St. Paul's University Repository

THE EFFECT OF FINANCIAL INNOVATION ON FINANCIAL INCLUSION IN MICRO FINANCE INSTITUTIONS IN GULU DISTRICT, UGANDA

WILLIAM WAIREGI MWAGO

ST. PAUL'S UNIVERSITY

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS AND LEADERSHIP STUDIES AT ST PAUL'S UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS DEGREE IN BUSINESS ADMINISTRATION (FINANCE)

NOVEMBER, 2024

St. Paul's University Repository

DECLARATION

This is my original work and has not been presented for award in any other University, no part of this research work may be reproduced without any prior written permission of the author and or St Paul' University.

Signature: _____ Date: 06/11/2024

Name: William Wairegi Mwago Admin No.: MBALMR403121

Word Count: 28046 words

This research has been submitted for review and examination with our approval as St. Paul's University Supervisors

1st supervisor - Dr Stephen Kanini Ndung'u

Signature: _____ Date: 06/11/2024

2nd supervisor - Peter Ontere Nyamira

Signature: Peter O. Nyamira Date: 06/11/2024

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

ABSTRACT

This study examines the effect of financial innovations on financial inclusion within Microfinance Institutions (MFIs) in Gulu District, Uganda, which is home to a total of three MFIs. The research addresses the pressing issue of limited access to financial services among underserved populations in this region. Specifically, the study investigates the effects of agency banking services, Automated Teller Machines (ATMs), mobile financial services, and digital payment systems on enhancing financial inclusion. The objectives of this study are to explore how these financial innovations contribute to improving access to financial resources and to analyse the barriers that hinder their effective implementation. A descriptive research design was employed, targeting all three MFIs in Gulu District. Data was collected using a self-administered questionnaire, achieving a response rate of 94%. The collected data was organized, summarized, and analysed statistically to assess the relationship between financial innovations and financial inclusion. Findings indicate that mobile financial services were highly rated by respondents, demonstrating a significant positive effect on financial inclusion within MFIs in Gulu District. In contrast, ATMs showed limited effectiveness in enhancing access due to low usage rates and accessibility challenges. The study concludes that while certain financial innovations have effectively improved access to financial resources, others require further development and strategic outreach to maximize their potential benefits. This research underscores the urgent need for tailored interventions that address specific barriers to financial inclusion in Gulu District. By providing actionable insights, it aims to inform policymakers and practitioners on enhancing the effectiveness of financial services for underserved populations. The findings highlight the importance of understanding local contexts and adapting innovations to meet the needs of all community members effectively.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

DEDICATION

I bestow this research journey to the almighty God.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

ACKNOWLEDGEMENT

I would like to express my deepest gratitude to Almighty God for granting me the strength, perseverance and wisdom to undertake this research journey. I am also immensely grateful to my supervisors Dr Stephen Kanini Ndung'u and Peter Ontere Nyamira for their invaluable guidance, insightful feedback and unwavering support throughout this course of this study.

My heartfelt thanks go to my family and friends, whose encouragement and understanding have been a constant source of motivation. I am especially thankful to the participant from the microfinance institution in Gulu district, Uganda whose cooperation and willingness to share their experience made this research possible.

Finally, I extend my appreciation to faculty of St Pauls university for providing a conducive learning environment and to all those who, in one way or another, contributed to the successful completion of this research. Your support and contribution have been invaluable to this endeavour.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

TABLE OF CONTENTS

DECLARATION....i

ABSTRACT....ii

DEDICATION....iii

ACKNOWLEDGEMENT....iv

TABLE OF CONTENTS....5

LIST OF FIGURES....9

ABREVIATION AND ACRONYMS....10

OPERATIONAL DEFINITION OF TERMS....11

CHAPTER 1: INTRODUCTION....1

1.1 Background of the Study....1

1.2 Statement of the Problem....9

1.3 Objective of the Study....10

1.5 Significance of the Study....11

1.6 Scope of the Study....12

1.7 Limitations of the Study....13

CHAPTER 2 LITERATURE REVIEW....15

2.1 Introduction....15

2.2 Theoretical Review....15

2.3 Empirical Review....18

2.4 Summary of Literature Review....23

CHAPTER 3 RESEARCH METHODOLOGY....31

3.1 Introduction....31

3.2 Research Design....31

3.3 Study Population....31

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

3.4 Research Instrument and Data Collection....32
3.5 Data Analysis and Presentation....35
3.6 Ethical Considerations....39
CHAPTER 4 RESULTS AND ANALYSIS....41
4.1 Introduction....41
4.3 Reliability Test Results....41
4.5 Descriptive Statistics of the Study Variable....42
4.6 Diagnostic Test Results....56
4.7 Inferential Statistics....58
4.8 Discussion of the findings....62
CHAPTER 5 SUMMARY OF THE FINDINGS, CONCLUSION, AND RECOMMENDATION....71
5.1 Introduction....71
5.2 Findings of the Study....71
5.2 Conclusion of the Study....73
5.3 Recommendation for Future Studies....74
REFERENCES....78
APPENDIX I: QUESTIONNAIRE....85
APPENDIX II: SAMPLING FRAME....91
APPENDIX III: OPERATIONALIZATION AND MEASUREMENT OF VARIABLES....92
APPENDIX IV: DATA COLLECTION TOOL....94
APPENDIX V: WORK PLAN....98
APPENDIX VI: BUDGET....99
APPENDIX VII: TRANSMITTAL LETTER....100
APPENDIX VIII: LOCATION OF GULU IN UGANDA....102
APPENDIX IX: LETTER FROM ISERC....103

ST PAUL'S UNIVERSITY

St. Paul's University Repository
APPENDIX X: NACOSTI LICENSE..... 105

APPENDIX XI: PLAGIARISM REPORT..... 107

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

LIST OF TABLES

Table 1:Summary of Research Gaps.....23

Table 2 Reliability Test Results.....41

Table 3:Respondents' Role in the Micro Finance Institutions (MFIs).....42

Table 4: Total Number of Branches.....43

Table 5: Innovative Products offered in the MFIs.....43

Table 6: Effect of Agency Banking Services on Financial Inclusion.....44

Table 7: Perceived the Agency Banking Services in Day-to-Day Transactions in The Microfinance Institutions.....47

Table 8: Effect of ATMs on Financial Inclusion.....48

Table 9: Effect of Mobile Financial Services on Financial Inclusion.....50

Table 10: Perceived Mobile Financial Services.....51

Table 11: Effect of Digital Payments Services on Financial Inclusion.....52

Table 12: Perception the Digital Payment Services in Daily Transactions in the Microfinance Institutions.....53

Table 13:Effect of Financial Innovation on Financial.....54

Table 14: Factors That Affect Success of Financial Inclusion.....55

Table 15: Multicollinearity Test.....57

Table 16: Breusch-Pagan Test.....58

Table 17: Durbin-Watson Statistic.....58

Table 18: Pearson Correlation Coefficient between Financial Innovation and Financial Inclusion.....59

Table 19: Beta Coefficient Output Table.....61

Table 20: P-Value Output Table.....61

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

LIST OF FIGURES

Figure 1: Conceptual Framework 22

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

ABREVIATION AND ACRONYMS

ATM	Automated Teller Machines
BoU	Bank of Uganda
GCC	Gulu City Council
GoU	Government of Uganda
SPSS	Statistical Package for The Social Sciences
UBA	United Bank of Africa
MFIs	Microfinance Institutions

ST. PAUL'S UNIVERSITY

OPERATIONAL DEFINITION OF TERMS

Agency banking services	Agent banking service is a connected to the financial institution or interbank network with basic functions to users to process client's access and retrieval of transactions. (Nabatanzi, 2021).
Automated Teller Machines (ATMs)	This is computer-based device that are connected to the interbank network and basic user functions like access to account and retrieval of money (Bank of Uganda, 2022)
Financial Inclusion	Financial Inclusion refers to the provision of affordable, and accessible financial services to the entire population, ensuring that even the unbanked and underserved segments have access to basic financial services such as banking, credit, insurance and savings (Ozili, 2021)
Financial innovation	Financial innovation is the ability to create, improve financial system or process, products and services within the economy (Akileng et al., 2018)
Mobile financial services	Mobile financial service refers to virtual network-based system that uses mobile digital platform to facilitate various financial services and making it easier for users to have access. (Hendriks, 2019).

ST. PAUL'S UNIVERSITY

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

The relationship between financial innovations and financial inclusion has become a critical area of focus, particularly in the context of Microfinance Institutions (MFIs) in Gulu District, Uganda. Financial inclusion is defined as the accessibility, availability, adequacy, awareness, and affordability of financial services. It plays a vital role in fostering economic growth and reducing poverty, as highlighted by Aziz and Naima (2021). Access to financial services enables populations to engage in economic activities more effectively, ensuring timely and affordable financial support (Qamruzzaman & Wei, 2019; World Bank, 2018).

Globally, technological advancements have significantly influenced the financial sector. The integration of technology has led to innovations that improve both the efficiency and outreach of financial services. Kasozi and Makina (2021) argue that the economic development of both advanced and developing countries heavily relies on efficient financial and technological systems. This integration has resulted in significant advancements in areas such as Automated Teller Machines (ATMs), mobile financial services, and agency banking, which have transformed the operational capabilities of MFIs in Uganda (Aziz & Naima, 2021; Hendriarto, 2021). Continuous evaluation and adoption of these innovative tools are essential for enhancing the effectiveness of financial institutions (Bagyenda, 2017).

In Uganda, financial inclusion has become a central topic within the financial sector. The Bank of Uganda has launched various programs aimed at expanding access to financial services, which not only seek to increase financial inclusion but also enhance the sector's overall contribution to the economy (Eton et al., 2019). Observations during these initiatives reflect noticeable improvements in the quality and availability of financial services for the population. Thuita (2020) emphasizes that banks and MFIs increasingly focus on making their services accessible to all segments of society.

Global data supports this trend for instance, the World Bank's Global Findex study revealed that approximately 50% of the global population holds bank accounts (Shabir & Ali, 2022). Digital innovations are becoming increasingly prominent, driving improvements in financial inclusion statistics through the digitalization of the financial sector (Assuming et al., 2019). The World Bank reported that adult consumers using mobile payment services rose from 61% to 69%, highlighting the growing adoption of mobile money services and other digital

ST. PAUL'S UNIVERSITY

innovations in financial markets (World Bank, 2018). Otoo et al. (2018) similarly noted that 25% of Africa's population gained access to formal financial institutions due to these advancements.

Regionally, product innovations in financial services are viewed as enhancing service delivery efficiency. In Uganda specifically, financial inclusion is considered a key indicator of growth within the sector (Ntaukira et al., 2021). Over the past decade, there has been a significant increase in Ugandans accessing formal financial services, an analysis conducted between 2006 and 2016 showed this upward trend (Akileng et al., 2018). One major catalyst for this growth has been mobile money services introduced by Vodafone in 2007 with products like M-Pesa, MoMo, and Orange Money. These innovations have facilitated banking for previously unbanked populations across East Africa (Maliwichi et al., 2021).

Microfinance institutions have played a critical role in promoting financial inclusion among low-income individuals and small businesses by offering tailored financial products such as microloans and savings accounts. They help bridge the gap between traditional banking systems and underserved communities. Globally, MFIs have increasingly adopted digital innovations like mobile banking platforms to expand their outreach. In East Africa, MFIs have embraced mobile money and agency banking to improve service delivery while reducing operational costs. Initiatives like Uganda's National Financial Inclusion Strategy have encouraged MFIs to incorporate technology-driven solutions to enhance access to finance across the country.

Despite these advancements, significant challenges persist in Gulu District. Barriers such as limited awareness of available services, low technological literacy rates, and inadequate infrastructure for digital transactions continue to hinder progress and many residents remain unbanked or underbanked due to these challenges. This underscores the importance of investigating how financial innovation has influenced the MFIs' operations in Gulu District to overcome these barriers and improve access to finance for all community members.

1.1.1 Financial Inclusion

Financial inclusion, a vital catalyst for sustainable economic development, refers to the availability, accessibility, affordability, and adequacy of financial services to all segments of the population. This construct underscores not only access but also the effective usage of financial resources in a way that supports economic resilience, growth, and equity (Eton et

ST. PAUL'S UNIVERSITY

al., 2021). At its core, financial inclusion enables individuals and businesses to utilize formal financial products such as banking, credit, savings, and insurance to improve their economic well-being and manage risks (Demirgüç-Kunt et al., 2018).

The dimensions of financial inclusion accessibility, affordability, and adequacy—reflect different aspects of financial engagement. Accessibility examines the ease with which individuals reach financial services, while affordability assesses the financial strain of utilizing these services. Adequacy speaks to the degree to which financial services meet the needs of users, particularly for underserved segments such as rural, low-income, and marginalized populations (Witts & Kessy, 2021).

Global progress in financial inclusion has shown that as of 2021, approximately 76% of adults worldwide held an account at a financial institution or used mobile money services (World Bank, 2021). This increase in accessibility highlights significant advancements in the reach of formal financial services. However, roughly 24% of adults remain unbanked due to persistent barriers related to affordability, availability, and infrastructural limitations. Studies show that countries with lower financial service costs exhibit higher rates of financial inclusion. For instance, in countries where the cost of opening an account is less than 1% of income per capita, account ownership rates are significantly higher than in countries with higher costs (Demirgüç-Kunt et al., 2018).

Financial inclusion is not only an end in itself but also serves as a means to broader economic benefits. It contributes to economic growth by enabling individuals to securely save, invest in business or education, and better manage risks, all of which are essential to poverty reduction and economic empowerment. Inclusive financial systems further promote social equity by empowering historically marginalized groups, such as women and rural communities, to participate actively in the economy (Eton et al., 2021). Gender disparities remain, as global data indicates that women are approximately 9% less likely than men to hold a bank account, underscoring the need for gender-specific financial services and targeted interventions (World Bank, 2021). The development of community banking initiatives and tailored financial products for women has shown potential in narrowing this gap, improving both access and utilization for underserved populations.

In low-income and developing countries, technological advancements, particularly digital and mobile financial innovations, have proven transformative in extending financial services to

ST. PAUL'S UNIVERSITY

remote and underserved regions. For example, mobile money services, as seen with Kenya's M-Pesa, have been instrumental in expanding financial inclusion by reaching previously unbanked individuals. By 2020, over 70% of adults in Kenya reported using mobile money, illustrating the role of technology in improving both the accessibility and usage of financial services (World Bank, 2021). However, rural regions continue to lag in usage due to limited digital literacy and internet infrastructure, highlighting the need for complementary financial literacy initiatives.

Uganda presents a microcosm of the global financial inclusion landscape. Despite recent gains, where approximately 13 million out of 42 million Ugandans now have access to formal financial services, significant gaps remain, particularly in rural areas like Gulu District. Research highlights that while agency banking has increased access in urban centers, infrastructural challenges in rural areas limit its reach (Kasekende, 2020). Addressing these barriers requires a focus on enhancing affordability, extending infrastructure, and promoting digital literacy in underserved regions. Notably, countries with inclusive financial systems and proactive regulatory support experience greater financial engagement and resilience in their economies (Witts & Kessy, 2021).

Moreover, financial inclusion has far-reaching economic implications. The McKinsey Global Institute estimates that advancing financial inclusion could add up to $3.7 trillion to Global Domestic Product (GDP) by 2025, emphasizing the economic potential of inclusive financial systems (McKinsey Global Institute, 2020). The disparity between account ownership and active utilization indicates that beyond providing access, it is essential to foster regular usage of financial products through consumer education and engagement.

In conclusion, while significant strides have been made toward financial inclusion globally, challenges remain regarding affordability, accessibility, and effective utilization. Continued efforts to innovate financial products, expand digital infrastructure, and promote financial literacy are crucial to ensuring that financial inclusion can fulfil its potential as a driver of equitable economic development.

1.1.2 Financial Innovations

According to Akkaya (2019) financial innovations encompass viable solutions to financial challenges, including strategies, production methods, and innovative financial instruments. Moreover, research has shown that financial innovations involve the advancement of

ST. PAUL'S UNIVERSITY

technical financial institutions, which have streamlined financial transaction processes (Thuita, 2020). Additionally, financial innovations refer to the development and promotion of new financial products, technological advancements in finance, as well as the evolution of financial institutions and markets. Due to financial innovations there has been an improved financial system and also the accessibility has highly been enhanced (Pompella & Costantino, 2021)

Innovative forces have driven the global financial system toward broader financial inclusion. Distinct financial innovations should aim to address issues related to the adequacy and cost of financial transactions (Pompella & Costantino, 2021). Consequently, policymakers need to prioritize inclusive financial innovations that are universally applicable and functional for the entire population. This has, arguably, been a central concern for financial policymakers (Kaur et al., 2022).

The emergence of financial innovations can be attributed to the population's growing demand for remote access to financial services through financial institutions. Fundamentally, the objective of financial innovation is to facilitate easier financial intermediation. Recent research highlights various roles of financial innovations, including key elements such as product and process innovations (Demirgüç-Kunt et al., 2018). Moreover, financial innovations predominantly focus on enhancing legal and regulatory frameworks, while process innovations are specifically aimed at improving operational efficiency.

According to Harvey et al. (2021), the emergence of product innovations is primarily driven by technological market demands. These demands encompass key elements such as monetary systems and financial components, which serve as major catalysts for innovation. Additionally, the pursuit of long-term solutions for financial transactions through technological advancements has significantly spurred innovation (Byegon et al., 2019). Moreover, circumventive innovations have arisen from the need to alleviate pressures related to monetary regulatory policies.

Over the past four decades, there has been a slow pace in the development of new financial products and procedures in many economies (Aziz & Naima, 2021). Increasing market demands, however, have underscored the urgency to enhance processes by integrating financial innovations that accommodate emerging technologies. Uganda, in particular, has experienced a sluggish adoption and integration of technological systems in finance, largely

ST. PAUL'S UNIVERSITY

due to a decline in innovation levels. Consequently, a market gap has emerged, necessitating financial innovations to address this, especially in promoting the uptake of Mobile Financial Services, ATMs, internet payment methods, and agent banking to better meet customer needs.

1.1.2.1Agency Banking Services

Agency banking services has increased within the East African region, it was mainly introduced to enhance banking from regions which lacked access to major banks. East African nations have registered numerous developments in agency banking services. However, the efficacy of agency banking services has been in question considering its reachability amongst Ugandan population. The introduction of agency banking services was solely attributed to desire to ease the transaction on key banking organizations

This variable will aim to ascertain the relationship in which accessibility of banking services have been improved within the population as a result of innovations. Therefore, as part of the analysis the study will shade light on the efficiency associated with use of agency banking services.

1.1.2.2 Automated Teller Machines

ATMs innovations play a significant role in pivoting the economy's financial sector. Financial inclusion has highly resulted in adoption of technology related innovations. Following the introduction, the ATMs services have provided 24-hour financial services. However, the rate of use has continued to be comparatively lower than anticipated. Being a third world country Ugandan population has highly encountered technological literacy in the event of the rollout of ATM such has contributed greatly to low utilization of ATM. Further, inaccessibility of the ATM services has highly been witnessed in Uganda from lowly delocalised banking services across the country (Nanyanzi et al., 2021).

Based on Bank of Uganda Financial Data Statistics, it was noted that when the ATM was launched in 2017, there was significant growth in installation, usage, transaction volume and value. ATM usage has spread across the country, totalling about 956 by the end of June 2019, with about 40% concentrated in Kampala, with the remaining 60% evenly distributed among the major upcountry towns (Bank of Uganda, 2022). As part of the study variable the study will mainly focus on analysis of effects of ATMs innovations on the financial inclusion. To ascertain the existing uptake and consumption of ATM related services.

ST. PAUL'S UNIVERSITY

1.1.2.3Mobile Financial Services and Digital Payment Services

Mobile financial services and digital payment platforms are essential tools in extending financial inclusion, particularly in underserved and remote areas. These innovations have significantly transformed financial service delivery, enabling seamless access to a range of financial activities, such as peer-to-peer transfers, bill payments, savings, credit, and investments, through digital and mobile channels. By leveraging technology, these services address common barriers to traditional banking, such as geographic limitations, high costs, and low transaction volumes, which are prevalent in rural and low-income areas (Eton et al., 2021).

Mobile financial services are particularly effectful in emerging economies where access to brick-and-mortar financial institutions is limited. Mobile platforms allow users to complete essential financial transactions via mobile devices, thus expanding financial access without requiring physical bank branches. The case of M-Pesa in Kenya, where over 70% of adults utilized mobile money by 2020, demonstrates how mobile solutions can extend financial access at scale (CGAP, 2020). The growing adoption of mobile services also indicates an increasing acceptance and demand for digital solutions across varied demographic groups, particularly those previously excluded from traditional banking systems.

Digital payment services further complement mobile financial services by offering a range of options, including online banking, debit and credit cards, and internet-enabled payment applications. These platforms facilitate quick, secure, and efficient transactions that support financial inclusion goals by minimizing the need for cash and reducing the risks associated with cash handling. For example, in Uganda, digital payment platforms have expanded beyond urban centers, enabling customers to pay bills, access savings accounts, and even transfer funds across borders. However, access to these services in rural regions remains constrained by low internet penetration and limited digital literacy (Bank of Uganda, 2021).

Both mobile and digital payment platforms contribute to the broader framework of financial inclusion by enhancing accessibility and usability. They facilitate real-time transactions and offer convenience, affordability, and security. Key factors in ensuring that financial services are inclusive and equitable. Furthermore, they bridge the gap between financial institutions and the unbanked population, allowing users to engage in a more comprehensive range of financial activities (Demirgüç-Kunt et al., 2018).

ST. PAUL'S UNIVERSITY

Despite their benefits, mobile financial and digital payment services face challenges related to infrastructure, digital literacy, and regulatory frameworks. In many rural areas, limited internet connectivity and low levels of digital literacy hinder the effective adoption of these services. Addressing these challenges through regulatory support and investment in infrastructure is essential to broaden financial inclusion, particularly for marginalized groups. Additionally, promoting financial literacy initiatives that focus on digital and mobile platforms will enhance user confidence and engagement, thereby increasing active utilization of these services (Witts & Kessy, 2021).

1.1.3 Financial Innovations on Financial Inclusion

Arguably, an increase in digital financial innovations, translate to a subsequent increase in financial inclusion (Grohmann et al., 2018). Financial innovations have led to the introduction of key elements, such as mobile banking, which have enabled unrestricted access to financial services. This increased access has, in turn, significantly improved financial inclusion within society (Demirguc-Kunt et al., 2018). Analytically, financial innovations aim at insight into evolution and progression on techniques and instruments to efficiently provide adequate financial service to the public Akileng (2018). Qamruzzaman and Wei (2019) explored the financial inclusion in terms of how accessible and usable financial services are, emphasizing the importance of affordability in expanding access to financial resources. They highlighted that increasing the affordability of financial products enhances their accessibility and utilisation by broader segments of the population.

In Akileng's (2018) study, the effectiveness of financial innovations is demonstrated by their capacity to improve financial systems within the economy. Financial innovations have significantly enhanced various aspects of the global financial sector, including the rapid processing of transactions and problem-solving abilities, leading to improved access to financial inclusion data (Aliyev, 2021). Moreover, increased access to less restrictive financial services, such as bank savings, has notably empowered individuals to engage in business activities, which in turn has enhanced their overall economic productivity and disposable income (Allen et al., 2017). Additionally, a study on financial inclusion in Nigeria by Adeleke and Alabede (2021) revealed that financial inclusion has become a critical development policy in many nations, particularly in emerging economies. However, the rate at which financial innovations has improved financial institutions particularly in the Uganda financial sector has been comparatively lower.

ST. PAUL'S UNIVERSITY

1.2 Statement of the Problem

Digital finance has emerged as a transformative force globally, significantly improving financial inclusion and offering substantial benefits to both developed and developing economies (Demirguc-Kunt et al., 2018). However, Uganda faces significant challenges in effectively implementing digital technology across its diverse population. The existing infrastructure and systems necessary for ensuring widespread access to digital financial services are markedly underdeveloped. This situation highlights an urgent need for innovative financial products that are genuinely inclusive and accessible to all segments of society (Aziz & Naima, 2021).

As a developing country, Uganda struggles with high poverty rates and insufficient access to technological services within its financial sector. These obstacles hinder the nation's ability to achieve comprehensive financial inclusion (Hendriarto, 2021). Moreover, Uganda's inability to keep pace with rapid global advancements in digital finance has resulted in the country falling behind more technologically advanced nations (Eton et al., 2019). Despite the promise of financial innovations to enhance inclusion, there remains a significant lack of empirical evidence regarding their effects on microfinance institutions (MFIs), particularly in the context of Gulu District. While existing literature suggests that financial innovations can yield both positive and negative outcomes, the complexity of these effects is not sufficiently explored.

Access gaps in Uganda's financial services remain pronounced, particularly concerning payment systems, savings options, and risk management strategies (Kasekende, 2020). The Bank of Uganda has reported gradual improvements in financial inclusion, especially in the provision of services through both formal and informal channels (Bagyenda, 2017). However, there is a notable lack of empirical studies examining the specific effects of financial innovations on financial inclusion among the residents of Gulu.

Currently, around 13 million out of Uganda's 42 million people are reported to have adequate access to formal financial services. Nevertheless, significant bottlenecks such as an insufficient number of automated teller machines (ATMs), a shortage of banking agents, and a limited presence of mobile money agents substantially restrict access to essential banking services. Alarmingly, while approximately 33% of Ugandans report borrowing from financial

ST. PAUL'S UNIVERSITY

institutions and informal groups, a striking 72% remain excluded from similar services and products (Warsame et al., 2021).

The integration of digital financial systems has reshaped the delivery of financial services in Uganda, helping to mitigate risks associated with access to finance and poverty alleviation (Mutua, 2018). However, the overall financial inclusion of Ugandans through these digital systems remains inconsistent, necessitating further investigation into the specific factors influencing access and usage.

This study intends to address these pressing challenges by providing stakeholders with critical insights needed to overcome financial barriers in Uganda. The research will focus on analysing the effect of financial innovations including agency banking services, mobile financial services, ATMs, and digital payment solutions on financial inclusion, with particular emphasis on the role of microfinance institutions in promoting financial development and growth in Gulu District.

By exploring how these digital innovations affect financial behaviours and accessibility for users, this study sought to fill the existing empirical gap and inform strategies to enhance financial inclusion. By examining the relationship between financial innovations and microfinance, this study aimed to contribute to the broader discourse on financial inclusion in Uganda, offering actionable insights that can improve the effectiveness of financial services for underserved populations.

ST. PAUL'S UNIVERSITY

1.3 Objective of the Study

1.3.1 General Objective

The key objective of the study was to examine the effect of financial innovation on financial inclusion in micro finance institution in Gulu district, Uganda.

1.3.2 Specific Objectives

i. To evaluate the effect of agency banking services in financial inclusion within microfinance institutions in Gulu District, Uganda.
ii. To analyse the effect of automated teller machines (ATMs) on financial inclusion in microfinance institutions in Gulu District, Uganda.

iii. To assess the effect of mobile financial services on financial inclusion within microfinance institutions in Gulu District, Uganda.
iv. To assess the effect of digital payment services on financial inclusion within microfinance institutions in Gulu District, Uganda

1.3.3 Research Questions

Null Hypotheses for the study

i. H0: Agency banking services do not have a significant effect on financial inclusion within microfinance institutions in Gulu District, Uganda.
ii. H0: Automated teller machines (ATMs) do not have a significant effect on financial inclusion within microfinance institutions in Gulu District, Uganda.
iii. H0: The combined effect of mobile financial services does not have a significant effect on financial inclusion within microfinance institutions in Gulu District, Uganda.
iv. H0: The effect of digital payment services does not have a significant effect on financial inclusion within microfinance institutions in Gulu District, Uganda

1.5 Significance of the Study

This study is poised to deliver significant value to various stakeholders, particularly governmental agencies, policymakers, and financial institution management, by providing specific, actionable insights into the relationship between financial innovation and financial inclusion in Uganda. The findings are expected to offer evidence-based recommendations that can directly inform policy formulation aimed at enhancing financial access for underserved populations (Nabatanzi, 2021).

For policymakers, the study will provide a detailed analysis of how different financial innovations such as agency banking services, automated teller machines (ATMs), and mobile financial services contribute to improving financial inclusion. This information is critical for developing targeted interventions that can effectively address the barriers faced by low-income individuals in Gulu District (Demirguc-Kunt et al., 2018).

The management of microfinance institutions will benefit from practical insights regarding operational strategies and customer engagement practices that can improve service delivery. By understanding the specific effects of financial innovations on their clients, these

ST. PAUL'S UNIVERSITY

institutions will be better equipped to tailor their products and services to meet the needs of their target demographic. This alignment is expected to lead to increased client retention and satisfaction, ultimately enhancing the financial sustainability of these institutions (Hendriarto, 2021).

Moreover, this research addresses a gap in the existing literature by providing empirical evidence on the effects of financial innovations within microfinance contexts. This contribution is valuable not only for current academic discourse but also for guiding future research endeavours. The study's findings will serve as a foundational reference, enabling researchers to build upon this work and explore related areas of financial inclusion and innovation (Kasekende, 2020).

Additionally, the anticipated insights into operational challenges and user engagement will foster the digital transformation of the financial sector in Uganda. The successful implementation of financial innovations can lead to improved operational efficiency, reduced transaction costs, and increased access to financial services for underserved populations (Mutua, 2018).

Ultimately, this study aims to create a framework for understanding how financial innovations can effectively drive financial inclusion, thereby enhancing economic participation and improving the overall quality of life for individuals in Gulu District. By specifying these expected outcomes, the study underscores its practical significance and the concrete value it intends to deliver to stakeholders invested in advancing financial inclusion in Uganda.

ST. PAUL'S UNIVERSITY

1.6 Scope of the Study

This study will focus on microfinance institutions in Gulu District, Uganda, to examine the effect of financial innovations on financial inclusion. The research will concentrate on four primary independent variables: agency banking services, automated teller machines (ATMs), mobile financial services, and digital payment services. The dependent variable will be financial inclusion, conceptualized in terms of accessibility, affordability, and adequacy of financial services available to underserved populations.

A comprehensive conceptual framework will be constructed to delineate the relationships between the independent and dependent variables, facilitating an understanding of how

financial innovations can enhance access to essential financial services for marginalized communities. This framework will help illustrate the pathways through which these innovations affect financial inclusion outcomes, aligning with previous studies that highlight the importance of context-specific factors in understanding financial access (Demirguc-Kunt et al., 2018; Kasekende, 2020).

The temporal scope of this study encompassed the period in the last five years, a crucial timeframe that captures the rapid evolution and adoption of digital financial services in Uganda. This period is particularly significant as it reflects both the challenges and advancements in financial technology that have emerged in response to the growing demand for financial inclusion in developing economies (Hendriarto, 2021).

Data for this study was primarily collected through primary sources, including questionnaires with stakeholders from microfinance institutions in Gulu District. This primary data was critical for analysing the direct effects of financial innovations on financial inclusion. Additionally, secondary data was used to provide insights and context for the study, drawing from the Bank of Uganda and other relevant studies. (Bank of Uganda, 2022). This combination of data sources enriched the study by allowing for a thorough investigation of trends, effects, and user experiences regarding financial innovations.

This research seeks to contribute valuable insights into the dynamics between financial innovations and financial inclusion. The findings will not only enhance the current understanding of financial access in Gulu District but also inform policymakers and financial institutions about effective strategies to improve service delivery and promote equitable financial inclusion in Uganda.

This study findings focused on the Ugandan micro finance institutions within Gulu district, Uganda. It explored and established the effect of financial innovation on financial inclusion. The data collected was based on financial inclusion and innovations which supported the study objective.

1.7 Limitations of the Study

This study acknowledges several limitations that may effect the generalizability and interpretation of its findings. Firstly, while primary data will be collected through questionnaires administered to stakeholders in the microfinance sector, the reliance on self-

ST. PAUL'S UNIVERSITY

reported data may introduce response bias, as participants may provide socially desirable answers rather than truthful responses. This could skew the results and affect the reliability of the findings (Grohmann et al., 2018).

Secondly, the study focused exclusively on microfinance institutions in Gulu District, Uganda. This geographical limitation may restrict the applicability of the results to other regions or types of financial institutions, as financial inclusion dynamics can vary significantly across different contexts (Eton et al., 2021). Consequently, the findings may not reflect the broader landscape of financial inclusion across Uganda or other countries.

Additionally, the temporal scope of the study, which spans the last five years, may overlook earlier developments in financial innovation that could provide important context. Rapid advancements in technology and financial services during this period may also result in a lag in capturing the full effect of these innovations on financial inclusion (Akkaya, 2019).

Lastly, the study primarily focused on quantitative measures of financial inclusion, which may not fully capture qualitative aspects such as customer satisfaction, trust, and the overall user experience with financial services. Future research could benefit from integrating qualitative approaches to provide a more holistic understanding of the factors influencing financial inclusion.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter examined the literature review, provided a summary of the research gaps, and outlined the conceptual framework of the study.

2.2 Theoretical Review

This provided a guided theoretical proposition of the relevant theory and how they link variables in the study. The study findings were guided by Schumpeter Theory of Innovations, Agency Theory, and Diffusion of Innovations theory which supported the relationship among the variables of the study.

2.2.1 Schumpeter Theory of Innovations

Since the 1930s, during the era of the industrial revolution, Joseph Schumpeter (1939) developed the Theory of Innovations, positing that economic growth is driven by technological innovation. Schumpeter observed that innovations occur through the introduction of new products, processes, methods, markets, and resources, all of which alter production capabilities within firms. He emphasized that financial innovations are pivotal for economic development, as evidenced by the introduction of diverse financial instruments and alternative fund transfer mechanisms that improve financial intermediation in various economies.

Schumpeter (1939) envisioned that "innovation symmetry", the balanced and continuous introduction of innovations can lead to sustained business and economic development. Within this framework, the financial sector is viewed as a dynamic field where new technologies and innovations emerge continuously. This theory highlights entrepreneurship as a core driver of innovation, with entrepreneurs seeking new opportunities to add value to the economy (Kariuki, 2022). Schumpeter distinguishes between invention and innovation, proposing that while inventions create new concepts, innovations bring these concepts into practice, thereby fuelling growth in a self-propagating system (Nyaga, 2024). According to this theory, innovations arise from institutions or individuals willing to take calculated risks, driving continuous industry advancement.

ST. PAUL'S UNIVERSITY

The Theory of Innovations presumes that innovations, once accepted, effect all levels of an institution, improving efficiency, competitiveness, and service delivery. In the context of this study, financial innovations specifically ATMs, agency banking services, mobile financial services, and digital financial services are viewed as essential to advancing financial inclusion. These innovations provide affordable, accessible, and timely solutions for underserved populations, thereby transforming financial service delivery. The theory's relevance to this study lies in its capacity to frame the observed development of these financial innovations and their effects on financial inclusion. By examining both past and present advancements, the theory underscores how innovations like ATMs, agency banking, mobile financial services, and digital payments contribute to financial inclusion within microfinance institutions (MFIs) in Gulu District, Uganda.

2.2.2 The Agency Theory

Agency Theory, developed by Jensen and Meckling in 1976, focuses on the principal-agent relationship, particularly the asymmetry that arises when a principal e.g., a shareholder delegates tasks to an agent for examplea manager who may have different goals or access to information (Jensen & Meckling, 1976). Agency Theory primarily examines the interactions, motivations, and behaviours within organizations, providing insights into how financial institutions operate and how agents perform their roles in the work environment (Nyaga, 2024). The theory is widely applied in financial studies to analyse institutional performance, especially regarding innovations in service delivery and organizational structure.

Agency Theory is valuable for identifying challenges that arise in business, particularly the issues related to financial innovation in institutions aiming to promote financial inclusion. Specifically, it offers a framework to understand how financial institutions can effectively select and use agents to reach underserved populations. The theory posits two primary conditions for successful delegation: first, the goals of the principal and agent should align; second, any conflicts must be resolved through clear communication and incentives to ensure agents act in the best interest of the principal (Mutua, 2018).

Within this study's context, Agency Theory is essential for understanding the dynamics of financial innovations like agency banking services and digital financial services, which extend financial inclusion by allowing agents to offer accessible and affordable services. By examining how agents bridge the gap between financial institutions and clients, the study

ST. PAUL'S UNIVERSITY

uses Agency Theory to evaluate the effectiveness of agency banking and digital financial services in reaching underbanked populations. Agency Theory thus supports the study's analysis of how financial innovations are implemented and maintained through effective principal-agent relationships (Kariuki, 2022).

The study illustrates how various innovations have continuously influenced the development of financial inclusion services over time. Using Agency Theory, this research assesses the effect of financial innovations on financial inclusion within Uganda, examining how well agency banking and similar services fulfil their roles in expanding access to financial services in Gulu District.

2.2.3 Diffusion of Innovation Theory

The Diffusion of Innovations Theory, developed by Everett M. Rogers in 1962, examines how, why, and at what rate new ideas and technologies spread within a society. Rogers' theory focuses on understanding the processes through which innovations are adopted, including factors influencing adoption, such as perceived utility, ease of use, compatibility, trialability, and observable benefits. By analysing these factors, the theory provides a framework to explore how different segments of a population respond to and embrace new ideas or technologies, including financial innovations.

In simple terms, Diffusion of Innovations Theory investigates the way people adopt and integrate new products, behaviours, or practices into their lives. Rather than focusing solely on efforts to persuade individuals to adopt change, the theory emphasizes understanding the characteristics of innovations that make them more likely to be accepted by target populations (Stanton, 1963). Rogers et al. (2019) categorize adopters into groups, including innovators, early adopters, early majority, late majority, and laggards, to illustrate how adoption spreads through society in stages, often beginning with a small group and eventually reaching wider acceptance.

This theory is particularly relevant to financial innovations, as it frames the spread of digital banking tools such as ATMs, agency banking, mobile financial services, and digital payment platforms. By applying Rogers' theory, this study can better understand how innovations in financial services reach different groups in Gulu District, Uganda, and identify factors that encourage or hinder their adoption. The theory highlights how features like accessibility,

ST. PAUL'S UNIVERSITY

affordability, and user-friendliness areintegral to financial innovations in order to facilitate widespread adoption across various digital platforms, including mobile, online banking, and other electronic channels (Silber, 1983).

The Diffusion of Innovations Theory supports this study's examination of financial inclusion by analysing the rate and extent to which innovations penetrate the market and reach underserved populations. The study leverages this theory to assess the role of early adopters and the progressive influence they have on encouraging broader use of financial tools. It ultimately underscores the significance of innovations like ATMs, agency banking, digital payments, and mobile financial services in promoting financial inclusion among microfinance institutions (MFIs) in Gulu District, Uganda (Issaias et al., 2021).

2.3 Empirical Review

2.3.1 Agency banking services and Financial Inclusion

Nabatanzi (2021) examined the effect of agency banking services on financial inclusion in Mukono Municipality, Uganda, using a cross-sectional survey design guided by Agency Theory. The study employed purposive and simple random sampling, collecting data from a target population of 85 respondents, including bank representatives, managers, and employees. Multiple regression analysis revealed a significant positive relationship between agency banking and financial inclusion, with geographic coverage emerging as a strong predictor (beta = 0.503, p-value = 0.000). Nabatanzi (2021) findings highlight agency banking as a key enabler of financial access, particularly in underserved areas where traditional bank infrastructure may be limited. However, this study focuses primarily on an urban municipality, leaving a gap in understanding how agency banking affects rural and less connected regions. The present study sought to fill this gap by investigating agency banking's role in promoting financial inclusion in the rural district of Gulu, Uganda, where geographic and technological challenges differ substantially from those in urban centers. This approach enables a deeper examination of agency banking's scalability and adaptability in reaching Uganda's most financially marginalized populations.

Njoroge (2021) conducted a study on agency banking and financial deepening in Kenya, analysing how transaction volume and banking coverage influenced financial service access across 43 commercial banks and 24 microfinance institutions. The study relied on secondary

ST. PAUL'S UNIVERSITY

data from the Central Bank of Kenya, covering 2011 to 2020. Findings showed that agency banking positively correlated with financial deepening, as each unit increase in transaction volume boosted financial deepening by a factor of 0.493. However, while the study demonstrates agency banking's effect on financial activity within Kenya's formal financial sector, it does not directly address the inclusion of unbanked or underserved populations—a core aspect of financial inclusion. By concentrating on microfinance institutions (MFIs) in rural Uganda, the current study added to the literature by assessing how agency banking can directly benefit unbanked individuals, contributing to financial inclusion rather than just deepening existing service utilization.

Nazziwa (2019) explored the adoption and user perceptions of agency banking among Equity Bank clients in Kampala following the Ugandan government's endorsement of agency banking in 2016. Using a case study design, the study surveyed 132 clients, with an overall response rate of 61.4%. Results indicated high levels of confidence and trust in agency banking, with perceived ease of use and accessibility cited as major factors influencing adoption. Nazziwa (2019) recommended enhancing these factors to increase agency banking's appeal and uptake. Although this study provides valuable insights into client perceptions, it is limited to a single bank in an urban area, with findings that may not generalize to rural or underbanked populations. In contrast, the current study focused on multiple MFIs in Gulu District, aiming to capture a broader perspective on how agency banking effects financial inclusion among the rural unbanked. By examining factors like accessibility, affordability, and infrastructure in a rural setting, the present research offered a more comprehensive view of agency banking's potential to enhance financial inclusion across diverse geographic and socio-economic contexts.

ST. PAUL'S UNIVERSITY

2.3.2 Digital Payments and Financial Inclusion

Lyimo and Mbesigwe (2022) investigated the role of digital financial services in enhancing financial inclusion in Tanzania, focusing on offerings such as digital payment systems, internet banking, and other online services provided by microfinance institutions (MFIs) in Arusha. Using a descriptive design and a sample of 60 respondents, the study revealed a strong correlation between digital payment services and financial inclusion, suggesting that digital platforms can significantly improve service reach and accessibility. While Lyimo and Mbesigwe's findings underscore the value of digital payments in expanding financial access,

their study is limited to an urban Tanzanian context. The current study builds on these insights by exploring digital payments' effect specifically in Gulu District, Uganda, a rural setting where geographic and infrastructural barriers may influence the adoption and effectiveness of digital financial services in MFIs. By focusing on a rural Ugandan district, the present study aimed to understand the unique challenges and benefits of digital payments in areas with limited access to traditional banking infrastructure.

Mutisya and Atheru (2019) examined the influence of digital financial services on financial performance in Kenya's banking sector, focusing on the adaptation of electronic payment systems such as ATMs and debit/credit cards. Their findings showed a positive association between digital banking services and bank performance metrics like return on investment and equity. Although this study demonstrates the financial benefits of digital banking for banks, it does not specifically address financial inclusion or accessibility for underserved populations. The present study filled this gap by examining how digital payments affect financial inclusion, specifically among low-income and unbanked populations in rural MFIs. This focus is critical as MFIs serve a unique clientele whose primary concern is access, rather than the profitability emphasized in Mutisya and Atheru's research.

Hasan et al. (2021) conducted a study in Bangladesh on the role of financial literacy and information accessibility in encouraging the adoption of financial innovations among rural populations. By using econometric models, they found that financial literacy, combined with access to digital financial information, positively effects household financial management and reduces barriers to service usage. Hasan et al. (2021) findings are relevant to the current study as they highlight the role of education and digital literacy in facilitating financial inclusion. However, while their focus is on literacy and informational access, the present study examined the broader effect of digital payment systems within MFIs in Gulu District, Uganda. This shift in focus allowed the current research to explore how digital payments themselves beyond literacy programs can act as catalysts for financial inclusion in a low-resource, rural setting where MFIs are crucial providers of financial services.

Ebong and George (2021) explored the role of digital payments in promoting financial inclusion as a tool for poverty reduction and economic growth in Uganda. Their study discusses the effect of various digital services on increasing access to banking and financial resources, particularly in relation to vulnerable populations. The study supports the idea that

ST. PAUL'S UNIVERSITY

digital payments can be transformative for financial inclusion by simplifying access to banking services. The current study extends Ebong and George's (2021) findings by specifically investigating how digital payments through MFIs influence financial inclusion in Gulu District. By focusing on MFIs rather than the general banking sector, this research highlights the critical role these institutions play in serving low-income and underserved populations in rural Uganda, offering insights that can inform policy and practice aimed at overcoming infrastructural and economic barriers to financial inclusion.

2.3.3 Automated Teller Machines and Financial Inclusion

Recheal (2019) examined the effect of ATMs on customer service at the United Bank of Africa (UBA) Kansanga branch in Kampala, focusing on time savings and customer satisfaction. Using a mixed-methods approach and a sample of 92 respondents, Recheal (2019) found that ATMs positively affected customer experience by reducing transaction times and enhancing service availability. While the study demonstrates the convenience and efficiency benefits of ATMs in an urban bank setting, it does not directly address their effect on financial inclusion, particularly for underserved populations. The present study builds on Recheal's (2019) findings by investigating the role of ATMs within microfinance institutions (MFIs) in Gulu District, Uganda. Unlike commercial banks, MFIs cater primarily to low-income and unbanked individuals. Thus, the current research aimed to assess how ATMs in MFIs can expand financial inclusion by improving access for rural populations who may lack regular access to banking services.

Kamau and Oluoch (2016) explored the relationship between financial innovations, including ATMs, and commercial bank performance in Kenya, using data from banks listed on the Nairobi Stock Exchange between 2012 and 2015. Their findings revealed that ATMs and other digital services contribute significantly to operational efficiency and profitability, particularly by reducing transaction costs. Although the study illustrates the financial advantages of ATMs for bank performance, it does not address ATMs' role in financial inclusion for underserved populations. In contrast, the current study examines ATMs in the context of MFIs that serve marginalized populations in rural Uganda, aiming to evaluate whether these innovations can bridge gaps in access to essential financial services. By

ST. PAUL'S UNIVERSITY

focusing on accessibility rather than profitability, the present study offered insights into how ATM technology within MFIs can directly support financial inclusion in underserved regions.

Akileng et al. (2018) investigated the effect of financial innovation on financial inclusion in Uganda, specifically analysing the role of ATMs and agency banking. The study found that ATMs contributed significantly to financial inclusion by providing convenient and accessible service points for both urban and rural populations. According to Akileng et al., the widespread introduction of ATMs in Uganda has enhanced financial access, with approximately 80% of the population having access to some form of financial innovation. This study provides essential context for the current research, affirming the positive role of ATMs in enhancing financial access. However, while Akileng et al. (2018) offer a broad perspective on the role of ATMs nationwide, the present study narrows the focus to MFIs in Gulu District. This rural-focused approach aimed to assess the specific challenges and opportunities associated with ATM access in less connected regions, thereby offering more targeted insights into financial inclusion within Uganda's rural MFI sector.

2.3.4 Mobile Financial Services and Financial Inclusion

Wieser et al. (2019) investigated the effect of mobile money agents on financial inclusion in rural northern Uganda, employing a randomized sampling method across 168 territories. Their findings indicate that the introduction of mobile money agents significantly increases peer-to-peer transfers and remittance transactions, both of which are essential for financial inclusion in rural areas. The study highlights mobile money's role in reducing transaction costs, improving savings rates, and supporting local economies by positively effecting agricultural and poverty outcomes. Wieser et al.'s research underscores mobile money's potential to enhance livelihoods in underserved communities, aligning closely with the current study's aim of understanding how mobile financial services in rural areas like Gulu District can foster financial inclusion. However, while Wieser et al. (2019) focus was on mobile money as a general service, the present study narrowed the scope to mobile financial services offered through microfinance institutions (MFIs). This specific focus is intended to examine how MFIs in Gulu District can leverage mobile services to increase accessibility and affordability for low-income, rural populations.

Matovu et al. (2021) explored the evolution and adoption of mobile banking systems and associated security requirements in Uganda, with a case study focused on urban respondents

ST. PAUL'S UNIVERSITY

in Kampala. The study found that mobile financial services, driven by innovative mobile devices, have gained widespread acceptance among users, illustrating their influence on financial inclusion. While Matovu et al. (2021) highlight the role of mobile financial services in urban areas, their study does not address the unique challenges or infrastructural limitations in rural regions. The current study sought to fill this gap by investigating mobile financial services within MFIs operating in Gulu District. By analysing mobile service adoption in a rural, low-resource context, the present research contributes a nuanced understanding of the challenges and benefits that MFIs face when implementing mobile financial services to expand financial inclusion in rural Uganda.

Okello et al. (2018) examined mobile money usage and financial inclusion, finding that mobile financial services serve as a foundational tool for increasing financial access in both urban and rural Uganda. The study revealed that digital payment innovations decentralize payments, enabling broader financial service consumption and higher levels of financial inclusion across urban and rural areas alike. Although Okello et al. emphasize mobile money's widespread relevance, they do not specifically investigate the role of MFIs in promoting financial inclusion through mobile services. The current study addresses this by focusing on MFIs in Gulu District and their use of mobile financial services to reach unbanked rural populations. This rural-focused perspective aimed to deepen understanding of how mobile financial services, when integrated into MFI offerings, can play a crucial role in reducing financial exclusion in underserved regions of Uganda.

ST. PAUL'S UNIVERSITY

2.4 Summary of Literature Review

A number of studies were conducted on developed and emerging economies in developing countries other than Uganda. The research gap of the empirical study with linkage between financial innovations variables like agency banking services mobile financial services, ATMs, and digital payment as supported by other researchers as well as conceptual framework were analysed in this section.

Table 1:Summary of Research Gaps

Variable	Author	Objective	Conceptual gap	Contextual gap	Methodological gap
Agency banking services	Nabatanzi (2021)	Effects of agency banking services on financial	The study focused on analysis of agent	The study focus was on micro financial institutions in	The study will be based on multiple regression model on key variables.

Variable	Author	Objective	Conceptual gap	Contextual gap	Methodological gap
		inclusion	transaction volumes and respective effect on financial inclusion in Uganda.	Uganda.	
Agency banking services	Nazziwa (2019)	Antecedents of agency banking services incorporation on equity bank customers within Kampala.	The study aimed at analysis of effects of the trust perceived on agency banking services adoption.	The study based on Ugandan equity banks while the current study will be based on microfinance institutions in Gulu district, Uganda.	The study adopted descriptive methodology and used simple regression model.
Digital Payments	Mutisya and Atheru (2019)	specific objectives were to determine the level of online, versatility, digital payment, ATMs, and debit/credit card keeping money selection and its effect on financial performance	The study aimed at analysis of digital payment platforms and its effect on financial performance	The study was done on Kenya and covered a period of five years, namely from 2011 to 2015	The study used mixed research methodology
Digital Payments	Lyimo and Mbesigwe (2022)	the digital financial services on improving financial inclusion in Tanzania	The study aimed at analysing the effect of digital financial services on improving financial inclusion in Tanzania	the study was done in Tanzania to gain a better understanding of the topic with a larger context in terms of geographic scope such as the East Africa region	The study adopted the descriptive research design with data collected through questionnaires
Mobile Financial Services	Wieser et al. (2019)	The effect of introducing mobile money agents in rural northern Uganda.	The study aimed at analysis of social effects of mobile money as factor of financial	The study was based on Ugandan mobile money user population in poor rural households.	The case study approach was used with randomized sampling method with questionnaires was adopted

ST. PAUL'S UNIVERSITY

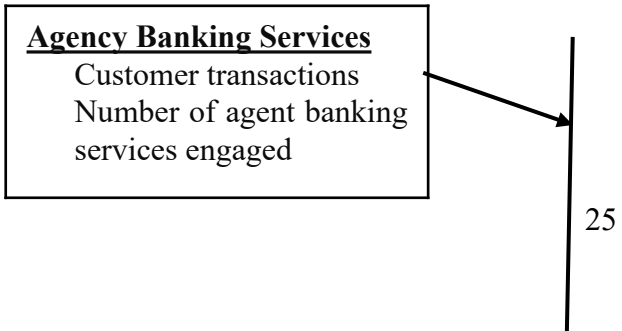
Variable	Author	Objective	Conceptual gap	Contextual gap	Methodological gap
			inclusion in Uganda.		
Mobile Financial Services	Matovu et al. (2021)	Evolution of mobile banking systems and desired security requirements in Uganda	The study aimed at analysis of digital payment platforms and the respective security requirements to ascertain whether they were adhered to in Uganda.	The study was done on Ugandan mobile money users which was study population	The study used mixed research methodology
ATMs	Recheal (2019)	Assessment of effects of ATM adoption on customer service at Bank of Africa (UBA) Kansanga branch in Kampala, Uganda	The study focused on assessment of the perceived ease associated with the use of ATMs and how it alters users' satisfaction	The study was based in Bank of Africa (UBA) Kansanga branch in Kampala, Uganda.	Quantitative and qualitative information using the Statistical Package for Social Scientists (SPSS) and the thematic substance analysis was used to evaluate the effect of ATMs use and level of satisfaction among customers.
ATMs	Kamau and Oluoch (2016)	The relationship between financial innovation and commercial bank performance in Kenya	Relationship between financial innovations and performance of commercial banks that were listed and actively trading at Nairobi stock exchange.	The study was done on Kenya and covered a period of five years, namely from 2012 to 2015	The study used descriptive method and analysed data using STATA 12

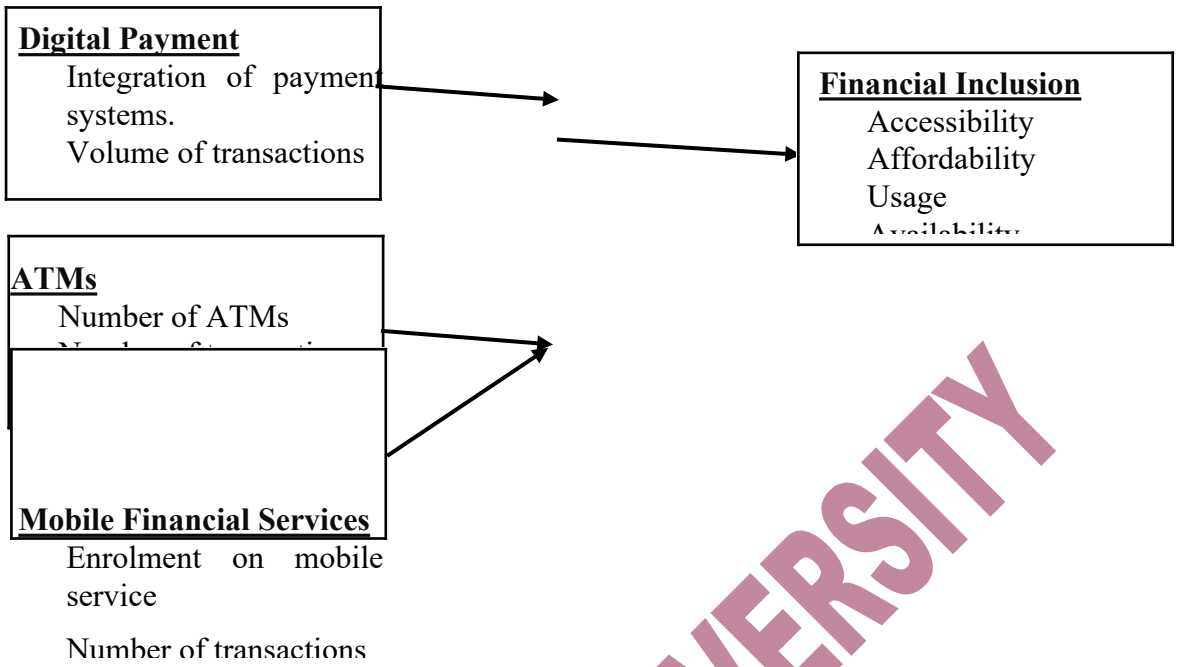
ST. PAUL'S UNIVERSITY

2.5 Conceptual Framework

This represents the link between independent and dependent variables. Under this section, the independent variables are agency banking services, mobile financial services, ATMs and Digital payments which represent the financial innovations. While financial inclusion includes the accessibility affordability, availability, and usage of the financial resources and services to different segments of the population. Furthermore, the relationship between the variables were reviewed on numerous studies under empirical studies.

Independent Variables **Dependent Variable**





Source: Research Data (2024)

Figure 1: Conceptual Framework

2.4.1 Agency Banking Services

Agency banking services is an example of financial innovations aimed at developing structures to streamline connectivity that promote individuals' access to financial services (Sporta & Muganda, 2021). The study will focus on understanding the agent transactions volume which will help in developing an image of relevance of financial innovations and the number of agent banking engage by the microfinance institutions which will help in confirming the effectiveness of financial innovations access in this rapidly changing financial sector where sophisticated financial innovations have emerged rapidly (Njoroge, 2021)

Agency banking services are a key variable of financial innovations in this study and are considered one of the most significant components in the development of financial inclusion (Nabatanzi, 2021). The study will examine the effect of agency banking services on financial inclusion in a rapidly evolving world, where advanced financial innovations have emerged swiftly within the financial sector (Eton et al., 2021).

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

2.4.3 Automated Teller Machines

Automated Teller Machines is one of the highly used financial innovations that financial institutions utilise when providing services to the customers. The process under which institutions conduct development, advancement and incorporation of technology like ATMs to improve operational mechanism in financial services provision. Occurrence of financial innovations has rapidly given rise to penetration of financial services and products over extended population. For instance, ATM's accessibility at the Bank of Africa (UBA) Kansanga branch in Kampala is one influential aspects of financial services provided, thus the development of financial inclusion (Recheal, 2019). In support of the financial innovation's evolution of ATMs, the study focused on the number of ATMs as indicator to evaluate the financial innovations availability, and number of transactions for the microfinance institutions to trace and measure the levels of the financial innovation usage.

The introduction of financial innovations like ATMs has significantly expanded the reach of financial services and products to a wider population. For instance, the accessibility, user-friendliness, and affordability of ATMs are crucial elements of financial services, thereby fostering the growth of financial inclusion (Nanyanzi et al., 2021). To support the advancement of innovations in Uganda, the study assessed the effect of ATMs on financial inclusion in microfinance institutions in Gulu District, Uganda.

2.4.4 Digital Payments and Mobile Financial Services

Digital payments and mobile financial services are pivotal mechanisms for advancing financial inclusion among unbanked populations in developing and underdeveloped nations (Rai & Sharma, 2019; Chinoda & Kwenda, 2019). By enabling users to conduct financial transactions in a secure and cost-effective manner, these innovations significantly enhance access to essential financial services.

In this study, digital payments were assessed through key indicators such as the number of debit and credit cards issued, along with the volume of payment transactions executed by microfinance institutions in Gulu. This evaluation aimed to determine the relevance and effectiveness of digital payment solutions in facilitating financial inclusion (Matovu et al., 2021). Additionally, the study investigated the overall effect of digital payments on

ST. PAUL'S UNIVERSITY

individuals who have recently gained access to banking services through these innovations, exploring whether their adoption leads to increased or decreased usage in the Gulu District.

Mobile financial services represent another critical component of financial inclusion strategies. By leveraging mobile devices for transactions and access to financial services, these services have proven to be transformative for individuals in developing contexts (Pelletier et al., 2019). Mobile financial services encompass transactional capabilities such as money transfers and bill payments and non-transactional functions, like account balance inquiries. With implementations across over seventy countries, including some of the world's poorest nations, mobile financial services demonstrate their effectiveness as a reliable avenue for enhancing financial access and inclusion (Kim et al., 2018). The effectiveness of these services hinges on users' abilities to interact with mobile technology, ultimately fostering improved access, affordability, and engagement with financial services.

To evaluate the effect of mobile financial services on financial inclusion in Gulu District, the study analysed indicators such as transaction volumes and enrolment rates of mobile service users. By investigating these metrics, the research sought to trace the adoption and utilization patterns of mobile financial services within the community. Furthermore, the integration of mobile financial services is anticipated to yield significant enhancements in digital financial services overall, reinforcing their role in promoting financial inclusion.

Through a comprehensive examination of both digital payments and mobile financial services, this study aimed to elucidate their combined influence on financial inclusion within microfinance institutions in Gulu District, Uganda. By elucidating the effects of these financial innovations, the research aspired to contribute valuable insights that inform policymakers and practitioners on enhancing access to financial services for underserved populations.

ST. PAUL'S UNIVERSITY

2.4.4 Financial Inclusion

Financial inclusion serves as the dependent variable in this study, reflecting the extent to which individuals have access to and can effectively utilize financial services. It encompasses a multifaceted understanding of how well the financial needs of individuals, particularly those from underserved populations are met through available financial products and services (Demirgüç-Kunt et al., 2018). To comprehensively evaluate financial inclusion, several sub-

variables were operationalized within the study, each contributing to a nuanced understanding of this concept.

Accessibility is a primary dimension of financial inclusion, representing the ease with which individuals can obtain financial services. This includes factors such as the physical proximity to financial institutions, the availability of digital platforms, and the overall infrastructure supporting access to financial services (Bennett, 2019). Accessibility not only reflects geographic availability but also the navigability of services for potential users.

Affordability is another critical aspect, referring to the cost-effectiveness of financial services available to users. This sub-variable will be assessed through an analysis of fees, charges, and interest rates associated with financial products, as well as the overall economic feasibility for individuals to engage with these services (Kumar et al., 2020). The affordability of financial services is crucial in determining whether individuals can sustainably use the available financial products without facing economic hardship.

Usage constitutes the extent to which individuals actively engage with financial services. This dimension was measured through indicators such as the frequency of transactions, the variety of financial services utilized (e.g., savings accounts, loans, mobile payments), and the overall engagement level with financial products (Zins & Weill, 2016). Understanding usage patterns is essential for identifying barriers and facilitators to financial inclusion.

Availability refers to the range of financial services present in the market, highlighting the diversity and breadth of products offered by financial institutions (Hassan et al., 2020). This includes an analysis of the types of financial services accessible to individuals, such as microloans, savings accounts, insurance products, and payment systems. A greater variety of available services is generally associated with improved financial inclusion outcomes, as it allows individuals to select products that best meet their needs.

By examining these sub-variables accessibility, affordability, usage, and availability, this study aimed to provide a comprehensive understanding of financial inclusion in the context of microfinance institutions in Gulu District, Uganda. Through this analysis, the research elucidated how financial innovations, particularly digital payments and mobile financial services, effect these dimensions of financial inclusion, ultimately contributing to a deeper

ST. PAUL'S UNIVERSITY

understanding of the mechanisms at play in enhancing access to financial services for underserved populations.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides an in-depth analysis of the key components of the study, including the research design, data collection strategies, data analysis methods, and the presentation of results. It offers a detailed explanation of the methodological approaches adopted, outlining the research framework and systematically describing the procedures employed for data collection, analytical techniques, and the structured presentation of the findings.

3.2 Research Design

This study employed an explanatory research design to investigate the effect of financial innovation on financial inclusion within microfinance institutions in Gulu District, Uganda. This approach is particularly suited for establishing causal relationships and understanding the mechanisms that influence the phenomena being examined (Akkaya, 2019; Demirguc-Kunt et al., 2018).

The primary objective of the study was to assess how various aspects of financial innovation specifically agency banking, automated teller machines (ATMs), digital payment services and mobile financial services effect financial inclusion. To achieve this, a regression analysis was conducted, allowing for a detailed exploration of the relationships between independent variables (financial innovations) and the dependent variable (financial inclusion) (Akileng et al., 2018; Allen et al., 2016).

The explanatory research design enabled the study to generate robust findings that reflect the characteristics of the overall study population (Baran, 2022). By focusing on causal relationships, the study aimed to provide insights into how financial innovations can enhance accessibility, affordability, usage, and availability of financial services for Gulu populations in Uganda (Ebong & George, 2021; Nassiuma, 2019).

3.3 Study Population

The study focused on microfinance institutions (MFIs) in Gulu District, Uganda, encompassing all three registered entities operating in the region. These MFIs are pivotal in promoting financial inclusion by providing essential financial services to underserved communities (Akkaya, 2019; Eton et al., 2021). The total study population comprised 85

ST. PAUL'S UNIVERSITY

individuals, including 3 managers, 15 technical staff, 21 employees, and 46 agents, all of whom contribute to the functioning of these institutions. The inclusion of diverse roles within the study allowed for a comprehensive understanding of the dynamics influencing financial innovation and inclusion.

All selected MFIs are duly registered with the Bank of Uganda and the Uganda Microfinance Regulatory Authority, ensuring adherence to national regulatory standards (Bank of Uganda, 2022). To ensure robust data collection, the study employed a census sampling method, which involved including all individuals in the targeted roles within the MFIs, resulting in a total of 85 respondents. This approach facilitated a thorough exploration of the participants' insights and experiences, thus enhancing the representativeness and reliability of the findings (Nassiuma, 2019). By employing a census method, the study was able to capture the multifaceted nature of financial inclusion efforts in Gulu District, reflecting a wide range of perspectives essential for understanding the effect of financial innovations in the microfinance sector.

Furthermore, the sampling strategy aligns with the guidelines established by Krejcie and Morgan (1970), which recommend that a sample size of 85 respondents achieves a 95% confidence level with a 5% margin of error. This methodological rigor underscores the importance of each MFI in Gulu as contributors to the overall data set, allowing for a nuanced analysis of their roles in enhancing financial accessibility and promoting economic development within the community.

ST. PAUL'S UNIVERSITY

3.4 Research Instrument and Data Collection

A self-administered structured questionnaire served as the primary instrument for data collection from the target respondents. This instrument, detailed in Appendix I, was meticulously designed to gather both quantitative and qualitative data relevant to the research objectives, ensuring a comprehensive understanding of the research questions. The questionnaire predominantly featured closed-ended questions, a methodological choice that facilitates straightforward analysis and minimizes potential response bias. Such an approach allows for systematic coding and rigorous statistical analysis of the collected data, as supported by the works of Kim (2020) and Nassiuma (2019). Each question was specifically aligned with the indicators outlined in the study's conceptual framework, focusing on the interplay between financial innovations and financial inclusion.

Key independent variables were identified to effectively measure constructs associated with financial innovation. These included mobile financial services and digital payment services, which empower users to conduct financial transactions through digital and mobile devices, thus enhancing convenience and accessibility. Additionally, agency banking was included as a significant variable, utilizing third-party agents to provide banking services and extend the reach of financial institutions to underserved populations.

The dependent variable of this study, financial inclusion, was operationalized through several sub-variables. Accessibility was defined as the ease with which individuals can access financial services, encompassing both the physical proximity to financial institutions and the availability of digital platforms. Affordability was assessed in terms of the cost-effectiveness of financial services, including the fees, charges, and interest rates associated with accessing financial products. Usage indicated the extent to which individuals utilized available financial services, capturing both the frequency and variety of services engaged. Availability referred to the range of financial services present in the market, highlighting the diversity of products offered by financial institutions.

Responses were recorded using a 5-point Likert scale, allowing respondents to express their level of agreement with each statement. This scale ranged from 1 for "Strongly Disagree" to 5 for "Strongly Agree," as outlined by Baran (2022). This measurement approach provided nuanced insights into respondents' perceptions and experiences regarding the financial services offered by microfinance institutions.

In addition to the primary data collected through the questionnaire, secondary data was sourced from reputable institutions, particularly the annual financial reports published by the Bank of Uganda from 2018 to 2024. This secondary data was instrumental in contextualizing the primary findings and informed the design of the questionnaire by providing essential performance metrics related to agency banking services, mobile financial services, ATMs, and digital payment systems across Uganda, as noted by Akkaya (2019).

A comprehensive analysis of both dependent and independent data was conducted, employing multiple regression analysis to investigate the effect of the identified independent variables on the dependent variable of financial inclusion. This regression model was constructed to evaluate the relationships among these variables, offering clearer insights into

ST. PAUL'S UNIVERSITY

the complex interactions at play. By systematically addressing these methodological elements, this study aimed to contribute to a robust understanding of the effect of financial innovations on financial inclusion, ultimately informing policy and practice within the realms of microfinance and financial services.

3.4.2 Validity of the Research Instrument

Wieser et al. (2019) indicated that collected data is carefully subjected to data cleaning tools to ascertain the reliability of the data. The legitimacy of the questionnaire is recognized and analysed through literature review that presents the true scope and status of the variables being studied. This study was checked by highly qualified supervisors who are experts in their field, as they guide through different phases.

To determine the validity of the research, instrument a pilot study was conducted in Gulu where 8 random selected informants outside the research respondents who will be presented with questionnaire for pre-testing and constructive criticism to check if the data collection tool was made clear, and in logical way and valid for the proposed study.

3.4.3 Reliability of the Research Instrument

Reliability refers to the degree to which a research instrument consistently measures the intended variables, producing stable and consistent results over time and across different contexts (Mugenda & Mugenda, 2013). In this study, the reliability of the research instrument was evaluated using the Cronbach's Alpha coefficient, a widely accepted method for assessing the internal consistency of survey items. Cronbach's Alpha measures the extent to which items within a scale are correlated, indicating how well they collectively measure the construct they are intended to assess (Tavakol & Dennick, 2011). For this study, an alpha value of 0.7 or higher was considered acceptable, in line with common practice in social science research.

Despite applying the Cronbach's Alpha method, it is important to note that reliability is contingent upon the clarity and precision of the questionnaire items. In this study, while the appropriate method for reliability testing was used, the questionnaire's unclear phrasing and ambiguities in some of the questions limited the potential to achieve full reliability. This lack of clarity may have resulted in inconsistent interpretation by respondents, affecting the accuracy and stability of the responses.

ST. PAUL'S UNIVERSITY

Although the Cronbach's Alpha coefficient provided useful insights into the internal consistency of the questionnaire, the issues with question clarity meant that the reliability of the instrument could not be fully ensured. Future studies may benefit from refining the instrument to improve question clarity and ensure that responses consistently align with the intended constructs, thereby enhancing the reliability of the findings.

3.5 Data Analysis and Presentation

This study employed an explanatory research design to investigate the causal relationships between financial innovations and financial inclusion. The analysis was guided by the research objectives, utilizing a multiple regression model to analyse the data collected through a structured questionnaire. This methodological approach enabled a comprehensive exploration of how various financial innovations influence financial inclusion.

The data analysis for this study utilized both descriptive and inferential statistical methods to thoroughly investigate the relationships between financial innovations and financial inclusion. The collected data were systematically organized, collated, summarized, and formatted for presentation in tables (Evans, 2018). Each dataset was categorized according to specific characteristics and processed with reference to the study's objectives through editing, coding, and data entry. This rigorous approach allowed for a clear understanding of the responses related to each variable of interest.

In examining the relationship between financial innovations (the independent variables) and financial inclusion (the dependent variable), the study employed descriptive statistics, which included measures of central tendency such as mean, standard deviation, and variance. These descriptive statistics provided essential insights into the distribution of the data and highlighted key trends related to financial inclusion.

To further explore the relationships among the variables, inferential statistics were applied, specifically utilizing Pearson correlation coefficients and a multiple regression analysis. Pearson correlation analysis assessed the strength and direction of the relationships between financial innovations and financial inclusion in microfinance institutions in Gulu District, Uganda. The coefficient of correlation (r) was employed as the primary measure of the strength of these linear relationships. A coefficient of 1 or greater indicates a perfect positive

ST. PAUL'S UNIVERSITY

correlation, while a coefficient of less than 1 indicates a perfect negative correlation. A coefficient of zero signifies no correlation between the variables (Lyimo & Mbesigwe, 2022).

The multiple regression analysis was conducted to evaluate the effect of the independent variables; Agency Banking Services, Automated Teller Machines (ATMs), Mobile Financial Services, and Digital Payment Services on financial inclusion. This analysis provided valuable insights into how each financial innovation contributes to enhancing financial inclusion in the context of microfinance institutions. The regression model allowed for the identification of patterns within the data, thereby deepening the understanding of how technological innovations facilitate improved financial access (Mutisya & Atheru, 2019; Kamau & Oluoch, 2016).

To assess the robustness of the regression model, the R-squared (R^2) value was calculated, indicating the proportion of variance in financial inclusion explained by the financial innovation variables. A high R^2 value suggests that the model effectively captures a significant portion of the variance, underscoring the importance of financial innovations in promoting financial inclusion (Mutisya & Atheru, 2019). Additionally, p-values were utilized to determine the statistical significance of the relationships between each independent variable and financial inclusion. Variables with p-values less than 0.05 were considered statistically significant, indicating that changes in these variables have a meaningful effect on financial inclusion outcomes (Wieser et al., 2019).

Overall, the combination of descriptive and inferential statistical analyses provided a comprehensive framework for understanding the effect of financial innovations on financial inclusion. The findings offer valuable insights for policymakers and practitioners in the microfinance sector, emphasizing the critical role of technological advancements in expanding financial access and enhancing the inclusivity of financial services.

ST. PAUL'S UNIVERSITY

3.5.1 Empirical Model

The multiple regression model is as follows:

$Y = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\varepsilon$

Where:

Y represents financial inclusion

$\boldsymbol{\beta_0}$ is the Constant, accounting for other factors that influence financial inclusion

$\beta_1, \beta_2, \beta_3$ & β_4 are Regression Coefficients

X_1 corresponds to Agency Banking Services

X_2 represents ATMs

X_3 denotes Digital Payment Services

X_4 refers to Mobile financial services

E is the Error Term

This study employs a multiple regression model to analyse how financial innovations effect financial inclusion within microfinance institutions in Gulu District, Uganda. The model examines four types of financial innovations—agency banking services, automated teller machines (ATMs), digital payment systems, and mobile financial services and their relationship to financial inclusion, which is measured by accessibility, affordability, availability, and usage of financial services.

The financial inclusion is measured by calculating the means of the variable during the period of the study analysis, thus Y the proxy for financial inclusion in relation to the independent variables were represented as X1, X2, X3, X4, and Y (Financial inclusion) representing the agency banking services, ATMs, digital payment services, and mobile financial services, respectively these factors include the effect on deposit transactions, increase in customer numbers, transaction volumes, and enrolment of customer.

Agency banking services, represented by X1, are hypothesised to increase financial access by enabling clients to access financial services through authorised agents rather than traditional banking branches. Automated teller machines, denoted by X2, provide clients with immediate, round-the-clock access to financial transactions, though their effect may vary depending on the extent of their geographical availability. Digital payment systems, represented by X3, are expected to enhance affordability and accessibility by facilitating efficient, low-cost transactions, thus promoting financial inclusion through digital means. Mobile financial services, noted as X4, have the potential to significantly improve financial service usage and reach, especially in remote areas, by enabling financial transactions through mobile networks without the need for physical bank branches.

Each variable in the model has been operationalized and measured based on specific indicators, which are outlined in the Operationalization and Measurement of Variables table in the appendix III. This table provides further clarity on the scales and tools used for each

ST. PAUL'S UNIVERSITY

variable's data collection. Financial inclusion, for instance, is measured through sub-dimensions such as accessibility, which captures the ease with which individuals can access services; affordability, which examines the costs associated with financial services; availability, which refers to the range of financial products offered and usage, which reflects the frequency with which clients engage with these services. Agency banking services are evaluated by tracking transaction volumes and user engagement, while ATMs are measured based on usage rates and user accessibility. Digital payment systems are assessed by transaction volumes and ease of integration with other financial services, and mobile financial services are analysed through indicators like enrolment rates and transaction frequency.

The data collected and structured according to this model support a robust regression analysis, allowing for an in-depth understanding of how each financial innovation influences financial inclusion outcomes. By clarifying the role of each innovation, this model enables a comprehensive evaluation of financial technologies' effectiveness in promoting financial inclusion within microfinance contexts, particularly in areas where financial access remains limited.

The diagnostic tests employed in this study aimed to ensure the reliability and validity of the regression model used to analyse the relationship between financial innovations and financial inclusion. Various tests were conducted to identify and address potential issues such as multicollinearity, heteroscedasticity, and autocorrelation, which could distort the results (Nabatanzi, 2021).

First, the multicollinearity test was conducted using the Variance Inflation Factor (VIF) to determine whether the independent variables were highly correlated with each other. A VIF value greater than 10 would indicate the presence of multicollinearity, suggesting that the variables are not providing independent information. In this study, all VIF values were below the threshold, indicating no serious multicollinearity issues (Mutisya & Atheru, 2019).

Second, heteroscedasticity was tested using the Breusch-Pagan test to assess whether the variance of the residuals was constant across the range of independent variables. A significant result from this test would indicate heteroscedasticity, which could undermine the efficiency of the regression estimates. In this study, the Breusch-Pagan test results indicated no

ST. PAUL'S UNIVERSITY

significant heteroscedasticity, confirming that the assumption of constant variance was met (Wieser et al., 2019).

Finally, the Durbin-Watson test was applied to identify the presence of autocorrelation within the residuals. A Durbin-Watson statistic approaching 2 indicates the absence of autocorrelation, whereas values deviating significantly from 2 suggest the existence of serial correlation in the residuals. The results of the Durbin-Watson test in this study were within acceptable limits, suggesting no autocorrelation issues in the model (Kamau & Oluoch, 2016). These diagnostic tests ensured the robustness of the regression analysis and the validity of the study's findings (Eton et al., 2021).

3.6 Ethical Considerations

In conducting this research, ethical standards were rigorously upheld to ensure the integrity and credibility of the study. Approval for the study was obtained through a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI), authorising data collection. This permit facilitated compliance with national research regulations, ensuring that all procedures adhered to ethical standards required by regulatory authorities (NACOSTI, 2018).

Confidentiality of participants' information was a primary consideration throughout the research process. Respondents were assured that their identities and responses would remain strictly confidential and would only be used for academic purposes. To uphold this commitment, personal identifiers were not included in the data analysis, and responses were anonymized during data processing. All electronic data files were securely stored with restricted access, and any hard copy data were kept in a locked file cabinet accessible only to the researcher (Creswell & Poth, 2017).

Informed consent was obtained from all participants before data collection began. Each participant received a detailed information sheet explaining the study's purpose, the voluntary nature of participation, potential benefits, and the right to withdraw from the study at any point without penalty. This ensured that participation was based on a clear understanding of the study's objectives and that all participants were fully aware of their rights (Babbie, 2020).

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

The research also adhered to principles of non-maleficence, ensuring that no harm, either psychological or physical, would come to participants as a result of their involvement. All questions in the survey were designed to avoid sensitive topics that could cause discomfort, and participants were encouraged to skip any questions they felt uneasy answering (Orb, Eisenhauer, & Wynaden, 2001).

Finally, integrity and transparency were maintained throughout the research process. All data was reported accurately, with no manipulation or selective presentation, ensuring the findings represent an honest and ethical interpretation of the collected data (Bryman, 2016).

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

CHAPTER 4: RESULTS AND ANALYSIS

4.1 Introduction

This chapter presents the analysis and findings of the study. It outlines the key results derived from the data, focusing on the effect of financial innovation on financial inclusion within the context of Uganda's microfinance sector, particularly in Gulu District. The chapter is structured to provide insights into the relationships between agency banking services, mobile financial services, ATMs, and digital payment services, and their effects on the accessibility, affordability, availability, and usage of financial resources. The findings are analyzed in relation to the research objectives, and implications for financial inclusion are discussed.

4.2 Questionnaire Response Rate

The study distributed 85 questionnaires to the target population, with clear instructions provided to ensure that respondents understood the questions and could answer accurately. After careful review and completion by the participants, a total of 80 questionnaires were returned, representing a strong response rate of 94%. This high response rate enhances the reliability and validity of the study's findings, as it reflects robust engagement from the target population. The data collected from these responses were subsequently analysed in detail to identify patterns, trends, and relationships between the variables, as discussed in the subsequent sections.

4.3 Reliability Test Results

To assess the research instrument consistency and reliability, a reliability test was conducted using Cronbach's Alpha coefficient. This method evaluates the questionnaire internal consistency by ensuring that it reliably measures the intended variables. The reliability test on each variable was measured as indicated on the table below.

Table 2: Reliability Test Results

Variable	Cronbanch's Alpha	Interpretation
Agency banking services	0.94	Excellent internal consistency
ATMs	0.88	Good internal consistency
Mobile Financial Services	0.89	Good internal consistency
Digital Payment Services	0.89	Good internal consistency

ST. PAUL'S UNIVERSITY

Source: Research Data (2024)

From the findings indicated that Cronbach's Alpha coefficient for agency banking services, ATMs, mobile financial services, and digital payment services are all above the acceptable indicator of 0.7 ($\alpha = 0.7$). Specifically, agency banking recorded a Cronbach's Alpha of 0.94, ATMs had 0.88, mobile financial services scored 0.89, and digital payment services also registered 0.89. These results confirm that the questionnaire is a reliable tool for collecting data and can be confidently used to analyse the relationships between financial innovations and financial inclusion in the study area.

4.5 Descriptive Statistics of the Study Variable

4.5.1 Respondent's Role in the Microfinance Institutions (MFIs)

The study participants indicated their function within the MFIs, and those roles were analysed and presented as follows.

Table 3:Respondents' Role in the Micro Finance Institutions (MFIs).

Role	Frequency	Percent
Agents	42	52.5
employees	20	25
managers	3	3.8
Technical staff	15	18.7
Total	80	100

Source: Research Data (2024)

The study findings revealed a diverse distribution of roles within MFIs. Agents who are sales representatives who interact directly with customers, form the largest group at 52.5%, followed by employees at 25%, technical staff at 18.7%, and managers at 3.8%. This diversity of roles within MFIs is essential as it allows for a comprehensive assessment of the effect of financial innovation from both customer-facing and operational perspectives.

4.5.2 Total Number of Branches

The findings present the number of MFI branches operating in Gulu District, as shown in Table 4.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Table 4: Total Number of Branches

Source: Research Data (2024)

Number of Branches	Frequency	Percentage (%)
1 to 5	**80**	**100**
6 to 10	**0**	**0**
More than 10	**0**	**0**
Total	**80**	**100**

The study findings indicated that MFI operate approximately one to five branches on average in Gulu district, Uganda. This finding signifies a substantial branch network, which can positively effect financial inclusion by improving geographic coverage and accessibility of financial services.

4.5.3 Innovative Products offered in the MFIs

Respondents were asked to indicate whether certain innovative products, such as ATMs, mobile banking, debit cards (Digital Payment), and agency banking services, were available in their respective MFIs.

Table 5: Innovative Products offered in the MFIs

Tools	Frequency	Percent
ATM	80	100
Mobile banking	80	100
Debit cards (Digital Payment)	80	100
Agency services	80	100

Source: Research Data (2024)

To measure the variables related to innovative products offered by MFIs, the availability of each product (ATM, mobile banking, debit cards, and agency services) was treated as a categorical variable, with responses indicating either the presence or absence of each product. Given that all respondents reported the availability of these products, the adoption rate for each product was measured at 100%. The descriptive statistics, including frequencies and percentages, were used to quantify the extent of product availability. The mean value for each

ST. PAUL'S UNIVERSITY

product's adoption rate was 1 (or 100%), and the standard deviation was 0, indicating no variation in the availability across respondents. Further variables related to financial inclusion, such as accessibility, affordability, usage frequency, and customer satisfaction, could be measured to assess the effect of these innovative products on financial inclusion outcomes.

4.5.4 Effect of Agency Banking Services on Financial Inclusion

The analysis of the data findings allows for an in-depth understanding of how agency banking is influencing customer access to financial services, transaction behaviours, and overall customer satisfaction. By examining the interactions between these variables, the study assesses the effectiveness of agency banking in enhancing financial inclusion. Specifically, it focuses on the role of agency banking in expanding financial services to areas with limited or no access to traditional banking infrastructure.

The following sections outline the key findings from the empirical data, highlighting the significant effect of agency banking services on various dimensions of financial inclusion, such as access to services, cost-effectiveness, convenience, and customer engagement in Gulu District. The insights from this analysis are crucial for understanding the potential of agency banking in fostering greater financial inclusion, particularly in regions where conventional banking is not easily accessible.

Table 6: Effect of Agency Banking Services on Financial Inclusion

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Agency banking has increased customer deposit transactions	11.3%	36.3%	46.3%	6.3%	0.0	3.58	0.81
Agency banking has increased customer numbers	12.5%	37.5%	45.0%	3.8%	1.3%	3.59	0.85
Agency banking has reduced physical cash transactions	16.3%	47.5%	32.5%	3.8%	0.0	3.78	0.74
Agency banking has increased agent transaction volumes	13.8%	71.3%	13.8%	1.3%	0.0	4.11	0.53
Rise in number of agents due to agency banking	8.8%	40.0%	42.5%	8.8%	0.0	3.47	0.79
Agency banking services bring MFIs closer to customers	13.8%	41.3%	36.3%	7.5%	1.3%	3.59	0.85
Customers prefer agency banking over in-branch services	7.5%	43.8%	38.8%	8.8%	1.3%	3.49	0.86
Agency Banking services affected customer satisfaction	37.5%	43.8%	12.5%	5.0%	1.3%	4.19	0.75
Affordability of agency banking services effects transactions	10.0%	47.5%	36.3%	6.3%	0.0%	3.68	0.76

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Source: Research Data (2024)

The findings results indicated that 11% of the respondents strongly agreed that agency services have contributed to increased customer deposit transactions, 36% of respondents agreed that agency services have contributed to increased customer deposit transactions, 46% of respondents remained neutral on issues of agency services contribution to increased customer deposit transactions and 6% of respondents denied that agency services have contributed to increased customer deposit transactions. The findings indicates that agency banking services at MFI are effective in attracting deposits and giving loans, which is vital for MFIs' financial stability and overall financial inclusion in Gulu district, Uganda.

The study findings revealed that 12% of respondents strongly agreed that MFI agency services have led to an increase in the number of customers, while 37% agreed with this view. Additionally, 45% of respondents remained neutral regarding the belief that MFI agency services have contributed to customer growth. In contrast, 3.8% disagreed, and 1.3% strongly disagreed with the notion that agency services have expanded the customer base. Overall, these results suggest a generally positive perception of agency banking, indicating that such services play a significant role in extending the reach of MFIs to previously unbanked individuals, thereby promoting financial inclusion.

Further, the findings indicated a positive effect of agency banking services on financial inclusion on MFI in Gulu District. The results indicate that 8% respondents strongly agree on the perceived rise in the number of agent banking within the district due to MFI agency services, while 40% respondents agree, 42.50% of the respondents remained neutral on the perceived rise in the number of agent banking within the district due to MFI agency services, and 8.80% of the respondents disagreed with the perception that the number of agent banking has risen within the district due to MFI agency services. This growth signifies improved local access to financial services, especially in remote areas, which is essential for addressing financial inclusion challenges.

Likewise, the respondents were asked to rate whether agency banking services have become more accessible to customers and whether this accessibility potentially leads to fewer transaction volumes. The results findings indicated that 13.80% of respondents strongly agreed that agency banking services have become more accessible to customers, potentially with reduced transaction volumes, at the same time, 41% of the respondents agreed, whereas

ST. PAUL'S UNIVERSITY

36% of the respondents were neutral, 7.50% of the respondents disagree that agency banking services have become more accessible to customers, potentially with reduced transaction volumes and rest 1.30% of respondents strongly disagreed that agency banking services have become more accessible to customers, potentially with reduced transaction volumes. Improved accessibility and convenience are crucial for financial inclusion, as they remove barriers related to distance and travel, making financial services more accessible to a broader group.

The study results further indicated that 7% of respondents strongly agreed, 43% agreed, 38% were neutral, 8% disagreed, and 1% strongly disagreed that customers are willing to pay more for the convenience of agency banking services. These findings highlight the critical role that accessible and user-friendly financial services play in advancing financial inclusion, as the convenience offered by agency banking is valued by a significant portion of customers.

In addition, the study findings reveal that 63.8% of customers agreed or strongly agreed an indication of preference for agency banking services. This research finding is statistically significant, demonstrating that a substantial portion of customers value the convenience of agency banking services outlets over traditional banking halls.

The findings also shows that 10.5% of respondents rated strongly agree, 47% agree, 36% agree, are neutral, while 6% disagree on the affordability of the agency banking services, indicating a substantial portion of customers value the convenience of agency banking. It is evident that affordability plays a notable role for most customers. This statistical insight underscores the importance of balancing service costs and affordability in agency banking services.

A significant majority of respondents (71.3%) agree that agency banking has increased agent transaction volumes. This strong agreement, despite some neutrality, shows that the volume of transactions has largely benefited from agency banking. This statement has the highest standard deviation reflecting a wide range of opinions. While some strongly agree that agent transaction volumes have increased, others are more neutral or disagree. This variability suggests that the effectiveness of agency banking in increasing transaction volumes may vary significantly by location or implementation.

The overwhelming majority of respondents either strongly agree (37.5%) or agree (43.8%) that agency banking has positively effected customer satisfaction, showing that this area is a

ST. PAUL'S UNIVERSITY

major success for agency banking services. This statement has the lowest standard deviation, indicating strong consensus that agency banking has had a positive effect on customer satisfaction. Most respondents agree that agency banking has improved customer experiences, making this one of the least divisive areas of effect.

Overall, the data shows that agency banking is generally viewed positively in terms of increasing customer numbers, deposit transactions, and access to microfinance institutions. However, the higher standard deviations in certain areas, such as transaction volumes and physical cash reductions, suggest that these benefits are not uniformly realized across all respondents. These findings point to the need for further investigation into the factors driving variability in agency banking outcomes, which could be explored through correlation or regression analyses to determine the relationships between different effect areas.

4.5.5 Rate How You Perceive the Mobile Financial Services in Day-To-Day Transactions in The Microfinance Institutions.

The findings in this table below provides statistical information on customer perceptions of agency banking services.

Table 7: Perceived the Agency Banking Services in Day-to-Day Transactions in The Microfinance Institutions

Scale levels	Frequency	Percent
Very Good	11	13.8
Good	57	71.3
Fair	11	13.8
Poor	1	1.3
Very Poor		
Total	**80**	**100**

Source: Research Data (2024)

The majority of respondents (71.3%) rated mobile financial services as Good, with 13.8% rating them as Very Good and an equal 13.8% rating them as Fair. Only 1 respondent (1.3%) rated the service as Poor, and none rated it Very Poor, indicating a strong overall positive perception of agency banking services among users.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

4.5.6 Effect of Automated Teller Machine (ATMs) on Financial Inclusion

The study aimed to assess the effect of Automated Teller Machines (ATMs) on financial inclusion within MFIs in Gulu, Uganda. Respondents were asked to evaluate the influence of ATMs on financial inclusion, and the results are presented in the following table below.

Table 8: Effect of ATMs on Financial Inclusion

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Effect on transactions in MFIs	23%	40%	19%	13%	6%	3.61	1.13
Reduction in long queues and cash handling	25%	35%	25%	10%	5%	3.65	1.1
Increase in agent transaction volumes	19%	44%	23%	10%	5%	3.51	1.09
Rise in the number of Customer Engagement	28%	38%	25%	6%	4%	3.79	1.02
Proximity and convenience of ATMs	38%	44%	13%	4%	3%	4.06	0.97
Customer willingness to use ATMs over queues and travelling to banking hall	31%	35%	19%	9%	6%	3.75	1.14
Easy to access and use the ATMs	9%	35%	40%	4%	13%	3.18	1.25
Affordability of ATM services affecting behaviour	23%	38%	28%	6%	6%	3.43	1.1

Source: Research Data (2024)

The study findings revealed that 63% of respondents either strongly agreed or agreed that ATMs have had a significant effect on MFIs transactions. With a mean score of 3.61 and a standard deviation of 1.13, the results indicate moderate consensus that ATMs have positively influenced transaction processes within microfinance institutions (MFIs). This raises questions about the effectiveness of ATMs in improving transaction efficiency and warrants further investigation into the ATMs role in financial inclusion efforts in MFIs in Gulu, Uganda.

The findings indicate that 25% of respondents strongly agreed, 35% agreed, 23% were neutral, 10% disagreed, and 5% strongly disagreed that ATMs have helped reduce long queues and the need for cash handling. The mean score of 3.65 indicates that most respondents agree that ATMs have helped reduce long queues and improved cash handling efficiency. The standard deviation of 1.10 suggests that opinions on this statement are fairly consistent, with limited variability across responses. It implies that ATMs may not be as effective in improving customer service and efficiency as expected.

ST. PAUL'S UNIVERSITY

With a mean score of 3.51 suggests moderate agreement that ATMs have contributed to an increase in agent transaction volumes, with 44% agreeing, and 19% strongly agreeing. However, the standard deviation of 1.09 indicates some variability in opinion, reflecting differences in how respondents perceive this effect.

Furthermore, the finding indicated that easy access and use of ATMs do effect transaction patterns with the lowest mean of 3.18, indicating that respondents are more neutral or have mixed opinions about the ease of access and use of ATMs. The higher standard deviation of 1.25 suggests greater variability in experiences, with 40% remaining neutral and 13% strongly disagreeing, highlighting a possible challenge with ATMs usability.

The mean of 3.43 suggests that affordability is a moderately important factor influencing the use of ATMs services. With a standard deviation of 1.10, there is some variability in how respondents perceive the affordability of ATMs services, with some feeling it is more effectful than others.

Respondents generally agree that customers are more willing to use ATMs instead of queuing at banking halls, with 31% strongly agreeing, and 35% agreeing. The standard deviation of 1.14 indicates moderate variability in this willingness, possibly due to differences in ATMs accessibility or customer preferences.

The findings indicated the highest mean score of 4.06 reflects a strong consensus among respondents regarding the proximity and convenience of ATMs, with 82% either agreeing or strongly agreeing. The low standard deviation of 0.97 indicates a high level of consistency in responses.

Furthermore, the study findings indicated a relatively high mean of 3.79 which shows that respondents generally believe ATMs have contributed to an increase in customer engagement, with 28% strongly agreeing, and 38% agreeing. The standard deviation of 1.02 suggests there is less variability in this response compared to other effect areas.

Finally, a detailed understanding of these dynamics, further regression analysis, correlation studies, and hypothesis testing would provide deeper insights into the factors that drive ATMs adoption and customer satisfaction. This information could help financial institutions optimize their ATMs networks and ensure that these services are accessible, affordable, and user-friendly for a broader range of customers.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

4.5.7 Effect of Mobile Financial Services on Financial Inclusion.

The study aimed to assess the effect of mobile financial services on financial inclusion within MFIs in Gulu, Uganda. Respondents were asked to evaluate various aspects of how mobile financial services influence financial inclusion, and the results are presented in the table below.

Table 9: Effect of Mobile Financial Services on Financial Inclusion

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Affordability increasing mobile money enrolment	63%	25%	6%	4%	3%	4.41	0.86
Integration of mobile payments into company systems	60%	28%	6%	4%	3%	4.38	0.85
Increase in transactions and accessibility	69%	23%	5%	3%	1%	4.54	0.76
Positive effect on financial inclusion and access	65%	25%	6%	3%	1%	4.5	0.77

Source: Research Data (2024)

The findings indicated 63% of respondents rated strongly agree 25% agree, 6% agree are neutral while 4% disagree and 3% strongly disagree that mobile financial services affordability has increased enrolment on mobile money amongst users. The responses indicate a strong positive perception of mobile financial services with a mean score of 4.1 and standard deviation score of 0.86 a significant number of respondents agree that the mobile financial services has enhanced financial inclusion by increasing enrolment.

Furthermore, 88% of the respondents strongly agreement or agree that mobile money has increased integration of payments systems in the MFIs. The results show that respondents strongly agree or agree that mobile financial services have increased transaction and accessibility for customers and the adoption has major positive effect the institutions and access to financial service.

4.5.8 Perceived Mobile Financial Services on Daily Transactions of the MFIs

Respondents were asked to rate their perception of mobile financial services in day-to-day transactions within the MFIs. The study findings were recorded in the table below.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Table 10: Perceived Mobile Financial Services

Scale Levels	Percent
Fair	10
Not sure	11.3
Very Good	10.0
Good	67.5
Poor	1.3
Total	100.0

Source: Research Data (2024)

The results show that a majority of respondents had a positive perception of mobile financial services, with 67.5% rating them as good and 10% as very good. This positive perception suggests that mobile financial services are widely accepted and appreciated for their convenience, accessibility, and efficiency. The high satisfaction rates likely indicate a growing dependence on mobile platforms for financial transactions, particularly in regions where traditional banking infrastructure is limited. Additionally, the 77.5% positive rating underscores the significant potential of mobile financial services in promoting financial inclusion, especially among underserved populations. However, the fact that a portion of respondents did not rate the services as "very good" suggests there is still room for improvement. This points to potential challenges in areas such as user experience, security, and reliability, which may need to be addressed to fully optimize these services.

ST. PAUL'S UNIVERSITY

4.5.9 Effect of Digital Payments Services on Financial Inclusion

The specific objective of the study explored the effect of the digital payment services on financial inclusion in Micro finance institutions in Gulu district, Uganda. The respondents were asked to indicate their response on the different aspects as indicated on the table below

Table 11: Effect of Digital Payments Services on Financial Inclusion

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	N	Mean	Standard Deviation
Digital payment service affordability has increased enrolment on mobile money among users.	8%	38%	50%	1%	4%	80	3.44	0.87
Digital payment service has increased integration of company's payment systems.	8%	51%	38%	4%	0%	80	3.63	0.7

St. Paul's University Repository

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	N	Mean	Standard Deviation
Digital payment service has increased transaction and accessibility for customers.	8%	43%	41%	1%	8%	80	3.34	0.95
Digital payment service adoption has a major positive effect on customer access to financial services.	5%	49%	40%	0%	6%	80	3.47	0.83

Source: Research Data (2024)

Arguably, the findings indicated that 50.0% of respondents remained neutral regarding the affordability of digital payment services increasing enrolment in mobile money. However, 37.5% agreed, and 7.5% strongly agreed, suggesting that there is potential for affordability to positively effect enrolment in mobile money. It's worth noting that some respondents (4.8%) disagreed or strongly disagreed, indicating a degree of scepticism or disagreement on this point, similarly, there was a strong agreement (51%) that digital payment services have increased the integration of company payment systems, such as petrol stations, restaurants, and online shopping platforms. Another 38% were neutral on this matter. Notably, no respondents strongly disagreed, but a small percentage (3.8%) disagreed.

The study findings indicated that respondents were divided on the effect of the digital services as the transaction volume and accessibility. While 42.5% agreed and 7.5% strongly agreed that the digital payment services have increased transaction and accessibility, 41.3% remained neutral. A small percentage (8.8%) disagreed or strongly disagreed, indicating some uncertainty or disagreement regarding this aspect.

Moreover, there was a notable respondents (48.8%) agreed on the adoption of digital payment services having a major positive effect on both the MFIs and customers as the financial services are easy to access. However, a significant portion (40.0%) remained neutral on this point. A small percentage (6.3%) strongly disagreed, suggesting that there might be varying perceptions regarding the extent of effect.

For instance, the results indicate that digital payment services are generally perceived as having a positive effect on various aspects of financial inclusion, including integration with company payment systems and accessibility for customers. However, there is a level of neutrality, particularly concerning affordability and the overall effect on institutions and

ST. PAUL'S UNIVERSITY

customers. These findings suggest that while digital payment services have shown promise, there may still be room for improvement and further exploration of their potential benefits for financial inclusion in Gulu district, Uganda.

4.5.10 Perception of Digital Payment Services in the Daily Transactions of the Microfinance Institutions.

The findings of the responses on how the respondents perceive the mobile financial services in day-to-day transactions in the microfinance institution is indicated in the table below.

Table 12: Perception the Digital Payment Services in Daily Transactions in the Microfinance Institutions

Scale levels		Percent	Cumulative Percent
	fair	10.0	10.0
	good	80.0	90.0
	not sure	1.3	91.3
	very good	8.8	100.0
	Total	100.0	

Source: Research Data (2024)

The findings indicated that the many respondents had a positive perception of mobile financial services, with 64% rating them as good and 8% as very good. The data underscores the role of digital payment services in streamlining financial operations and enhancing accessibility, particularly for individuals who may otherwise have limited access to traditional banking services. These findings highlight the growing acceptance of mobile financial services in facilitating regular transactions, reflecting their importance in improving operational efficiency and financial inclusion in microfinance in Gulu District.

4.5.11 Effect of Financial Innovation on Financial Inclusion.

The study findings indicate the effect of financial innovation on financial inclusion of MFIs in Gulu, Uganda as shown in the table below.

Table 13:Effect of Financial Innovation on Financial

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Easy Access to Financial Services	6.3%	46.3%	43.8%	3.8%	0.0%	3.55	0.72
Customer Satisfaction	8.8%	46.3%	38.8%	2.5%	2.6%	3.57	0.83
Reduced Cost of	3.8%	47.5%	46.3%	1.3%	1.3%	3.51	0.73

St. Paul's University Repository

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Transactions Increased Volume of Transactions	6.3%	42.5%	47.5%	2.5%	1.3%	3.55	0.71

Source: Research Data (2024)

The findings indicate a fairly balanced perspective on the affordability, accessibility and easy to use of financial service in MFI due to financial innovation, 46.3% of the respondents agreed that innovation have made access easier, while 43.8% remained neutral. This suggests that experiences and perceptions regarding the effect of innovations on accessibility may vary among respondents.

Regarding customer satisfaction, financial innovations appear to have a positive influence, with 46.3% of respondents agreeing that innovations contribute to satisfaction. However, a significant portion (38.8%) remained neutral, highlighting potential areas for improvement to further enhance satisfaction through these innovations.

A notable 47.5% of respondents agreed that financial innovations have reduced the cost of transactions, while 46.3% were neutral on this issue. This neutrality suggests that some respondents may not have experienced significant cost reductions, indicating a need for further examination of cost-related aspects.

Similarly, 42.5% of respondents agreed that financial innovations have led to an increased volume of transactions, but a significant percentage (47.5%) remained neutral. This indicates that the effect of innovations on transaction volumes may not be uniformly recognized. Exploring the reasons behind this neutrality could provide valuable insights into how innovations are affecting transaction behaviours.

4.5.12 Factors That Affect Success of Financial Inclusion

The findings indicated that the role of the Bank of Uganda in promoting financial inclusion through MFIs in table below.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Table 14: Factors That Affect Success of Financial Inclusion

Effect Area	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Standard Deviation
Perception of Regulation Support by Bank of Uganda	7.5%	47.5%	40.0%	5.0%	0.0%	3.58	0.63
Availability of Financial Literacy	6.3%	48.8%	36.3%	8.8%	0.0%	3.53	0.66
Confidence in Usage of Financial Innovations	3.8%	42.5%	46.3%	3.8%	3.8%	3.38	0.57
Poor Perception and Trust in Financial Innovations	5.0%	42.5%	50.0%	2.5%	0.0%	3.5	0.57
High Cost of Transactions as a Barrier to Access	10.0%	43.8%	40.0%	2.5%	2.6%	3.57	0.71

Source: Research Data (2024)

In terms of regulatory support, the role of the Bank of Uganda in promoting financial inclusion through MFIs is a subject of contention. While 47.5% of respondents agreed that the Bank's regulations positively effect financial inclusion, 40% were neutral, suggesting that the regulatory framework's effectiveness may need further evaluation and enhancement. The mean score of 3.58 shows that respondents generally agree that the Bank of Uganda's regulatory support positively effects financial inclusion. However, the standard deviation of 0.63 suggests some variability in responses, with a small but notable portion expressing neutrality or disagreement. This indicates that while regulatory support is largely viewed favourably, there may be differences in how its effectiveness is perceived across different stakeholders.

Financial literacy is seen as a positive influence on financial inclusion, with 65.1% of respondents agreeing or strongly agreeing. However, 8.8% disagreed, indicating potential challenges in the broad dissemination of financial literacy programs. With a mean score of 3.53 and a standard deviation of 0.66, respondents largely view financial literacy as a key enabler of financial inclusion. The relatively low standard deviation indicates a general consensus, but the presence of some disagreement suggests that access to financial literacy programs may not be uniform across all segments, and there may be room for improvement in ensuring wider reach and effectiveness of these programs.

Low confidence in using financial innovations was identified as a barrier to financial inclusion by 46.3% of respondents. This suggests that increasing user confidence in

ST. PAUL'S UNIVERSITY

leveraging these innovations could be a critical focus for advancing financial inclusion efforts. The mean score of 3.38 reflects a moderate level of agreement that confidence in using financial innovations, such as ATMs, mobile banking, and digital payments, is a challenge for financial inclusion. The lower standard deviation of 0.57 shows a smaller spread of opinions, indicating that most respondents share similar views on this issue. This suggests a need for efforts to build trust and confidence in the use of these technologies to expand inclusion.

On the other hand, 50% of respondents disagreed that poor perception and trust in accessing financial innovations are significant barriers to financial inclusion. This result indicates that trust and perception may not be major obstacles in this context. The mean score of 3.50 and a standard deviation of 0.57 indicate that respondents are somewhat neutral regarding whether poor perception and trust in financial innovations are barriers to inclusion. While some respondents believe trust is not a significant issue, others hold a more cautious view. This shows that while trust might not be a major obstacle, it cannot be entirely dismissed and should be addressed in efforts to improve financial inclusion.

Finally, 44% of respondents agreed that the high cost of transactions poses a barrier to financial inclusion. However, 40% remained neutral on this matter, indicating some uncertainty about the extent to which costs influence access to financial services. The mean score of 3.57 highlights that respondents generally agree that high transaction costs act as a barrier to financial inclusion. The standard deviation of 0.71 suggests a wider range of responses, with some respondents more strongly agreeing than others. This finding underscores the importance of addressing cost barriers to make financial services more accessible to lower-income populations.

4.6 Diagnostic Test Results

The study tested for assumptions underlying the multiple regression analysis model to analyse the effect of financial innovation on financial inclusion in microfinance institution in Gulu district, Uganda. Several diagnostic tests were conducted on the study findings and the assumptions model to test the relationship between the findings on the financial innovation and financial inclusion of MFI in Gulu, Uganda (Akileng et al., 2018). To validate the model appropriateness and robustness of the findings the results of these diagnostic tests are tabulated in the Table 16.

ST. PAUL'S UNIVERSITY

4.6.1 Multicollinearity Test

The study findings were tested using the multicollinearity test with Variance Inflation Factor (VIF) among the independent variables value below 5 suggesting no Multicollinearity concerns (Mutua & Atheru, 2019). This test helps to confirm the assumption of the multiple regression model by ensuring that the results area reliable and accurate as indicated in Table 16

Table 15: Multicollinearity Test

Variable	VIF	Interpretation
Agency Banking Services	2.5	No multicollinearity
ATMs	3.2	No multicollinearity
Mobile Financial Services	4.1	No multicollinearity
Digital Payment Services	3.7	No multicollinearity

Source: Research Data (2024)

The study findings indicate that all VIF values are below 5 indicating multicollinearity is not a concern among the independent variables.

4.6.2 Heteroskedasticity Test

To test the study findings, the Breusch Pagan model was used to test the data collected and analysed using the empirical model to determine if the data has not suffered from the heteroskedasticity at 5% level of significance, The test also checks for heteroskedasticity by ensuring that the variables of the residuals remain consistent across all levels of the independent variables (Ngugi & Mwangi 2020). The p-value is greater than 0.05 suggesting no heteroskedasticity as indicated in the table below.

Table 16: Breusch-Pagan Test

Test	Chi-square	p-value	Interpretation
Breusch-Pagan Test	1.92	0.17	No heteroskedasticity ($p > 0.05$)

Source: Research Data (2024)

To validate the empirical model, a robust check using the Breusch-Pagan test was performed to assess heteroskedasticity. This step was crucial in ensuring that the error terms were not

ST. PAUL'S UNIVERSITY

correlated across the data collected, which is vital for the validity of regression results (White, 1980). The results confirmed that the data did not suffer from heteroskedasticity at the 5% level of significance, validating the model's reliability.

4.6.3 Autocorrection Test

Durbin Watson test was applied to assess autocorrection in the residuals further testing the model relationship between financial innovation and financial inclusion. According to Kariuki and Wanjohi (2021), the Durbin Watson test statics close to 2 indicating no significant auto correction in the residuals from the regression analysis as indicated in table below.

Table 17: Durbin-Watson Statistic

Test	Durbin-Watson Statistic	Interpretation
Durbin-Watson Test	1.95	No autocorrelation (statistic ~ 2)

Source: Research Data (2024)

This approach is consistent with the methodology outlined by Lyimo and Mbesigwe (2022), which emphasizes the application of correlation coefficients to understand the strength and direction of relationships between variables.

4.7 Inferential Statistics

The researcher undertook the inferential statistics in form of Pearson correlation coefficient and multiple regression analysis that will determine the connection effect between financial innovations and financial inclusion

4.7.1 Pearson correlation coefficient

Mutisya and Atheru (2019) applied Pearson correlation analysis to examine the relationship between the independent and dependent variable of the study as a basis for analysis. The researcher undertook the correlation coefficients analysis to measure the strength and direction of relationship between agency banking, ATM, mobile financial service and digital payment service with financial inclusion as indicated in table below.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Table 18: Pearson Correlation Coefficient between Financial Innovation and Financial Inclusion

	Financial Inclusion	Agency Banking	ATMs	Mobile Financial Services	Digital Payment Services
Financial Inclusion	1	0.78	0.78	0.78	0.78
Agency Banking	0.78	1	0.75	0.62	0.85
ATMs	0.78	0.75	1	0.62	0.85
Mobile Financial Services	0.78	0.62	0.62	1	0.85
Digital Payment Services	0.78	0.85	0.85	0.85	1

Source: Research Data (2024)

The Pearson correlation analysis revealed notable insights into the relationship between financial innovation—represented by agency banking, ATMs, mobile financial services, and digital payment services and financial inclusion in Gulu District, Uganda. Each of these financial innovations displayed a strong positive correlation with financial inclusion, indicating their collective and individual significance in expanding access to financial services for underserved populations in the region.

Among these, digital payment services emerged as the most influential factor, with a high correlation coefficient (r = 0.78). This strong correlation suggests that digital payment platforms, such as mobile payments and online transfers, are particularly effective in promoting financial inclusion by enabling fast, secure, and convenient financial transactions, especially for populations with limited access to traditional banking infrastructure. The accessibility and ease of digital payment services play a pivotal role in reaching marginalized groups and integrating them into formal financial systems.

ST. PAUL'S UNIVERSITY

Agency banking, with a similarly strong correlation to financial inclusion (r = 0.78), underscores the role of bank agents and third-party service providers in extending financial services to rural and remote areas. By establishing local points of access through agents, financial institutions bridge geographical barriers, offering essential services like deposits and withdrawals to individuals who might otherwise face significant obstacles in accessing bank branches.

ATMs, with a correlation coefficient of r = 0.78, contribute positively to financial inclusion by increasing the availability of cash withdrawal points across various locations. Although ATMs are generally more accessible in urban centers, their strategic placement in semi-urban areas enhances financial service access, reducing the distance customers need to travel and lowering transaction costs.

Mobile financial services, also showing a correlation of r = 0.78 with financial inclusion, play a supportive role in improving accessibility and convenience in financial transactions. These services cater to users who may lack access to physical banking structures but rely on mobile networks for conducting financial activities. The widespread use of mobile phones in Uganda makes mobile financial services a viable and effective tool for achieving financial inclusion, especially among younger demographics and small business operators who prioritize convenience and flexibility.

Overall, the analysis indicates that these financial innovations collectively have a strong and positive impact on financial inclusion within microfinance institutions in Gulu District. Digital payment services, agency banking, ATMs, and mobile financial services each contribute to enhancing accessibility, affordability, and convenience in financial transactions, thereby supporting the inclusion of previously unbanked or underserved individuals into formal financial systems..

4.7.2 Multiple Regression Analysis

The researcher used the value of adjusted R squared, Beta Coefficient, and P-value to find out the strength of the relationship between the independent and dependent variable of the study as shown in the table 19 below.

ST. PAUL'S UNIVERSITY

4.7.2.1 Regression Analysis

The table below shows the strength and direction of the relationship between the financial innovation and financial inclusion. A positive coefficient means an increase in the innovation is associated with an increase in financial inclusion.

Table 19: Beta Coefficient Output Table

Independent Variable	Beta Coefficient	Interpretation
Agency Banking	0.3	Significant positive effect
ATMs	0.15	Significant positive effect
Mobile Financial Services	0.45	Highly significant positive effect
Digital Payment Services	0.35	Highly significant positive effect
R-squared	0.72	72% of variance in financial inclusion explained

Source: Research Data (2024)

The regression analysis reveal that mobile financial service has the most substantial positive effect on financial inclusion (Beta – 0.45) followed by digital payment services (Beta =0.35). The findings of the R squared valued of 0.72 showing 72% of variance in the financial inclusion can be explained by the independent variables of financial innovation. The findings align with various studies like Nabatanzi (2021) and Mutisya and Atheru (2019) which also emphasised that positive effect of financial innovation on financial inclusion.

4.7.2.2 P-Value output table

The table below indicate the P-values less than 0.05 indicate that the relationship between the financial innovations and financial inclusion is statistically significant at the 0.05 level.

Table 20: P-Value Output Table

Variable	Agency Banking	ATMs	Mobile Financial Services	Digital Payment Services
Agency Banking	0	0.01	0.04	0.001
ATMs	0.01	0	0.04	0.001
Mobile Financial Services	0.04	0.04	0	0.001
Digital Payment Services	0.001	0.001	0.001	0
Overall	0.002	0.002	0.002	0.002

ST. PAUL'S UNIVERSITY

Source: Research Data (2024)

From the findings of the study, the probability that the observed relationship occurred by chance. A p-value less than 0.05 indicates statistical significance.

4.7.2.3 The ANOVA results

The ANOVA results provide a comprehensive analysis of the variance between the different financial innovations and their influence on financial inclusion. The analysis yielded an F-statistic of 39.84, indicating a substantial difference between the means of the financial innovations (agency banking, ATMs, mobile financial services, and digital payment services) in their effect on financial inclusion. This high F-value suggests that the variability between the groups is considerably greater than the variability within each group, pointing to a significant differentiation in how these financial innovations influence financial inclusion.

Since the p-value is extremely small (less than 0.05), we can reject the null hypothesis, indicating that there is a statistically significant difference between the means of the financial innovations and financial inclusion. This means that the different types of financial innovations have a significant effect on financial inclusion.

These findings have important implications for both policymakers and financial institutions. The significant differences observed between the financial innovations suggest that strategic focus should be placed on those innovations that yield a more substantial positive effect on financial inclusion, such as digital payment services, which had the strongest correlation in previous analyses.

4.8 Discussion of the findings

The detailed analysis of the study findings focuses on how various financial innovations such as agency banking services, ATMs, mobile financial services, and digital payment services effect on financial inclusion of MFIs in Gulu district, Uganda.

The study findings suggest a nuanced understanding how financial innovation affect financial inclusion of MFI in Gulu District, Uganda. While agency banking, mobile financial services and digital payment services have significant contributed to expansion of access and reducing barrier to financial services, effect of ATMs remains limited. This underscores the

ST. PAUL'S UNIVERSITY

importance of adopting a multifaceted approach to financial inclusion that combines different financial innovation and tools to address the unique needs of different population.

4.8.1 Effect of Agency Banking Services and Financial Inclusion

The increase in the number of customers and agents, as noted by 60% of respondents, underscores the pivotal role of agency banking services in scaling up financial service delivery to rural and underserved areas. This scalability is particularly vital in promoting financial inclusion as it facilitates greater accessibility to microfinance institution (MFI) services in Gulu District, Uganda. These findings are consistent with research by Nabatanzi (2022), which emphasizes agency banking as a scalable solution for financial outreach across East Africa, especially in areas traditionally beyond the reach of conventional banking infrastructure.

The regression analysis within this study further validated the positive impact of agency banking on financial inclusion, yielding a beta coefficient of 0.30 and a statistically significant p-value of 0.01. This indicates that each unit increase in agency banking activity correlates with a 30% rise in financial inclusion, with the p-value ($p < 0.05$) confirming the reliability of this association. Increased accessibility through agency banking is, therefore, not a coincidental factor but a substantial contributor to financial inclusion, particularly in underserved rural regions. This finding aligns with previous studies, such as those by Kasekende and Opondo (2020), which document agency banking's capacity to bring banking services closer to rural populations by minimizing the barriers posed by physical distance.

The study's observations on the growth of agent banking services across Gulu District reflect a tangible improvement in local financial access. By providing a practical alternative to traditional banks, agency banking addresses the persistent issues of service unavailability in remote and underserved regions. This expansion is consistent with the Agency Theory proposed by Jensen and Meckling (1976), which suggests that agency banking aligns the goals of MFIs with customer needs, creating mutually beneficial outcomes. The theory explains how the decentralization of banking services through agents helps bridge the gap between institutions and customers, thereby enhancing financial inclusion and addressing practical challenges like long travel distances and limited financial infrastructure. Agency banking thus serves as a trusted conduit for the adoption of financial services, as corroborated

ST. PAUL'S UNIVERSITY

by similar studies conducted in Kenya and Tanzania, which found agency banking significantly boosts rural service accessibility (Mburu, 2021).

Additionally, the study's findings indicate that agency services are perceived positively for their convenience and affordability, particularly in areas where traditional banking channels may pose accessibility challenges. Respondents reported that agent banking provides easy access to loans and responsive customer service, an indication that MFIs utilizing agency services can extend their value to unbanked individuals effectively. This aligns with empirical insights from research by Mukherjee (2019), which highlighted convenience as a key driver for customers choosing agency banking services over traditional banking options, especially in rural communities where travel to banking centers can be a barrier.

Affordability was another critical factor influencing the adoption of agency banking, with most respondents emphasizing the need for cost-effective services. This finding reflects a common theme in financial inclusion literature, where affordability is cited as essential for attracting low-income customers to formal financial services (Demirgüç-Kunt et al., 2018). Customers rated mobile financial services highly for their convenience and perceived security, with a majority classifying these services as good or very good. Such high customer satisfaction with mobile financial services reinforces their role as complementary solutions to agency banking, thereby enhancing the overall framework of financial inclusion.

Policy implications from these findings are significant. For agency banking to continue fostering financial inclusion, policymakers and financial institutions need to sustain investments in agency banking frameworks, ensuring that regulatory support fosters a secure, affordable, and accessible network. Regulatory bodies should focus on policies that encourage a sustainable model for agency services within MFIs, particularly in rural and underserved areas. Implementing frameworks that maintain low transaction costs and promote ease of use will be essential in maximizing agency banking's reach and impact.

In conclusion, this study underscores the effectiveness of agency banking as a catalyst for financial inclusion in Gulu District, supporting the notion that agency-based financial service delivery models, coupled with mobile financial services, are central to meeting the needs of underserved populations. As financial services continue to evolve, expanding agency banking within a regulated and supportive environment can significantly contribute to closing the financial access gap in Uganda and similar contexts across East Africa.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

4.8.2 Effect of Automated Teller Machines (ATMs) and Financial Inclusion

The study's findings on the effect of ATMs on financial inclusion within microfinance institutions (MFIs) in Gulu District reveal a nuanced outcome. While 63% of respondents agreed that ATMs positively impact transaction facilitation, there is mixed evidence about their overall contribution to enhancing financial inclusion. Regression analysis showed a beta coefficient of 0.15 for ATMs, with a significant p-value of 0.04, suggesting a moderate but positive effect on financial inclusion. Despite some transactional improvements reported by respondents, the modest beta value indicates that ATMs contribute less substantially to financial inclusion compared to other innovations such as mobile financial services and agency banking. This finding aligns with the literature on ATM deployment in rural regions, where structural and operational challenges often limit their full potential in increasing financial inclusion (Mburu & Njoroge, 2022).

The limited effect of ATMs in Gulu District may stem from several contextual factors. Research by Omondi and Otieno (2023) suggests that the high costs associated with deploying and maintaining ATMs in rural areas constrain their accessibility, especially for smaller MFIs that may lack sufficient capital for such infrastructure. Additionally, low levels of financial literacy and limited familiarity with ATM usage reduce the likelihood of regular utilization, diminishing the intended impact on financial inclusion. This finding is consistent with the broader trend observed across rural sub-Saharan Africa, where financial literacy remains a barrier to adoption for relatively sophisticated financial technologies (Klapper et al., 2019).

Another potential limitation is the shift in customer preferences towards mobile financial services, which offer greater flexibility, accessibility, and low transaction costs. This study noted that mobile banking and agency banking services enjoy high adoption rates among Gulu District residents, who value their convenience and accessibility. This preference for mobile financial tools highlights a pivotal shift in user behaviour, as many underserved populations favour solutions that enable easier access and wider usability. The findings echo the conclusions of Agyemang (2021), who observed that mobile financial services, particularly in rural areas, effectively surpass traditional banking options due to their affordability and adaptability.

ST. PAUL'S UNIVERSITY

The study's inclusion of a diverse participant pool including; agents, employees, technical staff, and managers of MFIsallowed for a comprehensive evaluation of financial innovations' effects from multiple perspectives. This diverse representation provided insights into how ATMs contribute variably across stakeholder groups, reflecting both practical and operational limitations in their implementation. The findings support recommendations by Demirgüç-Kunt et al. (2022), who argue that ATM deployment in underserved areas must consider not only financial literacy and infrastructural capacity but also the need for alternative innovations that better meet the users' needs.

Interestingly, the study also observed that MFIs in Gulu District maintain an average of five branches, representing an extensive branch network. This network holds significant potential to influence financial inclusion positively by expanding geographic reach and ensuring financial services are accessible to a broader population. Branch expansion can help bridge service delivery gaps, particularly for customers who may be less comfortable with digital channels. This finding aligns with the conclusions of Ssonko (2020), who noted that branch networks in underserved regions play a critical role in overcoming geographic barriers, thus enhancing the inclusivity of financial services.

In conclusion, while ATMs show moderate benefits for transaction facilitation in Gulu District, their overall effect on financial inclusion appears limited due to challenges related to costs, financial literacy, and competitive innovations. Policymakers and financial institutions may benefit from strategies that complement ATMs with mobile and agency banking services, which have shown greater potential to improve accessibility. Investments in financial literacy initiatives and flexible financial innovations tailored to rural contexts are essential for maximizing financial inclusion in Gulu District and other underserved areas in Uganda. This approach would ensure that MFIs continue to adapt effectively to the changing needs and preferences of their target populations.

ST. PAUL'S UNIVERSITY

4.8.3 Effect of Mobile Financial Services and Financial Inclusion

The study's findings reveal that respondents held a strong consensus on the positive impact of mobile financial services across several dimensions, including affordability, payment system integration, transaction volume increases, and improved accessibility to MFI services. Mobile financial services have proven to be a transformative force for financial inclusion among MFIs in Gulu District, as evidenced by the study's statistical analysis. With a beta coefficient

of 0.45 and a p-value of 0.001, mobile financial services demonstrated the highest effect on financial inclusion among the financial innovations studied, indicating a substantial 45% increase in financial inclusion for every unit rise in mobile financial activity. This strong, statistically significant correlation underscores the effectiveness of mobile financial services in broadening financial access, especially for underserved populations.

The high acceptance rate for mobile financial services—reported by over 70% of respondents as an effective, flexible, and cost-efficient platform for transactions—highlights its success in overcoming traditional barriers to financial inclusion, such as geographical distance and high transaction costs. These findings align with the Diffusion of Innovation theory (Rogers, 1962), which posits that innovations perceived as having clear advantages over existing solutions are more likely to be adopted widely. Mobile financial services' advantages, such as lower costs, convenience, and secure transactions, align well with the needs of users in Gulu District, further promoting their adoption as a primary tool for financial inclusion.

Notably, 71% of respondents expressed a preference for mobile financial services, reinforcing their role as an effective vehicle for financial inclusion. This high rate of adoption underscores the perceived compatibility and user-friendliness of mobile financial services, aligning with earlier studies that emphasize their pivotal role in rural areas. A study by Wamalwa and Wambugu (2021) highlights the ways mobile financial services provide flexible and secure options for transactions, reducing dependency on physical bank branches and improving access to financial services for underserved populations. The findings support previous literature suggesting that mobile financial services can circumvent infrastructural and cost barriers, which have traditionally hindered access to financial services in regions like Gulu (Klapper et al., 2019).

Additionally, the collaboration between MFIs and third-party mobile financial service providers has been instrumental in enhancing financial inclusion. This partnership model ensures secure, accessible transactions and encourages an expansion of service offerings, creating a robust ecosystem of financial services that can cater to a broad demographic. These findings align with research by Demirgüç-Kunt et al. (2022), which underscores the significance of strategic partnerships in amplifying financial inclusion through shared resources, enhanced security protocols, and user-friendly services.

ST. PAUL'S UNIVERSITY

The integration of mobile financial services into the daily financial lives of individuals in Gulu District reflects a broader trend across sub-Saharan Africa, where mobile technology is transforming financial landscapes. Studies have consistently shown that mobile banking platforms contribute to economic empowerment by increasing access to savings, credit, and insurance options (Agyemang, 2021). This trend suggests that continued investment in mobile financial services could serve as a vital strategy for policymakers and financial institutions aiming to enhance financial inclusion in rural Uganda. Through targeted support, regulatory frameworks, and incentives for mobile service providers, financial institutions can further leverage these platforms to address the unique needs of underserved communities.

In summary, mobile financial services stand out as a cornerstone of financial inclusion for MFIs in Gulu District. Their demonstrated efficacy in lowering transaction costs, facilitating convenient access, and enabling secure transactions has positioned them as a preferred choice among users. The high adoption rate and significant impact on financial inclusion highlight the importance of fostering these innovations through policy support and strategic partnerships, ensuring that mobile financial services continue to contribute to a more inclusive financial ecosystem in Gulu and beyond.

4.8.4 Effect of Digital Payment Services and Financial Inclusion

The study's findings underscore the substantial contribution of digital payment services, including debit/credit cards and internet banking, to advancing financial inclusion in Gulu District. Approximately 79% of respondents reported using digital payment platforms for regular transactions, signalling strong acceptance and integration of these tools in daily financial routines. Regression analysis for digital payment services revealed a beta coefficient of 0.35 with a p-value of 0.002, indicating a statistically significant effect on financial inclusion. Specifically, these digital services contribute to a 35% increase in financial inclusion with each unit increase in their usage, demonstrating their valuable role in expanding access to financial services for underserved populations. The statistically significant p-value ($p < 0.05$) confirms the reliability of this relationship, further substantiating digital payment platforms as instrumental to financial inclusion efforts in the region.

Although the perception of affordability for digital payment services was somewhat mixed, respondents widely acknowledged the efficacy of these platforms in facilitating seamless

ST. PAUL'S UNIVERSITY

integration with other payment systems and in boosting transaction volumes within MFIs. These findings reflect previous research suggesting that digital payment services bridge critical gaps in access by offering convenient and secure transaction methods, especially in areas with limited banking infrastructure (Mbiti & Weil, 2020). Digital platforms, by enabling secure and efficient transactions, can reduce the reliance on cash-based systems and lower the overall cost of financial transactions for MFIs (Beck et al., 2021). In line with these findings, the significant adoption of digital payment services aligns with previous studies highlighting their potential to deepen financial inclusion in emerging markets where traditional banking resources may be sparse (Kpodar & Le Goff, 2021).

Moreover, the research indicates that digital payment services enhance not only transaction volume but also the integration of financial systems, which is essential for creating an inclusive and resilient financial ecosystem. Prior studies support these observations, emphasizing that digital financial solutions, particularly internet banking and mobile transactions, help to streamline access to essential financial services (Ouma et al., 2017). This effect is particularly valuable in rural regions, where banking infrastructure may be limited, and digital solutions offer an efficient alternative for accessing formal financial services. By facilitating high transaction volumes and seamless payment integration, digital financial platforms thus contribute to addressing the practical barriers to financial inclusion for marginalized communities.

However, the study's findings also highlight ongoing challenges. Affordability remains a notable concern, suggesting that high transaction costs may limit the full potential of digital services for financially vulnerable users. These insights resonate with existing literature emphasizing that while digital payment solutions offer convenience, their cost can be a significant barrier to sustained usage among low-income users (Suri & Jack, 2016). Additionally, building user confidence in the security and reliability of digital platforms is crucial, especially in regions where digital literacy may be limited. Encouragingly, evidence suggests that fostering user trust and understanding through targeted financial literacy programs can enhance the impact of digital solutions in expanding financial access (Demirgüç-Kunt et al., 2022).

The findings present several policy implications. Policymakers and practitioners should focus on balancing affordability, promoting user confidence, and addressing transaction costs to ensure broader financial inclusion. Regulatory support and tailored financial literacy

ST. PAUL'S UNIVERSITY

programs are essential to empowering users and enabling them to maximize the benefits of digital financial services. By addressing these elements, stakeholders can further integrate digital payment services into the financial landscape, thereby facilitating inclusive economic growth.

In summary, digital payment services significantly enhance financial inclusion in Gulu District by facilitating secure and accessible transactions. However, affordability and user confidence remain areas that require attention. The role of digital payment services in promoting financial inclusion, particularly through enhanced transaction volumes and integrated payment systems, points to substantial progress yet also highlights ongoing challenges. Insights from these findings provide critical guidance for formulating strategies to deepen financial inclusion in Gulu District and other regions where digital financial innovations continue to shape the economic landscape.

ST. PAUL'S UNIVERSITY

CHAPTER 5 SUMMARY OF THE FINDINGS, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

This presents the conclusions, recommendations, and implications derived from the findings of this study, which explored the effect of financial innovations namely; agency banking, ATMs, mobile financial services, and digital payment services on financial inclusion within microfinance institutions (MFIs) in Gulu District, Uganda. The study sought to address three primary objectives: to evaluate the effect of agency banking services on financial inclusion, to analyse the effect of automated teller machines (ATMs) on financial inclusion, and to assess the combined influence of mobile financial services and digital payment services on financial inclusion in the region.

The findings discussed in Chapter 4 highlighted the significant role that these financial innovations play in enhancing access to financial services for underserved and rural populations. This chapter synthesizes those findings, drawing conclusions and offering evidence-based recommendations for policymakers, financial institutions, and other stakeholders committed to promoting financial inclusion. Additionally, this chapter outlines potential areas for further research, acknowledging the limitations faced in the course of the study and suggesting ways to deepen the understanding of financial inclusion through additional investigation.

In light of the challenges encountered by MFIs and customers in Gulu District, this chapter emphasizes strategic approaches to improving financial service delivery and expanding financial inclusion through innovation. By addressing the barriers identified, the study provides a foundation for developing sustainable and inclusive financial practices that can be implemented across similar contexts.

5.2 Findings of the Study

The study aimed to examine the effect of financial innovations on financial inclusion within microfinance institutions (MFIs) in Gulu District, Uganda, focusing on four primary innovations: agency banking services, automated teller machines (ATMs), mobile financial services, and digital payment services. These innovations were evaluated in terms of how they contribute to enhancing financial inclusion, with the goal of addressing challenges

ST. PAUL'S UNIVERSITY

related to accessibility, cost, and reach to underserved populations. The research encompassed a wide range of participants from microfinance institutions (MFIs), offering a diverse cross-section of perspectives essential to comprehending the influence of financial innovation on financial inclusion in this region.

One of the study key observations was diverse role within MFIs, which enabled a holistic analysis of financial innovation from different point of views. Additionally, the MFIs in Gulu operated one to five branches each, reflecting a substantial branch network. This widespread presence plays a crucial role in improving the geographical reach of financial services, particularly for understanding communities in rural areas. The availability of multiple branches enhances accessibility, making financial services more available to people who may otherwise face barriers due to distance.

Agency banking services emerged as one of the most effectful innovations for advancing financial inclusion. Respondents overwhelmingly acknowledged the positive effects of agency banking, citing improvements in customer deposits, increased customer reach, and a notable rise in agent banking outlets across the district. This finding underscores the pivotal role of agency banking in extending financial services, particularly in remote areas. The convenience and proximity of agency banking outlets, which provide services closer to customers' homes, were seen as major advantages. This proximity also contributed to reduced transaction volumes in traditional banking halls, making banking more accessible and convenient for many.

In addition to accessibility, affordability was identified as a key factor influencing the adoption of agency banking services. Respondents expressed a preference for agency banking over traditional banking halls due to the cost-effectiveness of the services provided. The combination of convenience and affordability has made agency banking an effective tool for promoting financial inclusion in Gulu District.

The study also highlighted the success of mobile financial services, which received overwhelmingly positive feedback from customers. A majority of respondents rated these services as good or very good, emphasizing their role in enhancing access to financial services. Mobile financial services were perceived as flexible, affordable, and efficient, allowing users to overcome traditional barriers such as distance and cost. These services have significantly contributed to financial inclusion by providing a platform for seamless transactions, savings, and loan applications, especially for previously unbanked individuals.

ST. PAUL'S UNIVERSITY

Despite these successes, the effect of ATMs on financial inclusion was found to be limited. Only 35% of respondents reported that ATMs had improved transaction processes within MFIs. This finding raises concerns about the overall efficiency of ATMs in enhancing financial inclusion, particularly in rural areas where usage may be limited by high operational costs, low financial literacy, and the prevalence of alternative technologies like mobile banking. While ATMs may offer benefits in some contexts, their overall contribution to financial inclusion in Gulu District remains modest.

On the other hand, digital payment services demonstrated strong potential in driving financial inclusion. These services were recognized for their ability to facilitate integration with company payment systems and increase transaction volumes. However, affordability remained a concern, with some respondents indicating that the cost of digital payment services might limit their accessibility for lower-income users. This suggests the need for further research into the cost structures of digital payment services and their effect on both MFIs and customers.

Two key factors were identified as influential in the success of financial innovations in Gulu District: regulatory support from the Bank of Uganda and the availability of financial literacy programs. Regulatory frameworks that promote the secure and efficient use of financial innovations, combined with education initiatives to build financial literacy, have played a critical role in expanding financial inclusion. Moreover, building customer confidence in these innovations was identified as an ongoing challenge. The findings emphasize the need for continuous efforts to improve the understanding and trust of financial innovations among users.

In conclusion, the study highlights the central role of financial innovations, particularly mobile financial services and agency banking, in advancing financial inclusion in Gulu District. Although some areas, such as the use of ATMs and the nuances of digital payment services, require further investigation, the findings provide valuable insights for policymakers, financial institutions, and stakeholders aiming to foster financial inclusion in this region.

5.2 Conclusion of the Study

ST. PAUL'S UNIVERSITY

Based on the comprehensive study findings presented, numerous nuanced conclusions were drawn regarding the effect of financial innovation on financial inclusion of MFI in Gulu District, Uganda.

5.2.1 Positive Effect of Financial Innovation

The study unequivocally demonstrates that financial innovation, notably agency banking services and mobile financial services, has emerged as a driving force behind the enhancement of financial inclusion in Gulu District. These innovative solutions have successfully expanded access, affordability, ease of use for financial services in MFI, thereby reducing the exclusion of previously underserved populations. The convenience and affordability they offer have played pivotal roles in making the financial services and products affordable, accessible. Easy to use in different category of customers.

5.2.2 Critical Assessment of ATM Adoption Efficiency

The findings indicate that the role of ATMs in enhancing transaction processes within Microfinance Institutions (MFIs) appears less pronounced than initially assumed. This raises important questions about the efficiency and relevance of ATMs in advancing financial inclusion in Gulu District. While ATMs may have their merits, further research is warranted to discern their specific effect and determine whether they align with the evolving needs of the local population and availability of the ATMS machines in rural areas. Additionally, the study suggests that the growing preference for mobile financial services may have contributed to the underutilization of ATMs. Mobile money and other digital solutions are often more accessible and better aligned with the needs of rural populations.

5.2.3 Digital Payment Services' Potential

Digital payment services have emerged as promising avenue for improving financial inclusion. Their ability to facilitate integration with company payment systems and drive-up transaction volumes suggests they hold significant potential. The study underscores the potential of digital payments, which aligns with findings from other research, such as that by Mutisya and Atheru (2019), which demonstrates that digital payment platforms improve transaction efficiency and customer satisfaction. However, the study identifies a gap in customer confidence in these services, particularly regarding security and ease of use. Therefore, further research into improving customer confidence is necessary to fully unlock the potential of digital payments in promoting financial inclusion.

ST. PAUL'S UNIVERSITY

5.3 Recommendation for Future Studies

5.3.1 In-Depth ATM Study

Future research should delve deeper into the role of ATMs in financial inclusion to better understand their potential and limitations. Although ATMs are commonly seen as a vital tool for financial inclusion, this study highlights their limited effect in rural MFIs within Gulu District. Future research should focus on understanding the specific barriers to ATM usage in rural areas. Factors such as technological literacy, economic constraints, and infrastructure limitations should be examined in greater detail to determine how ATMs can be made more effective in enhancing financial inclusion. Studies might also explore alternative technologies that could complement or replace ATMs in these contexts.

5.3.2 Digital Payment and Mobile Financial Service Effect Analysis

The effect of digital payment systems and mobile financial services on financial inclusion is both transformative and complex, particularly within emerging markets. These innovations have successfully lowered traditional barriers to financial access by providing secure, convenient, and fast ways to manage transactions, save, and make payments. Yet, as this study has shown, realizing the full potential of these services requires careful consideration of multiple layers, including affordability, transaction efficiency, customer satisfaction, and contextual factors.

Digital payment systems have enabled MFIs to reach unbanked populations by reducing the need for physical branches and providing low-cost, accessible options. However, affordability remains a critical issue, particularly for lower-income users who may be deterred by transaction fees or lack of transparency in cost structures. While this study demonstrates positive customer feedback and increased usage in Gulu District, affordability concerns indicate that digital payment solutions must align with the financial capacity of end-users to support sustainable, inclusive growth.

Mobile financial services have similarly shown substantial promise by addressing issues such as distance and accessibility, enabling users to manage finances without traveling to distant branches. These services have had a notable effect on financial behavior, as evidenced by increased enrollment and positive customer ratings. However, achieving wide-reaching effect depends on more than just accessibility, it requires seamless integration with users' daily

ST. PAUL'S UNIVERSITY

financial needs, straightforward user interfaces, and educational support to build trust and ensure informed usage.

For policymakers, MFIs, and developers of digital financial solutions, a one-size-fits-all approach is inadequate. Contextual factors such as local regulatory support, technological infrastructure, and cultural attitudes toward digital transactions are essential considerations. Regulation, particularly, plays a vital role in maintaining user trust and ensuring security while also providing incentives for innovation. Digital literacy programs are equally essential, as they bridge knowledge gaps, empowering users to engage confidently with financial technology.

To address these complexities, future research should compare digital payment systems and mobile financial services across different regional and economic settings. Examining how infrastructure, regulatory support, and societal norms shape adoption and usage will offer valuable insights into what drives successful financial inclusion in diverse contexts. Ultimately, a data-driven, localized approach that prioritizes affordability, ease of use, and customer satisfaction will be key to optimizing digital financial services and enhancing financial inclusion globally.

5.3.3 Customer Confidence

Research focusing on financial literacy strategies to boost customer confidence in using financial innovations can provide valuable insights into improving adoption rates. Financial literacy plays a critical role in the adoption of financial innovations such as mobile banking and digital payments. Future studies should examine the extent to which financial literacy programs influence the uptake of these innovations, particularly in rural and low-income populations. Research could also explore how tailored financial education interventions could enhance confidence in using mobile and digital financial services, thereby improving financial inclusion outcomes.

Furthermore, as customer trust is critical to the adoption of digital financial innovations, future research should investigate the factors that influence trust and perceptions of security in digital financial services. Studies could focus on how privacy concerns, fraud prevention measures, and transparency affect the willingness of rural populations to adopt these technologies. This would help in designing more secure and user-friendly financial products that address the unique concerns of the rural and low-income segments.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

5.3.4 Cost Analysis

Analysing the specific cost factors affecting transactions in MFIs can help identify opportunities for reducing barriers to financial inclusion. The affordability of financial services remains a crucial barrier to financial inclusion, particularly for low-income populations. Future research should conduct a comprehensive cost analysis of the various financial innovations used in MFIs, including mobile financial services, ATMs, and digital payment platforms. This will help to identify areas where costs can be reduced, enabling broader access to financial services. The study should also investigate how these cost factors influence the behaviour and satisfaction of customers in rural areas.

In conclusion, this study underscores the importance of financial innovation in enhancing financial inclusion. It highlights the need for ongoing research and strategic interventions to maximize the benefits of these innovations and address remaining challenges in Gulu District, Uganda.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

REFERENCES

Agabalinda, C., & Isoh, A. V. N. (2020). The Effect of Financial Literacy on Financial Preparedness for Retirement in the Small and Medium Enterprises Sector in Uganda. *International Journal of Applied Behavioural Economics*, *9*(3), 26–41. https://doi.org/10.4018/ijabe.2020070102

Akileng, G., Lawino, G. M., & Nzibonera, E. (2018). Evaluation of determinants of financial inclusion in Uganda. *Journal of Applied Finance and Banking*, *8*(4), 47-66. https://www.scienpress.com/Upload/JAFB/Vol%208_4_4.pdf

Akkaya, M. (2019). Financial Innovation: Theories, Models, and Future. In *Handbook of Research on Managerial Thinking in Global Business Economics* (pp. 115-139). IGI Global. https://doi.org/10.4018/978-1-7998-0111-5.ch007

Aliyev, T. (2021). Main essence and history of global financial markets. *Globus: Economy Sciences*, 7 (3), 7–13. https://doi.org/10.52013/2713-3052-43-3-2

Allen, F., Demirguc-Kunt, A., Klapper, L., & Peria, M. S. M. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of financial Intermediation*, *27*, 1-30. https://doi.org/10.1016/j.jfi.2015.12.003

Aziz, A., & Naima, U. (2021). Rethinking digital financial inclusion: Evidence from Bangladesh. *Technology in Society*, *64*, 101509.

Bagyenda, J. (2017). *Bank of Uganda| Financial Inclusion*. Www.bou.or.ug; Bank of Uganda. https://www.bou.or.ug/bou/bouwebsite/PaymentSystems/inclusion.html

Bank of Uganda. (2022). *Bank of Uganda | Private Sector Initiatives*. Www.bou.or.ug. https://www.bou.or.ug/bou/bouwebsite/PaymentSystems/privatesector.html

Baran, M. L. (2022). Mixed methods research design. *In Research Anthology on Innovative Research Methodologies and Utilization Across Multiple Disciplines* (pp. 312-333). IGI Global.

Bongomin, G. O. C., Munene, J. C., Ntayi, J. M., & Malinga, C. A. (2018). Nexus between financial literacy and financial inclusion: Examining the moderating role of cognition from a developing country perspective. *International Journal of Bank Marketing*, 36(7), 1190–1212. https://doi.org/10.1108/IJBM-08-2017-0175

Byegon, G., Cheboi, J., & Bonuke, R. (2019). Mediating effects of financial innovations between behavioral factors and financial inclusion of micro enterprises in Kenya. SEISENSE *Journal of Management*, 2(6), 49–64. https://doi.org/10.33215/sjom.v2i6.227

ST. PAUL'S UNIVERSITY

Chinoda T, & Kwenda F. (2019). Do mobile phones, economic growth, bank competition and stability matter for financial inclusion in Africa? In *Cogent Economics & Finance 7, pp 1–20.*

Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). Global Findex Database 2017: *Measuring Financial Inclusion and the Fintech Revolution*, *Washington, DC: World Bank. © World Bank.* (978-1-4648-1268-2). https://openknowledge.worldbank.org/handle/10986/29510 License: CC BY 3.0 IGO. https://doi.org/10.1596/978-1-4648-1259-0

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). Opportunities for Expanding Financial Inclusion Through Digital Technology.

Ebong, J., & George, B. (2021). Financial Inclusion through Digital Financial Services (DFS): A Study in Uganda. *Journal of Risk and Financial Management*, *14*(9), 393.

Eton, M., Mwosi, F., Okello-Obura, C., Turyehebwa, A., & Uwonda, G. (2021). Financial inclusion and the growth of small medium enterprises in Uganda: empirical evidence from selected districts in Lango sub-region. *Journal of Innovation and Entrepreneurship*, *10*(1), 1-23.

Eton, M., Uwonda, G., Mwosi, F., Barigye, G., & Ogwel, P. B. (2019). Financial Inclusion and Economic Growth in Uganda A case study of selected districts in Western Uganda. *International Journal of Advances in Scientific Research and Engineering*, *05*(10), 138–151. https://doi.org/10.31695/ijasre.2019.33542

Evans, O. (2018). Connecting the poor: the internet, mobile phones and financial inclusion in Africa. *Digital Policy, Regulation and Governance*.

Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. *World Development*, *111*, 84-96.

Gupta, S., & Dhingra, S. (2022). Modeling the key factors influencing the adoption of mobile financial services: an interpretive structural modeling approach. *Journal of Financial Services Marketing*, *27*(2), 96-110.

Hamakhan, M. Y. T. (2020). The effect of individual factors on user behaviour and the moderating role of trust: an empirical investigation of consumers' acceptance of electronic banking in the Kurdistan Region of Iraq. *Financial Innovation*, *6*(1). https://doi.org/10.1186/s40854-020-00206-0

Harvey, C. R., Ramachandran, A., & Santoro, J. (2021). *DeFi and the Future of Finance*. John Wiley & Sons.

ST. PAUL'S UNIVERSITY

Hasan, M., Le, T., & Hoque, A. (2021). How does financial literacy effect on inclusive finance? *Financial Innovation*, *7*(1), 1-23.

Hendriarto, P. (2021). Understanding of the role of digitalization to business model and innovation: economics and business review studies. *Linguistics and Culture Review*, *5*(S1), 160-173.

Hendriks, S. (2019). The role of financial inclusion in driving women's economic empowerment. *Development in Practice*, *29*(8), 1029–1038. https://doi.org/10.1080/09614524.2019.1660308

Issaias, L. A., Odondo, A. J., & Okelo, S. (2021). Effect of Financial Inclusion on Performance of Microfinance Banks in Kenya. *The International Journal of Business & Management*, *9*(2). https://doi.org/10.24940/theijbm/2021/v9/i2/bm2102-036

Kamau, D. M., & Oluoch, J. (2016). Relationship between financial innovation and commercial bank performance in Kenya. *International Journal of Social Sciences and Information Technology*, *2*(4), 34-47.

Kariuki, D., & Wanjohi, M. (2021). Analyzing the Role of Mobile Banking on Financial Inclusion: Evidence from Kenya. *Journal of African Economics, 6*(1), 20-33.

Kariuki, J. (2022). *Entrepreneurship and Financial Innovation in Uganda: A Study of the Gulu District Microfinance Institutions*. Makerere University.

Kasekende, L. (2020). Financial innovation in Uganda: Evolution, effect and prospects. In *Bank of Uganda| Statistics* (March; pp. 1–21). Bank of Uganda. https://www.bou.or.ug/bou/bouwebsite/bouwebsitecontent/research/BoUworkingPapers/research/BouWorkingPapers/2020/BoU_WP26_2020-Financial-Inclusion-in-the-Era-of-Disruption-Achieving-Sustainable-Economic-Growth-in-Uganda.pdf

Kasozi, J., & Makina, D. (2021). Analysis of financial literacy and its effects on financial inclusion in Uganda. *International Journal of Finance & Banking Studies (2147-4486)*, *10*(3), 67-83.

Kaur, P., Kaur, N., & Kanojia, P. (2021). Firm innovation and access to finance: firm-level evidence from India. *Journal of Financial Economic Policy*.

Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, *43*, 1-14.

Kim, K. (2020). The Effects of Mobile Money on Financial Inclusion in Nairobi, Kenya. *Journal of International Area Studies*, *24*(1), 253–274. https://doi.org/10.18327/jias.2020.1.24.1.253

ST. PAUL'S UNIVERSITY

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational and Psychological Measurement. https://doi.org/10.1177/001316447003000308

Lyimo, N., & Mbesigwe, L. (2022). Digital Financial Services and Financial Inclusion in Tanzania. *An Empirical Analysis. African Journal of Finance*, 9(1), 34-48.

Maliwichi, P., Chigona, W., & Sowon, K. (2021). Appropriation of mHealth Interventions for Maternal Health Care in Sub-Saharan Africa: Hermeneutic Review. *JMIR mHealth and uHealth*, *9*(10), e22653.

Mugenda, O. & Mugenda, A. (2013). Research Methods Qualitative and Quantitative Approaches. Nairobi, African Centre for Technology Studies.

Mutua, J. M., & Atheru, Z. (2019). Financial Innovations and Financial Performance in Commercial Banks in Kenya. *International Journal of Finance and Accounting, 4*(2), 34-45.

Mutua, P. N. (2018). *The Effect of Financial Innovation on Financial Inclusion in Kenya*. University of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/106274/PAUL%20NZYOKA%20MUTUA.pdf?sequence=1

Nabatanzi, J. (2021). Effects of Agency Banking Services on Financial Inclusion in Mukono Municipality, Uganda. *International Journal of Finance and Accounting*, 6(2), 44-58.

Nanyanzi, A. S., Zhu, C., Justice, K. M., Marien, I., de Pauw, I., & Van Audenhove, L. (2021). Implementing Co-Creation in Developing a Mobile App for Community Engagement in Higher Education Institutions: Prototype Development. In *Education and New Learning Technologies: EDULEARN2021*.

Nanyanzi, I. M. (2021). *Automated Teller Machines (ATM) Adoption Strategies and Customer Satisfaction in Commercial Banks in Uganda: A Case of Centenary Rural Development Bank Branches in the Central Business District of Kampala*. Ucudir.ucu.ac.ug; Uganda Christian University. https://ucudir.ucu.ac.ug/xmlui/handle/20.500.11951/941?show=full

Nassiuma, B. (2019). Relationship between Record Keeping practices and Performance of Small and Medium Enterprises in Uasin Gishu County. *Open Journal of Economics and Commerce*, *2*(1), 34-40.

Ngugi, M., & Mwangi, J. (2020). The Effect of Digital Financial Services on Financial Inclusion in Kenya. *African Journal of Business Management, 14*(3), 88-101.

ST. PAUL'S UNIVERSITY

Njoroge, J. M. (2021). *Relationship Between Agency banking services and the Financial Deepening in Kenya* (Doctoral dissertation, University of Nairobi).

Ntaukira, J., Maliwichi, P., & Khomba, J. K. (2021). Factors that Determine Continuous Intention to Use Mobile Payments in Malawi. *arXiv preprint arXiv:2108.09944*.

Nyaga, D. (2024). *Innovation as a driver of economic growth: The role of entrepreneurship*. *International Journal of Business, Economics and Law*. Available from: https://ijbel.com

Oranga, O. J., & Ondabu, I. T. (2018). Effect of Financial Inclusion on Financial Performance of Banks Listed at the Nairobi Securities Exchange in Kenya. *International Journal of Scientific and Research Publications (IJSRP)*, *8*(5). https://doi.org/10.29322/ijsrp.8.5.2018.p7779

Otoo, I. C., Assuming, J., & Agyei, P. M. (2018). Effectiveness of recruitment and selection practices in public sector higher education institutions: Evidence from Ghana. *European scientific journal*, *14*(13), 199-214.

Ozili, P. K. (2018). Effect of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, *18*(4), 329-340.

Ozili, P. K. (2020). Theories of financial inclusion. In *Uncertainty and Challenges in Contemporary Economic Behaviour*. Emerald Publishing Limited.

Ozili, P. K. (2021, October). Financial inclusion research around the world: A review. In *Forum for social economics* (Vol. 50, No. 4, pp. 457-479). Routledge.

Pelletier, A., Khavul, S., & Estrin, S. (2019). Innovations in emerging markets: the case of mobile money. *Industrial and Corporate Change*, *29*(2), 395–421. Oxford University Press. https://doi.org/10.1093/icc/dtz049

Pompella, M., & Costantino, L. (2021). Financial Innovation and Technology after COVID-19: a few Directions for Policy Makers and Regulators in the View of Old and New Disruptors. *Ekonomika*, *100*(2), 40-62.

Pompella, M., & Costantino, L. (2021). Fintech and Blockchain Based Innovation: Technology Driven Business Models and Disruption. In *The Palgrave Handbook of FinTech and Blockchain* (pp. 403-430). Palgrave Macmillan, Cham.

Qamruzzaman, M., & Wei, J. (2019). Financial innovation and financial inclusion nexus in South Asian countries: Evidence from symmetric and asymmetric panel investigation. *International Journal of Financial Studies,* *7*(4), 61. https://doi.org/10.3390/ijfs7040061.

ST. PAUL'S UNIVERSITY

Rai, K., & Sharma, M. (2019). A Study on Awareness about Digital Financial Services among Students. In *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*.

Recheal, B. (2019). Effect of automated teller machine (ATM) and the effectiveness of customer's satisfaction a case study of united bank of Africa (UBA) Kansanga Branch.

Schumpeter, J. A. (1939). *Business cycles a theoretical, historical, and statistical analysis of the capitalist process 1*. New York [U.A.] Mcgraw-Hill.

Schumpeter, J. A. (2017). *Business cycles: A theoretical, historical, and statistical analysis of the capitalist process*. Martino Fine Books.

Shabir, S., & Ali, J. (2022). Determinants of financial inclusion across gender in Saudi Arabia: evidence from the World Bank's Global Financial Inclusion survey. *International Journal of Social Economics*.

Silber, W. L. (1983). The process of financial innovation. *The American Economic Review*, *73*(2), 89-95.

Sporta, D. F., & Muganda, T. W. (2021). Effects of Agency banking services on Operational Efficiency of Commercial Banks in Kenya. *International Research Journal of Business and Strategic Management, 2*(2), 450–460. https://irjp.org/index.php/irjbsm/article/view/53

Stanton, B. F. (1963). Diffusion of Innovations, Everett M. Rogers, New York, the Free Press of Glencoe, 1962. Pp. ix, 367($5.50). *American Journal of Agricultural Economics*, *45*(4), 898-899.

Thuita, G. W. (2020). Effect of Mobile Payment Applications and Transfers on Business: Financial Inclusion and Innovation–The Case of Mpesa in Kibera Slum, Kenya. In *Effect of Mobile Payment Applications and Transfers on Business* (pp. 173-189). IGI Global.

Twumasi, A., & Boateng, K. (2021). Technological innovations and financial inclusion in Sub-Saharan Africa: A case study of microfinance institutions. *African Journal of Finance and Management, 23*(1), 87-105.

Twumasi, M. A., Jiang, Y., Wang, P., Frempong, L. N., & Acheampong, M. O. (2021). Does financial literacy inevitably lead to access to finance services? Evidence from rural Ghana. *Ciência Rural*, *52*.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository
Warsame, M. H., Lasyoud, A. A., & Abdalla, Y. A. (2021). Factors influencing financial inclusion in Oman: An empirical study. *Management Science Letters*, *11*(9), 2391–2406. https://doi.org/10.5267/j.msl.2021.4.004

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 817-838.

Witts, W., & Kessy, S. (2021). Demographics as Moderator Between Perceived Easy of Use, Individual Awareness and Adoption of Mobile Financial Services. *International Journal of Business and Management*, *16*(12).

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX I: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

Part 1: Respondent Details

1. Your name (optional) ……..…….....
2. Your role in the Micro Finance Institution (MFI)…….
3. Name of the Microfinance Institution ……
4. Indicate the total number of branches the MFI has……
5. The following table show different kind of innovative products offered, kindly indicate whether these products were available or not in your MFI as shown.

Tools	Tick (√) if present
ATM	
Mobile banking	
Debit cards (Digital Payment)	
Agency banking services	

ST. PAUL'S UNIVERSITY

SECTION B: EFFECT OF AGENCY BANKING SERVICES ON FINANCIAL INCLUSION.

6. **What is the effect of agency banking services on financial inclusion in Micro finance institutions in Gulu district, Uganda?** Rate how the engaged agency banking services have affected the following. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strngly disagree)**

	Variable	5	4	3	2	1
a)	Agency banking services have contributed to increase in the customer deposit transactions in the Microfinance Institution.					
b)	Agency banking services services have contributed to increase in the number of customer in the Microfinance Institution.					
c)	Agency banking services have contributed to reduction of physical cash deposit and withdraw at the Microfinance Institution.					
d)	Agency banking services have increased agent transaction volumes hence building up of trust amongst the users in Gulu district					
e)	Agency banking services have resulted in a rise in number of agent banking engaged within Gulu District.					
f)	Microfinance Institution takes their agency banking services closer to their customers with potentially less transactions volume.					
g)	The customers are willing to pay more at the agency banking services outlet rather than travelling and then queuing at the banking hall to make payments and withdraws.					
h)	Easy to access and use ATMs has affected the way the microfinance institution conduct transactions.					
j)	Indicate the extent to which affordability of using agency banking services has affected the way you conduct transactions					

7. **Rate how you perceive the agency banking services in day-to-day transactions in the microfinance institution.**

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Very good ☐ Good ☐ Fair ☐ Poor ☐ Not Sure ☐

SECTION C: EFFECT OF AUTOMATED TELLER MACHINE SERVICES ON FINANCIAL INCLUSION.

8. **What is the Effect Automated Teller Machines on financial inclusion in Micro finance institutions in Gulu district, Uganda?** Rate how the engaged ATMs have affected the following. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strngly disagree)**

	Variable	**5**	**4**	**3**	**2**	**1**
a)	ATMs have affected the transactions in the Microfinance Institution.					
b)	ATMs have reduced the long queues and physical cash deposit and withdraw at the Microfinance Institution.					
c)	ATM services has increased agent transaction volumes hence building up of usage amongst the users in Gulu district					
d)	ATM services has resulted in a rise in number of customers engaged within Gulu District.					
e)	Microfinance Institution takes their ATM services closer to their customers with potentially less transaction volumes.					
f)	The customers are willing use the ATMs services rather than queuing at the banking hall to make payments and withdraws.					
g)	Easy to access and use ATMs has affected the way the microfinance institution conducts transactions.					
h)	Indicate the extent to which affordability of using ATM Services has affected the way you conduct transactions					

SECTION D: EFFECT OF MOBILE FINANCIAL SERVICES ON FINANCIAL INCLUSION.

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

9. **What is the effect of mobile financial services on financial inclusion in Micro finance institutions in Gulu district, Uganda?** Rate how the engaged mobile financial services have affected the following. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strngly disagree)**

	Variables	**1**	**2**	**3**	**4**	**5**
a)	Mobile financial services affordability has increased enrolment on mobile money amongst users.					
b)	Mobile money has increased integration of company's payments systems such as petrol station, restaurant and online shopping platform.					
c)	Mobile financial services have increased transaction and accessibility for customers					
d)	Mobile financial service adoption has major positive effect the institution and your customer's access to financial service.					

10. **Rate how you perceive the mobile financial services in day-to-day transactions in the microfinance institution.**

Very good ☐ Good ☐ Fair ☐ Poor ☐ Not Sure ☐

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

SECTION E. EFFECT OF DIGITAL PAYMENTS SERVICES ON FINANCIAL INCLUSION

11. **What is the effect of digital payment services on financial inclusion in Micro finance institutions in Gulu district, Uganda?** Rate how the engaged mobile financial services have affected the following. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strngly disagree)**

	Variables	**1**	**2**	**3**	**4**	**5**
a)	Digital payment service affordability has increased enrolment on mobile money amongst users.					
b)	Digital payment service has increased integration of company's payments systems such as petrol station, restaurant and online shopping platform.					
c)	Digital payment service have increased transaction and accessibility for customers					
d)	Digital payment service adoption has major positive effect the institution and your customer's access to financial service.					

12. **Rate how you perceive the digital payment services in day-to-day transactions in the microfinance institution.**

Very good ☐ Good ☐ Fair ☐ Poor ☐ Not Sure ☐

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

SECTION F: EFFECT OF FINANCIAL INNOVATION ON FINANCIAL INCLUSION.

13. **What is the effect of financial innovation on financial inclusion using the following indicators?** Rate how the engaged mobile financial services have affected the following. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strongly disagree)**

	Variables	**1**	**2**	**3**	**4**	**5**
a)	Easy to access to financial services					
b)	Customer satisfaction					
c)	Reduced cost of transactions					
d)	Increased volume of transactions					

14. **Factors that affect success of financial inclusion.** Kindly rate the factors you think have effect on effectiveness of financial inclusion in your institution as shown. (Definition of scale **5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strongly disagree)**

	Variables	**1**	**2**	**3**	**4**	**5**
a)	Regulation by Bank of Uganda					
b)	Availability of financial literacy					
c)	Low confidence in usage of financial innovations like ATMs, mobile financial service, digital payments and agency banking services.					
d)	Poor perception and trust in access of financial innovations					
e)	High cost of transaction that makes it difficult to access financial services.					

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX II: SAMPLING FRAME

No.	Microfinance Institutions
1	FINCA Uganda Limited
2	PRIDE Microfinance Limited (MDI)
3	BRAC Uganda Bank Limited

(Source: Bank of Uganda and Uganda Microfinance Regulatory Authority 2022)

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX III: OPERATIONALIZATION AND MEASUREMENT OF VARIABLES

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX IV: DATA COLLECTION TOOL

Variable	Sub-Variables	Indicators/Questions	Measurement Scale
Financial Inclusion	Accessibility	1. Easy access to financial services.	5-point Likert scale (1-5)
		2. Customer satisfaction.	
	Usage	3. Frequency of financial transactions.	5-point Likert scale (1-5)
		4. Volume of transactions.	
	Affordability	5. Cost of transactions.	5-point Likert scale (1-5)
		6. Availability of financial literacy.	
Agency Banking Services	Customer Deposits	1. Contribution to increase in customer deposit transactions.	5-point Likert scale (1-5)
		2. Increase in number of customers.	
	Transaction Efficiency	3. Reduction in physical cash transactions.	5-point Likert scale (1-5)
		4. Increase in transaction volumes.	
	Customer Engagement	5. Customer willingness to use agency banking services.	5-point Likert scale (1-5)
Automated Teller Machines (ATMs)	Transaction Efficiency	1. Reduction in waiting times.	5-point Likert scale (1-5)
		2. Increase in number of transactions through ATMs.	
	Customer Satisfaction	3. Satisfaction with ATM services.	5-point Likert scale (1-5)
Mobile Financial Services	User Enrolment	1. Enrolment in mobile financial services.	Yes/No
	Transaction Volumes	2. Frequency and volume of mobile transactions.	5-point Likert scale (1-5)
Digital Payment Services	Integration with Businesses	1. Integration of payment systems with local businesses (e.g., restaurants, petrol stations).	5-point Likert scale (1-5)
	Accessibility	2. Ease of access to digital payment services.	5-point Likert scale (1-5)
Financial Innovations	Overall Effect	1. Easy access to financial services.	5-point Likert scale (1-5)
		2. Customer satisfaction.	
		3. Reduced transaction costs.	
		4. Increased transaction volume.	
Factors Affecting Financial Inclusion	External Influences	1. Regulation by the Bank of Uganda.	5-point Likert scale (1-5)
		2. Financial literacy availability.	
		3. Confidence in using financial innovations.	
		4. Trust in financial innovations.	
		5. Cost of transactions.	

Section	Question/Item	Response Format
SECTION A: DEMOGRAPHIC DATA		
Part 1: Respondent Details	1. Your name (optional)	Open-ended
	2. Your role in the Micro Finance Institution (MFI)	Open-ended

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Section	Question/Item	Response Format
	3. Name of the Microfinance Institution	Open-ended
	4. Indicate the total number of branches the MFI has	Open-ended
	5. Indicate whether the following innovative products are available in your MFI:	Yes/No (Tick √ if present)
	- ATM	
	- Mobile Banking	
	- Debit Cards (Digital Payment)	
	- Agency Banking Services	
SECTION B: EFFECT OF AGENCY BANKING	6. Rate the effect of agency banking services on financial inclusion in the MFI.	5-point Likert scale (1-5)
	a) Contribution to increase in customer deposit transactions.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Contribution to increase in the number of customers.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Reduction of physical cash deposits and withdrawals.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Increase in agent transaction volumes.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	e) Rise in the number of agent banking engaged within Gulu District.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	f) Services taken closer to customers with potentially less transaction volume.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	g) Customers willing to pay more at agency banking outlets.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	h) Easy access and use of ATMs affecting transaction conduct.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	i) Perceived affordability of agency banking services.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	7. Rate your perception of agency banking services in day-to-day transactions.	Very Good, Good, Fair, Poor, Not Sure
SECTION C: EFFECT OF ATMs	8. Rate the effect of Automated Teller Machines (ATMs) on financial inclusion in the MFI.	5-point Likert scale (1-5)
	a) Effect on transactions in the MFI.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Reduction of long queues and physical cash transactions.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Increase in agent transaction volumes.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Rise in number of customers engaging with ATMs.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	e) Services taken closer to customers with less transaction volume.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	f) Customers willing to use ATM services rather than queuing at banking halls.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	g) Easy access and use of ATMs affecting transaction conduct.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	h) Perceived affordability of ATM services.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
SECTION D: EFFECT OF MOBILE	9. Rate the effect of mobile financial services on financial inclusion in the MFI.	5-point Likert scale (1-5)

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

Section	Question/Item	Response Format
FINANCIAL SERVICES		
	a) Affordability increasing enrollment in mobile money.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Integration of payment systems with local businesses.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Increase in transactions and accessibility for customers.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Positive effect of mobile financial service adoption on access to financial services.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	10. Rate your perception of mobile financial services in day-to-day transactions.	Very Good, Good, Fair, Poor, Not Sure
SECTION E: EFFECT OF DIGITAL PAYMENTS	11. Rate the effect of digital payment services on financial inclusion in the MFI.	5-point Likert scale (1-5)
	a) Affordability increasing enrollment on mobile money.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Integration of payment systems with local businesses.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Increase in transactions and accessibility for customers.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Positive effect of digital payment service adoption on access to financial services.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	12. Rate your perception of digital payment services in day-to-day transactions.	Very Good, Good, Fair, Poor, Not Sure
SECTION F: EFFECT OF FINANCIAL INNOVATION	13. Rate the effect of financial innovation on financial inclusion using the following indicators.	5-point Likert scale (1-5)
	a) Easy access to financial services.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Customer satisfaction.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Reduced cost of transactions.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Increased volume of transactions.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	14. Rate the factors affecting the effectiveness of financial inclusion in your institution.	5-point Likert scale (1-5)
	a) Regulation by Bank of Uganda.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	b) Availability of financial literacy.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	c) Low confidence in using financial innovations.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	d) Poor perception and trust in financial innovations.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree
	e) High cost of transactions making access difficult.	1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree

ST. PAUL'S UNIVERSITY

APPENDIX V: WORK PLAN

ACTIVITY		June	Aug	Sept	Nov	Dec	Feb	Aug
Selecting topic and start building problem statement								
Starting proposal								
Draft the proposal								
Reviewing the proposal								
Completing the proposal								
Submitting the proposal to the supervisor								
Developing the questionnaire								
Data collection								
Data analyses/ Findings and conclusion								
Final draft Print								
Complete and Submit of the report								

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX VI: BUDGET

S/N	ITEMS	QTY	UNIT COST in UGX	AMOUNT in UGX
1	Books 3 quire	2	5,000	10,000.00
2	Short hand books	2	2,000	4,000.00
3	Bold Pens	4	500	2,000.00
4	Typing draft proposal	80	500	40,000.00
5	Printing draft proposal	80	500	40,000.00
6	Printing final proposal	80	500	40,000.00
7	Printing questionnaires	7	500	3,500.00
8	Photocopying questionnaire	406	100	40,600.00
9	Transport to field	1	120,000	120,000.00
10	Food	1	80,000	80,000.00
11	Typing draft report	100	500	50,000.00
12	Printing draft report	100	500	50,000.00
13	Printing final report	100	500	50,000.00
	TOTAL			**530,100.00**

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

APPENDIX VII: TRANSMITTAL LETTER

LETTER OF INTRODUCTION

Date,

TO WHO IT MAY CONCERN

Dear Respondent,

REF: MBA RESEARCH STUDY:

My name is William Wairegi and currently I am carrying out research on the *effect of financial innovations on financial inclusion in Uganda with a focus on the microfinance institutions within Gulu*. I am in the process of gathering relevant data for this study

The attached questionnaire is designed to gather data/information pertaining to financial innovations in the Microfinance Institutions in Uganda for academic purpose only. The study is being carried out as a partial fulfilment of the Degree of Masters in Business Administration at the St Paul's University in Kenya.

I therefore kindly request you to take some time to fill the attached questionnaire and I wish to assure you that your responses shall be treated with maximum confidentiality and will be used solely for the purpose of this study. It will be appreciated if you can fill the questionnaire within the next 5 days to enable early finalization of the study.

Your cooperation will be highly appreciated.

Yours Sincerely,

……

William Wairegi

MBA Student

REG NO. MBA403121

ST. PAUL'S UNIVERSITY

St. Paul's University Repository

LETTER OF AUTHORISATION

Date ……

To

Manager

Name of the Microfinance Institutions.

Gulu

Dear Sir/Madam,

RE: RESEARCH DATA ON EFFECT OF FINANCIAL INNOVATIONS ON FINANCIAL INCLUSION IN UGANDA WITH A FOCUS ON THE MICROFINANCE INSTITUTIONS WITHIN GULU

I am a student pursuing a Master of Business Administration (MBA) with a focus on Finance at St. Paul's University, Kenya, and this study is being conducted as part of the requirements for the degree.

The purpose of this letter is to request for your permission to collect relevant data from your organisation from the selected respondents among your management staff. The information collected will be treated with uttermost confidentiality and will be used solely for the purpose of this study.

Your cooperation will be highly appreciated.

Yours Sincerely,

……

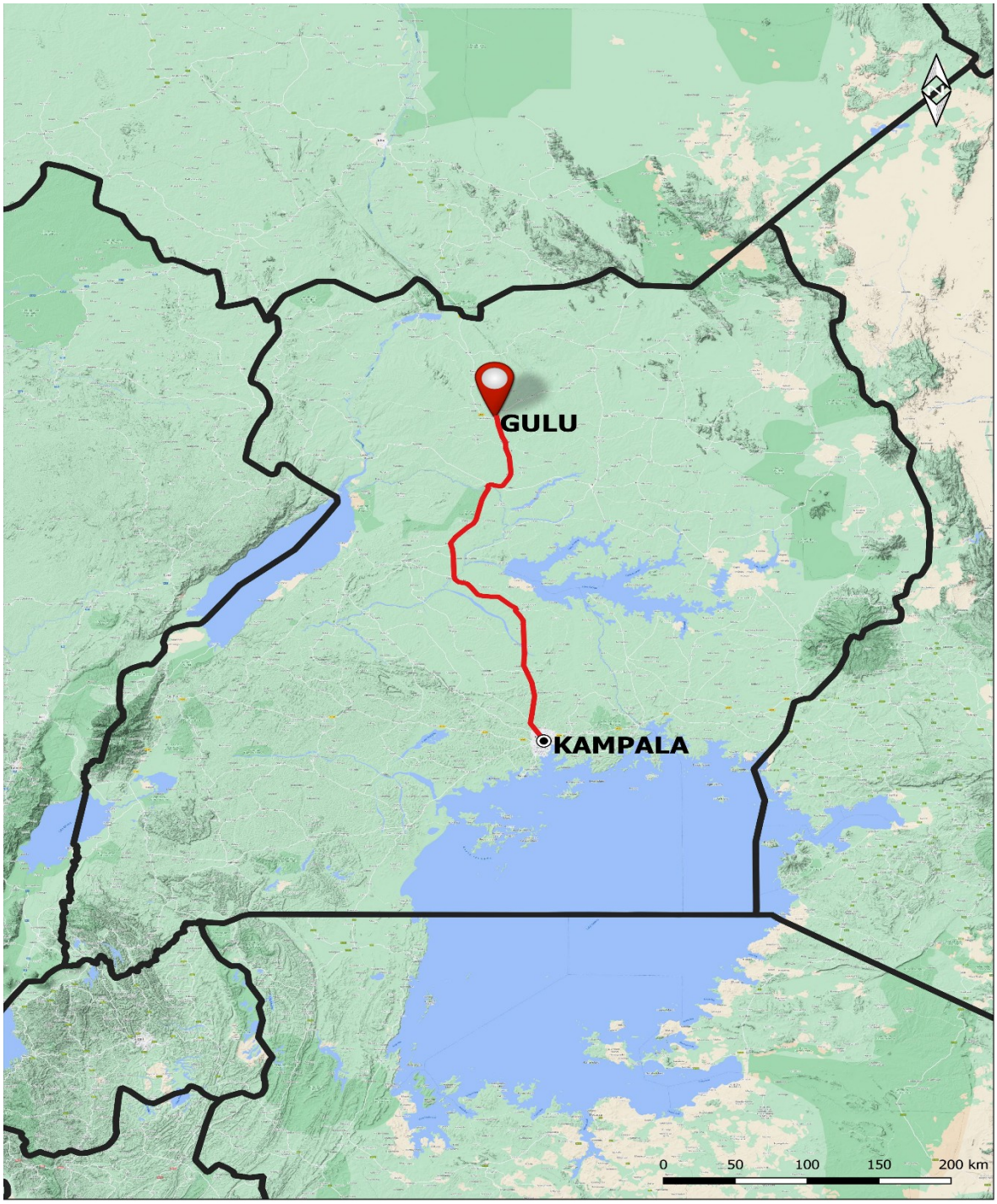
William Wairegi

MBA Student

REG NO. MBA403121

ST. PAUL'S UNIVERSITY

APPENDIX VIII: LOCATION OF GULU IN UGANDA



APPENDIX IX: LETTER FROM ISERC

ST. PAUL'S UNIVERSITY

Private Bag 00217 Limuru,
Kenya
Email: office@spu.ac.ke
Website: www.spu.ac.ke

Tel Office: +254 (0) 20-2020505/10
Mobile: +254 (0) 728-669000
(0) 736-424440

REF: SPU/164/2024 **Date: 16th May 2024**

TO: William Mwago
St. Paul's University

Dear William,

==========

REF: THE IMPACT OF FINANCIAL INNOVATIONS ON FINANCIAL INCLUSION IN MICRO FINANCE INSTITUTIONS IN GULU DISTRICT, UGANDA

==========

Greetings,

This is to inform you that SPU- Institutional Scientific Ethics Review Committee has reviewed the above-named research proposal. **Your ERB approval number is 173, for the period between 16th May 2024 – 16th May 2025 (1 year).**

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SPU- Institutional Scientific Ethics Review Committee.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SPU- Institutional Scientific Ethics Review Committee within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *SPU- Institutional Scientific Ethics Review Committee* within 72 hours

v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SPU- Institutional Scientific Ethics Review Committee.
viii. Please note that it is within the ISERC's mandate to monitor your research and to do random visits to the site. All research is subject to post approval monitoring.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,



Dr. Daniel Nzengya, PhD
Chairperson
SPU- Institutional Scientific & Ethics Review Committee



APPENDIX X: NACOSTI LICENSE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **469229**

Date of Issue: **28/May/2024**

RESEARCH LICENSE



This is to Certify that Mr.. William Wairegi Mwago of St. Paul`s University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kiambu on the topic: THE IMPACT OF FINANCIAL INNOVATIONS ON FINANCIAL INCLUSION IN MICRO FINANCE INSTITUTIONS IN GULU DISTRICT, UGANDA for the period ending : 28/May/2025.

License No: **NACOSTI/P/24/36085**

469229

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

St. Paul's University Repository

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

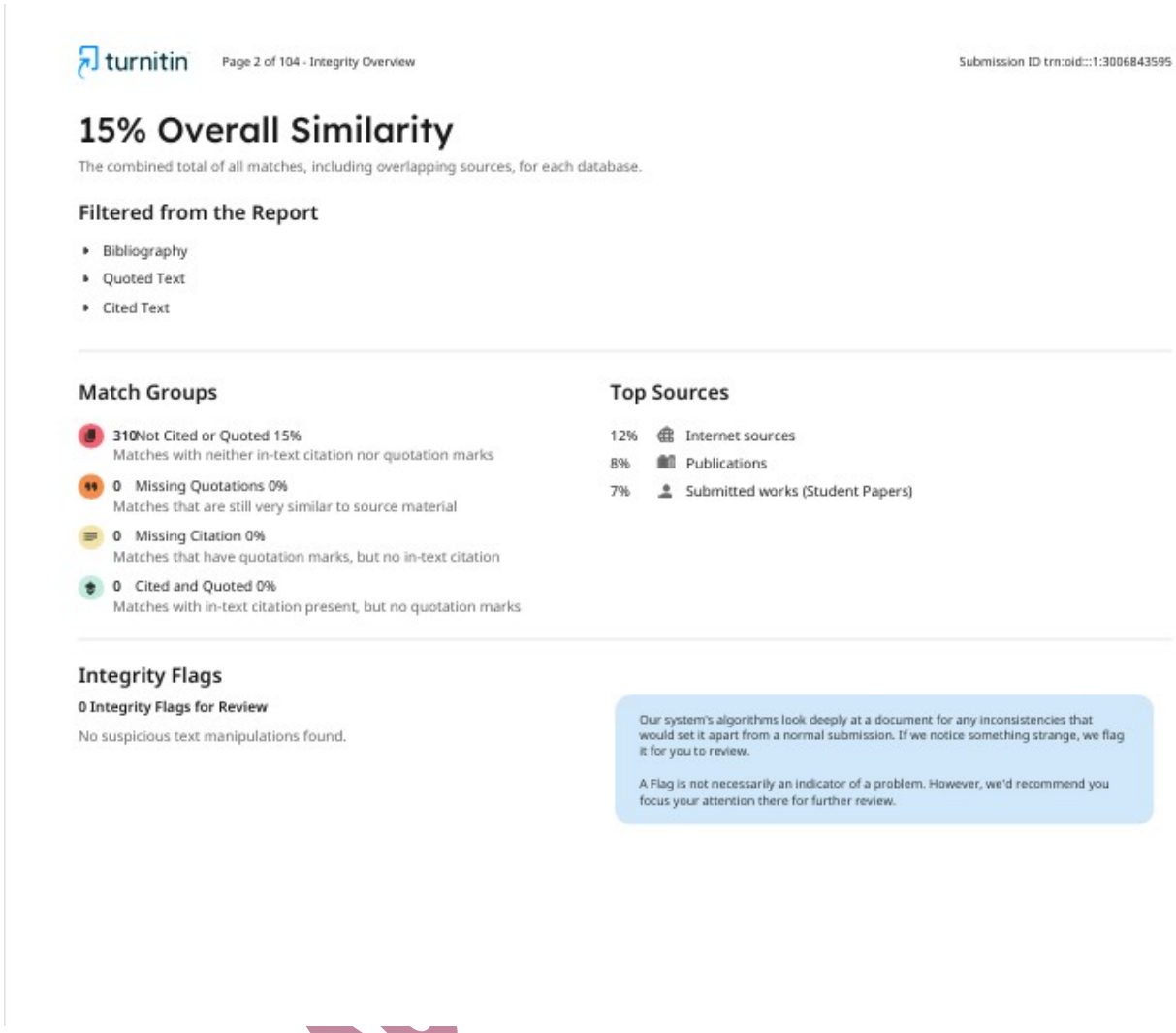
The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and
Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke

APPENDIX XI: PLAGIARISM REPORT



turnitin Page 2 of 104 - Integrity Overview Submission ID trn:oid:::1:3006843595

15% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- Bibliography
- Quoted Text
- Cited Text

Match Groups

310 Not Cited or Quoted 15%
Matches with neither in-text citation nor quotation marks

0 Missing Quotations 0%
Matches that are still very similar to source material

0 Missing Citation 0%
Matches that have quotation marks, but no in-text citation

0 Cited and Quoted 0%
Matches with in-text citation present, but no quotation marks

Top Sources

12% Internet sources
8% Publications
7% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

ST. PAU