



**A Research Submitted to Addis Ababa University School of
Business and Economics to Undertake a Research in Partial
Fulfilment of the Requirements for Master's in Business
Administration (MBA)**

**The Challenges, Opportunities and Achievements of Mobile
Banking in Addis Ababa City, Lideta Area**

A Bank's Perspective

BY

Robel Takele

October, 2024

Addis Ababa, Ethiopia

DECLARATION

I, the undersigned, declare that this research paper is my own original work and was prepared as per the guidance of Dr. Ethiopia Legesse. The use of all sources and materials in this article has been properly acknowledged. I further attest that no other university has ever received the project work in whole or in part for the purpose of conferring a degree.

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Date: November, 2024

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Approved Board Committee:

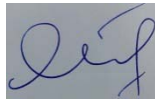
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Abstract

Mobile banking enables people to conduct financial transactions via their mobile phones, offering convenience and fitting modern lifestyle demands. This tool has garnered interest from banks, network providers, and other institutions, becoming a widely offered service. However, most research focuses on the customer perspective, overlooking the banks' viewpoint, especially in countries like Ethiopia, where mobile banking is still emerging. This study examines mobile banking from the perspective of Ethiopian banks, using interviews with managers and mobile banking officers to collect data. Findings indicate that banks face challenges in achieving their mobile banking goals due to limited infrastructure, a new market environment, and trust issues. Despite these obstacles, banks have benefited by reducing operational costs, expanding their customer base, generating additional revenue, and increasing transaction volumes. A key opportunity identified is the potential for e-commerce integration. The study recommends that the government invest in infrastructure, while banks focus on data security and privacy, dedicating resources to support the growth and full potential of mobile banking services.

Keywords: *mobile banking, e-commerce, data privacy, market expansion, customer base*

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1. Introduction

1.1 Background of the Study

In the rapidly evolving landscape of the digital age, the financial sector has witnessed a transformative shift with the advent of mobile banking. As technology continues to redefine the way we conduct financial transactions, mobile banking emerges as a pivotal force, reshaping the traditional paradigm of banking services. This research endeavours to delve into the multifaceted realm of mobile banking, examining its promising prospects, the myriad opportunities it presents, the challenges it grapples with, and the noteworthy achievements that mark its progression. M-business refers to utilizing mobile information technologies, such as wireless Internet, for organizational communication, coordination, and firm management. (Scornavacca and Barnes, 2004).

The widespread availability of smartphones and pervasive mobile connectivity has accelerated the extensive uptake of mobile banking, providing users unprecedented convenience in handling their financial matters. Offering anytime, anywhere access, mobile banking not only brings financial services directly to users but also enhances opportunities for financial inclusion, especially in areas with limited traditional banking infrastructure. Through mobile commerce (m-commerce) technology, consumers can use mobile phones, PDAs, and laptops to connect to the internet, exchange messages, and conduct transactions from any location, freeing them from the constraints of being tied to a specific place. (Sreenivasan and Noor, 2010)

Amidst this surge in popularity, the opportunities that mobile banking offers are vast and diverse. From enhancing customer engagement through personalized services to fostering financial literacy through innovative educational tools, mobile banking has the potential to revolutionize the way individuals interact with their finances. Moreover, the integration of emerging technologies such as artificial intelligence and block chain into mobile banking systems further amplifies the possibilities for innovation and efficiency. Mobile banking, a component of electronic banking, integrates both the fundamentals of traditional banking and the unique dynamics of mobile commerce. Over the past few years, mobile banking has

gained significant traction across diverse segments of society, rebounding from the impact of the dot-com crash. (Tiwari, Buse, and Herstatt, 2007).

However, the journey towards a mobile banking utopia is not without its challenges. Security concerns, regulatory complexities, and the need for robust infrastructure pose formidable obstacles that demand careful consideration. Balancing the convenience of mobile banking with the imperatives of data protection and privacy becomes a crucial aspect in ensuring the long-term sustainability and trustworthiness of these digital financial ecosystems.

In exploring the achievements of mobile banking, it is imperative to acknowledge the milestones that have propelled it to the forefront of modern finance. From the seamless execution of transactions to the development of intuitive user interfaces, mobile banking has undergone a remarkable evolution. The integration of biometric authentication, real-time analytics, and enhanced user experiences exemplify the strides made in elevating the efficacy and accessibility of financial services. Mobile technology enables banks to provide customers with services such as transferring funds while on the go, receiving real-time updates on stock prices, and even conducting stock trades during traffic delays. Smartphones and 3G connectivity offer capabilities that older text message-only phones lack. The merging of mobile communications and distributed networked computing has laid the groundwork for a new avenue of electronic commerce known as mobile business. (Tiwari and Buse, 2007)

As we embark on this research journey, the aim of this study is to explore the intricacies of mobile banking, uncovering insights that shed light on its promising future, the opportunities it extends, the challenges it confronts, and the achievements that underscore its significance in the financial landscape. Through a comprehensive analysis, this research aims to contribute to the on-going discourse surrounding the evolution of mobile banking and its profound implications for the future of financial services.

1.2 Statement of the problem

The first form of banking was when first formed was a perfectly fit method of conducting daily business for its time. But these days there are many technological advancements

relating to many human daily activities or needs. One of them is making use of our computers and mobile/cell phones to be of use for our financial activities. Mobile banking offers customers quick and efficient services, increasing employee efficiency and customer satisfaction, while also enhancing the future prospects of the industry. The rapid advancement in mobile banking technology has garnered significant attention, as more individuals and businesses adopt this platform.

Mobile banking (m-banking) represents one of the most significant strategic shifts in retail banking in over a decade. Advances in technology interfaces have enabled the financial industry to provide customers with instant solutions through self-service technologies. Today, the financial sector offers a variety of service channels, including traditional branch services, self-service options like ATMs, telephone banking, internet banking, and m-banking. Internet banking allows customers to securely perform various financial transactions such as account transfers, bill payments, stock trading, and other services on a dedicated website accessed typically through laptops or desktop PCs. (Shaikh and Karjaluo, 2015).

Despite significant interest from customers and a growing demand for digital financial services, Ethiopian banks are struggling with infrastructure limitations, regulatory challenges, and technological barriers. Mobile banking in Ethiopia is further complicated by limited internet penetration, low levels of digital literacy, and a banking culture that is still largely traditional, which contributes to significant trust and adoption issues among consumers. Most existing research on mobile banking focuses on customer adoption, usability, and satisfaction, with little attention given to the bank's perspective. Yet, the successful implementation and growth of mobile banking depend heavily on the banks' ability to manage operational challenges, secure necessary technological infrastructure, and align their strategies with customer needs and regulatory expectations. Without a clear understanding of the internal challenges faced by banks, as well as the achievements they've realized and the future opportunities mobile banking presents, the financial ecosystem in Ethiopia may not reach its full digital potential.

This research seeks to address this gap by exploring mobile banking from the perspective of Ethiopian banks. It will examine the specific challenges banks face in implementing mobile banking, the achievements that banks have realized through mobile banking, finally, this

study will analyse the potential opportunities mobile banking offers for the future of finance in Ethiopia.

1.3 Research Questions

1. What opportunities do banks identify in the realm of mobile banking?
2. What challenges do banks face in implementing and managing mobile banking services?
3. What are the perceived achievements of mobile banking from the perspective of banks?

1.4 Objectives

1.4.1 General Objective

The general objective of this research is to comprehensively investigate the achievements, opportunities, and challenges associated with mobile banking, with the aim of gaining a deeper understanding of its impact on financial ecosystems. The research aims to contribute to the advancement of knowledge in the field of mobile banking, offering practical recommendations for stakeholders in the financial industry to optimize the benefits and address the challenges associated with this evolving technology.

1.4.2 Specific Objectives

1. To explore what opportunities that banks have identified in the realm of mobile banking, including potential revenue streams, innovation in service offerings, and enhancement of customer experience.
2. To investigate the challenges that banks face in implementing and managing mobile banking services such as technological limitations, security concerns, and regulatory compliance issues.
3. To assess the achievements of Mobile Banking.

1.5 Significance of the study

This study aims to provide a comprehensive understanding of the technical, operational, and strategic challenges faced by Ethiopian banks in the mobile banking industry. The research will help policymakers, bank executives, and financial sector stakeholders understand the barriers to successful mobile banking deployment and offer practical guidance for more effective policy-making and operational strategies. The study will also highlight the achievements of Ethiopian banks through mobile banking, such as cost savings, customer growth, and new revenue streams. This research will help banks benchmark their progress, refine their strategies, and align their goals with proven benefits. The study will also explore potential opportunities for Ethiopian banks to innovate and expand mobile banking services, such as e-commerce integration, personalized financial products, and partnerships with fintech firms. The research will offer actionable recommendations for the Ethiopian government, regulatory bodies, and financial stakeholders on creating a supportive environment for mobile banking, advocating for policies that encourage investment in digital infrastructure, data security measures, and capacity-building initiatives. The findings will be relevant not only for Ethiopia but also for other countries facing similar challenges in mobile banking implementation, serving as a model for emerging economies.

1.6 Scope and Limitations of the study

The study aims to explore the inner workings of banks' mobile banking platforms in the Lideta area, focusing on three key aspects. First, it will identify and analyze the challenges of implementation, including infrastructure limitations, data security, customer trust, and regulatory compliance specific to Ethiopia. Second, it will examine the achievements of mobile banking for banks, such as cost reduction, customer growth, revenue expansion, and market reach, providing insights to help banks refine their strategies. Third, it will assess opportunities for future growth, including e-commerce integration, personalized digital products, and fintech partnerships, to support financial inclusion and enhance Ethiopia's digital finance ecosystem.

The study's limitations include its geographical focus on the Lideta area in Addis Ababa, which may not fully represent the experiences of banks in other Ethiopian regions, especially rural areas with different infrastructure and adoption levels. Data collection depends on the availability and willingness of bank representatives to participate, and scheduling challenges

may limit the depth of insights gathered. The mobile banking sector is rapidly evolving, with new technologies, policies, and customer expectations constantly emerging. This study provides a snapshot based on current conditions; however, technological and regulatory changes in the near future may impact the applicability of the findings. Additionally, shifts in Ethiopia's economic and regulatory environment could impact banks' mobile banking priorities, affecting the relevance of the findings over time.

1.7 Structure of the study

The study is comprised of five chapters which follow the following structure:-

Chapter one will include introduction which entails background of the study, statement of the problem, research questions, objectives of the study, significance of the study, scope & limitations of the study and the structure of the study.

Chapter two includes review of related literatures which is concerned with the review of how mobile banking came to be in the finance world, what steps it had to take or put more simply the evolutionary road it had to take to get to where it is today. It will also include what specific challenges mobile banking has faced over the years and what necessary steps it had to take in order to overcome them and also what new problems it is encountering in this new era. This will include empirical review that will give an insight to get the current situation of this country get into perspective while enabling the readers to compare and contrast other countries services with their own.

Chapter three deals with methodology which covers research design, the selection of target population, sampling technique and sample size, data types and source, research strategy, research framework used in this study, the practical steps and the conduction of the study in accordance with out scientific choices in order to obtain the information I seek from the participants, the chapter contains information about the background of participants, the interviewing processes and data analysis process made.

Chapter four will cover the discussion and analysis part of the study. This part will enable the readers get a clear picture of what the findings of the study are in relation to the research questions. Every important notes and findings from the collected data will be dissected and given a clear and polished interpretation so that full understanding of the work is achieved.

Chapter five will deal with summary of the findings, conclusion and recommendations of the study. This is where the study will summarize its findings and give a proper conclusion that is

indicative of its findings. And put forward a well-reasoned recommendation that the banks and other mobile banking services providers should take note to make mobile banking use its utmost capacity. It will also report the ethical consideration.

2. Literature review

2.1 Background of mobile banking

Nearly seven centuries ago, the first institution resembling a modern bank emerged in Venice. The Bank of Venice initially had no competitors, but by the early fifteenth century, similar institutions were founded in Genoa and Barcelona, cities that were prominent in European trade and rivalled only by Venice in commercial stature. (Richard Hildreth, 2001).

Since then, banks have come a long way which saw them go through many stages of development throughout the years. One of the transformations that banks went through is the transformation of conducting banking services from a face to face or in-person saving to mobile/internet banking. Mobile banking and ubiquitous banking systems can achieve ideal banking characteristics, enhancing customer service and maximizing profits for financial institutions. (Aithal, 2017)

Prior to the launch and integration of mobile web services in 1999, mobile banking relied predominantly on text or SMS, known as SMS banking. European banks pioneered mobile banking services by utilizing mobile web technology with WAP support. The introduction of mobile banking has notably enhanced customer satisfaction, with a majority of users rating their experience as satisfactory or very satisfactory. (Loganathan, Balaji, Ashok, & Parameshwari, 2020). It's crucial to differentiate and outline various concepts related to banking and financial transactions conducted via mobile devices. For instance, mobile payments involve making transactions using mobile devices such as smartphones, personal digital assistants, and others. (Chen, 2008).

Mobile banking has become a significant distribution channel in developing nations, prompting extensive research into its adoption. (Shaikh and Karjaluoto, 2015). The potential for mobile banking in African countries is vast, offering perhaps the simplest means to provide access to financial services. (Baptista and Oliveira, 2015). In Iran, a developing nation with significant opportunities for expanding banking services, obstacles to adopting

mobile banking have been studied. Usability serves as a mediator, while personal innovativeness and subjective norms moderate consumers' attitudes toward mobile banking. (Hossein Mohammadi, 2015) The significance of mobile phones in broadening access to banking for low-income individuals in developing nations has been emphasized, with a Mobile Banking Model suggesting various methods to leverage mobile technology for providing banking services to the underserved. (Hinson, 2011).

Furthermore, research has investigated the adoption and usage of current mobile banking services among low-literate, low-income individuals in developing nations, noting differences among countries and exploring potential factors that influence adoption and usage. Despite considerable attention to mobile banking adoption and usage in developing countries, especially among tech-savvy millennials, there remains a lack of research on the acceptance and utilization of mobile banking apps in emerging African economies. (Thusi and K. Maduku, 2020). There is a significant opportunity for further investigation into the factors that influence the acceptance and usage of mobile banking apps among retail banking customers in developing nations. Existing literature underscores the need to comprehend these factors and highlights the potential of mobile banking to enhance access to financial services for low-income individuals. More research is necessary to delve into the adoption and utilization of mobile banking apps, particularly among demographic segments like millennials, to enhance market penetration and broaden innovative e-banking platforms in developing economies. (Nazaritehrani and Mashali, 2020).

(Masamila's, 2014) study examines the state of mobile banking in Tanzania, highlighting that while many Tanzanians own mobile phones, they do not have bank accounts. The mobile channel offers a promising avenue to integrate them into the national financial system, addressing current status, future potential, and security concerns associated with mobile banking in Tanzania. Sub-Saharan African countries' financial sectors lag behind those of other developing nations (Allen et al., 2010). Mobile remittances offer opportunities for financial growth in Africa (Siegel et al., 2013). (Asongu, 2015) examines the factors influencing mobile phone and banking adoption in sub-Saharan Africa, highlighting the positive correlations between mobile banking and trade, remittances, patent applications, internet access, and human development. (Asongu et al., 2016) assess the role of mobile

phones and banking in reducing inequality across African nations. (Siano et al., 2020) discuss mobile banking as an innovative solution for enhancing financial inclusion in sub-Saharan Africa, with a particular focus on Nigeria.

2.2 Challenges

2.2.1 Security issues

Security issues in mobile banking are becoming a front runner when it comes to mobile banking adoption. The security measures of before are still the ones being used in today's mobile banking applications. These security measures are simple login passwords or pin codes; with very few banks adding a one-time password sent straight to the user's phone as an added layer of security.

The adoption of mobile banking and mobile payments has been a topic of interest in recent years, with various studies exploring different aspects of this phenomenon. Trust and security are crucial factors in the adoption of mobile banking services, as highlighted by (M.K et al., 2017) in their study on trust in internet banking in Malaysia and the moderating influence of perceived effectiveness of biometrics technology on trust, privacy, and security. (Rahman et al., 2020) investigate the intention to adopt mobile banking from a security perspective in Bangladesh, emphasizing the importance of maximizing information security in mobile banking. (Chochliouros et al., 2007) highlighted the increasing use of cell phones for tasks such as mobile banking, emphasizing the importance of network and information security to prevent unauthorized access and ensure data confidentiality. (Bach et al., 2009) conducted empirical research on the influence of information technology on payment transactions, noting the importance of business security in the banking sector. (Muthukrishnan et al., 2012) identified various factors of E-banking service quality, including security, which is crucial for customer perception.

The research on data privacy in mobile banking uncovers various crucial elements that impact consumers' acceptance of mobile banking services. (Akturan et al., 2012) discovered that attitudes towards mobile banking are mainly influenced by perceived usefulness,

perceived social risk, perceived performance risk, and perceived benefit, ultimately impacting adoption intention. (Shankar and colleagues, 2021) pinpointed essential aspects for the success of a sustainable mobile banking app, emphasizing the importance of privacy and security in ensuring efficient service provision. These studies together help to comprehend the significance of data privacy in the adoption and use of mobile banking.

(Datta et. al., 2020) investigate the security and challenges of mobile banking in their technical report. A comprehensive investigation has been conducted on different kinds of fraud that commonly occur in mobile or online banking systems. Considering the security aspects of mobile devices is crucial due to the Internet and frequent use of mobile devices for sending personal and sensitive information.

The goal of mobile banking is to investigate the barriers to mobile banking acceptance (Entele, 2019), using survey data, and forecast its adoption rate using secondary data from the National Bank of Ethiopia. In 2019, Entele (2019) found that the perceived benefits, difficulty, visibility, trial capability, advantages of traditional banking, and trust in mobile banking providers are all key factors in Ethiopian's adoption of mobile banking. Security risks in mobile banking lead to significant concerns about fraud activities. The growth of mobile banking has resulted in a rise in fraudulent activities like SIM swapping, hacking, identity theft, social engineering, denial of service attacks, and account takeovers (Owiti et al., 2022). The financial sector faces challenges due to fraudulent activities, requiring the creation of strong fraud management frameworks to reduce risks (Owiti et al., 2022). Security and privacy are essential factors in mobile banking, with safety and privacy issues serving as significant obstacles to its acceptance (Susanto et al., 2016; Tseng et al., 2017). To promote trust in the security of their sensitive information and financial transactions, users must believe that mobile banking platforms are highly secure (Islam, 2024). The importance of trust in mobile banking services is emphasized by the mediating role of trust in the connection between corporate image, application security, and word of mouth on customer loyalty (Purwanto et al., 2020).

Zhu et. al. (2015) suggest a fraud detection system for ranking mobile Apps. The advancement of technology has made e-banking, such as credit cards, debit cards, mobile banking, and internet banking, the preferred method for transferring money between accounts. The goal is to stop the customer from engaging in online transactions by utilizing a particular method, such as Data Mining and Artificial Intelligence technique (Singh et. al., 2015). Identifying the nature of transactions requires the use of technology, given the large number and frequency of transactions. (Demiriz et. al., 2015) investigate the feasibility of utilizing location information to assist in identifying more effective business regulations that can be seamlessly integrated into a rule-based system for detecting and preventing fraud in retail banking. These discrepancies could be referred to the relevant departments for further analysis or account holders might need additional approvals for banking tasks like online transfers and payments. (Olatunji et. al., 2017) investigate how auditors influenced banking fraud control in Southwest Nigeria through risk assessment, system audit, and verification of financial reports. (Olatunji et. al., 2017) suggested that auditors should expand their focus on the effectiveness of the internal control system, risk assessment, and system audit in banks to improve the identification of fraudulent activities. Younger participants were at a higher risk of experiencing online purchase fraud, while older participants were more susceptible to online banking fraud. Individuals utilize smartphones to conduct their mobile banking transactions, leading to an increase in fraudulent activities. (Vishwakarma et. al., 2018) investigate a stratified method for detecting fraud in NFC-enabled mobile payment systems. A layered approach is suggested for NFC-enabled mobile payment system to avoid fraudulent transactions.

Widanengsih (2021) conducted a study on 100 state-owned bank customers in Jakarta, using the Structural Equation Model method with SmartPLS 3.0 software to analyze the impact of perceived usefulness and perceived ease of use on attitudes and interests towards using M-Banking. Scammers have exploited unsuspecting customers on this platform to commit fraudulent acts with a significant impact of fraudulence and there is currently no established fraud detection system to identify these fraudulent activities.

In the study by Payne et al. (2021), the focus is on investigating the connections that impact the process of value co-creation in artificial intelligence and mobile banking service

platforms, with a specific emphasis on the significance of sequential relationships in evaluating AIMB. These studies help improve understanding of security concerns in mobile banking and the factors that impact consumer uptake of such services.

2.2.2 Technical issues

The literature on network connectivity problems in mobile banking highlights the importance of mobile technology in overcoming internet connectivity issues in economically and technologically challenged nations (Kamssu, 2005). While (Joshi et al., 2013; Mehari, 2019) indicated barriers to adoption of mobile banking services, such as security concerns and network interruptions, can impact consumer utility and bank channel costs. In the context of mobile banking, security remains a significant challenge, with issues in third-party payment, online shopping, and mobile payment requiring attention from both government regulation and user awareness (Jing, 2015). Factors influencing the adoption and usage of mobile banking, such as demographic variables and user perceptions of trustworthiness, securities, and network availability, play a crucial role in shaping the mobile banking landscape (Khan et al., 2017). The expansion of mobile banking has been hindered by network connectivity challenges, which can lead to security issues (Sasikumar, 2017). He further noted that “mobile banking is trustworthy, secured and cost effective, nevertheless complex and vulnerable to network problem.”

Mobile banking faces network connectivity challenges, particularly in regions with inadequate network infrastructure, such as rural areas in Nigeria (Ajibade & Mutula, 2020). The support of mobility and always-on connectivity, crucial for mobile banking, is a key feature of cellular networks like 5G (Andrews et al., 2014). In remote areas with intermittent network connectivity, accessing essential banking services can be challenging (Hu et al., 2019). In addressing network connectivity challenges, leveraging technologies like 5G can enhance mobile banking services by providing faster speeds, increased bandwidth, and advanced services (K & Aithal, 2017).

Additionally, the development of cashless payment systems in dynamic markets like Indonesia requires a focus on informal, decentralized, and mobile-led approaches, highlighting the importance of building connectivity infrastructure (Azali, 2016). Furthermore, the emergence of Payments Banks, like the India Post Payments Bank, aims to extend banking services to unbanked populations, emphasizing financial inclusion objectives (Kumari, 2017). As the Internet of Things (IoT) continues to evolve, regulatory frameworks must adapt to address connectivity standards and challenges posed by IoT technologies (Gallego et al., 2018). Overall, the literature review on network connectivity problems in mobile banking underscores the importance of addressing security concerns, network interruptions, and user perceptions to enhance the adoption and usage of mobile banking services, particularly in developing countries. Efforts to improve connectivity infrastructure, regulatory frameworks, and user awareness are essential to overcome these challenges and promote the growth of mobile banking services.

2.2.3 User Experience

To increase users' desire to keep using mobile banking, designers and managers should focus on the interactive features and effects on users' perceptions, in order to boost customer satisfaction and continuance intention. According to (Khadim, 2022), the majority of the research in this article employed a qualitative method to gather data. The study examined how mobile banking and customer satisfaction are related among regular bank employees. The variable with the highest importance was service quality, in comparison to security and ease of use. (Behera, 2023) stresses the importance of app atmospherics, personality factors, and technology acceptance behavior, highlighting the significance of visual appeal, user-friendliness, and perceived trustworthiness. According to (Sitorus, 2019), the interplay between system components, such as usability, technology adoption, and social influence, is vital in the adoption process. (Shaikh, 2015) emphasizes the importance of compatibility, perceived usefulness, and attitude, and calls for more research on smartphone and tablet applications.

The main aim of Obondo et. al. (2020) was to examine how agency banking and internet banking impact the customer experience of commercial banks in Kisumu City, Kenya. The

results of the research showed that both agency banking and internet banking had a beneficial and notable impact on customer satisfaction in commercial banks in Kisumu City, Kenya. Trust in mobile banking has also been discussed in Brazil, another emerging nation, with factors influencing trust showing similarities to those found in existing literature. F. Malaquias and Hwang conducted a study in 2016.

Goshu (2019) examined the determinants influencing customers' choice to use mobile banking in Bako Tibe, Ethiopia. The commercial bank of Ethiopia is heavily investing in mobile banking and other IT innovations to enhance service efficiency and mobile banking uptake. The development of different mobile payment terminals has made service quality a crucial competitive factor for Banks.

2.2.4 Operational challenges

The operational challenges in mobile banking have been a topic of interest in various countries, as highlighted in the literature. (Alawiye-Adams et al., 2013) emphasized the importance of information technology in the Nigerian banking industry for efficient service delivery, indicating a need for technological advancements to overcome operational challenges. (ADA et al., 2020) examined how electronic banking impacts the financial performance of Deposit Money Banks in Nigeria, emphasizing the importance of electronic banking in improving operational efficiency. During the COVID-19 pandemic, (Salam et al., 2021) highlighted the obstacles to mobile banking adoption in crisis scenarios, underlining the significance of investing in honesty, openness, and communication to address issues in mobile money transfers. (Rao, 2013) seeks to investigate technology management in banks, specifically focusing on State Bank of India. The incorporation of technology into banking services has led to the development of new 'technology-driven' services, while also improving the overall efficiency of the banking sector in catering to customers.

Resource allocation is a crucial aspect for banks when providing mobile banking services. Efficient resource allocation in commercial banks involves considering multiple criteria and output goals (Liao, 2024). Additionally, the selection of triggers for resource re-allocation in

mobile banking services can be challenging due to their multiplicity and overlapping nature (Addad et al., 2021). Optimal resource allocation models are essential for supporting mobile applications and maximizing revenue for service providers (Mohammed & Tapus, 2017). Efficient resource allocation in commercial banks involves market segmentation to tailor services to meet customer demands effectively (Liang et al., 2012). Optimizing the layout of physical branches and allocating resources effectively are key to promoting sustainable bank operations (Xue et al., 2015). Internal constraints, such as poor resource allocation, can hinder strategy implementation in commercial banks (Masya et al., 2022). Overall, the literature review indicates a growing interest in understanding and addressing the operational challenges in mobile banking across different countries and regions.

2.2.5 Industry Competition

In the realm of mobile banking services, various factors shape the industry's landscape. The advent of mobile banking has revolutionized the delivery of financial services, enabling banks to transcend traditional limitations of time and space (Ayinaddis et al., 2023). Technological progress, especially in the field of telecommunications, has eased the integration of mobile banking, allowing customers to engage with banks through their mobile devices (Kazemi et al., 2013). This transition to mobile banking is primarily motivated by the convenience and cost-effectiveness it offers to customers (Mensah, 2019). Competition within the banking sector, encompassing mobile banking, is influenced by various components of core competitiveness. The concept of competitive advantage, as delineated by Michael E. Porter, plays a pivotal role in comprehending the factors affecting the provision of mobile financial services by commercial banks (Xv & Meng, 2015). Furthermore, the Payment Services Directive II has heightened competition in the financial services domain, with traditional entities encountering challenges from prominent technology firms, FinTech enterprises, and mobile network operators (Románova et al., 2018).

(Balasubramanian, 2020) aims to examine how service quality affects relationship quality within the setting of retail banks in India. The competitors can easily copy the technology aspects of service industries such as banking, like mobile banking and e-services. However, they cannot easily replicate the quality dimensions of the banking industry. Therefore, banks

must prioritize establishing good service quality and improving relationship quality to outshine competitors and earn customer loyalty.

2.3 Opportunities in Mobile Banking

2.3.1 Financial Inclusion

The popularity of mobile banking has grown because of the convenient access it provides to users. (Mtambalika and colleagues, 2016) investigated how branchless banking could be used in rural Malawi to serve people who do not have access to traditional banks or have limited access. The research centred on the Technology Acceptance model and the necessities for branchless banking, like telecom infrastructure and retail agents. (Rahman and colleagues, 2016) recognized obstacles in attaining financial inclusion via mobile banking in rural regions of Bangladesh, underscoring the importance of tackling issues influencing the uptake of mobile banking. (Nyanhete, 2017) examined how international mobile remittances contribute to financial inclusion and development, emphasizing the beneficial effects of mobile technology on individuals in the lower socioeconomic strata. (Ireru et al., 2020) conducted a study on how different banking innovations, like mobile banking, impact the effectiveness of commercial banks in Kenya, utilizing theories such as agency theory and diffusion of innovation theory. In general, research indicates that mobile banking can help connect with underserved populations and increase customer satisfaction by offering better accessibility and convenience. Yet, obstacles pertaining to data protection, usage rates, and groundwork need to be resolved to maximize the advantages of mobile banking offerings.

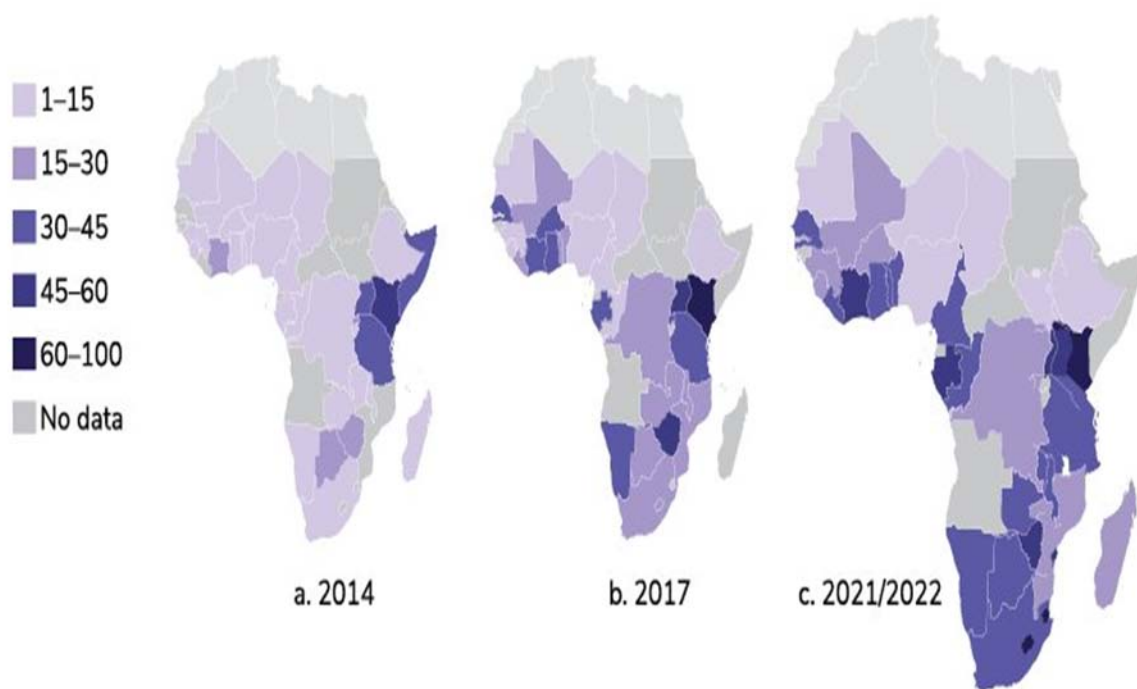
The utilization of mobile money is crucial for increasing financial inclusion in Sub-Saharan Africa. Mobile money was predominantly used in East Africa because of the innovative mobile network operators in Kenya and neighbouring countries. Recently, these services have become easier to use, with every one of the 12 economies in Sub-Saharan Africa seeing a higher number of adults opting for a mobile money account over a bank account by 2022.

In 2022, approximately 28% of adults across Sub-Saharan Africa had a mobile money account. Although there are a few economies with low mobile money adoption rates, they are

not common. Certainly, 20 out of the 36 economies analysed in the region show a proportion of 30% or more of adults holding a mobile money account. Taking into account the average ownership of mobile money accounts in the developing economy stands at 13%, this achievement is even more remarkable.

FIGURE 1. Mobile money account ownership in Africa

Mobile money account ownership: 2014, 2017, 2021/2



Source: Global Findex 2021

2.3.2 Technological Advancements

Integrating e-commerce services with mobile banking is now a key focus within the digital financial services sector. (Mariga, 2003) examines the handling of e-commerce and mobile computing technologies, stressing the significance of efficiently managing these technologies in the corporate setting. Mobile banking is crucial for the success of mobile commerce applications in everyday life.

(Soni et. al., 2013) discuss an Edge Analytics framework offering analytics as a service, which can be utilized by a financial institution such as a Bank to provide personalized offers in real time on their net-banking portals or other channels. Many telecommunication companies only offer mobile money services to their subscribers, without integrating rural banking systems into their current services, making it challenging to fully exploit the mobile financial market.

(Choubey and colleagues, 2018) examine how IT impacts the Indian banking industry and enhances the efficient delivery of banking services. It is seen as a way to save money and have positive relationships with customers and businesses in the banking industry. In order to succeed in the competition, the bank needs to be innovative in offering services that meet customer needs in order to attract a larger customer base.

2.3.3 Market Expansion

The increasing use of apps and mobile technology in the hospitality and tourism sector highlights the importance of comprehending customer experience with mobile apps as new marketing tools to advertise services and products. (Huang et. al., 2019) aims to create a comprehensive model that expands on the Technology Acceptance Model (TAM) by incorporating the concept of experience and investigating the factors that impact hotel consumer intentions to use mobile apps.

(Lee et al., 2013) anticipate a notable rise in the amount of American consumers utilizing mobile devices to log into their bank accounts, underscoring the necessity of investigating the qualities of financial institutions that influence their readiness to embrace mobile banking.

Although mobile banking has advantages and the rate of mobile usage is high, the widespread adoption of using mobile devices for banking transactions and accessing financial information has not met expectations. The purpose of Deventer et. al. (2017) was to broaden the technology acceptance model (TAM) and investigate how perceived ease of use, relative advantage, subjective norms, perceived behavioral control, perceived integrity, and perceived system quality of mobile banking affect attitudes and usage behavior of South African Generation Y students towards mobile banking. The current tendency involves banks and telecom companies working together to include unbanked individuals in the financial system through mobile banking. (Oranga et. al., 2018) examine the impact of financial inclusion on the financial performance of banks that are listed on the Nairobi securities exchange in Kenya. The primary theories that were examined include the Grameen Model of Banking, Bank Led Theory, Financial intermediation theory, and Contemporary Banking Theory. The expansion of ATMs and Mobile banking services had a beneficial yet modest impact on the financial performance of banks.

Mobile banking, as a subset of e-commerce, has been recognized as a significant application within the realm of electronic transactions (Kim et al., 2009). It is a service provided by financial institutions that allows users to conduct financial activities remotely using mobile devices like smartphones (Baabdullah et al., 2019). Studies have shown that mobile banking is intertwined with mobile commerce, emphasizing its pivotal role in the future development of e-commerce (Bădîrcea et al., 2021). The emergence of mobile phones and the Internet has led to a surge in e-commerce adoption, particularly in the form of mobile banking services (Kalumendo, 2023). Furthermore, mobile commerce and banking services have the advantage of removing spatial and temporal constraints, enabling users to make payments and shop globally (Msweli & Mawela, 2020). Mobile commerce, including mobile banking, is considered a subset of e-commerce and involves transactions conducted over mobile networks without the need for a personal computer (Du, 2019). The global trend towards mobile payment is driving rapid growth in the e-banking and e-commerce sectors, especially

in emerging economies like Indonesia (Christina et al., 2023). Traditional banks are also adapting to digital transformations by incorporating e-commerce and mobile banking services to cater to evolving consumer needs (Shu et al., 2020). The adoption of mobile commerce, including mobile banking, has expanded the scope of electronic banking services, offering users a range of financial, shopping, and entertainment options (Safeena, 2011). The security of mobile commerce transactions, including electronic banking and payments, is a critical consideration in ensuring safe and reliable financial interactions (Aghili, 2018).

2.3.4 Operational efficiency

The banking sector is continuously changing, emphasizing on making operations more efficient, cutting costs, and maximizing resources. Mobile banking has become a crucial strategy for accomplishing these objectives. (Chirchir and colleagues, 2016) carried out research investigating how mobile banking impacts customer satisfaction in commercial banks in Ongata Rongai, Kenya. The findings emphasized the significance of mobile banking in improving customer contentment. According to (DZYUBLYUK, 2019), new directions for the advancement of the banking sector are essential in influencing the future of the industry. By adopting new technologies and methods, banks can realize substantial savings and enhance their operations. This higher level of efficiency enables resources to be distributed more efficiently, resulting in a smoother and more optimized banking process. (Foroughi et al., 2019) aims to explore what influences users' decision to keep using mobile banking by incorporating self-efficacy and channel preference into the Technology Continuance Theory (TCT). Approach/Methodology: The study utilized empirical data from 369 Malaysian individuals who were familiar with mobile banking, and employed the partial least squares technique for analysis. Mobile banking, also known as m banking, has revolutionized the banking industry by greatly enhancing the effectiveness of banks and enhancing the quality of life for individuals.

(Polatoglu and colleagues, 2001) examine the Turkish consumers' willingness to use internet banking services through an empirical research study. A Turkish bank conducted a preliminary investigation on the reception of Internet banking (IB) services by consumers. The findings indicate that IB not just lowers bank operational expenses but also boosts

customer satisfaction and loyalty. By leveraging mobile banking solutions, banks can enhance their operational efficiency and drive cost reductions. The digital transformation of the banking industry has revolutionized the way banks operate. Mobile money has reduced the need for traditional bank branches and payment acceptance infrastructure, leading to a more efficient and cost-effective banking system. According to (Crowe LLP, 2019), there are six strategies for improving banks' operating efficiency, including the use of mobile banking and ATMs. These strategies aim to reduce process costs, streamline operations, and manage risks more effectively. Fintech solutions and digital transformation have paved the way for a more streamlined and optimized banking operation. Automation and artificial intelligence (AI) technologies are also playing a significant role in streamlining banking operations.

By leveraging AI and data analytics, banks can optimize resources, reduce costs, and improve decision-making processes. Building upon this momentum, the advancement of AI technologies offers banks the potential to increase efficiency and drive innovation in the industry. In conclusion, streamlining banking operations, reducing costs, and optimizing resources are essential for the success of banks in today's competitive landscape. Mobile banking, digital transformation, and innovative technologies play a crucial role in achieving these goals. By embracing these strategies and technologies, banks can enhance their operational efficiency, drive cost reductions, and improve customer satisfaction.

2.4 Achievements

Mobile banking is now a vital part of the banking industry, providing many benefits to banks. (Thrassou et al., 2008) emphasize that mobile banking allows banks to reduce expenses while still improving their competitive edge by maintaining service quality. (Kester, 2013) stresses the need to incorporate rural banks into current mobile communications infrastructure in order to maximize the potential of the mobile financial market. In addition, (Cavus and colleagues, 2016) examine how information technology allows for the creation of advanced products and improved structures, which helps in enhancing communication and connections among various markets. Moreover, the influence of mobile banking on the financial success of banks has drawn attention. (Kathuo, 2015) investigates how mobile banking technology impacts the financial performance indicators of commercial banks, such as Return on Assets

(ROA) and Return on Equity (ROE). The article examines theoretical and empirical studies to pinpoint areas where research on the impact of mobile banking on financial performance is lacking. Furthermore, the move towards Omni channel banking has transformed how banks distribute and market their services. In their discussion, (Poola et al., 2021) examine banks' efforts to adjust to Omni channel banking in order to grant customers with global access to banking services around the clock. This strategy focuses on improving the competitive edge of banks in the digital age. In general, the review of literature indicates that offering mobile banking has benefits including reducing costs, enhancing service levels, improving financial performance, and expanding market reach. It is essential for banks to remain competitive and effectively respond to the changing needs of customers in the digital era by incorporating rural banks into mobile communications infrastructure and embracing Omni channel banking strategies.

In their study, (Thusi et. al., 2020) examine what influences millennial retail banking customers' acceptance and utilization of mobile banking applications. In general, banks embrace new ideas to meet the needs of customers, even with the potential risks and challenges from FinTech. Banks generally gain from the opportunities presented by new product development, allowing for better resource allocation, lower transaction costs, increased promotion, revenue growth, and profitability.

2.4.1 Increased customer base

Evaluating the success of mobile banking reveals a story of significant change. (Hughes and Lonie, 2007) demonstrate how mobile banking has given power to individuals and communities by granting them entry to formal financial services, which illustrates the democratization of financial services. It also points out the increase in online transactions made possible by mobile banking services, showing the change in how consumers act. Furthermore, (Lee et al., 2009) pointed out the growing popularity of mobile banking among U.S. consumers and examined how the features of financial institutions influence their readiness to embrace mobile banking.

(Joshi et. al., 2013) investigate how consumers in India adopt a new electronic payment service known as mobile banking and the various factors that impact the adoption of mobile banking in the country. It also examines the services preferred by mobile banking users and the impact of demographic factors on the adoption of mobile banking services. Because of the rise of technology and the internet in recent years, a large number of customers have begun shopping online and managing their bank accounts through different platforms such as Netbanking and Mobile banking.

2.4.2 Enhanced customer experience

(Bilgihan and colleagues, 2016) found that the accessibility of the website/app, user-friendliness, perceived usefulness, hedonic and utilitarian aspects, enjoyment, personalization, social interactions, and multi-device compatibility all play a role in shaping the holistic online customer experience. (Kwateng et al., 2019) conducted a study on how various factors influence customers' acceptance and utilization of m-banking services in Ghana, utilizing the UTAUT2 model with moderating variables including age, level of education, user familiarity, and gender. Through a survey questionnaire, the study collected information from 300 people in Ghana who utilize mobile banking services. (Komulainen et. al., 2019) seeks to increase understanding of how to improve customer value and transform mobile banking services into a profitable business for financial institutions. The findings show the importance of prioritizing customers in the mobile banking sector by acknowledging their experience and value on a new mobile banking platform. Recognizing the importance of customer experience with mobile apps is essential as the hospitality and tourism industry relies more on apps and mobile technology to market their offerings.

2.4.3 Operation Improvements

Mobile banking is a developing use of mobile commerce that may provide extra income for banks and telecom service providers. (Jaiswal et. al., 2015) examine the Indian e-banking industry in their study. Banks provide electronic banking services in order to protect or increase their market share, as well as to cut costs by minimizing paperwork and staff. Identifying e-banking services with a high number of users is crucial for studying their direct and indirect impact on banks' business operations. (Soteriou et. al., 1999) create a model that

merges strategic benchmarking with efficiency benchmarking for the services provided by bank branches. Three models are created using Data Envelopment Analysis, a nonparametric technique, to apply the framework practically: (i) an operational efficiency model, (ii) a service quality efficiency model, and (iii) a profitability efficiency model. The evolution of online banking and telephone banking is transforming bank branches from primarily focusing on transactions to concentrating more on sales.

(Portela and colleagues, 2007) examine the performance of the branches of a Portuguese bank in new roles across three areas: promoting new transaction channels, increasing sales and customer base, and generating profits. The study discovered that there are positive connections between operational and profit efficiency, as well as between transactional and operational efficiency. (Mutevu, 2015) aimed to investigate how mobile banking and internet banking transactions impact the financial performance of commercial banks in Kenya. The research discovered that the financial performance of banks is impacted by their adoption of technological innovations. Checking account balance, sending automatic notifications to customers about deposits and buying airtime, transferring money, and providing mini-statements impact the Bank's financial performance.

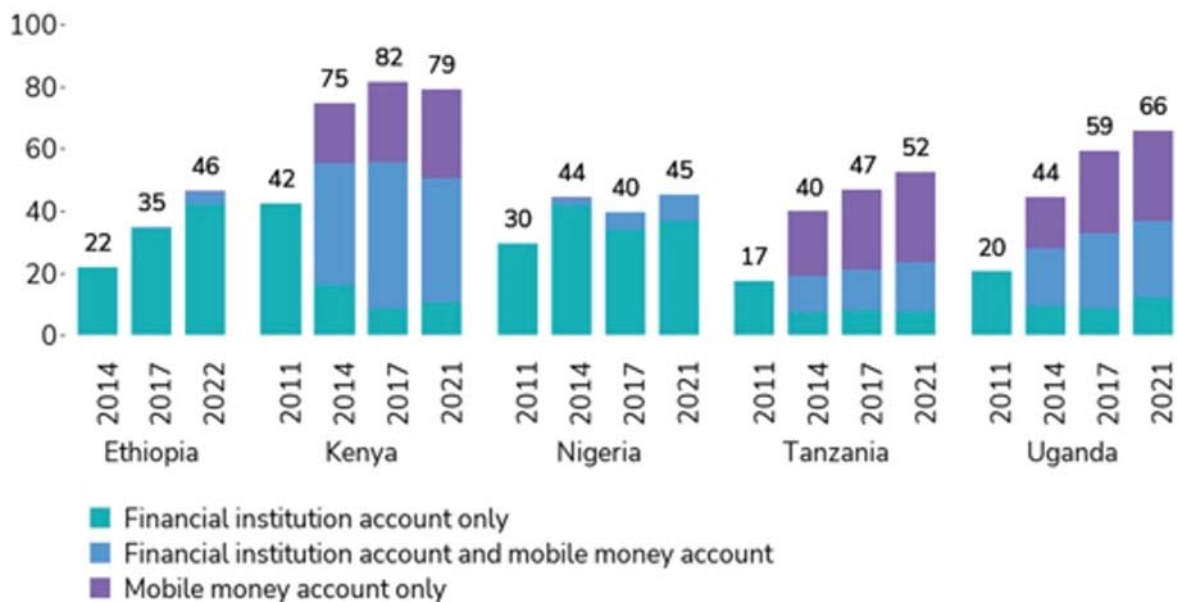
2.4.4 Financial Inclusion

The future of mobile banking depends on its ability to promote financial inclusion. A study by (Demirgüç-Kunt and Klapper, 2012) indicates that mobile banking can help provide financial services to populations who were previously without access to banking or had limited access, consequently promoting economic growth. Furthermore, research conducted by (Mas and Radcliffe, 2010) highlights the significance of mobile banking in surpassing geographical obstacles and offering users convenient ways to access financial services. The traditional banking approach is being quickly transformed by technological innovation; moving from expensive physical branches to modern banking options like ATMs and round-the-clock e-banking is a significant accomplishment (Mandari, 2018). Mobile banking provides services such as bill payments, micro-payments for both international and local remittances, loan re-payments, micro-savings, microcredit, and insurance. Banks are also considering offering bill payments, financial education, customer complaint services, airtime top-up, and e-vouchers for rural farmers.

The SMS mobile banking method has great potential due to its low costs, bandwidth requirements, simplicity, and ease of use (Soong, 2014). In several developing countries, the usage of mobile phones for making payments and banking activities is still in its early phases. Due to the utilization of the already growing mobile phone network, mobile banking has the ability to be quickly and cost-effectively implemented in order to increase financial service access for those without bank accounts. Having access to financial services is essential in the fight against poverty.

The following is a data taken from Global Findex data base showing people with bank accounts, mobile banking with bank accounts and just mobile banking in some selected African countries.

Figure 2. Customers with bank accounts, mobile banking and bank accounts and just mobile banking in selected African Countries



Source: Global Findex Database 2021

3. Research Methodology

3.1 Methodology

3.1.1 Choice of Topic and Preconception

When I first thought of this topic the first thing that came to mind is how mobile banking is quickly becoming the norm in the daily life of this developing nation. Using mobile devices to fulfil our financial needs a few years ago was unorthodox and seemed farfetched. Even for the ones who are considered to be educated didn't see it as an option for a long time. That is partly because the banks didn't push hard enough with the marketing of this modern day financial tool. Even after this pattern changed and a rigorous marketing strategy including things like incentivizing using mobile banking and non-stop advertisement the banks were finally able to slightly shift the customers demand from walk-in services to digital banking services. After this mobile banking phenomenon started to become a mainstream financial service some academic work have been conducted on it. Most of the work heavily focused on topics like "adoption of mobile banking" and "mobile banking usage". Even the others with different approach to this topic all came from the perspective of the customer's point of view. To the best of my knowledge this topic as a research concept has not been explored. My focus is trying to explore the mobile banking platform from the bank's perspective. And get as much idea as possible insight on all aspects of the mobile banking with regards to how banks see mobile banking and what are their intentions towards the service.

3.1.2 Epistemological Assumption

Epistemological assumptions refer to beliefs about the nature of knowledge and how it can be acquired, understood, and communicated. These assumptions underpin the research process and influence the choice of methodology, methods, and interpretation of findings. Essentially, they address questions like "What is knowledge?" and "How do we know what we know?"

Various fundamental epistemological assumptions exist in research, each linked to diverse paradigms. The primary ones include positivism, interpretivism, critical theory, and pragmatism. Positivism claims that knowledge originates from facts that can be observed and measured. It highlights impartiality and the use of scientific methodology. This presumption suggests that the truth is objective and can be understood through practical observation and

rational examination. (Phillips and Burbules, 2000) recount the same information in a different manner. Interpretivism (Constructivism) believes that knowledge is formed through social processes and interactions. It focuses on grasping the significance and circumstances of human experiences. It is indicated that truth is a personal view shaped by each individual's encounters and relationships. (Schwandt, 1994) is the source of this information.

Critical Theory is centred on analysing and transforming society through the examination of power dynamics and disparities. It aims to reveal undisclosed realities and give strength to minority communities. It recognizes knowledge as a means for liberation and societal transformation, with society, politics, and economics influencing reality. Pragmatism claims that the most effective way to understand knowledge is through its practical uses and outcomes. It places importance on techniques and principles that are effective in reality. One important aspect is the belief in the plurality and dynamism of reality, and the notion of truth is determined by its effectiveness in a specific situation. (Morgan, 2007)

So for this study I have adopted Positivism because it clearly identifies truth to be objective and adopts scientific methods to get information that can be fact checked and cross examined.

3.1.3 Axiological assumptions

Axiology is the philosophical field that examines values, encompassing ethics and aesthetics. It delves into inquiries about what is moral, correct, and important. Axiology in research refers to the researcher's values and ethics impact on the research process. Rescher (1969) stated that the key to success is perseverance and determination. Axiological assumptions focus on the impact of the researcher's values on the research process. These assumptions address whether and how researchers' values influence the collection, analysis, and interpretation of data. Axiological assumptions are highly relevant to qualitative research because this type of research often involves deep engagement with participants and their contexts, which can lead to value-laden judgments and interpretations. Qualitative research often involves close interaction with participants, making the researcher's ethical stance and

values crucial in designing the study and ensuring ethical considerations are upheld throughout the process. (Creswell, 2013).

Researchers in qualitative studies must be aware of their own values and biases and reflect on how these might influence their research. Reflexivity involves a continual process of reflection by the researcher on their own values and how these impact the research process. (Guba & Lincoln, 1989). The interpretation of qualitative data is inherently influenced by the researcher's values and perspectives. Axiological assumptions help in understanding and acknowledging this influence, aiming for transparency and rigor in data interpretation (Patton 2002). Axiology is crucial in establishing the ethical framework within which qualitative research is conducted. This includes issues like informed consent, confidentiality, and the respectful treatment of participants. (Denzin & Lincoln, 2005). Axiology in research addresses the values and ethics underlying the research process. In qualitative research, these axiological assumptions are particularly significant due to the interpretive nature of the data and the close interaction between researcher and participants. Researchers must be aware of their own values and how these impact the research process, ensuring ethical standards are maintained and biases are acknowledged and managed. This reflection on values not only enhances the credibility of the research but also ensures it is conducted with integrity and respect for participants.

3.1.4 Research Approach

There are generally three types of research approaches namely, quantitative, qualitative and mixed approach. Quantitative approach's focuses on quantifying data and using statistical methods to test hypotheses, establish patterns, and predict outcomes. The methods include surveys, experiments, structured observations, and statistical analysis. And the data type it uses is numeric data that can be statistically analysed. (Creswell, 2014). While qualitative approach's purpose is to explore phenomena in-depth, focusing on understanding underlying reasons, motivations, and meanings behind behaviours or experiences. Methods of data collection include interviews, focus groups, case studies, ethnography, and content analysis. The data type it uses is non-numeric, descriptive data, often in the form of words, images, or observations. (Creswell, 2013). Last but not least we have mixed method whose purpose is to combine both quantitative and qualitative approaches to provide a comprehensive view of the

research problem. This approach may involve conducting surveys (quantitative) and follow-up interviews (qualitative) to contextualize the numerical data. It uses both numeric and descriptive data.

In this research qualitative research design was adopted because qualitative research provides in-depth understanding, flexibility in data collection, discovery of new variables and hypotheses, direct engagement with participants...etc.

3.1.5 Research Design

There are many research designs including descriptive research design, exploratory research design, explanatory (causal) research design, correlational research design, experimental research design, cross-sectional research design, longitudinal research design, case study research design. I have chosen the exploratory design because it helps to identify key variables and constructs, guides hypothesis development, increases understanding of context, supports theory development, helps define future research questions, reduces researcher bias and also informs policy and practice by highlighting possible areas of opportunity or concern, exploratory studies offer stakeholders a preliminary understanding that can guide decision-making.

3.1.6 Literature use and scrutiny

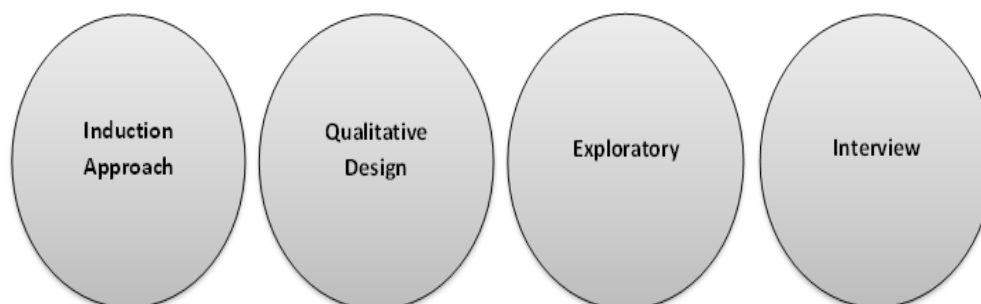
The process of searching for literature is crucial in the overall research process. This procedure is carried out with the aim of determining the usefulness of pertinent literature. (Collis and Hussey, 2014) suggest that researchers can identify pertinent research findings within a specific and accurate timeframe through the use of literature search. However, it can aid researchers in creating a comprehensive knowledge system for their research in a specific area. (Saunders and colleagues, 2009) stated in their research literature searching aims to gain a comprehensive grasp of current knowledge, fundamental concepts, and theories, as well as suitable methodologies, critical analysis, and relevant contributions of the topic. (Bryman and Bell, 2015) It is only through assessing past studies that we can comprehend the significance of our current research and contribute to future research.

I begin a literature review to create a detailed outline of the theoretical basis. The majority of the written works is sourced from internet databases such as Google Scholar and other research websites. Furthermore, I think that when creating the methodology section, it is important for me to maintain an unbiased perspective on my research in order to ensure its scientific integrity. To achieve those goals, I primarily refer to scientific literature on research methodology in the field of business studies to develop this section. This section also includes some scientific articles as references. Those reliable sources give me in-depth understanding of the fundamental composition of a thesis, as well as guidance on conducting research. I refer to pertinent literature to elucidate the theories underpinning the research and their interconnections in the theoretical section. My main source for downloading scientific articles is Google or Google Scholar. Information obtained from websites also aids in establishing a foundation for my research. Books are not frequently utilized in this area due to the scattering of theories. I value critical thinking highly as it provides insight into research methods and offers a balanced perspective on the research. Therefore, when conducting a literature search, I not only look for sources that align with my views but also consider opposing viewpoints to understand the full context.

3.1.7 Summary of the methodological framework

In the following figure, I have summarized the chapter and show the linkage with the next chapter pertaining to the practical method.

Figure 3. Summary of methodological choices



3.2 Practical method

In this chapter, I will proceed with introducing the methods utilized in this study. I illuminate the effective approach to resolve research inquiries. Data collection process and sample selection will be outlined in this chapter, along with the justification for their selection. Following those approaches, I will proceed to talk about the conducting of interviews, transcription, and data analysis methods, all of which are essential for the empirical analysis section. In conclusion, my attention is directed towards the dependability and accuracy, as well as the ethical considerations of the study.

3.2.1 Pilot Study

In order to gain a comprehensive view of the particular area I am studying, I carried out a preliminary study to determine the amount of data I can gather prior to conducting the main interviews. Conducting studies in this manner is an effective way to ensure that interview questions are effective and sufficient data is collected, it is also important to carefully plan out the entire research process (Bryman, 2015). As I aimed to gain a deeper insight into the inner workings of mobile banking from within the banks views, I chose to conduct interviews to explore their perspectives on the topic. Prior to gathering the data, I prepared a set of interview questions focused on my main topic and additional questions on related subthemes of interest. Understanding all the relevant questions related to the research topic is crucial during data collection (Bryman 2015). Following the pilot interviews, participants were questioned about their knowledge of the topic and whether they believed it warranted further exploration. This helped ensure my comprehension of the chosen subject and the clarity of the questions. I updated some of my questions after the pilot study because I felt they were too detailed and technical for the participants and they told me some of the information I was going after are privileged and could only be accessed by those in the headquarters. This made me to adjust the questions without having to compromise the integrity of the main core of the research. This particular modification enabled them to provide more expansive responses, leading to a greater diversity of ideas due to the unrestricted flow of thoughts.

3.2.2 Data Collection

Exploratory research aims to explore a new topic, understand a phenomenon, or generate ideas for further investigation. In this context, interviews are particularly effective due to their flexibility and depth. Interview is a data collection method that involves the use of structured or unstructured questions to gather information from respondents through a face-to-face or remote conversation. As an exploratory research method, interviews allow researchers to capture rich, in-depth data on participants' experiences, perceptions, and behaviours.

Interviews can uncover novel insights and perspectives that might not have been considered through other data collection methods. Researchers can use open-ended questions to encourage participants to share their unique experiences, opinions, or insights. Interviews provide an opportunity for researchers to delve into the experiences and attitudes of participants in great detail. This depth of understanding can help to identify patterns, themes, and relationships that might not be apparent through other methods (Krueger, 2015). Interviews can be conducted in a variety of settings, such as in person, over the phone, or via video conferencing. This allows researchers to gather data in a naturalistic setting that is familiar to the participants, providing contextual knowledge that can enhance the validity of the findings. Interviews can help researchers establish a rapport with participants, which can lead to a greater willingness to share information and insights. This can be particularly important in exploratory research, where the goal is to generate new ideas and perspectives. Interviews can be structured or unstructured, allowing researchers to adapt their methodology based on the research question and the characteristics of the participants. This flexibility makes interviews a versatile data collection method in exploratory research (Patton, 2002).

Table 1. Interview Design

Questions	Relation to Theory
<ul style="list-style-type: none"> Begin by introducing yourself and the purpose of the interview, emphasizing that the bank's insights are crucial for understanding the challenges, opportunities and achievements in the mobile banking landscape. 	Background
<ul style="list-style-type: none"> Collect basic information about the bank, such as its size, customer base, and geographical reach. 	Background
<ul style="list-style-type: none"> Discuss the goals and objectives set by the bank for its mobile banking platform. 	Mobile banking strategy
<ul style="list-style-type: none"> Explore the bank's overall strategy in implementing and promoting mobile banking services. 	Mobile Banking Strategy
<ul style="list-style-type: none"> Explore factors that have contributed to the successful on boarding of customers and the challenges to get customers to adopt the mobile banking platform. 	Customer Adoption Rate
<ul style="list-style-type: none"> Discuss strategies employed to increase mobile banking usage especially among the unbanked or under banked parts of the country. 	Customer Adoption Rate
<ul style="list-style-type: none"> Can you share specific achievements or successes that your bank has experienced as a result of implementing mobile banking 	Internal Achievements

services?	
<ul style="list-style-type: none"> • What measurable improvements have you observed in key performance indicators? 	Internal Achievements
<ul style="list-style-type: none"> • Explore operational challenges faced by the bank in implementing and maintaining mobile banking services. 	Operational Challenges
<ul style="list-style-type: none"> • Discuss issues related to system downtimes, service interruptions, or technical glitches. 	Operational Challenges
<ul style="list-style-type: none"> • With the increasing adoption of standalone mobile payment systems like Tele birr and M-Pesa in regions with limited banking infrastructure, how does our bank strategize to maintain relevance and accessibility, especially among unbanked or under banked populations? 	Industry Competition
<ul style="list-style-type: none"> • How do you ensure the security of mobile banking transactions and protect customers from potential threats such as phishing attacks or malware proactively? 	Security Concerns
<ul style="list-style-type: none"> • How do you manage the risk of fraud and unauthorized transactions in mobile banking, and what steps do you take to mitigate these risks? 	Security Concerns
<ul style="list-style-type: none"> • How do you plan to capitalize on the trend towards cashless 	Emerging

and contactless payments through your mobile banking platform especially with regards to e-commerce transactions?	technologies and Opportunity capitalization
<ul style="list-style-type: none"> Given the increasing competition in the fintech space, what innovative features or functionalities do you believe will differentiate your mobile banking offerings in the future, especially those related to e-commerce like M-Pesa and Tele Birr? 	Emerging technologies and Opportunity capitalization
<ul style="list-style-type: none"> Explore the methods used by the bank to gather feedback from customers regarding the mobile banking experience. 	User Feedback Mechanism
<ul style="list-style-type: none"> What are the common issues customers face and how frequently does your bank analyse and review customer feedback collected? 	User Feedback Mechanism
<ul style="list-style-type: none"> Explore the bank's vision for the future of mobile banking. 	Future Developments
<ul style="list-style-type: none"> Allow the interviewee to share any additional insights or concerns not covered during the interview. 	Closing Thoughts

3.2.3 Sample Selection

Since I have decided on conducting interviews as my method of collecting data, I will now move on to discussing the process of selecting interviewees for my study. In certain studies, valuable data is obtained by examining the entire population. Nevertheless, conducting a census is not feasible in this situation. This is due to the fact that Ethiopia currently has 32 banks, and not all of them provide a mobile banking platform as part of their services.

Another point worth mentioning is that even those who provide the service currently lack a sufficient customer base. Based on the initial data I have collected, it appears that the majority of them have only just begun offering mobile banking services (2 or 3 years ago) and have a lower number of mobile banking users than average, making them suitable candidates for inclusion in this research study given the time and resource limitations. As I plan to use interviews to gather information, each interview is expected to last around 50 minutes on average. Conducting a census of all the banks in operation is not only impossible at this stage but also will lead to information jargon consequently leading to misrepresentation of the current state of the mobile banking platform in the banking industry. Another challenge is the difficulty in accessing all bank employees who may have valuable insights regarding the mobile banking service. Additionally, the data obtained may be considered irrelevant depending on the bank staff. I believe that only someone in a position of authority within banks can answer the questions posed in this research, as information is distributed hierarchically in this industry. I require someone with extensive information necessary for understanding the service in its entirety.

Various sampling methods are available for use in business studies, and they fall into two categories: probability and non-probability sampling (Saunders et al., 2009.) Probability sampling is commonly utilized in studies that adhere to survey and experimental research methodologies. In probability sampling, each instance within the population has an identical chance of being chosen as the data source for research (Saunders et al., 2009). In the meantime, researchers can choose samples based on their own criteria or a specific strategy when using non-probability sampling methods. If I randomly select samples in my study, it might include individuals who are unaware of the overall goals of banks regarding their mobile banking services. This can result in collecting irrelevant or incorrect data that does not provide valuable insights or contribute to existing knowledge, and could potentially impact data analysis. Therefore, in light of this risk, I have opted to utilize a non-probability sampling method.

So, I start to select samples with the guide of non-probability sampling technique. The main criteria I have used to select my sample from the pool of banks who offer mobile banking service is the amount of customers it has, the duration of its business life, the capital it

possess and the geographical reach it has, how long it has offered the mobile banking service, the amount of mobile banking customer subscribers it has and the amount of mobile banking transaction it has registered. This has filtered out most mediocre competitors and has shown who are the big time players are and who are currently making the technological leap forward. By using this filter I have identified 5 major banks namely Commercial Bank of Ethiopia, Awash International Bank, Bank of Abyssinya, Dashen Bank and Wogagen Bank.

The next step taken was to select a sample branch from each of these five major banks because it is impossible to conduct an interview with all the branches they have even in a district let alone the whole Addis Ababa city. So considering the impending time and budget constraints I have chosen the branches located near my working area in which I spend most of my day and have very good relationship with all the above mentioned banks and others too. The next step of the sampling process was the question “who to interview?” Because as I have stated above it was vital to locate who amongst the bank’s rank has the most information and has the insight that could play a vital role into shading light into questions at hand. So it was clear that the branch managers hold the key to the information that I was looking for and the research desperately needs in order to materialize into something meaningful. Bank managers possess a deep understanding of the bank’s strategic goals, operational challenges, and the overall market environment. They are involved in decision-making processes related to the development, implementation, and management of mobile banking services.

In order to ensure that the collected data can be used to answer the research questions and give the best possible result it is unquestionable that accurate data is gathered from the sample. So it is only right to use volunteer sampling in which I the researcher has approached the branches and asked whether or not they are willing to participate with this research work and get their verbal consent. This will make all the data gathered from the conducted interviews volunteered, open and voluntary so it is representative of their attitude and information they have towards the mobile banking service.

Table 2. Details of the interviewees

Number	Fictitious Name	Gender	Date of Interview	Duration of the Interview (minutes)	Background of the interviewees
1	CBE Geja Sefer Branch	Male	07/04/24	67	Branch Manager
2	Awash Geja Sefer Branch	Male	13/04/24	63	Branch Manager
3	Dashen Geja Sefer Branch	Male	25/03/24	56	Branch Manager
4	Wogagen Geja Sefer Branch	Male	18/03/24	34	Branch Manager
5	Abyssiniya Balcha Branch	Male	27/04/24	49	Branch Manager
6	CBE Geja Sefer Branch	Male	23/04/24	52	Mobile banking officer
7	Awash Geja Sefer Branch	Male	30/04/24	61	Mobile banking officer
8	Abyssiniya Balcha Branch	Male	02/05/24	57	Mobile banking officer

3.2.4 Interviewing Process

At the beginning the interview was to take place at the place of their convenience ideally outside of their work environment so that they can freely express their ideas and share the information they have without any distractions or work place interference. This also meant that the interview was supposed to take place outside working hours for the sake of

convenience to the interviewees. This has prolonged the interview schedule which was supposed to be concluded within a month and half at most. The first entire month was wasted because the interview date kept changing because the interviewees had tight schedule. So the initial out of workplace and besides working hours interview schedule had to be revised and was made to take place at their workplace and within their lunch time. A traditional face-to-face interview method was adopted to get the best interview experience and answers for the questions at hand. To minimize the disturbance or interference to the lowest possible volume all the interviews took place at their private offices within the banks. I have given them all the information about myself and why I am conducting the research before the interviews took place and stated that their contribution is decisive in making this research study a reality. Not only that I have also told all participants that they have as much time as they need to share the information they have and nothing is going to be left unsaid. Additionally I guaranteed that all the information about their identity was to be kept confidential and that everything they said was going to be represented faithfully and without any coercion or in any misleading manner.

3.2.5 Transcribing and evaluating the information

After recording the interview the data was to be transcribed which means it had to be converted from the audio form to a written text form. This process used to be done in a manual form which means after organizing the recorded material the researcher had to first hear the recording and then write almost everything word for word. This has several downsides including, unnecessary time wasting due to its labour intensive approach. It also requires above average or someone with more than beginners knowledge of accurately transcribing the data. Another shortcoming is inaccuracy and human error which can come from mishearing and typing errors among other things. So considering these and other unnamed downsides I have avoided transcribing the data manually and instead chose to go with the modern way in which Google's Live Transcribe application was used. Using this specific application has benefits like accuracy, time efficiency, cost effective, convenience and accessibility and also data security.

As I have stated on the previous section I used inductive approach. This is because inductive approach allows me to be flexible and adaptable to maintain high degree of freedom in order

to avoid predefined hypothesis or theories. (Thomas, D. R. (2006). This means that I can explore every new idea raised during the interview and chase it down to get new information rather than discarding it because it doesn't necessarily fit into a preconceived theory or assumption. Inductive research also allows in-depth insights which allows discovery of themes and categories directly from the data. (Patton, M. Q. (2002). It is also suited for bringing about new theories and conceptual frameworks. It is also participant-centred and inherently most importantly discovery oriented which is perfectly suited with the main idea of this whole research work. This is mainly because this discovery oriented nature of the inductive approach allows it to shed light on the unknown or poorly discovered parts of the mobile baking platform and what the journey so far seems from the bank's perspective.

The following task involved examining and revising transcripts. I have thoroughly examined the transcribed text by cross-checking it with the original audio to ensure its accuracy and completeness. When examining the data, there are three typical qualitative analysis methods: summarizing, categorizing, and organizing through narrative. Summarizing the information requires creating a report or transcript that outlines the main points of the interview concisely, while categorizing the data entails creating groups and linking them to relevant portions of data.

3.3 Truth criteria

The goal of truth criteria in research is to set guidelines for assessing the validity, reliability, and credibility of research results. These criteria ensure that the findings of the research are reliable, dependable, and significant within the study's framework. The precise standards for determining truth vary based on the research paradigm and methodology utilized, but they typically aim to ensure validity, reliability, credibility, objectivity, transparency, and practical usefulness. (Saunders et al., 2009) indicates that determining whether the evidence and conclusion of a study have been accurately comprehended is not possible.

3.4 Reliability

As per (Bryman and Bell, 2015), reliability refers to how a research measurement is defined. For researchers to obtain trustworthy outcomes, they must ensure the accuracy and precision of the measurements, such as practical methods or analysis techniques, they employ. In order to prove the research is reliable, the results should have minimal discrepancies. (Collis and Hussey, 2014) I think that ensuring all research processes meet reliability standards helps produce more dependable research outcomes. Therefore, I can guarantee that my research is significant and the contributions are relevant for discussion. (Bryman and Bell, 2015) identified two key aspects of reliability in qualitative research: external reliability and internal reliability.

External reliability means that there are no discrepancies when the study is replicated. However, given the nature of my study, I think there are certain obstacles that contribute to a lack of replication in research findings. One explanation is that the study is carried out in a particular location (Lideta) where the participants reside in a region that could be seen as more advantaged due to being in Addis Ababa, potentially leading to differing experiences compared to those outside the capital city.

Due to this, the outcome may vary if the study is carried out in a different location such as the rural areas of the nation. As mentioned in the theory section, we view mobile banking as a competitive offering from banks. This study aimed to investigate the operations of banks using this mobile banking platform and gain a unique perspective. The purpose of this was to offer readers and fellow researchers a fresh perspective on mobile banking different from the overused version.

The two main reasons listed above elucidate the external reliability concerns of this study. Typically, achieving external reliability in qualitative research can be challenging (Bryman & Bell, 2015); however, if the study is replicated using the same methods to gather data and analyze it, the discrepancies in results may be minimized. Concerns about internal reliability

pertain to the consistency among observers. In this study, the participants assume the role of the inter observer. Upon analyzing the feedback from each interview, I noticed that the similarity of responses in certain interviews is higher than usual. The cause may be that the interview questions are not only based on instruction, but also derived from the respondent's responses to previous questions. This shows that this study has fulfilled the fundamental standards of internal consistency.

3.5 Validity

The importance of validity is greatly emphasized when assessing a research study. Validity is considered by (Bryman, 2015) as the primary criterion of research. In order to meet the validity criteria, the result must be produced directly from the research. In this study, I investigate the theories used to develop the research process and the conclusions, aiming to demonstrate validity. (Bryman, 2015) simplifies the assessment by dividing validity into two branches. Internal validity requires data to align well with theories. In the theoretical chapter, I introduced various theories and historical information about mobile banking, as well as discussed the challenges, accomplishments, and future opportunities in the field. Applying those theories as guidance, I formulated interview questions by inquiring about respondents' opinions and understanding of those theories in a particular setting.

While analyzing data, I extracted the most authentic information from the interviews. Consequently, there has been successful development in the consistency of observation and theoretical foundation. Another aspect is external validity, which highlights the assessment of results (Bryman, 2015). Research with external validity means that its results can be applied to various social phenomena (Bryman, 2015). Meeting this standard can be challenging, particularly in qualitative studies. As previously stated, our investigation is focused on a specific region. Consequently, the significance of this study could be limited to particular circumstances. It is possible for the outcome to vary based on different factors.

3.6 Generalizability

Generalizability is commonly defined as the capacity to apply the findings to a different time when the research is reproduced. In quantitative research, the ability to generalize often depends on the effectiveness of the sampling method and the inclusiveness of the population (Bryman, 2015). Since my goal was to examine the challenges, opportunities, and achievements in mobile banking, as well as how the internal functions of mobile banking are perceived, it is difficult to make sweeping conclusions in this situation. The goal has always been to enhance the perspective of mobile banking, giving it more attention and recognition to help it evolve into a more advanced financial tool, similar to what is seen in other parts of the world.

3.7 Ethical Consideration

3.7.1 Reason for research Ethics

In a study carried out by (David & Sutton, 2011) ethics is defined as a set of guidelines for evaluating the ethical conduct of research. According to (Saunders et al, 2009) describes ethics as the correctness of the researcher's actions in respect to the rights of research subjects, involving decisions on research topic development, access, data collection, analysis, reporting, and thesis writing. Because it holds importance for the study, a specific section was required in the paper to address this topic. Research conducted with academic ethical considerations in mind is respected and acknowledged by one's peers in academia. When considering ethical concerns in research, it is important to ensure ethical behavior in all stages of the study for clarity (David & Sutton, 2011).

3.7.2 Before the research

(Saunders et al., 2009) In the process of research design, researchers must consider ethical issues and may need to adapt their research strategy, methods for gathering information from interviewees, and their approach to interacting with them. This was included because it was vital to get their perspective on the banks strategy since they are the ones assigned to implementing them. This will also allow reducing any personal bias from the researcher as the participants are able to express their feeling towards their platform. The data collected and the result concluded are all based on facts and have a huge deal of contribution to the real

world. Much work has been done to show the parallel that exists with the outside world experience and our country's journey and much of it seem to align. With this regard ethical ways are considered and implemented for this research. During the interview process the participants were all notified that their identity is kept secret and they have all the freedom to disseminate any and all information they believe to have contribution to this research without any coercion.

3.7.3 During the research

(Collis & Hussey, 2014) state that any research conducted should not be harmful to the participants. Since the interviews are face to face and in a friendly environment with freedom of the participants to engage in the magnitude of their liking obviously no harm or manipulation was brought to any of the participants. (Collis & Hussey, 2014) also states that participants who agree to participate in this research also should be informed about the content of the research and what its intentions are. All of the participants were well informed about the research, what it intends to gather information on and also what it intends to do with the information and gave verbal guarantee that confidentiality and professionalism is priority for this study. Every single interviewee was asked for consent before conducting the interview. Hence, I managed to fulfil the requirements of informed consent.

The third principle involves safeguarding participants' privacy from potential invasion (Collis & Hussey, 2014) Seeing that others refused to take part in the study, it was clear that any personal details that could help identify the interviewees were completely disregarded. Another reason was that they were urged to incorporate their own opinions when sharing information, prioritizing the protection of their freedom of expression to avoid potential accusations of defamation if someone disagreed with their tone. In order to ensure the safety of the research data, I will discard all interview records and transcripts once this study is completed. This will demonstrate that the confidentiality of the participants is completely safeguarded.

3.7.4 After the research

The last phase emphasizes the importance of taking into account the ethics of both form and utilization of results (David & Sutton, 2011, p.) Similar to the research process, the results

also adhere to informed consent, protection from harm, and privacy regulations. Banks and other interested financial institutions can utilize this research. I have no control over how others will utilize the research and collected data. This highlights my duty to safeguard the interviewee's personal data. Therefore, it was essential to adhere to the aforementioned protocols in order to safeguard all participants involved. In general, the research is carried out ethically.

4 Results and Discussion

4.1 Results

4.1.1 Background and General Attitude and Perception of the interviewees

The first finding that I'd like to mention is the background of the banks. All of them have been in business for more than 27 years. Wogagen bank being the youngest of them all with 27 years, then Dashen bank with 29 years, then Awash International Bank with 30 years, then Commercial Bank of Ethiopia with 82 years and the oldest of them all being Bank of Abyssinya with a staggering 118 years of service to the nation and its people. All of the interviewees have shown high interest in the topic because they all had something to say about the mobile banking service that the customers and the mass in general had to know. All of them have very high hopes about the potential mobile banking have and how easy it could make things in all interested parties in every aspect of banking activities or finance in general.

They also noted that the achievements of mobile banking are something to take a serious note of. This was mainly because most of the branches were overloaded by walk-in customers at all times during the working hours. This included customers with varying financial needs all queuing on the same line. And it also helped the banks unlock a serious financial weapon amongst their arsenal which brought about a new streamline of income/revenue for the banks. The challenges were also amongst the issues raised with mainly two things being an area of grave concern. These were security issues including things like fraud transactions and also service interruptions and system downtimes. Especially as the interviewees stated the mobile banking fraud and the consequent legal action to be taken was an issue that should come second to none and also needs an immediate action. Some of the interviewees also noted that from the banks perspective unhealthy competition from network providers was also causing disruption that should not be overlooked.

4.1.2 Mobile banking strategy

Mobile banking strategy was a reference frame for all the banks because it was the point of origin in which everything was to be measured. They all have had their own personal aspiration and vision for mobile banking service as a financial institution when drafting their strategy. To list each of the five bank's strategy in their own words.

Awash Bank's strategy "is to provide our customers with a convenient, secure, and user-friendly way to manage their finances on the go." Awash Bank Geja Sefer Branch Manager

Abyssinya Bank's strategy "is designed around three core objectives: enhancing user experience, increasing financial accessibility, and ensuring robust security." Abyssinya Bank Balcha Branch Manager

Commercial Bank of Ethiopia strategy "Our primary goal with our mobile banking platform is to provide our customers with convenient access to banking services anytime, anywhere." CBE Geja Sefer Branch Manager

Dashen Bank's strategy is "Our primary goal is to leverage our mobile banking platform to reach new customer segments and geographic markets that may not have been accessible through traditional banking channels... Additionally, we're exploring partnerships and marketing initiatives to promote our mobile banking services and attract new customers to our platform." Dashen Bank Geja Sefer Branch Manager

Wogagen Bank's strategy "Enhancing user experience is a top priority for us. Our goal is to provide our customers with a seamless, intuitive, and enjoyable banking experience through our mobile app. To achieve this, we're focused on improving the design, functionality, and

usability of our app to make it easier and more convenient for customers to manage their finances on-the-go.” Wogagen Bank Geja Sefer Branch Manager

4.1.3 Customer Adoption Rate

I will start off with the successful elements which helped customers enter the mobile banking world. Almost all of the participating banks first go to move when trying to make customers board their mobile banking services was a seamless transition from the traditional banking experience to the digital world. This simple yet so delicate aspect of the mobile banking strategy was to be materialized in different ways according to each bank. In the case of Awash bank for example they have given priority to first educate the people about the platform in all its uses and intentions when it was introduced as one of the services the bank offers. And this was not a one off thing because not only did they massively campaign with all sorts of advertisement they have also established a dedicated support team both at their branches and also online and through call centres to ask any mobile banking related issues and other things.

In the case of Abyssinya Bank their first move was targeted at simplicity and security. What they had in mind was to make everything on the mobile banking platform not only straight forward but also easily understandable with an easy language. On the security aspect of it they have incorporated biometric measures to access the mobile banking platform. This unlike most of the other mobile banking platforms provided by other banks gave Abyssinya bank an added layer of security measure which made them keep their “security” side of their promise when offering the service.

CBE made a move on inclusivity, security and user-friendly approach with their on boarding stages. Since they have the most amount of customers compared to any bank in the country their approach needed to be inclusive in almost every sense of the word because a larger amount of customer pool meant that they are dealing with a spectrum of background which can range from an out of touch with technology person all the way to the younger technology dependent generation. Not only that but also the customers financial need when it comes to

CBE is wide ranging due to most of the bank's monopoly on government related bills like electricity and water.

Wogagen bank's move was a blend of CBE and Awash bank. It was mainly focused around customer experience and security while providing strong emphasis on the multitude of benefits they could get from using mobile banking.

Dashen Bank was more concerned with making their mobile banking service easy to navigate by making everything on their app seem very easy to use. They have also minimized the transaction process on their platform so that it saves time and is untroublesome for the customer.

When it comes to the troubles or the burden of making the transition from traditional mobile banking almost all of them had two main problems standing on their way. The first was the lack of proper infrastructure which is the responsibility of the government. And the second one was the trust issue which is healthy considering the newness of the service. The infrastructure issue especially was concerning because the network connectivity was a huge impeding factor blocking a seamless interaction with the platform.

4.1.4 Internal Achievements

The internal achievements were almost the same for all banks. According to the interviewees customer engagement with the mobile banking platform increased significantly. "We've seen a substantial rise in the number of customers actively using our mobile app to manage their finances, conduct transactions, and engage with our banking services." Awash Bank Branch Manager. This idea was also shared with all the others. The other benefit the banks gained from this service was cost saving and operational efficiency. The idea was put forward from Abyssinia Branch Manager "Another significant benefit has been the improvement in operational efficiency and cost savings. By shifting a portion of our banking transactions to the mobile channel, we've been able to reduce the workload on our physical branches and streamline our internal processes." Another noticeable achievement was the introduction of

new services. “Additionally, the cross-selling opportunities provided by the mobile banking platform have led to an increase in revenue from products such as credit cards, loans, and investment accounts.” CBE Branch Manager

4.1.5 Operational Challenges

The main core of the operational challenges came from the integration of this digital platform with the existing traditional one. It needed a careful and meticulous planning and that plan also needed to land perfectly in order to bring about a functional additional service line. This was emphasized by a comment from Awash Bank Branch Manager “One significant challenge has been technology integration. Ensuring seamless integration of our mobile banking platform with our existing systems and infrastructure has required careful planning and coordination. We've had to work closely with our IT team and technology partners to ensure compatibility and minimize disruptions during the implementation process.” In addition to this another operational challenge was the issue with network connectivity. As it was stated in the previous sections and what was gathered from the interview with the participants it was very clear that network connectivity was a shackle to the advancement of this technology but it was also an outside and uncontrollable factor in which only the government had a say in. “Network connectivity and performance can be challenging, particularly in areas with limited internet infrastructure or unreliable networks.” Abyssinya Bank Branch Manager.

Another operational issue raised by the interviewees was the fact that customer support was not always on time and it needed a huge amount of effort to uphold. “Customer support is essential for addressing inquiries, resolving issues, and providing assistance to customers using mobile banking services. However, delivering timely and effective support in the digital realm presents unique challenges. Ensuring seamless integration between digital channels such as live chat, in-app messaging, and telephone support requires robust backend systems and processes.” Wogagen Bank Branch Manager

The balance between security and convenience was also another operational challenge for the banks. As the Dashen Bank Branch Manager puts it “Customer authentication is a critical aspect of mobile banking security, but it also presents challenges in balancing security with user convenience. Implementing effective authentication mechanisms that provide a seamless user experience while ensuring robust security is a delicate balance.” It should be noted that the interviewee was not talking about a trade-off here but a balance.

Resource allocation was also another challenge. “Resource allocation plays a crucial role in the successful implementation and maintenance of mobile banking services. Allocating sufficient resources, including financial, human, and technological resources, is essential to ensure the success and sustainability of our mobile banking initiatives. However, balancing competing priorities and allocating resources effectively can be challenging. For example, investing in technology infrastructure, software development, and security measures requires careful budgeting and prioritization.” CBE Branch Manager stated.

Since the product is new there were also technical glitches, service interruption and system downtime due to a lot of internal and external factors. “System downtime and service interruptions can disrupt the availability and reliability of mobile banking services, leading to customer frustration and loss of trust. Addressing these challenges requires robust infrastructure, redundancy measures, and proactive monitoring and maintenance practices. “CBE Branch Manager stated.

The last operational challenge was raised was the issue with data privacy. “Data privacy is a paramount concern for us in the realm of mobile banking services. Ensuring the confidentiality, integrity, and availability of customer data while complying with regulatory requirements presents significant challenges. Protecting sensitive financial information from unauthorized access, data breaches, and cyber-attacks requires robust data encryption, access controls, and security protocols. Additionally, ensuring secure data transmission and storage across multiple devices and networks adds complexity to our data privacy efforts.”

4.1.6 Industry Competition

The next topic of discussion was the industry competition not only between the banks but also with standalone payment systems like Tele Birr and M-Pesa. The finding from that part of the conversation was almost all of the interviewees unilaterally feel that the game is rigged against them since they are competing against network providers. Not only that they have also stated that these network providers especially in the case of Tele Birr they feel that they are trying to monopolize certain payments especially with government bills like electricity and water bills. A very passionate CBE Branch Manager especially in this section of the interview said “Another area of concern is the newly emerged unfair competition with network providers like Ethio-Telecom with their new app Tele Birr.

There is no clear lawful justification as to why they are providing financial services with their mobile app Tele Birr. That has created a huge disadvantage for all other banks to compete with. “But they have also stated that instead of fighting with each other the beneficial way to go about this issue is to collaborate with each other. As the Abyssinya Branch Manager stated “One strategy is to leverage partnerships and collaborations with existing mobile payment providers to expand our reach and offer complementary services. By integrating our banking services with popular mobile payment platforms like Tele birr or M-Pesa, we can provide customers with a seamless and convenient banking experience that meets their needs while also leveraging the extensive networks and user base of these platforms.”

4.1.7 Security Concerns and Fraud activities

The next point of discussion was on security concern and the participants all agreed that it was the most important element of the mobile banking conversation. Awash Bank Manager had this to say on the matter “Ensuring the security of mobile banking transactions is a top priority for us. We employ a multi-layered approach that combines advanced technologies, robust protocols, and proactive strategies to protect our customers from potential threats such as phishing attacks or malware.”

Security concern in a more detailed manner was described by Abyssinya Branch Manager stating “We utilize several technologies to secure mobile banking transactions, including encryption, biometric authentication, and tokenization. Encryption ensures that data transmitted between the mobile app and our servers remains secure and confidential. Biometric authentication, such as fingerprint or facial recognition, adds an extra layer of security by verifying the user's identity before granting access to sensitive information.”

The data security element of mobile banking by Wogagen bank branch Manager was described as “Secure communication channels are essential to protecting the confidentiality and integrity of mobile banking transactions. We employ industry-standard encryption protocols, such as HTTPS, to encrypt all communications between our mobile banking app and backend servers. This prevents eavesdropping and data tampering by unauthorized parties.”

All parties emphasized that data encryption was the go to move to secure the safety of not only customer’s data but also the bank’s too. Not only that the homework for mobile banking security is not something which is a one time job but a continuous effort upgrading itself from time to time. CBE’s Bank Manager had this to say emphasizing this idea, “The security of our mobile banking app is a top priority from the initial development stages through to ongoing maintenance. We follow industry best practices and adhere to rigorous security standards throughout the app development lifecycle. This includes conducting regular security assessments, code reviews, and vulnerability scans to identify and address any potential weaknesses.”

The next item on the same issue was the case of fraud transactions and the way the banks go about protecting customers proactively. All of them understandably had the same set of ideas on defending customers’ information and providing security. The following ideas are taken from each bank’s take on security for mobile banking platform.

To reduce the risk of potential fraud activities all of them employ a somewhat different approach. For example Abyssinya Bank goes hard on proactive measures. The branch manager gave this statement on this issue by saying “We leverage sophisticated fraud detection algorithms and machine learning techniques to analyze vast amounts of transaction data in real-time. These systems can detect unusual patterns or deviations from the customer’s typical behavior, such as large transactions or transactions from unusual locations, and flag them for further investigation by our fraud detection team. We also monitor for indicators of phishing attacks or malware infections that could compromise the security of mobile banking transactions.”

In the case of Dashen bank they not only conduct regular checks on their mobile banking app they also collaborate with third parties to test their systems for any potential loopholes. Then we have Dashen Bank’s manager with the following statement about their approach “Regular security audits and assessments are essential for maintaining the integrity and security of our mobile banking systems. We engage third-party cyber security firms to conduct comprehensive audits and penetration tests on our systems and infrastructure. These assessments help us identify potential vulnerabilities and weaknesses that may be exploited by malicious actors. We then prioritize remediation efforts based on the severity of the findings to ensure that our systems remain secure and resilient against emerging threats.”

CBE was big on regular updates to its mobile banking platform because it is the main way into bringing about a more advanced and secure platform for its customers to use. “App updates are essential for addressing security vulnerabilities and ensuring the integrity of our mobile banking app. We follow a rigorous process for app development and maintenance, which includes regular updates to patch known vulnerabilities and enhance security features. These updates are thoroughly tested before deployment to ensure compatibility and reliability.”

Wogagen Bank’s branch manager said one of their approach is to set a reasonable limit on the daily transaction until better education is spread out around the community and also the banks advance their security measures. “Transaction limits are an effective risk mitigation measure

that helps prevent large-scale fraud and unauthorized transactions. By setting appropriate limits, customers can reduce their exposure to risk and minimize the impact of fraudulent activity.”

Awash bank’s message was mainly focused on educating customers. The manager stated that “We provide regular security awareness training through various channels, including email newsletters, in-app notifications, and educational resources on our website. These materials cover common fraud schemes, such as phishing attacks and malware, and provide tips on how to recognize and avoid them. Additionally, we offer guidance on best practices for securing mobile devices, such as keeping software up to date and avoiding public Wi-Fi networks when conducting sensitive transactions.”

4.1.8 Emerging technologies and Opportunity capitalization

The next chapter of discussion was how the banks plan to capitalize on the vast potential mobile banking unlocked. Most of them have set their sight on one specific thing connected to mobile banking and that is e-commerce. All of the want to collaborate with different institutions like hotel and supermarkets to capitalize on the e-commerce to bring about a new industry revolution.

“Enhancing mobile payment features is essential for providing a seamless and intuitive payment experience for our customers. We plan to invest in the development of our mobile banking app to introduce new features and capabilities specifically tailored for e-commerce transactions. This may include integration with popular payment methods and gateways, such as digital wallets and QR code payments, to offer a variety of payment options to our customers.” said Dashen Bank’s manager. This is not just a case for Dashen Bank; the remaining four banks also have the same plan for the e-commerce.

Abyssinya Bank also has set their sights on collaborating with different service providers like merchants and business owners to make them familiar with e-commerce through mobile banking. “We recognize that smaller businesses and start-ups may need assistance in

adopting cashless and contactless payment solutions, which is why we offer dedicated support and guidance to merchants looking to integrate with our mobile banking platform. This includes providing technical assistance, training, and resources to help merchants set up and optimize their payment systems for mobile transactions.”

Awash bank is working on with concerned government entities and other interested parties to get everyone involved in e-commerce. “We're actively engaging with industry associations, regulatory bodies, and government agencies to advocate for policies and initiatives that support the growth of digital payments. Additionally, we're participating in industry forums and events to share best practices and insights with other stakeholders and promote the benefits of cashless payments for businesses and consumers alike.” elaborated the branch manager.

All of them have their own way of approach but most of it almost the same because their ideas revolved around two major areas; one is aggressive marketing for e-commerce including advertisement on websites, in-app ads and social media publications, cash back schemes for purchases above certain amount and others. The second one is collaboration with service providing institutions and standalone payment systems.

4.1.9 User Feedback Mechanism

One of the last parts of the discussion was the issue of customer feedback. This was targeted at not only how they keep in touch with customer base but also how they truly listen and bring about changes in areas of concern raised by customers. The finding from this section of the interview indicates that the banks mainly use in-app surveys, online surveys, call centres, online live chats, and dedicated support teams within the branches for a more physical and quick fix issues to gather information from their customer base. My interviewee from CBE had this to say about how they gather and analyze the feedback gathered from their customers from multiple channels, “Our customer service team is trained to record all feedback received during their interactions, whether it's through calls, emails, or chat. We categorize this

feedback into different aspects of the mobile banking experience, such as usability, technical issues, or transaction processes.”

And for the way they approach customers in supporting them how important it is for the banks to gather feedback and valuable information about their mobile banking platform Awash Bank’s Branch Manager had this to say “Additionally, we offer support and guidance to customers who may need assistance in providing feedback or navigating the feedback collection channels, demonstrating our commitment to making the process accessible to all.”

Most people from what the banks gather through their feedback collecting mechanism experience the same set of problems like log-in issues, difficulty navigating the mobile application properly/ or through its entirety, experiencing glitches and errors while making transactions, questions on the security of their data, and transaction delays. The interviewee from Abyssinya Bank had this to say to cement these findings “Some common issues that customers may face include difficulty navigating the app, challenges with account access or login, issues with transaction processing, and concerns regarding security or privacy. Additionally, customers may encounter technical glitches or performance issues from time to time, which can impact their overall experience with the app.”

The finding for how the banks go about trying to tackle an issue or multiple issues raised by customers using these different channels indicated that most of them first try and breakdown the complaints into manageable and meaningful categories. Then they will rank those with their appropriate severity and go after each one of them accordingly. This was further indicated by my interviewee from Wogagen bank, he said “Once a common issue is identified, the first step is to classify its urgency and impact. For immediate technical issues, such as app downtime or transaction failures, our IT support acts swiftly to resolve them. For systemic issues like navigation difficulties, we take a project-based approach involving user experience designers and developers to create and test solutions.”

4.1.10 Future Developments

The future of mobile banking from what the interviewees had to say is full of potential and opportunities. There are still large portions of the nation not using mobile banking and even the ones using it are not using it to its full potential. Most of the banks are trying to capitalize on the e-commerce side on the platform to cement its addition to their financial stream. “We want the app to seamlessly integrate with other financial tools and services. Imagine managing investments, paying bills from other providers, or even receiving loan approvals all within the mobile banking platform.” Said the interviewee from Awash Bank. The interviewee from Abyssinya Bank also emphasized by saying “We expect to go much further than just making small payments for bills and grocery shopping and really realize what other parts of the world have already achieved. We intend to digitalize most of our current banking services which can be digitalized like loan services with enhanced capabilities and others. We also intend to bring about profitable partnerships with other standalone payment systems with the intention of facilitating e-commerce transactions.”

4.1.11 Closing Thoughts

To conclude the interview each of them were asked if they could give closing thoughts on things left unsaid or uncovered during the duration of the interview. All of them took the chance to shed light on some very interesting issues. The interviewee from CBE stated that fraud transactions and scammers targeting customers is becoming a norm these days and there is no significant work being done by the government or other concerned parties to tackle this issue at its early stages. He said “As mobile banking grows in popularity, so does the potential target for malicious actors. Many have come forward as thieves who masquerade as if they are a representative of a bank most of the time commercial bank’s representative.

They usually tell people they have won some kind of lottery and they give them a set of instruction they should follow in order to get the prize. If the customer does what he/she is told and go through with that set of instruction they’ll end up losing their hard earned money.” He also shared his concern over the unhealthy competition among network

providers like Tele and Safaricom with their standalone payments Tele Birr and M-Pesa respectively. He stressed that there are no clear cut directives from the National Bank that these standalone payments should operate in the current financial market. He indicated “There is no clear lawful justification as to why they are providing financial services with their mobile app Tele Birr. That has created a huge disadvantage for all other banks to compete with. The National Bank of Ethiopia has to put forward a clear cut dictate on how institutions other than banks can come forward with such financial applications.”

The interviewee from Awash Bank was concerned that the lack of sufficient infrastructure with regards to connectivity is something that should be looked at immediately. “One concern is the digital divide. Not everyone has access to smartphones or reliable internet connections. Especially when you go to places in the rural areas of the country this problem is a major contributor as to why mobile banking has not fulfilled its potential. The government should focus more on renovating the current infrastructure and build new ones in areas with low or no internet or network connectivity.”

Abyssinya Bank branch manager also noted that the wheels of justice turn very slowly when it comes to handing out justice to those who have been a victim of fraud. Even though the bank has enough information on whom the person is who committed the fraud many times the thieves/fraudsters get away with their crime leaving the victims stranded and hopeless waiting for a justice that seem to be not delivered. “I’d like to say that there is a huge gap within the justice system when it comes to accountability with regards to mobile banking fraud. Most of the time even though there is enough incriminating evidence with banks on the fraudsters the law usually overlooks the gravity of reaction time. Usually the law tends to work incredibly slowly and the fraudsters use that to their advantage and many people get scammed very easily and usually without any accountability. So I’d like to encourage the entire justice system to seriously look at this huge problem on hand and dictate a tight law to save its citizens from fraud.”

4.2 Discussion

4.2.1 Background and General Attitude and Perception of the interviewees

The finding towards general perception of mobile banking showed that there is positive attitude towards the service due to its beneficial nature in many regards. The banking officers and managers had noted that a lot of workload has been reduced due to the introduction of mobile banking as one of their services. This coincides with (Baptista and Oliveira, 2015) in which they stated that the potential for mobile banking in Africa is enormous and makes things easier on both sides. The interviewees also had high hopes for the mobile banking platform to fulfil many financial obligations in the future with the help of emerging technologies and integration of financial platforms. Some additional point would be to note how cautious they were with their answers because they didn't want to share anything that would be deemed too revealing because they have such a fierce competition with their rivals.

4.2.2 Mobile Banking Strategy

The findings of this study about the specific strategies have brought to light in what ways the banks try and engage the customers with this new product line. Abyssinya Bank had stated that “enhancing user experience, increasing financial accessibility, and ensuring robust security” were their intended targets when it comes to mobile banking. This is supported by (M.K et al., 2017) who stated that Trust and security are crucial factors in the adoption of mobile banking services. (Rahman et al., 2020) also noted that the intention to adopt mobile banking heavily depended upon maximizing information security in mobile banking. (Chochliouros et al., 2007) was also another who supported the idea of increasing security to prevent unauthorized access and ensure data confidentiality. These are a few of the researchers who all agreed that when it comes to mobile banking platforms nothing comes before ensuring the security of the customers when using the application. This mobile banking attribute was not only part of Abyssinya's strategy but is also shared by the others.

Another key aspect of the discovery in the mobile strategy sector is that banks prioritize user experience to guarantee a high adoption rate for mobile banking. This is in line with (Huang et. al., 2019) as they mentioned that in the expanding field of mobile banking, particularly in industries such as tourism and hospitality, customer experience is the top priority for users in

mobile banking. (Kwateng et al., 2019) added that user experience plays a crucial role in the successful uptake of mobile banking by customers. Another study by (Komulainen and colleagues, 2019) also emphasized the importance of user experience as a key factor for banks and financial institutions to increase customer value and make mobile banking services a successful venture.

4.2.3 Customer Adoption Rate

The findings for customer adoption indicated that almost all of them have their own way of getting the customer to be part of their mobile banking platform. Abyssinya bank for example aimed at simplicity and security. Securing the platform with multiple layers of security measures and simplifying the transition from traditional to modern banking was the way to get customers convinced to adopt the new mobile banking service. As we have seen in the previous strategy section many of the researchers like, (M.K et al., 2017), (Rahman et al., 2020), (Chochliouros et al., 2007) and others show this method works for banks when trying to get customers adopt mobile banking platforms.

On the other hand findings from CBE showed that financial inclusion alongside security and user friendly approach were dubbed elemental to getting customers adopt mobile banking platform as one of the primary financial tools in the daily lives of the customers. (Zins et al., 2016) insisted that policies should foster financial inclusion in order stimulate the financial environment. (Kumari, 2017) also indicated, if unbanked and under banked parts of the population in India were to be participants of the financial world in the country financial inclusion is the way to bring about that change. (Oranga et. al., 2018) also shared financial inclusion in banks in Nairobi had a positive effect on the performance of banks. The finding also correlate with (Demirgüç-Kunt and Klapper, 2012) who claimed that financial inclusion is the key to economic development.

The study on the challenges of mobile banking indicated that inadequate infrastructure and trust concerns are the primary barriers to the acceptance of mobile banking in its current evolving phase. This may vary across countries due to differences in factors such as

infrastructure and policy levels. This can lead to a varying degree of growth for the platform, making it difficult to directly compare with the progress of other countries in mobile banking adoption and the challenges they face. In Iran, according to (Mohammadi, 2015), personal innovativeness and subjective norms were identified as barriers to the adoption of mobile banking. In their study conducted in (Entele, 2019) discovered that factors such as the perceived benefits of mobile banking, the perceived difficulty of using mobile banking, visibility, opportunity to try it out, perceived traditional alternatives, and trust in service providers are important in determining the adoption of mobile banking technology in Ethiopia. This discovery partially goes against the information provided by the participants in the interviews for this study.

4.2.4 Internal Achievements

The results concerning internal accomplishments revealed that the banks initially observed a notable rise in usage of the mobile banking app. (Lee et al., 2013) anticipate a notable rise in the amount of American customers who will utilize mobile devices to log into their banking accounts. (Loganathan, Balaji, Ashok, & Parameshwari, 2020) found that customers are increasingly accepting and engaging in mobile banking due to their high level of satisfaction with the platform. The following discovery revealed that operational expenses had decreased significantly following the implementation of mobile banking services by banks. (Thrassou et al., 2008) noted that mobile banking allows banks to reduce costs while maintaining service quality, ultimately improving their competitive edge. (Jaiswal and colleagues, 2015) revealed that Indian banks provide electronic banking services as a way to protect or increase their market share, as well as a cost-saving measure to decrease paperwork and staffing.

The primary cost for banks is the interest paid on customer savings, followed by employee wages. This decrease in staff will allow them to save money by reducing one of their expenses. Another study by (Portela et. al., 2007) revealed that branches of a Portuguese bank established connections between operational and profit efficiency as well as between transactional and operational efficiency. The primary goal of (Mutevu, 2015) was to assess the impact of mobile banking and internet banking transactions on the financial performance of commercial banks in Kenya. The study concluded that Balance inquiry; automated credit

alerts to customers, airtime purchase, money transfer, and mini-statements improved the operational efficiency of banks.

4.2.5 Operational Challenges

The first finding from the operational challenges was the technology integration of mobile banking platform into the existing services the banks offer. The interviewees indicated that the introduction of a new service like mobile banking needed to land perfectly well balanced among the stream of existing services the banks already offer. This comes with its own difficulties notably seamless integration of the service like live chat support for customers for example.

The next finding indicated that there is a network connectivity challenge with the service. This is prevalent in most developing countries. (Kamssu, 2005) stated that internet connectivity is a problem in economically and technologically developing nations supporting the interviewees concern on this specific issue. This was further supported by (Sasikumar, 2017) who again noted that even though mobile banking has a lot to offer it is still vulnerable to network problems which can also cause security issues. (Azali, 2016) was another who noted building the necessary infrastructure for providing the much needed tools for providing a sustainable and efficient network. (Gallego et al., 2018) insisted that technological problems like network connectivity should be addressed by governments.

Another finding from the operational challenges of providing mobile banking services came from proper and planned resource allocation from the banks for the service. The interviewees indicated that resource allocation like human power, sufficient budget, and investment in the right technology is something that needed a careful planning and execution. (Liao, 2024) supported this finding stating Efficient resource allocation in commercial banks involves considering multiple criteria and output goals. (Addad et al., 2021) also noted resource allocation has multiplicity and overlapping nature stressing my interviewees' information on how challenging it could get. (Mohammed & Tapus, 2017) was another who noted that if the banks were to succeed in the mobile banking segment of the financial market they have to be

generous in spending in their mobile banking platforms providing the people with the optimal experience. (Liang et al., 2012) was another who pointed out that resource allocation should involve market segmentation to pinpoint the customers demand on mobile banking platforms. (Masya et al., 2022) and (Xue et al., 2019) also indicated that resource allocation is vital for sustainable banking operations.

The other findings showed since the products are fairly new services compared to the more developed nations it has its own shortcomings like data privacy issues, technical glitches and service downtimes. (M.K et al., 2017) noted that trust and security goes hand in hand when it comes to mobile banking platforms and the customer's attitude towards them. (Rahman et al., 2020) from his studies in Bangladesh stated that maximizing the security aspect of mobile banking is a deciding factor for mobile banking adoption. (Chochliouros et al., 2007) the increasing use of cell phones for mobile banking has triggered a new security issue especially on data privacy. (Kovács et al., 2016) assessed there was a fraud risk looming over electronic transactions indicating the need for improved security.

4.2.6 Industry Competition

The interview revealed that there was intense competition between banks and network providers, who had launched their own standalone payment systems similar to mobile banking platforms. Some interviewees went as far as to strongly imply that the competition between Ethio Telecom and Safaricom, with their separate payment platforms Tele-Birr and M-Pesa, is unjust. (Soni et al., 2013) also agreed with the interviewees that many telecommunication companies offer mobile money services exclusively to their own subscribers without effectively incorporating rural banking systems, hindering full utilization of the mobile financial market. This demonstrates how much control network providers hold over the financial market when there are no effective financial regulations in place. (Xv & Meng, 2015) also suggested that in order to stay ahead of competitors, companies need to continuously make improvements to their services, making the competition more intense. (Románova et al., 2018) also emphasized greatly that the competition for traditional financial institutions such as banks increased when FinTech companies were allowed to provide independent payment services in the market.

4.2.7 Security Concerns and Fraud activities

This next finding like in previous sections addressed issues on security concerns and fraud activities. The finding showed that modernized security systems like biometric log-ins and two step verifications are much needed to secure customers' accounts. (Owiti et al., 2022) supported this by indicating fraud activities like SIM swapping, hacking, identity theft, social engineering, denial of service attacks, and account takeovers have been on the rise since the introduction of mobile banking services. (Susanto et al., 2016) and (Tseng et al., 2017) were others who supported this with their finding showing security and privacy are pivotal for customers with regards to mobile banking services. (Islam, 2024) work also showed that users need to feel secure enough with mobile banking platforms to persuade them to conduct their monetary transactions with the service. (Kovács et al., 2016) also shares the interviewees idea stating there are vulnerabilities in mobile banking which needs undivided attention. (Maulana et al., 2019) was another who noted there are cracks in security of mobile banking leading to fraud and suggested IT security systems as a means to counteract the problem. (Datta et al., 2020) was also another advent support of enhancing security measures supporting the finding stating in his words that the presence of internet and constant transaction being conducted security is a front runner among issues relating to the service.

4.2.8 Emerging technologies and Opportunity capitalization

The initial discovery revealed that nearly all banks are interested in the significant opportunity presented by e-commerce. The transition to digital financial transactions has created opportunities for banks in the form of e-commerce, offering a new source of revenue. (Joshi et al., 2013) research shows that a large number of customers have begun using online shopping and accessing their bank accounts through different channels such as Netbanking and Mobile banking. (Kim et al., 2009) also pointed out that mobile banking plays a significant role in electronic transactions. In their latest study, (Bădîrcea and colleagues, 2021) highlighted the close relationship between mobile banking and e-commerce, emphasizing the significant potential for growth in the coming years. The rise of mobile phones and the internet has also played a role in the increasing popularity of e-commerce in daily life, as indicated by (Kalumendo, 2023). The research conducted by (Christina and colleagues, 2023) reveals a worldwide increase in the use of mobile payments, leading to a

fast expansion of the e-banking and e-commerce industries in Indonesia. (Shu et al., 2020) also highlighted that the increasing demands of customers for financial progress are driving banks to embrace e-commerce through their mobile banking services. Another study conducted by (Safeena, 2011) reinforces this discovery by highlighting the increased use of mobile commerce, such as mobile banking, which has broadened the range of electronic banking services available to users, providing a variety of financial, shopping, and entertainment choices. This idea is reinforced by the present promotion of entertainment events using mobile banking, such as ticket sales in Ethiopia. For example a technology called Santim Pay has collaborated with Commercial Bank of Ethiopia, Awash International Bank and Bank of Abyssinya from the selected banks for this research in order to facilitate e-commerce within shops, supermarkets and hotels.

5. Summary of findings, Conclusion and Recommendation

5.1 Summary of findings

This research was conducted in the aim of understanding the perspective of banks with their mobile banking services. This was an exploratory research conducted in the hopes of shedding light on how banks view their mobile banking platforms from their inception stage all the way up to their integration as one of the mainstream products offered by them. I have put forward there main elements of the mobile banking service, these were challenges faced, achievements made and opportunities to look forward to. These three basic elements were further described in detail by the research questions and specific objectives to be studied. By using interview as the main source of data collection I was able to gather enough information in regards to mobile banking. The research questions are focused on what benefits has mobile banking offered for the banks since it has launched; what challenges were faced by these banks during its implementation phase and lastly what the banks could expect from the platform in the future. Through this research, I summarize the findings in a way that answers the research questions, by listing the relevant themes found and explaining how the findings match the literature from other countries.

To start off with the external challenges most the hardship faced was due to lack of infrastructure which is primarily the government's shortcoming because it has the ultimate responsibility to build such infrastructure and not private entities. The finding indicated that this was a major problem especially for the widespread of the mobile banking platform. Most of the countryside is severely under banked specifically in today's standard. The banks are over spending their resource on a selected few geographically areas from what could be understood from context instead of branching out and reaching their initial target of reaching the whole country with their mobile banking platform. This has been slightly solved by the recent efforts of the government. The infrastructure development together with the fast networks like 4G and 5G has been a revelation in the last 2-3 years. This was further supported further by the increasing growth of customer base for the mobile banking service

as stated by the interviewees. Another hurdle was getting people to trust the new technology and embrace its capabilities while getting them to use it on regular bases for their daily financial needs. The banks have used user friendly and easy to understand language to make surfing the platform more easy and interactive for the customer. This was also further validated by the interviewees' statement indicating that customer engagement with their mobile banking apps has been on a rise in recent years.

The internal challenges were more natural and expected when trying to introduce a new service line within the existing system. Resource allocation was the first challenge because it needed a deep dive into what the business platform would look like once it has been developed and what would be expected from it with regards to many things some of which include reduction of workload, new revenue stream, diversification of services and products, cutting costs, staying ahead of the competition...etc. The second issue could be rolled into guarantee of data privacy and security of the customer 24/7. Within the day and age we are living under these are no soft issues. The ever present danger of manipulation and trickery especially with the select few part of the society who are not tech savvy are in the line of danger to say the least. The banks have all unanimously agreed that thieves and fraudsters are on the rise and they are coming up with new ways every day to scam or defraud people out of their money. The banks have implemented security measures in place to reactively and proactively battle this issue before and once it happens. They issue regular updates to their mobile banking usually upgrading the built-in security features and bug fixes and also upgrades to prevent system downtimes and glitches.

The achievements were multidimensional. The first mentionable achievement came from enabling the banks to cut cost of their operating expense. This could be attributed to things like scaling down the human resource required from the payroll, the paper work costs eliminated by the digital nature of the mobile banking platform...etc. The other achievement was being able to generate a steady and fast growing revenue stream. The users of the mobile banking apps for the banks have been on a continuous rise recently and according to the interviewees and the internal data they gathered the usage of the apps have also increased hence generating new revenue for the institutions. Another achievement was even though it is

in its very early stages the integration of the mobile banking platforms with e-commerce is a new milestone in the ever-growing expansion of the service.

The opportunities are vast and something to eagerly look forward to. The first identified opportunity was the combined service of mobile banking with e-commerce. The banks had identified hotels, supermarkets, hospitals and other service and product offering institutions to integrate the payment system with mobile banking platforms. This will be a revolutionary step in digitalizing the financial needs of the nation which other developed parts of the world have already been implementing so far according to the literature. The nationwide network and other infrastructure improvement is also something they are looking forward to fully utilize their resource and make true of their initial goals they had for their mobile banking platforms.

Besides the above mentioned elements all of them stressed that fraud and scamming people out of their hard earned money is quickly becoming a headache and since there are no clear cut rules and structure the banks should follow usually the fraudsters and the thieves get away with their crimes. They have again and again stressed that the government should take a serious look on this issue and pass the necessary law.

5.2 Conclusion

The aim of this research was to investigate the challenges banks have faced or are currently facing while implementing mobile banking service. The achievements they have made along the way bringing mobile banking technology as part of their services. And the opportunity they have identified that could make this financial tools a more powerful and gives them a competitive edge in the financial stage. These questions were designed to focus on definitive areas where the information collected will be of practical use for anyone who wants the information from the bank's behalf would benefit largely from. The research has found that mobile banking as a financial platform went through obstacles like lack of awareness from the masses, lack of infrastructure to reach most parts of the country, and most notably it is facing scamming of its users in multiple ways in recent years. The achievements of

implementing mobile banking are largely attributed to significantly increased customer interaction, increased revenue streams from financial inclusion, reduced operational costs ranging from reduced wage bill to less rental payments for branches. The opportunities of mobile banking were identified to be large scale integration with the e-commerce of the country and creating some sort of relationship with standalone payment systems like Tele Birr and M-Pesa. Identifying these key elements within the banks helps the banking industry what it is doing right and where things need improvement and where it should focus its resources for the future.

It will also help fellow researchers to use this research as a foundation and make further investigation by isolating any of the mentioned elements of their choosing. Since this research attempted to gather information on a delicate and up and coming financial platform like mobile banking from the banks that offer it; it has succumb to the inevitable barrier of vital information that could have helped this research be of even better use. All of the headquarters from the selected five banks declined the interview requests and also have declined to share any kind of information except for the publicly available ones. The next researchers I hope will find a way around it or the banks will see the common benefit of it and be more open in the future. I would recommend that future fellow researchers will focus on the security and fraud linked with mobile banking and also the huge potential that e-commerce and mobile banking together will have. Mobile banking is one of the most powerful financial tools of our modern times and there are plenty of demonstrably vital reasons as to why every economy should employ its use on every aspect of making financial needs a reality. And only research works conducted from a unique angle like this one can make that dream a reality and help it realize its full potential.

5.3 Recommendation

A developing nation like Ethiopia in a technologically advanced age like this is in desperate need of a modern financial tool like mobile banking to boost its economy and make the much needed financial stride to continue its development and achieve its goals. Most of the developing nations especially in the sub-Saharan regions of Africa have realized the potential of mobile banking and they have revolutionized its capabilities tailoring it to their economic

plans specifically to financial enable their citizens while making their economies strong along the way. Our country Ethiopia didn't get on the mobile banking business like the other sub-Saharan African nations, namely Kenya, Nigeria, South Africa and others but it is still making good progress considering it is fairly a new technology for the people and also the financial institutions. And it will need some time to get everything in line to start competing with the aforementioned countries. The first thing that I would recommend is that the government to heavily invest in building telecommunication infrastructures not only for the sake of mobile banking but also to make the country a well-connected nation altogether. The second recommendation will be to the concerned government authority and also the banks to have clear cut rules and regulation in place that would complement each other when an inevitable scam or fraud happens. A third point of recommendation would be for the banks to heavily invest in the security protocols of their mobile banking apps. Another point to mention would be to diversify the use of mobile banking from making simple transfers and bill payments. For example our country is fast tracking the rollout of capital market and many developed and developing countries have adapted to this change in the finance and banking world and have enabled their mobile banking to integrate this online trading to satisfy their customers need. Another point to consider for the banks would be to enable international money transfers through their mobile banking platforms. Much of the ground work so far have been promising as a start for the banks but even the competition amongst them is wide and they have still many things left to do. And considering that the country has very few banks compared to the number of people and businesses residing in it; it would be in their best interest to open communication lines with researchers and scholars who see the potential and benefit of mobile banking and want to help them make it a more powerful tool.

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Appendix

Title: Interview Guideline for Mobile Banking Research - Bank's Perspective

Introduction:

1 Opening Statement:

- Begin by introducing yourself and the purpose of the interview, emphasizing that the bank's insights are crucial for understanding the challenges, opportunities and achievements in the mobile banking landscape.

2 Background Information:

- Collect basic information about the bank, such as its size, customer base, and geographical reach.

Mobile Banking Implementation: 3. Mobile Banking Strategy:

- Discuss the goals and objectives set by the bank for its mobile banking platform.
- Explore the bank's overall strategy in implementing and promoting mobile banking services.

4. Customer Adoption Rates:

- Explore factors that have contributed to the successful on boarding of customers and the challenges to get customers to adopt the mobile banking platform.
- Discuss strategies employed to increase mobile banking usage especially among the unbanked or under banked parts of the country.

Achievements of mobile banking: 5. Internal Achievements:

- Can you share specific achievements or successes that your bank has experienced as a result of implementing mobile banking services?
- What measurable improvements have you observed in key performance indicators?

Challenges in Mobile Banking: 6 Operational Challenges:

- Explore operational challenges faced by the bank in implementing and maintaining mobile banking services.
- Discuss issues related to system downtimes, service interruptions, or technical glitches.

7 Industry Competition

- With the increasing adoption of standalone mobile payment systems like Tele birr and M-Pesa in regions with limited banking infrastructure, how does our bank strategize to maintain relevance and accessibility, especially among unbanked or under banked populations?

8 Security Concerns:

- How do you ensure the security of mobile banking transactions and protect customers from potential threats such as phishing attacks or malware proactively?
- How do you manage the risk of fraud and unauthorized transactions in mobile banking, and what steps do you take to mitigate these risks?

Mobile Banking opportunities 9. Emerging technologies and Opportunity capitalization

- How do you plan to capitalize on the trend towards cashless and contactless payments through your mobile banking platform especially with regards to e-commerce transactions?

- Given the increasing competition in the fintech space, what innovative features or functionalities do you believe will differentiate your mobile banking offerings in the future, especially those related to e-commerce like M-Pesa and Tele Birr?

Customer Experience and Feedback: 10 User Feedback Mechanisms:

- Explore the methods used by the bank to gather feedback from customers regarding the mobile banking experience.
- What are the common issues customers face and how frequently does your bank analyse and review customer feedback collected?

Future Outlook: 11. Future Developments:

- Explore the bank's vision for the future of mobile banking.

Conclusion: 12 Closing Thoughts: - Allow the interviewee to share any additional insights or concerns not covered during the interview.