be employed:

1. Quantitative Data Analysis Methods: To summarize and describe the basic features of the data.

Frequency distributions to understand how many individuals use digital banking services. Measures of central tendency (mean, median) to analyze average account balances or transaction amounts. Measures of variability (standard deviation, range) to assess the diversity of financial behaviors.

1. Qualitative Data Analysis Methods: Thematic Analysis: To identify and analyze patterns or themes within qualitative data collected from interviews or focus groups.

2. Content Analysis: To systematically analyze textual information from interviews or open-ended survey responses.

3.9. Reliability of Data Collection Tools

Reliability of data collection tools is crucial in ensuring that the findings of any research study, including those examining the impact of digital banking on financial inclusion in Ethiopia, are valid and trustworthy. Here are some key considerations for assessing the reliability of data collection tools in this context:

3.10.Types of Data Collection Tools

Surveys/Questionnaires: Structured instruments designed to gather quantitative data on users' experiences with digital banking.

Interviews: Semi-structured or unstructured formats that allow for in-depth qualitative insights.

Focus Groups: Group discussions that explore perceptions and experiences related to digital banking and financial inclusion.

Observational Tools: Methods for observing user interactions with digital banking platforms.

3.11. Reliability Assessment Methods

A. Internal Consistency: Cronbach's Alpha: This statistic measures the internal consistency of survey instruments. A Cronbach's alpha value of 0.70 or higher is generally considered acceptable, indicating that the items in the survey are measuring the same underlying construct (e.g., user satisfaction with digital banking).

Split-Half Reliability: This method involves dividing the survey into two halves and checking for consistency between the scores. High correlation suggests reliable measurement.

b. Test-Retest Reliability: This involves administering the same data collection tool to the same group of respondents at two different points in time. A high correlation between the two sets of responses indicates that the tool produces stable results over time.

c. Inter-Rater Reliability: For qualitative tools like interviews and focus groups, it's essential to ensure that different researchers or raters interpret responses consistently. This can be assessed using statistical measures such as Cohen's Kappa.

3. Validity Considerations: While reliability focuses on consistency, validity ensures that the tools measure what they are intended to measure.

4. Pilot Testing: Conducting a pilot test of data collection tools before full deployment is vital. This allows researchers to identify any issues with question clarity, format, and flow, as well as assess the reliability of responses.

5. Training of Data Collectors: Ensuring that those administering surveys or conducting interviews are well-trained can enhance reliability. Consistent instructions and methods reduce variability in how data is collected.

6. Sampling Techniques: Using appropriate sampling techniques (e.g., stratified sampling) can help ensure that the data collected is representative of the broader population, which contributes to the reliability of findings.

7. Data Management Practices: Implementing strict data management protocols, including consistent data entry procedures and regular audits, helps maintain data integrity, which is essential for reliable analysis.

In summary, ensuring the reliability of data collection tools in studying the impact of digital banking on financial inclusion in Ethiopia involves a combination of statistical assessments, pilot testing, training, and careful methodological design. By focusing on these aspects, researchers can enhance the credibility and trustworthiness of their findings, ultimately contributing to a better understanding of how digital banking can promote financial inclusion in the country.

3.12. Ethical Consideration

When examining the ethical considerations of digital banking in enhancing financial inclusion in Ethiopia, several key areas must be addressed. These considerations are crucial to ensure that the benefits of digital banking are realized while minimizing potential harm and ensuring fairness. Here are some critical ethical considerations:

Finally, ethical considerations in digital banking aimed at enhancing financial inclusion in Ethiopia encompass a wide range of issues, including data privacy, accessibility, consumer protection, financial literacy, regulatory compliance, and social responsibility. Addressing these

ethical concerns is vital to building trust in digital banking systems, ensuring equitable access, and ultimately achieving meaningful financial inclusion for all segments of the Ethiopian population. By prioritizing ethics in the development and implementation of digital banking solutions, stakeholders can work towards a more inclusive financial landscape that benefits everyone.

3.13. Conclusion

The conclusion of the methodology for studying digital banking in enhancing financial inclusion in Ethiopia should summarize the key findings and implications derived from the research process. In conclusion, the methodology employed in this research provides a comprehensive understanding of how digital banking can enhance financial inclusion in Ethiopia. By identifying both the opportunities and challenges associated with digital financial services, this study contributes valuable insights for stakeholders, including policymakers, financial institutions, and community organizations. The successful integration of digital banking into Ethiopia's financial ecosystem requires collaborative efforts aimed at overcoming barriers, ensuring equitable access, and fostering an inclusive environment that benefits all citizens.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

Introduction

This chapter presented the result and discussion of empirical findings. This section was divided into subsections such as the data presentation and analysis response rate, demographic characteristics of respondents, descriptive statistical analysis of research variables, and correlation test, normality of data test, multi-co linearity and linearity of data test. Finally, the result was analyzed using descriptive presented.

Data from the field was compiled, sorted, and coded to have the required quality, accuracy and completeness. Data was entered into the computer system using the Statistical Package for Social Sciences (SPSS) for analysis in generating the actual results, frequency tables were generated to determine the number of respondents who expressed their opinion on a particular item. Based on the frequency tables generated, descriptive statistic was used to analyze and describe the findings. Logistic regression analysis was also carried out to determine extent to which independent variables influence the dependent variable.

4. 1 Data Presentation and Analysis

The transformation of the financial landscape in Ethiopia, driven by the rise of digital banking, presents a unique opportunity to enhance financial inclusion across the nation. As traditional banking services often fall short in reaching underserved populations, particularly in rural and remote areas, digital banking emerges as a pivotal solution to bridge this gap. This section aims to present and analyze data collected during the research, focusing on the effectiveness of digital banking initiatives in promoting financial inclusion among various demographic groups.

In recent years, Ethiopia has witnessed significant advancements in mobile technology and internet penetration, which have facilitated the growth of digital financial services. The government's commitment to financial inclusion, coupled with the introduction of regulatory frameworks that support digital banking, has further catalyzed this development. However, understanding the extent to which these digital banking solutions are effectively reaching and

benefiting the target populations requires a thorough analysis of both quantitative and qualitative data.

This section will begin by presenting quantitative data derived from surveys conducted among users and non-users of digital banking services. This data will provide insights into usage patterns, accessibility, and the demographic characteristics of users. Following this, qualitative data gathered from interviews and focus group discussions will be analyzed to explore user experiences, perceptions, and the barriers faced in adopting digital banking services.

Through a systematic presentation and analysis of this data, we aim to draw meaningful conclusions about the impact of digital banking on financial inclusion in Ethiopia. This will not only highlight successes but also identify areas for improvement, thereby informing stakeholders about the necessary steps to optimize digital banking initiatives for broader societal benefit. Ultimately, this analysis seeks to contribute to a deeper understanding of how digital banking can serve as a catalyst for inclusive economic growth in Ethiopia.

4.2. Response Rate

The response rate of digital banking in enhancing financial inclusion in Ethiopia can be assessed through various indicators, such as the number of new accounts opened, the increase in transactions through digital platforms, and the demographic reach of these services. While I don't have specific statistical data post-October 2023, I can provide an overview of the factors influencing the response rate and trends observed up to that time.

While specific response rates may vary depending on the metrics used and the time frame considered, it is clear that digital banking has made substantial strides in enhancing financial inclusion in Ethiopia. To get precise figures on response rates, one would typically refer to reports from financial institutions, government agencies, or research organizations that conduct surveys on financial inclusion metrics in Ethiopia.

A total of 385 questionnaires were distributed to users of Digital Banking that are located in Addis Ababa. Out of the 385 questionnaires 350(90.909%) were returned.

Table 4.1 Response Rate

Questionnaires	Total	Percent
Distributed	385	100%
Collected	350	90.909%

4.3. Descriptive Analysis

The demographic characteristics of respondents using digital banking in Ethiopia can vary widely, but several key factors typically emerge based on studies and reports on financial inclusion.

Understanding the demographic characteristics of respondents using digital banking in Ethiopia is crucial for tailoring services and outreach programs effectively. By focusing on these characteristics, financial institutions and policymakers can enhance their strategies to promote financial inclusion further, ensuring that digital banking benefits a broad spectrum of the population.

Table 4.2 Survey findings of Respondents Demographic Information

Demographic Information		Frequency	Percent
Gender	Male	197	56.3
	Female	153	43.7
	Total	350	100
Age	18-24	88	25.1
	25-34	112	32
	35-44	86	24.6
	45-54	42	12
	55 and above	22	6.3
	Total	350	100
Education Qualification	No formal education	-	-
	Primary education	23	6.57
	Secondary education	37	10.57
	Diploma	65	18.57
	First degree or BA/BSc	171	48.86
	Master's degree or MA/MSc	42	12
	PhD	12	3.43
	Total	350	100
Occupation	Student	64	18.3
	Employed	142	40.6
	Farmer	-	-
	Self-employed	116	33.1
	Unemployed	17	4.9
	Other	11	3.1
	Total	350	100
Location	In Addis Ababa	287	82
	Around Addis Ababa/ Sheger City	63	18
	Total	350	100

Source: Survey results and own computation, 2025

4.3.1. Gender Respondents

According to the findings in Table 4.1, 43.7% of the respondents indicated that they were females while 56.3% indicated that they were males. This shows that majority of the respondents were males.

In the context of digital banking and its role in enhancing financial inclusion in Ethiopia, the sex of respondents can provide valuable insights into how different genders interact with these services. Here are some key points regarding the sex of respondents using digital banking in Ethiopia:

The sex of respondents using digital banking in Ethiopia highlights important trends and challenges related to financial inclusion. While men currently represent a larger portion of users, efforts to empower women through education, access to technology, and supportive policies were crucial for achieving greater gender parity in digital banking usage. Understanding these dynamics can inform strategies aimed at enhancing financial inclusion for all segments of the population in Ethiopia.

4.3.2. Age Respondents

According to the age variable in Table 4.2, the highest percentage of mobile banking adopters is between 25 years and 34 years old.

The age of respondents using digital banking services in Ethiopia plays a significant role in understanding how different age groups engage with financial technologies and the impact on financial inclusion. Here are some key points regarding the age demographics of digital banking users in Ethiopia:

The age of respondents using digital banking in Ethiopia reveals significant trends regarding financial inclusion. Young adults are leading the way in adopting these services, while middle-aged and older adults present both challenges and opportunities for increased engagement. Tailored strategies that address the unique needs of each age group, along with efforts to enhance digital literacy and access to technology, are essential for promoting financial inclusion across all demographics in Ethiopia

4.3.3. Educational Qualification of Respondents

From the 350 respondents in Table 4.3, 171(48.86%) had a first degree .This was followed by 65(18.57%) respondents who only had a diploma qualification, 42(12%) respondents had masters, 37(10.57%) who had a secondary education, 23(6.57%) who had a primary education and 12(3.43%) who specified PhD.

The educational level of respondents using digital banking in Ethiopia plays a crucial role in enhancing financial inclusion. Education influences individuals' ability to understand and engage with financial products and services, including digital banking. Here's an overview of how different educational levels impact the use of digital banking and financial inclusion in Ethiopia:

The educational level of respondents significantly impacts the adoption of digital banking services in Ethiopia and thus plays a vital role in enhancing financial inclusion. While individuals with higher education are more likely to engage with digital banking, targeted efforts are needed to support those with lower educational attainment. Financial literacy programs, community engagement initiatives, and improved access to technology can help bridge the gap, ensuring that all segments of the population can benefit from digital banking services.

4.3.4. Occupation of Respondents

Based on the results in Table 4.4 regarding occupational status, the highest percentage 142(40.6%) of respondents are employed, followed by 116(33.1%) respondents which are self-employed, 64(18.3%) who are students, 17(4.9%) respondents are unemployed and 11(3.1%) who specified others.

4.3.5. Location of Respondents

Based on the results in Table 4.5 regarding location of respondents, the highest percentage 287(82%) of respondents are living In Addis Ababa and63(18%) respondents which are living Sheger city.

4.4 Descriptive Statistics

This section is divided into three parts. The first part presents the descriptive analysis of access to digital banking services, second part the usage of digital banking service and the third part of the descriptive analysis investigates the impact on digital financial inclusion.

Table 4.3 Survey findings of Access to Digital Banking

Access to Digital Banking		Response	Frequency	Percent
ADB1	Do you have access to a mobile phone?	“YES”	350	100
		“NO”	-	-
ADB2	Do you have access to the internet?	“YES”	293	83.7
		NO”	57	16.3
ADB3	Are you aware of digital banking services offered by local banks?	“YES”	278	79.4
		“NO”	72	20.6
ADB4	Have you ever used digital banking services?	“YES”	267	76.3
		“NO”	83	23.7

Source: Survey results and own computation,2025

4.4.1 Access to Digital Banking

According to the table above 100% of the respondents had access to mobile phone. 83.7%, of the respondents had access to the internet and 16.3% of the respondents not had access to the internet. When asked about their awareness of digital banking services offered by the local bank 79.4% of the respondents mentioned there were aware about digital banking service and 20.6% of the respondents were not aware as the local bank's offered the digital banking services. And 76.3% of the respondents are used digital banking services and only 23.7% are not used.

4.4.2 Usage of Digital Banking Services

Understanding the frequency with which certain services provided under mobile banking are used by customers is important and provides useful feedback for management of banks. This is because it could give an indication whether the service is meeting customer needs or not, whether customers know how to use the particular service and simply whether it adds value providing it or not. To measure frequency of use of mobile banking services, customers were

asked to rate how frequently they used the services ranging from never to always. The results of the respondents rating were as shown in the table below.

Table 4.4 Survey findings of Usage of Digital Banking Services

Usage of Digital Banking Services	Item	No of Respondents	Mean	Std. Deviation
Which of the following digital banking services have you used? (Select all that apply)	Mobile money transfers	350	3.74	.996
	Online bill payment	350	2.35	1.315
	Savings accounts via mobile	350	1.84	1.019
	Loan applications through digital platforms	350	1.72	.968
	Other	350	1.00	.000
How frequently do you use digital banking services?	Daily	350	3.838	.998
	Weekly	350	1.745	.979
	Monthly	350	1.00	.000
	Rarely	350	-	-
	Never	350	-	-
What are the primary reasons for using digital banking? (Select all that apply)	Convenience	350	3.8383	.73519
	Accessibility	350	3.2331	.68183
	Cost-effectiveness	350	3.8001	.74650
	Time-saving	350	3.8473	.8845
	Security concerns	350	2.2150	.8932

Source: Survey results and own computation, 2025

As shown in the above table the means of customers' responses on respective statements ranged between 1 and 3.8473. When we see by service they used the highest mean, 3.74 indicates that most of the respondents used the service mobile money transfer. The second major service rarely used by the customers' is online bill payment with a mean of 2.35. 'Saving accounts via mobile' and 'Loan applications through digital platforms' are placed 3rd and 4th rank as per customers response and finally other service was least ranked.

When we see the frequency they used the highest mean, 3.838 indicates that most of the respondents used the service daily. Second weekly with a mean of 2.35, and finally monthly was least ranked.

When we see their reason why they used the digital service the highest mean, 3.8473 indicates that most of the respondents used the service mobile due to time saving. The second major reason is convenience with a mean of 3.8383, 3rd and 4th cost effectiveness and accessibility as per customers response with a mean 3.8001 & 3.2331 respectively and finally other security concerns was least ranked.

This information is important in that it could be used by management to determine whether the least used services add any value or to embark on a fact finding mission from customers on their opinion of the services, and make the relevant decisions.

Table 4.5 Survey findings of Impact on Digital Financial Inclusion

Impact on Digital Financial Inclusion	Item	No of Respondents	Mean	Std. Deviation
Do you believe that digital banking has improved your access to financial services?	Strongly agree	350	3.800	.7465
	Agree	350	3.74	.996
	Neutral	350	2.8864	.93862
	Disagree	350	2.6414	1.13942
	Strongly disagree	350	2.2150	.89323
Has digital banking helped you save money or manage your finances better?	Yes, significantly	350	3.8473	.88458
	Yes, moderately	350	3.2331	.68183
	Not at all	350	1.84	1.019
Have you been able to access credit or loans through digital banking that you could not access before?	YES	350	3.84	.884
	NO	350	2.35	1.315
In your opinion, what are the biggest barriers to using digital banking in your community? (Select all that apply)	Lack of awareness/education	350	2.35	1.315
	Technical issues (e.g., internet connectivity)	350	3.2331	.6818
	Trust and security concerns	350	1.72	.968
	Limited availability of services	350	1.00	.000
	Other	350	-	-

Source: Survey results and own computation, 2025

4.5 Assumptions of Multiple Linear Regression Analysis

Multiple Regression Analysis is a statistical technique used to understand the relationship between one dependent variable and multiple independent variables. In the context of digital banking's impact on enhancing financial inclusion in Ethiopia, multiple regression analysis can help identify how various factors contribute to financial inclusion outcomes. Multiple regression analysis provides a comprehensive framework for understanding how various factors affect

financial inclusion in Ethiopia's digital banking landscape. By identifying key drivers and barriers, policymakers and financial institutions can implement more effective strategies to promote access to financial services, ultimately enhancing financial inclusion across the country.

When conducting multiple regression analysis, it is crucial to ensure that certain assumptions are met to validate the results. Here are the key assumptions of multiple regression analysis, particularly in the context of examining digital banking's impact on enhancing financial inclusion in Ethiopia

Multiple line a regression studies the relationship between a dependent variable and two or more independent variables.

Multiple linear regression equation writes as follows:

$$Y = b_0 + b_1x_1 + b_2x_2 + \dots + b_kx_k + E$$

Where Y is the dependent variable, the X are the independent variables, the b are the regression coefficients, and b_0 is the constant.

4.6 Normality Test

According to Field (2009), the assumption of normality is important in research using regression (or general linear models) and helpful to generalize the results of the analysis beyond the sample collected. Among several ways to check for the normality assumptions for multiple linear regression analysis, it is advisable to inspect to see if a distribution is normal through a

Q-Q plot. Therefore, to establish the validity of these assumptions, the researcher also checks for the normality through Q-Q plot of sample commercial Banks as follows.

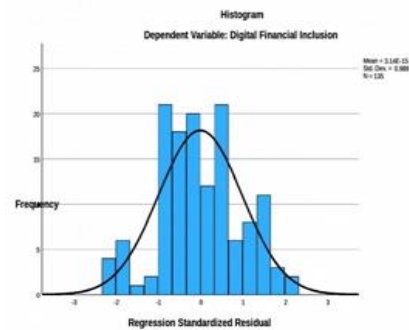
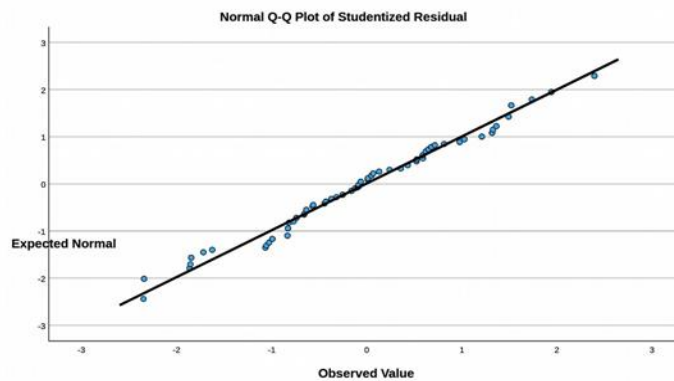
H₀: Normally distributed errors

Ha: Non-Normal Distribution error

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Studentized Residual	0.08	135	0.033	0.981	135	0.057

a. Lilliefors Significance Correction

Source: Ownsurvey result



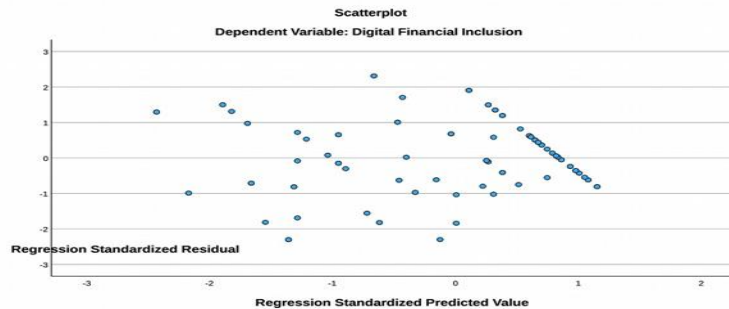
Source: Own survey result

Result obtained from Shapiro-wilke test indicate that all the variables had P-value greater than (>0.05), meaning that the variables involved in this study follow normal distribution, therefore, it can be concluded that the residual value is normally distributed so that the regression analysis producers have been fulfilled.

4.7 Test of Homoscedasticity

This assumption assumed that variance of the errors is constant. Assumptions can be checked by scatterplot diagram. The result plots the values the model would predict, against the residuals

obtained. As the predicted values increase, the variation in the residuals should be roughly similar. The graph looks like random array of dots. So, the model is homoscedasticity.



Source: Own survey result

4.8 Test of Multicollinearity

The table below shows Collinearity statistics

Model	Coefficients ^a			t	Sig.	95.0% Confidence Interval for B		Correlations		Collinearity Statistics			
	Unstandardized Coefficients		Standardized Coefficients Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
	B	Std. Error											
1	(Constant)	0.44	0.145		3.024	0.003	0.152	0.728					
	Digital Finance infrastructure	0.23	0.05	0.278	4.708	<.001	0.136	0.332	0.861	0.38	0.15	0.276	3.623
	Financial Literacy	0.54	0.059	0.561	9.137	<.001	0.422	0.655	0.91	0.624	0.28	0.255	3.915
	Regulatory Framework	0.17	0.041	0.172	4.081	<.001	0.087	0.25	0.72	0.336	0.13	0.541	1.847

Source: Own survey result

Summary table collinearity statistics

Mode	Collinearity statistics		
1			
1	Constant	Tolerance	VIF
	Digital infrastructure	.276	3.623
	Financial literacy	.255	3.915
	Regulatory framework	.541	1.847

Source: Own survey result

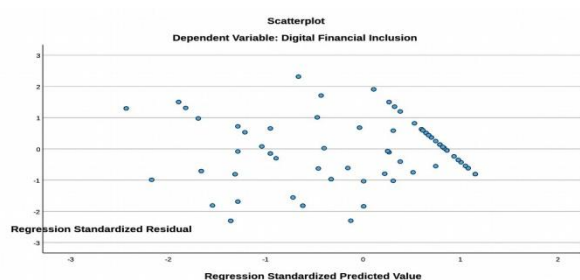
H_0 : There is a Multicollinearity problem

H_a : There is no Multicollinearity problem

All the VIF column values are less than 10, and tolerance values are greater than 10% respectively, indicating that there is no multi-collinearity influence between the explanatory variables. As a result, we reject Null Hypotheses.

4.9 Tests for Heteroscedasticity

H_0 : There is no Heteroscedasticity problem H_a : There is heteroscedasticity

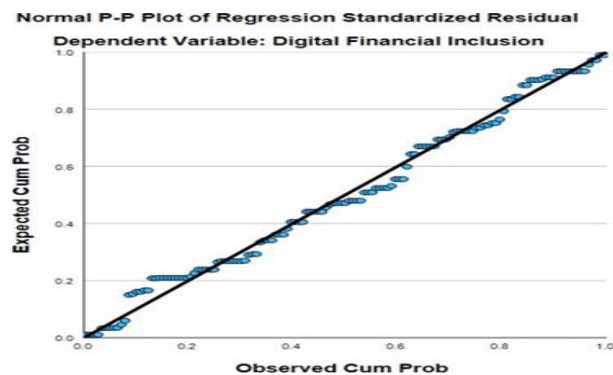


Source: Own survey result

Base on the scatterplot output above, it appears that the spots are diffused and do not form a clear pattern, so it can be concluded that the regression model does not occur heteroscedasticity problem.

4.10 Test of Linearity

Multiple linear regression model assumptions assume there is a linear relationship between the independent variables and the dependent variables. The linearity assumption of multiple linear regressions is that the relationship between the independent variable and the dependent variable can be characterized by a straight line. The linearity assumption already linear from the equation of multiple linear regression models of the independent variables and dependent variable (Gujarat, 2004).



Source: Own survey result

4.11 Correlation Analysis

Pearson (r) correlation coefficient was carried out so that the nature of strength and direction of the relationship between the independent variables (financial literacy, regulatory framework and digital infrastructure) and dependent variables (DFI) are identified.

Correlations					
		Digital Financial Inclusion	Digital Finance infrastructure	Financial Literacy	Regulatory Framework
Pearson Correlation	Digital Financial Inclusion	1	0.861	0.91	0.72
	Digital Finance infrastructure	0.861	1	0.846	0.63
	Financial Literacy	0.91	0.846	1	0.665
	Regulatory Framework	0.72	0.63	0.665	1
Sig. (1-tailed)	Digital Financial Inclusion	.	<.001	<.001	<.001
	Digital Finance infrastructure	0	.	0	0
	Financial Literacy	0	0	.	0
	Regulatory Framework	0	0	0	.
N	Digital Financial Inclusion	135	135	135	135
	Digital Finance infrastructure	135	135	135	135
	Financial Literacy	135	135	135	135
	Regulatory Framework	135	135	135	135

Source: Own survey result

4.12. Regression Analysis

The regression analysis is used to determine the degree in which the dependent variable explained from the independent variables. It's also used to understand how much each independent variable such as Digital infrastructure, financial literacy and Regulatory framework explains the dependent variable.

4.13. Model summary

The model summary below shows the statistical relationship of the dependent variable (DFI) and independent variables.

Model Summary ^b												
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Change Statistics			PRESS	Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change			
1	.935 ^a	0.874	0.871	0.17785	0.874	302.66	3	131	<.001	4.441	1.886	
a. Predictors: (Constant), Regulatory Framework , Digital Finance infrastructure, Financial Literacy												
b. Dependent Variable: Digital Financial Inclusion												

Source: Own survey result

The relationship between dependent variable and independent variables are represented by R-value of 0.935 this number indicate significant relationship between the two variable. R Square represents the% of digital financial inclusion can be explained by independent variables, all the three determinant factors are explained 87% of dependent variable the rest 13% are not explained by this study.

4.14. Hypothesis Test

Coefficients						
Model		Unstandardized co.		Standardized co.	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.440	.145		3.024	.003
	Digital financial infrastructure	.234	.050	.278	4.708	.001
	Financial literacy	.538	.059	.561	9.137	.001
	Regulatory framework	.168	.041	.172	4.081	.001
Dependent variable: DFI						

Source: Own survey result

Unstandardized coefficient B 0.44 represents the expected value of dependent variable when independent variables are equal to zero, first 0.234 represents every one unit increase in digital infrastructure the dependent variable is expected to increase by 0.234, second 0.538 represents everyone unit increase in Financial literacy the dependent variable is expected to increase by

0.538 And third one is 0.168 represents every one unit increase in regulatory framework the dependent variable is expected to increase by 0.168. The variable with the highest beta value contributes the most to explaining dependent variable variance, which is controlled by all other variables in the model, in beta column beneath standardized coefficient the highest contribution is financial literacy $B=0.561, P<0.001$, next digital financial infrastructures $B=0.278, P<0.001$ and regulatory framework $B=0.172, P<0.001$.

4.15. Proposed Hypotheses in this study

In this study three hypotheses were formulated. Statistical tests run for these hypotheses were briefly discussed below.

H_1 : Higher digital financial literacy level among Bank customers will have a positive impact on DFI

To validate this hypothesis based on the correlation and regression model summary, ANOVA and coefficients results and justifications, customer Financial literacy level strongly correlated or significant influence on DFI with a very high and positive, $r=0.910, B=0.561, P<0.001$ in Addis Ababa; Ethiopia. This could be interpreted financial literacy the most significant influence on DFI. Therefore we can't reject H_1 in this study.

H_2 : Availability and quality of Digital infrastructure has positive impact on DFI.

To validate the second hypothesis based on the correlation and regression model summary, ANOVA and coefficients results and justifications, availability of quality infrastructure is next to Financial literacy level correlated or significant influence on DFI with,

$r=.861, B=0.278, p<0.001$. This could be interpreted significantly influence next to financial literacy. Therefore we can't reject H2 in this study.

H₃: Building and application of regulatory framework is positively influence implementation and adoption of DFS.

To validate the third hypothesis based on the correlation and regression model summary, ANOVA and coefficients results and justifications, availability of building regulatory framework is next to Financial literacy and digital infrastructure correlated or significant influence on DFI with, $r=.720, B=0.172, p<0.001$. This could be interpreted significantly influence next to financial literacy and digital infrastructure. Therefore we can't reject H3 in this study.

4.16. Results and discussions

The study is associated with the magnitude of determinants of DFI. The objective of this study is to measure the level of determinant factors of DFI in Ethiopia, by analyzing the relationship of every construct in the framework. The framework of the study is adopted from previous researches those mentioned at end of chapter two in this paper and World Bank data Global Index database. Specifically determinant factors are financial literacy, regulatory framework and digital infrastructure (Wuddasie D. in (2022)).

The first research question of this study was to what extent digital financial literacy improves Digital financial inclusion. Regard the finding in this study revealed that all the three determining factors are positively influencing DFI. However, the most significant influence of DFI in Ethiopia were financial literacy of customer (Mean=4.4637), followed by digital infrastructure (4.4296) and regulatory framework (mean 4.3096). Customers with understanding of digital financial products and services are more to adopt and utilize. Hence this result shows it

suggests need for ongoing financial literacy initiatives by Banks to bridge the gap on this area. Potential of DFI can only be realized by improving customer financial literacy, from the result as the data highlight. To give people the abilities and information necessary to successfully navigate the digital financial Landscape, financial education initiatives and awareness campaigns must be maintained.

The second question of study was how much does the type and level of DFI depend on the availability and quality of digital infrastructure. The finding in this study revealed that digital infrastructure has (mean=4.4296) positively influence DFI, the study showed that digital infrastructure had positive effect on DFI in commercial banks. This indicates that the adoption and utilization of DFI are significantly influenced by the availability and quality of digital infrastructure. In order people to be able to utilize digital financial services, they must have widespread access to reliable mobile networks, internet access, and digital devices. Addressing abroad depopulation as well as rendering infrastructure more affordable are essential for closing the digital divide and serving those who are unbanked.

The third research question of this study was how does the design and implementation of regulatory frameworks influence the adoption and utilization of DFS, Regard the finding in this study revealed that regulatory framework has at a (mean=4.3096) positively influencing DFI in commercial banks. Regulatory framework plays significant role to create enabling environment for the growth of DFI, specifically regulatory framework has an impact on customer protection, increase competition between Banks, encourage innovation through collaboration of Banks and Fintech Companies.

4.17. Research Implication

Based on the research findings that financial literacy has the strongest positive correlation with Digital Financial Inclusion (DFI) in Ethiopia, followed by digital infrastructure and then regulatory framework, here are some potential research implications for Commercial Banks and Policy makers:

For Banks: *Investing financial literacy programs:* Offer targeted financial literacy training for customers, particularly focusing on segments with low DFI penetration. Develop programs tailored to different demographics and needs. (e.g. rural communities, small businesses, women). *Prioritize digital infrastructure expansion:* Collaborate with other stakeholders (government, Fin tech and telecom companies) to improve internet connectivity and access to mobile devices in underserved areas. Leverage alternative technologies like USSD to reach populations with limited smartphone access. *Encourage supportive regulatory frameworks:* Speak with legislators to support laws that encourage consumer protection and innovation in the field of digital financial services.

For Policymakers: *Include financial education in national initiatives:* Provide funding for the creation and execution of nationwide financial literacy initiatives that serve both adults and children. For a broader reach, collaborate with banks, non-governmental groups, and

Give development of digital infrastructure top priority: Make investments to increase cell network coverage and internet access, especially in rural areas. Encourage public-private collaborations to quicken the development of infrastructure. *Establish a supportive regulatory framework:* Provide laws in the digital financial services sector that are transparent, flexible, and

supportive of responsible innovation while safeguarding consumers. Encourage cooperation between industry stakeholders and regulatory organization.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

Introduction

This chapter presented the summary, recommendations, and conclusions of the study. This chapter further presented the limitation of the study, the contribution of the study, and areas for further research.

5.1. Summary of Main Findings

Digital banking in Ethiopia has emerged as a pivotal tool for enhancing financial inclusion, particularly in a country where a significant portion of the population remains unbanked. The rapid adoption of mobile banking services and digital payment platforms has facilitated access to financial services for individuals and businesses, especially in rural areas. Government initiatives, such as the National Financial Inclusion Strategy, aim to integrate digital technologies into the financial sector, promoting economic growth and reducing poverty. Key players in the Ethiopian banking sector, including both traditional banks and fintech companies, have been instrumental in driving this transformation by offering innovative products tailored to the needs of underserved populations (Wuddasie D., 2022).

- **Expand Digital Infrastructure:** The government and private sector should invest in improving internet connectivity and mobile network coverage, particularly in rural areas, to ensure that digital banking services are accessible to all citizens.
- **Enhance Financial Literacy:** Implement educational programs that focus on digital financial literacy, helping users understand how to use digital banking services effectively and securely.
- **Promote Collaboration:** Encourage partnerships between traditional banks, fintech companies, and non-governmental organizations to develop inclusive financial products that cater to diverse customer needs.
- **Regulatory Support:** Establish a regulatory framework that supports innovation while ensuring consumer protection and data security. This can help build trust in digital banking systems.

- **Tailored Products:** Develop customized financial products, such as microloans and savings plans, that address the specific needs of low-income individuals and small businesses.
- **Leverage Mobile Technology:** Utilize mobile platforms for payments, savings, and credit services to reach those without access to traditional banking infrastructure.
- Digital banking has the potential to significantly enhance financial inclusion in Ethiopia by providing accessible and affordable financial services to underserved populations. By addressing the existing barriers through improved infrastructure, education, collaboration, and tailored products, Ethiopia can harness the benefits of digital finance to foster economic development and empower its citizens. Continued investment and innovation in this sector will be crucial for achieving broader financial inclusion goals and ensuring sustainable economic growth in the country.
- **Increased Access to Financial Services:** Digital banking has significantly improved access to financial services for many Ethiopians, particularly in rural areas where traditional banking infrastructure is limited. Mobile banking and digital payment platforms have become essential tools for reaching unbanked populations.
- **Government Initiatives:** The Ethiopian government has implemented policies, such as the National Financial Inclusion Strategy, aimed at promoting digital finance as a means to enhance financial inclusion and stimulate economic growth. These initiatives are focused on integrating technology into the financial sector.
- **Role of Fintech Companies:** fintech companies have emerged as key players in the Ethiopian banking landscape, offering innovative products and services that cater to the needs of underserved communities. Their agility and focus on technology have enabled them to provide solutions that traditional banks may not offer.
- **Mobile Technology Utilization:** The widespread use of mobile phones has facilitated the growth of digital banking. Mobile money services allow users to conduct transactions, save, and access credit without needing a physical bank branch.
- **Challenges to Adoption:** Despite the progress, challenges remain, including low levels of financial literacy, concerns about cyber security, and limited internet connectivity in some regions. These barriers hinder the full potential of digital banking in promoting financial inclusion.

- **Regulatory Environment:** A supportive regulatory framework is crucial for fostering innovation while ensuring consumer protection. The current regulations need to evolve to accommodate the rapid changes in the digital banking landscape. Impact on Economic Development: Enhanced financial inclusion through digital banking is expected to contribute to broader economic development goals by empowering individuals and small enterprises, thereby reducing poverty and promoting sustainable growth. In summary, digital banking in Ethiopia plays a critical role in enhancing financial inclusion by improving access to financial services, fostering innovation through finch, and supporting government initiatives aimed at economic development. However, addressing existing challenges is essential for maximizing its impact.

5.2. Conclusions

The findings on digital banking in Ethiopia underscore its transformative potential in enhancing financial inclusion across the country. By leveraging mobile technology and innovative finch solutions, digital banking has significantly improved access to financial services for previously underserved populations, particularly in rural areas. Government initiatives and supportive policies have further facilitated this growth, creating an enabling environment for the expansion of digital finance.

However, challenges such as low financial literacy, cyber security concerns, and limited internet access must be addressed to fully realize the benefits of digital banking. Tailored financial products and a robust regulatory framework are essential to meet the diverse needs of users and ensure consumer protection.

Overall, digital banking stands as a crucial driver of economic development in Ethiopia, empowering individuals and small businesses, reducing poverty, and fostering sustainable growth. Continued efforts to overcome existing barriers will be vital in maximizing the impact of digital banking on financial inclusion and advancing the country's economic goals.

5.3. Recommendations

Develop targeted financial literacy campaigns to educate users about role of digital banking enhancing financial inclusion services, benefits, and security measures. Collaborate with local

NGOs and community organizations to reach underserved populations, particularly in rural areas.

The government should establish a robust regulatory framework that fosters innovation while ensuring consumer protection. This includes creating guidelines for finch companies and ensuring compliance with data protection and cyber security standards. Improve internet and mobile network infrastructure, especially in rural areas, to ensure reliable access to digital banking services. Partnerships with telecom companies can help expand coverage and improve service quality. Encourage banks and finch companies to develop tailored financial products that cater to the needs of various demographics, including women, farmers, and small businesses. This could include microloans, savings accounts with low minimum balances, and insurance products. Encourage collaboration between the government, financial institutions, and technology providers to create a more integrated digital banking ecosystem. Such partnerships can facilitate knowledge sharing, resource pooling, and the development of innovative solutions. Implement comprehensive cyber security measures to protect users' data and build trust in digital banking systems. Regular training for staff and awareness campaigns for users can help mitigate risks associated with cyber threats. Promote the use of mobile banking applications that are user-friendly and accessible to individuals with varying levels of digital literacy. Simplified interfaces can help users navigate services more easily. Launch initiatives that promote saving through digital platforms, such as incentive programs or ramified savings challenges. Encouraging a savings culture can enhance financial stability among users.

Establish metrics to assess the impact of digital banking initiatives on financial inclusion. Regular monitoring and evaluation will help identify challenges, measure success, and inform policy adjustments. Involve various stakeholders, including community leaders, financial institutions, and technology providers, in the design and implementation of digital banking initiatives. Their insights can help ensure that solutions are relevant and effective. By implementing these recommendations, Ethiopia can further harness the potential of digital banking to enhance financial inclusion, driving economic growth and improving the livelihoods of its citizens.

5.5 Direction for Future Research

Directions for Future Research on Digital Banking and Financial Inclusion in Ethiopia

1. Longitudinal Studies:

Conduct longitudinal research to track the long-term effects of digital banking on financial inclusion over time. This can help identify trends, changes in user behavior, and the sustainability of digital banking solutions.

2. Impact of Digital Literacy Programs:

Investigate the effectiveness of digital literacy initiatives in enhancing the adoption and usage of digital banking services, particularly among marginalized groups. Understanding how education impacts user engagement can inform future training programs.

3. Comparative Studies:

Perform comparative studies between urban and rural populations to understand the differing challenges and opportunities related to digital banking. This can help tailor solutions to specific community needs.

4. User Experience and Satisfaction:

Explore user experience and satisfaction in-depth through qualitative methods such as interviews or focus groups. Understanding user perspectives can provide insights into barriers and motivators for using digital banking services.

5. Role of Mobile Money:

Examine the specific role of mobile money services in enhancing financial inclusion, particularly in rural areas where traditional banking infrastructure is lacking. Research could focus on usage patterns, trust issues, and service accessibility.

6. Regulatory Framework Analysis:

Analyze the impact of regulatory frameworks on the growth and effectiveness of digital banking in Ethiopia. Understanding how regulations facilitate or hinder financial inclusion can guide policymakers in creating supportive environments.

7. Socio-Economic Factors:

Investigate how socio-economic factors, such as income level, education, and gender, influence the adoption and use of digital banking services. This can provide insights into targeted interventions for underrepresented groups.

8. Integration with Traditional Banking:

Study the integration of digital banking with traditional banking services and its effects on financial inclusion. Understanding how these two systems can work together may reveal new opportunities for enhancing access to financial services.

9. Impact of Technological Advancements:

Explore the impact of emerging technologies (e.g., block chain, artificial intelligence) on digital banking services and their potential to enhance financial inclusion in Ethiopia.

10. Cultural Influences:

Investigate cultural attitudes towards digital banking and financial services, examining how these beliefs affect adoption and usage. This research could identify cultural barriers and inform culturally sensitive marketing strategies.

11. Case Studies of Successful Initiatives:

Conduct case studies on successful digital banking initiatives in Ethiopia or comparable contexts to identify best practices and lessons learned that can be scaled or adapted.

12. Financial Products Diversity:

Research the development and impact of diverse financial products offered through digital platforms (e.g., savings accounts, loans, insurance) on improving financial inclusion among different demographic groups. By pursuing these directions for future research, scholars can contribute to a deeper understanding of the dynamics between digital banking and financial inclusion in Ethiopia, ultimately helping to inform policies and practices that promote equitable access to financial services.

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APPENDIX: 1 Questionnaires



ST.MARY'S UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS DEPARTMENT OF BUSINESS ADMINISTRATION PROGRAM

Dear Respondent

I am a Master's student in St. Mary's University, college of business and economics, currently; I am conducting a research study entitled as "The role of digital banking in enhancing financial inclusion in Addis Ababa Ethiopia". I have designed this questionnaire to collect data from digital banking users. The aim of this project is to assess the role of digital banking in enhancing financial inclusion in and Around Addis Ababa Ethiopia. This questionnaire is prepared to supplement the data obtained from other sources.

This survey questionnaire is being distributed to get relevant information from randomly selected mobile banking users and participation is totally voluntary. The investigator respectfully requests your kind cooperation in answering the whole question as frankly as possible and your response will be recorded anonymously and strict confidentiality will be maintained.

GENERAL INSTRUCTION:

This questionnaire contains five sections and 4 pages that will be expected to take approximately 10 to 15 minutes to complete. Please provide your responses to the questions based on the instructions under each section.

- ❖ No need for writing your name in this questionnaire
- ❖ Read each statement carefully and give the corresponding answer correctly.
- ❖ Please Tick "✓" in one of the box.

"True information is crucial to the correct outcome"

Section 1: Demographic Information

1. Age (in years):

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55 and above

2. Gender:

☐ Male ☐ Female

3. Education Qualification:

☐ No formal education ☐ Primary education ☐ Secondary education

☐ Diploma ☐ First degree or BA/BSc ☐ Master's degree or MA/MSc ☐ PhD

4. Occupation:

☐ Student ☐ Employed ☐ Farmer ☐ Self-employed ☐ Unemployed ☐ Other:

5. Location:

☐ In Addis Ababa ☐ Sheger City

Section 2: Access to Digital Banking

6. Do you have access to a mobile phone? ☐ Yes ☐ No

7. Do you have access to the internet? ☐ Yes ☐ No

8. Are you aware of digital banking services offered by local banks? ☐ Yes ☐ No

9. Have you ever used digital banking services? ☐ Yes ☐ No

Section 3: Usage of Digital Banking Services

10. Which of the following digital banking services have you used? (Select all that apply)

☐ Mobile money transfers ☐ online bill payments ☐ Savings accounts via mobile apps

☐ Loan applications through digital platforms ☐ other:

11. How frequently do you use digital banking services? ☐ Daily ☐ Weekly ☐ Monthly
☐ Rarely ☐ Never

12. What are the primary reasons for using digital banking? (Select all that apply)

☐ Convenience ☐ Accessibility ☐ Cost-effectiveness ☐ Time-saving ☐ Security concerns

Section 4: Impact on Financial Inclusion

13. Do you believe that digital banking has improved your access to financial services?

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ strongly disagree

14. Has digital banking helped you save money or manage your finances better?

☐ Yes, significantly ☐ Yes, moderately ☐ Not at all

15. Have you been able to access credit or loans through digital banking that you could not access before? ☐ Yes ☐ No

16. In your opinion, what are the biggest barriers to using digital banking in your community? (Select all that apply)

☐ Lack of awareness/education ☐ Technical issues (e.g., internet connectivity)
☐ Trust and security concerns ☐ Limited availability of services ☐ other:

Section 5: Feedback and Suggestions

17. In your opinion, what is the most significant benefit of digital banking for financial inclusion in Ethiopia? _____

18. What improvements would you suggest for digital banking services in Ethiopia?_____

19. Any additional comments regarding your experience with digital banking and financial inclusion:_____
