**Role of Mobile Savings Services in Accelerating Financial Inclusion in Nsiika Town Council, Buhweju District, Uganda**

# Abstract

Financial inclusion is essential for all individuals in the community reflecting affordability, accessibility and reliability of financial services particularly in Nsiika town council, Buhweju district, Uganda where the levels of financial inclusion are still very low with only 16% of the mature population keeping their funds at official deposit taking organizations and now with introduction of mobile money services, it is considered a major factor. The main purpose of the study is to investigate the relationship between mobile money services and financial inclusion. The study was guided by two objectives: to examine the extent to which mobile loans and mobile transfer services influence the financial inclusion of the Nsiika community. The study adopted three theories: dissatisfaction theory, credit rationing theory and transaction theory. A target population of 1020 and a sample size of 287 using the Sølvens formula and simple random sampling was used. A questionnaire, which was self-administered to the respondents, was used to collect data. a descriptive design and multiple regression were used in data analysis with the aid of the statistical package for Social Scientists (SPSS) version 27. The hypotheses were tested at a 0.5 confidence level, and thereafter the results were tabulated. The results indicated that there is an insignificant relationship between savings and financial inclusion (t=1.118, P=0.265, >0.05). The findings indicated an insignificant relationship between mobile loans and financial inclusion (t=0.304, p=0.031, <0.05). The results further indicated an insignificant relationship between mobile transfer services and financial inclusion (t=0.021, p=0.762,p>0.05). The researcher concluded that mobile money services, particularly savings and transfers, can have an insignificant impact on financial inclusion; therefore, more emphasis should be put on mobile loans, which has a significant impact on financial inclusion. The mobile transfer services were found to be ineffective in improving financial inclusion due to low wages and limited access to the service in the district. Low***-***income levels and restricted access to services hindered financial inclusion for the local population. More so, other financial products should be made available to the community, such as mobile banking, insurance so as to boost financial inclusion. It was recommended that loan services should be prioritised for improved financial inclusion because these factors were found to have a major impact on the financial inclusion of the residents of the Buhweju district, and that telecom carriers should continuously offer these services.

**KEYWORDS:** *mobile money services, financial inclusion, Buhweju District, Uganda, Diffusion of Innovations Theory, mobile loans*

# 1.0. Background to the study

## In recent years, there have been initiatives that merge the digital and the financial sphere by integrating the transactions that run through established financial infrastructures into digital platforms (Borges et al., 2020). Mobile money services have revolutionised financial transactions, particularly in regions with limited access to conventional banking systems. Their growth has been influenced by technological advancements, shifts in consumer behaviour, and evolving regulatory frameworks. The origins of mobile money can be traced to Japan in the late 1990s, when NTT DoCoMo launched i-mode, a platform enabling mobile payments. Concurrently, PayPal extended its services to mobile devices in Europe and the U.S. A significant development occurred with the introduction of M-Pesa in Kenya in 2007, facilitating money transfers via mobile phones without the need for a traditional bank account. The so-called ‘mobile money revolution’ that followed has since attracted substantial attention from economists and policymakers, even though no other country in the world could yet replicate the remarkable success of mobile money in Kenya (Batista & Vicente, 2025). By 2013, M-Pesa had garnered over 15 million users, fundamentally transforming financial accessibility in Kenya (Elouaourti & Eszahid, 2021).

## Following the success of M-Pesa, mobile money services expanded across Africa, leading to the launch of MTN Mobile Money in Ghana and Uganda in 2009, and Vodacom M-Pesa in Tanzania in 2008. This model subsequently extended to other developing nations, including Bangladesh with the introduction of bKash in 2011, and India with Airtel Money and Paytm. By 2017, over 1 billion mobile money accounts existed globally, with a significant concentration in Sub-Saharan Africa. The rise in smartphone penetration and enhanced internet connectivity facilitated the expansion of mobile money services, enabling a broader range of transactions, including bill payments and savings. Additionally, regulatory frameworks were established to support consumer protection and ensure service interoperability. The COVID-19 pandemic accelerated the adoption of mobile money, broadening its applications to include loans, insurance, investments, and integration with e-commerce platforms, thereby enhancing its role in the global financial ecosystem.

## Mobile money has become a pivotal tool in advancing financial inclusion, particularly among unbanked populations. According to the World Bank, mobile money services have provided millions with access to financial services, significantly enhancing their economic well-being (Must & Ludewig, 2010). The integration of emerging technologies such as blockchain, artificial intelligence (AI), and data analytics is expected to shape the landscape of mobile money by improving security and expanding service offerings. Initially, mobile money innovations emerged in developed economies, but they have evolved into a transformative force in developing regions, offering convenience and accessibility. Financial inclusion focuses on delivering sustainable financial services to marginalised populations, which is critical for socio-economic development. More than two billion working adults, predominantly in developing nations, remain underserved or excluded from traditional banking systems, making mobile money an affordable and accessible alternative. For example, in 2016, Indonesia initiated a national plan to enhance financial services through collaboration between investors and governmental agencies (Elouaourti & Eszahid, 2021; Demirgue-Kunt, 2021; Demirguc-Kunt et al., 2020)

## Financial inclusion aims to make financial services accessible to underserved populations, including those without bank accounts. These services encompass savings, credit, insurance, and payment systems and are recognised as global and national priorities due to their role in promoting economic growth, reducing poverty, and improving social welfare. By enabling access to credit, investment in education, and business expansion, financial inclusion can spur economic growth. A World Bank study indicates that a 10% rise in financial inclusion could boost GDP by 0.4%. Financial inclusion assists individuals in managing risks, saving for emergencies, and investing in health and education, thereby breaking the cycle of poverty. It also supports the achievement of the Sustainable Development Goals (SDGs), particularly Goal 1 (No Poverty), and empowers marginalised groups, especially women and rural populations, leading to improved social outcomes as women tend to invest in their families and communities. Financial inclusion was introduced globally through the SDGs (Siano et al., 2020).

## Financial inclusion is emphasised in the UN's Sustainable Development Goals (SDGs), specifically in Goal 8 (Decent Work and Economic Growth) and Goal 9 (Industry, Innovation, and Infrastructure). The UN encourages countries to promote inclusive, sustainable growth and employment for all. The G20 Global Partnership for Financial Inclusion, launched in 2010, aims to enhance financial inclusion globally by sharing best practices and developing policies for underserved populations. The Alliance for Financial Inclusion (AFI) advocates for and helps implement national strategies and regulatory frameworks to improve financial access. The World Bank's Financial Inclusion Strategy and Universal Financial Access 2020 initiative aim to provide all adults worldwide with access to a transaction account. Many countries have prioritised financial inclusion in their national agendas.

## India's Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in 2014, aimed to provide every household with access to a bank account, resulting in over 400 million new accounts and a significant improvement in financial inclusion. In Kenya, inspired by the success of M-Pesa, a regulatory framework was established to support mobile money and financial innovation, with the Central Bank of Kenya implementing policies to improve financial access for the unbanked. Uganda's National Financial Inclusion Strategy (NFIS) focuses on enhancing financial literacy, promoting savings, and increasing the use of digital financial services (Demirguc-Kunt et al., 2020).

## In 2019, 75% of Indonesia's adult population utilised formal financial services, supported by the State Council for Financial Inclusion, which helps define regional regulations and coordinate strategies at the provincial level (Batista & Vicente, 2020). In Tanzania, access to financial accounts increased from 11% in 2006 to 61%, driven by mobile banking services provided by major telecom companies. This growth has contributed to rapid economic development. Despite a recent administrative crackdown on fraudulent SIM cards, approximately half of Tanzania's population still has basic access to financial services via mobile banking (Ahmed & Cowan, 2021).

## By 2006, the Bank of Uganda had regulated commercial banks and other financial institutions, yet most Ugandans remained without formal financial accounts. In 2010, only 14% of adults had official bank accounts, and just 5% used non-bank institutions (Okello Candiya Bongomin & Munene, 2020). The rise of mobile money significantly improved financial inclusion, allowing over 50% of the adult population to access financial services by 2014, nearly doubling the figures from 2009. By 2016, only 25% of adults in Uganda's Nsiika Town Council had accounts in recognised financial institutions, compared to 38% in Latin America and 88% in high-income nations. Most research on mobile money services has focused on urban areas, neglecting rural regions like Buhweju, which has prompted interest in further study (Demirguc-Kunt et al., 2020; Ahmed & Cowan, 2021).

Financial Intermediation Theory elucidates the role of financial institutions in facilitating the transfer of funds between savers and borrowers, thereby enhancing economic efficiency (Konstantakopoulou, 2023). Traditionally, banks function as intermediaries by collecting deposits from savers and reallocating these funds to borrowers for investment purposes. In the context of mobile money, these platforms serve as contemporary intermediaries, providing financial services to individuals lacking access to conventional banking systems. Mobile money platforms enable users to securely store savings, execute fund transfers, and access credit, particularly benefiting rural communities such as Nsiika Town Council. By lowering transaction costs and mitigating geographic barriers, mobile money significantly advances financial inclusion, making essential financial services accessible to underserved populations (Diamond, 1984; Allen et al., 2014).

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## In Uganda, a significant portion of households lacks access to banks and traditional microfinance services, with approximately 60% of adults relying on semiformal financial services such as village savings and loan associations (VSLAs), rotating savings and credit associations (ROSCAs), and savings and credit cooperatives (SACCOs) to fulfill their financial needs (Fin-Scope Survey, 2018). This underscores the urgent necessity to enhance financial inclusion through these semi-formal institutions. The Ugandan government has outlined plans to improve access to formal financial services for low-income households in the National Development Plan-III Report (2020). In Nsiika Town Council, Buhweju district, financial inclusion is pronounced, with only 16% of adults engaging with official deposit-taking organisations. In contrast, 61% of the population resorts to saving at home or in non-monetary forms, such as livestock (Oswald, 2024).

## Women constitute 54% of Uganda's adult population, amounting to 10 million women and 8.6 million men, of which 22% (1.9 million men and 2.3 million women) are financially excluded. The National Financial Inclusion Strategy (NFIS) 2017-2022 aims to bolster financial inclusion through five key pillars: reducing barriers to access, developing credit infrastructure, enhancing digital efficiency, and empowering individuals with improved financial capabilities. Several legal frameworks support this strategy, including the Money Lender Act (1952) and the Micro-deposit-taking Institution Bill (2002). However, Buhweju district lacks commercial banks, and mobile money usage remains limited. Residents primarily utilise Airtel Money and MTN Mobile Money services, yet they encounter obstacles in saving, accessing loans, and transferring funds, leading to persistently low levels of financial inclusion in Nsiika Town Council.

## Statement of the Problem

## Despite a growing body of literature highlighting the beneficial impacts of mobile money services on financial inclusion, substantial gaps remain, particularly concerning rural communities in Uganda, such as Nsiika Town Council in Buhweju District. Existing empirical studies have predominantly concentrated on urban and semi-urban populations, where mobile money services have been shown to improve financial access for individuals (Demombynes & Thegeya, 2012; Suri & Jack, 2016). However, the unique challenges faced by rural residents, who often rely on informal financial mechanisms, have not been adequately explored.

The insufficient focus on rural contexts raises critical questions about the effectiveness of mobile loan services and their potential to empower marginalised groups, including women, youth, and low-income households. Although some research has examined mobile transfer services, there is a notable lack of comprehensive analyses that investigate the broader implications of these services for financial inclusion and economic development in rural settings (Munyegera & Matsumoto, 2016).

Technological barriers, such as inadequate network connectivity and low mobile phone ownership rates, along with regulatory challenges, further hinder the adoption and effectiveness of mobile money services in remote areas. In light of these identified gaps, there is an urgent need for targeted research that explores the interplay between mobile money services, financial literacy, and gender dynamics in rural Uganda. Understanding these relationships is crucial for developing effective strategies that enhance financial inclusion, address the specific challenges faced by rural communities, and leverage mobile money services as a sustainable pathway to economic empowerment.

**1.2. Objectives of the Study**

i: To evaluate the relationship between mobile loan services and financial inclusion in Nsiika Town Council, Buhweju District, Uganda.

ii: To examine the relationship between mobile transfer services and financial inclusion in Nsiika Town Council, Buhweju District, Uganda.

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## 1.3. Research Hypotheses

**H02**. There is no significant relationship between mobile loan services and financial inclusion in Nsiika Town Council, Buhweju district, Uganda.

**H03**. There is no significant relationship between financial inclusion and mobile transfer services in Nsiika Town Council, Buhweju district, Uganda.

## 

## 1.4. Scope of the Study

## The research was conducted in Nsiika Town Council, located in Buhweju District in southwestern Uganda. Buhweju District is bordered by Rubirizi District to the west and northwest, Ibanda District to the northeast, Mbarara District to the east, Sheema District to the southeast, and Bushenyi District to the southwest. Nsiika serves as the administrative and commercial hub of Buhweju District, situated approximately 53 kilometres northwest of Mbarara and 310 kilometres southwest of Kampala. This area was selected for the study due to the absence of formal financial institutions, such as commercial banks, with only savings and credit cooperatives (SACCOs) available. The study examines the relationship between mobile money services and financial inclusion in Nsiika Town Council, Buhweju District, over a five-year period from 2019 to 2023. This timeframe captures recent trends in mobile technology, digital financial services, and financial inclusion strategies, particularly regarding innovations that emerged during this period. The COVID-19 pandemic (2020-2022) significantly impacted the adoption of digital and mobile money services, as restrictions on physical movement compelled more individuals to utilise mobile platforms for savings, loans, and transfers.

## 1.5. Significance of the study

The research seeks to address the proliferation of unregulated financial practices within the community, particularly the reliance on predatory moneylenders who impose exorbitant interest rates. By enhancing financial inclusion, the study aims to provide marginalised individuals with greater access to affordable financing options, thereby safeguarding them from exploitation by informal lenders.

Understanding the relationship between mobile money services and financial inclusion can benefit financial institutions, including mobile money providers, by facilitating the delivery of low-cost payment solutions. This strategy can enhance liquidity management and create opportunities for developing financial products tailored to underserved markets.

The study will support policymakers in formulating data-driven policies regarding mobile money services and financial inclusion, particularly in remote areas where many individuals remain excluded from financial services. It recommends that the Bank of Uganda collaborate with mobile network operators to increase the accessibility of mobile money services within the community.

Furthermore, this research will contribute to the body of knowledge on mobile money services and financial inclusion, providing valuable insights for students and future researchers in developing countries. It will also identify underutilised mobile money services that, if explored, could enhance sales and market share in the competitive mobile money sector.

# 2.0LITERATURE REVIEW

## Mobile money is an electronic wallet service widely available across numerous countries, enabling users to store, send, and receive money via their mobile phones. It offers a secure and convenient alternative to traditional bank accounts. This system operates through accounts managed by mobile operators, with cash-to-electronic value conversions occurring at retail locations or through agents. Transactions are authorised and recorded in real-time via SMS, providing an affordable solution for accessing financial services, particularly in regions with limited banking infrastructure (Jeziorski & Economides, 2017).

## In this study, mobile money services encompass mobile savings, mobile loans, and mobile transfers. Financial inclusion is defined by the accessibility, reliability, and affordability of financial services across all income groups in Nsiika Town Council, Buhweju district. The objective of financial inclusion is to provide adequate and appropriate financial facilities to underserved and low-income individuals, ensuring that all segments of the population can access essential services, which is vital for national development (Geraldes et al., 2022). Accessibility pertains to the dependable and effective operation of mobile money services; affordability compares service costs to users' payment capacities; and reliability evaluates the accuracy of mobile money transactions (Elouaourti & Eszahid, 2021).

**2.1. The Diffusion of Innovation Theory**

## The Diffusion of Innovations Theory explains how new ideas, products, or services spread within a society, emphasising that the adoption of innovations, such as mobile savings services, occurs in stages, starting with innovators and early adopters and eventually reaching a wider audience (Rogers, 1962). In rural areas like Nsiika Town Council, this adoption is influenced by perceived benefits, ease of use, and social influences from peers and community leaders. Mobile savings services provide solutions to traditional barriers to saving, particularly in regions lacking formal banking infrastructure. Their accessibility, ease of use, and security encourage people to use these services, which in turn promote economic empowerment in marginalised groups and financial inclusion.

## 2.2 Mobile Savings on Financial Inclusion

Mbidde (2017) conducted a study on mobile money services (MMS) and financial inclusion in rural Uganda, specifically focusing on Bukomansimbi. The study aimed to assess the usage levels of MMS and identify challenges and strategies to enhance financial inclusion in rural communities. Utilising a cross-sectional design with a quantitative and qualitative approach, data were collected from 150 households and mobile money agents in Kitenda Sub County. The findings indicated that while MMS were predominantly used for purchasing airtime, they also facilitated cash withdrawals, deposits, and bill payments, promoting financial inclusion. However, 60% of rural community members faced challenges in depositing savings into their mobile money accounts. Additionally, security concerns, including mobile robberies and fraud involving MMS agents, hindered utilisation. The study recommended that mobile telecommunications operators conduct community sensitisation and education programs, and that the Ministry of Finance, through the Bank of Uganda, develop financial inclusion policies that incorporate MMS in regular financial transactions.

Musinguzi et al. (2020) conducted a study titled "Financial Inclusion and Saving Culture of Individuals in Uganda: A Case of Central Division, Kabale Municipality," which explored the barriers to accessing formal financial products and services. Using a cross-sectional survey design, the study sampled 390 respondents from a population of 15,092. The findings indicated a direct positive relationship between financial inclusion and savings, with regression analysis revealing that access to formal financial products (p=0.031), usage of these products (p=0.015), and the quality of the products (p=0.021) significantly influenced savings behaviours, measured as a percentage of monthly income saved. The study concluded that increased access, usage, and quality of formal financial products lead to higher savings rates. Recommendations included that financial institutions should develop tailored financial products and increase accessibility through agent banking to encourage saving with institutions rather than at home, benefiting both individuals and the broader economy.

## 2.3 Mobile Loan Services on Financial Inclusion

Avom et al. (2023) conducted a study on the impact of financial innovations, specifically mobile money, on financial inclusion across 50 African countries from 2004 to 2020. Utilising both parametric and nonparametric methods, the study found that mobile money adoption positively affects financial inclusion, with results from propensity score matching indicating an increase in financial inclusion of 12-14%. The researchers employed the Vector Error Correction Model (VECM) to examine the short-run and long-run relationships among the variables. The long-run analysis revealed a statistically significant positive relationship between the number of active mobile money account users and the proportion of domestic credit to the private sector (DCPS). Additionally, a significant positive relationship was observed between the number of active mobile money agents and DCPS, as well as between the total volume of transactions and DCPS in Ghana.

Demombynes and Thegeya (2012) conducted a study on Kenya's mobile revolution and the potential of mobile savings, utilising survey data from households and businesses across the country. They also conducted interviews with users of mobile money platforms like M-Pesa. The analysis covered a large dataset from various districts, both urban and rural. The findings indicated that mobile savings services significantly enhanced access to financial services, particularly in remote areas lacking traditional banking infrastructure. By using mobile platforms, the cost of saving money was reduced, which led to increased participation in the formal financial system. Mobile savings also allowed households to better manage financial shocks and accumulate savings over time.

Sekabira and Qaim (2017) examined the impact of mobile money on agricultural marketing and off-farm income in Uganda, using cross-sectional survey data and qualitative interviews with 550 smallholder farmers in rural areas. The study focused on the farmers' use of mobile credit services and their agricultural outcomes. The findings indicated that mobile loan services, such as MTN Mobile Money, significantly improved financial inclusion by providing microloans to smallholder farmers. This access to credit allowed them to invest in agricultural inputs, ultimately enhancing productivity and income. The study concluded that mobile loan services are vital for extending credit to underserved populations, thereby promoting economic growth and financial inclusion in rural areas.

Bosco (2021) investigated the impact of financial innovations by commercial banks on financial inclusion in the Kabale district. The study aimed to examine the relationships between institutional innovations, process innovation, and product innovation with financial inclusion among rural households. Using descriptive and cross-sectional research designs, the research combined qualitative and quantitative methods, gathering data from 396 respondents through questionnaires and interviews, which were analysed using Microsoft Excel and SPSS Version 21.0. The findings indicated that banking institutions need to enhance security on their platforms and make them user-friendly to attract more customers. It was emphasised that mobile banking significantly affects financial inclusion, and banks should support mobile banking services by incorporating mobile phone usage as a key innovation. This integration would enhance the administration's ability to monitor transactions, collect taxes, and reduce illicit activities. While mobile money has shown potential for revenue generation, the study raised concerns about whether these innovations will substantially contribute to overall financial inclusion.

## Ssonko (2011) assessed the status of Mobile Money Services in Uganda, which were viewed as low-value, low-volume payment systems aimed at connecting low-income clients to the national payment system. Inspired by the success of mobile money in Kenya, mobile network operators launched these services in Uganda, with approximately 1.74 million clients utilising them for airtime purchases and money transfers. Urban to rural remittances dominated transactions, but high transaction charges on small amounts posed a barrier to adoption for the poor. On average, 1.64 million transactions valued at Shs. 58.2 billion occurred monthly, with customer account balances ranging from Shs. 0.6 billion to Shs. 18.0 billion, indicating usage as savings vehicles.

## Mobile network operators emerged as the primary stakeholders, employing an operator-centric business model that limited competition and interoperability. Commercial banks, which are legally required to maintain accounts for cash float, partnered with mobile operators to back the issued e-money with regulated funds. The study suggested that reducing costs would require an open business model that includes all stakeholders, promotes interoperability, and expands the customer base. It emphasised the need for strong institutional relationships and a supportive legal framework to foster innovation while ensuring customer safety in e-money transactions.

## 2.4 Mobile Transfers Services and Financial Inclusion

Ebong and George (2021) explored trends in banking and mobile money channels to enhance financial inclusion through Digital Financial Services (DFS). Using the Rate of Change (ROC) approach, they analysed growth momentum in these channels in Uganda. Their findings indicated that banks must innovate to boost their contribution to financial inclusion, suggesting that additional channel innovations combining banking and mobile money could enhance banking's role in this area. The study highlighted the importance of leveraging digital innovations in payment services and digitising alternative channels like agent banking to improve efficiency and reach. While the rapid growth of mobile money promotes financial inclusion, it also necessitates better regulatory frameworks for risk reduction and consumer protection against financial crimes.

Munyegera and Matsumoto (2016) investigated the impact of mobile money, remittances, and household welfare in rural Uganda. Employing a panel data methodology, they analysed longitudinal survey data from 3,000 households using mobile transfer services over two data collection waves. The results showed that mobile transfer services significantly reduced the cost of sending and receiving money, facilitating easier access to remittances for rural households. The study concluded that mobile transfers enhance financial inclusion by allowing engagement with the formal financial system without needing a bank account. Additionally, these services aid households in smoothing consumption and managing financial shocks, thereby contributing to overall financial stability and well-being.

**2.5 Financial Inclusion**

Financial inclusion refers to the provision of banking and financial services to all individuals, with a specific focus on economically disadvantaged groups. It seeks to ensure access to essential financial solutions for everyone, particularly targeting unbanked and underbanked populations (Ezzahid & Elouaourti, 2021). Worldwide, over two billion adults are either excluded from or underserved by financial services, with a significant proportion located in developing countries. In Uganda, for instance, 74% of the rural poor rely on informal financial services, such as community-led self-help groups.

Village Savings and Loan Associations (VSLAs) have emerged as a vital support mechanism for the rural poor in Uganda. In the past decade, CARE International has facilitated the establishment of 27,222 VSLA groups, benefiting over half a million people who have collectively saved 51 billion Ugandan shillings (approximately US$19 million). About 72% of these groups provide internal loans, indicating a demand for increased security and access to larger loans. This situation presents an opportunity to connect informal savers with formal financial institutions, as evidenced by initiatives from Barclays Bank Uganda (Oswald, 2024).

However, current regulations do not incentivise or mandate the financial sector to foster inclusive economic growth, resulting in the marginalisation of groups such as women and youth by formal institutions. Many individuals face challenges in meeting the requirements for formal financial services, including high collateral demands and processing fees, which leave approximately five million people in Uganda unable to save formally. Additionally, low levels of financial literacy hinder engagement with formal systems; 47% of individuals cite inadequate information on saving, while 44% report lacking funds to invest as primary barriers to participation. Despite a notable demand for insurance products, only 2% of the population utilises formal insurance, compared to 43% relying on informal options, which are perceived as more accessible and affordable (Garcia, 2013).

**2.6 Mobile Money and Poverty Reduction through Savings**

Suri and Jack (2016) examined the long-term effects of mobile money services, particularly M-Pesa, on poverty and gender in Kenya through household surveys and longitudinal data from 6,000 households. The study revealed that mobile money significantly contributed to poverty reduction by promoting savings and improving financial management among low-income households. Notably, women benefited greatly from mobile savings services, as they were able to save more consistently, better manage financial shocks, and achieve greater financial autonomy. The findings highlighted the crucial role of mobile savings in enhancing financial inclusion and improving economic outcomes for marginalised communities.

**2.7 Mobile Loans and Credit Access**

Cull et al. (2014) conducted a study titled "Financial Inclusion and Development: Recent Impact Evidence," which reviewed various mobile loan platforms across Africa, examining their impact on access to credit for underserved populations. Utilising both quantitative and qualitative analyses, including case studies and survey data from countries such as Kenya, Uganda, and Tanzania, the study found that mobile loan services like M-Shwari in Kenya and MTN Mobile Money in Uganda significantly increased access to credit for individuals previously excluded from traditional banking systems. The findings underscored the vital role of mobile loans in providing microcredit to small businesses and individuals in rural areas, thereby promoting financial inclusion and fostering economic development.

## 2.8 Conceptual framework

**Mobile Money Services (IV)**

|  |
| --- |
| **Saving services** |

* Amounts saved
* Frequency of savings
* Awareness of mobile savings

**Financial Inclusion (DV)**

|  |
| --- |
| **Loan services** |

* Loan amount
* Loan repayment
* Interest rates

Accessibility of financial services

Reliability of financial services

Affordability of financial services

|  |
| --- |
| **Transfer services** |

* Frequency of transfers
* Transaction volume
* Transfer fees

## Figure 1: Conceptual framework

**Source: researcher, 2024**

# 3. 0 METHODOLOGY

## This study aims to assess the relationship between financial inclusion and mobile money services, mobile savings, loans, and transfers in Nsiika Town Council, Buhweju District, Uganda. The researcher employed both qualitative and quantitative research methods to collect and analyse data, allowing for numerical expression of findings. A linear association between mobile money services and financial inclusion in the area was established using statistical techniques. The research design, which outlines the strategy for data collection and analysis, included the use of surveys, interviews, and secondary sources (Cresswell & Creswell, 2017). This design facilitated a comprehensive understanding of the connection between mobile money services and financial inclusion by capturing both statistical trends and personal experiences. The study measured the use of mobile savings, loans, and transfers in relation to financial inclusion factors such as income management, saving behaviours, loan accessibility, and banking availability through structured questionnaires.

## Table 1. Population

## 

## Category target population

## 

## Residents 600

## Mobile money agents 20

## Business owners 200

## Service providers 200

## Total 1020

## Source: Primary data (2024)

## 3.1. Sampling techniques and sample size

Sampling is a process of choosing the sample size to represent the target population. The respondents in this study were chosen using the simple random sampling procedure

The researcher used the Slovenes formulation to regulate the trial size whereby

n = N

1+N (e) 2

Where: n= sample size, N= target population, e=level of significance at 0.05.

1020

1+1020(0.05)2

1020

1+ 1020(0.0025)

n=287

**3.2. Sample Size**

A stratified random sampling technique was employed for the quantitative part, ensuring representation from various income groups, gender, and age demographics. For the qualitative part, purposive sampling was used to select key informants such as mobile money agents, financial service providers, and community leaders.

**Table 2. Sample size**

Category Population Sample size Sampling technique

Residents 600 166 simple random

Mobile money agents 20 9 simple random

Business owners 200 56 simple random

Service providers 200 56 simple random

**TOTAL 1020 273**

## 3.3. Data collection methods

The researcher was able to collect data from primary data sources straight from the field since the Questionnaire was structured and self-administered, and a five point-Likert scale was used to ask questions where 1= strongly disagree 2=disagree, 3=not sure 4= agree and 5 = strongly agree in alignment with the study objectives. The drop and pick afterwards method was used to collect the questionnaire.

## 3.4. Data Analysis

**The regression equation**

Y=. a+ β1X1+ β 2X2+ β 3X3  + e

*Where,*

***Y*** = dependent variable (financial inclusion)

a=intercept

β=Slope

e = residual (error)

The hypotheses were tested at a 0.5 confidence level, and thereafter the results were tabulated and displayed in chapter four.

# 4.0. RESULT

## Table 3: Frequency of different questionnaire categories

|  |  |  |
| --- | --- | --- |
| **Category** |  | **Frequency** |
| Distribute questionnaires |  | 287 |
| Returned questionnaires  Non response |  | 273  14 |
| **Response rate** |  | **95.1%** |

**Source: Primary data, 2024**

The researcher's original objective was to gather information from 287 respondents. Nevertheless, 273 respondents provided complete data. Table 4 presents the data, which indicates that 273 respondents, or 95.1% of the sample, gave their responses. Only fourteen respondents, representing 4.9% of the sample, chose not to reply. These findings indicate that the response rate significantly surpassed the recommended threshold of 70% proposed by Amin (2005), which suggests that a response rate of 70% or higher is necessary for a study to be deemed satisfactory.

**Table 4: Demographic information of respondents**

# Variable Frequency Percentage

# 

# Gender

# Male 197 72

# Female 76 28

# Age category

# 20-29 106 39

# 30-39 115 42

# 40-49 49 18

# 50+ 03 1

# Education status

# Tertiary education 36 13

# Secondary education 50 18

# Primary education 117 43

# No formal education 70 26

# Primary data, 2024

## 4.1 Descriptive Statistics

This segment presents results from descriptive statistics using mean and standard deviation in line with the study objectives.

## 

## 4.1.1. The response on mobile savings and financial inclusion

## Table 5: Effect of mobile savings on financial inclusion.

# 

# Statement N Mean SD

# 

# I have ever used mobile money services 273 4.20 .738

# I have been using all services provided by

# Mobile money 273 4.19 .730

# I can use mobile money at any time 273 3.93 .828

# With use of mobile money, I can deposit

# Money any time 273 1.88 .966

# Use of mobile money has helped me to

# Save money 273 1.86 .955

# It is secure to save using mobile money 273 4.17 .746

# 

# Mean 3.37 .827

# Source: Primary data, 2024

## 

## 4.1.2 The response to mobile money loan services on financial inclusion

## 

## Table 6: Effect of mobile money loan services on financial inclusion

# 

# Statement N Mean SD

# 

# I have ever received a loan using money

# services 273 2.46 1.250

# I get a loan using mobile money and pay

# back in time 273 2.51 1.251

# I can afford interest rates charged. 273 2.41 1.191

# Mobile money has helped me get a

# Loan with convenience 273 4.29 .911

# 2.92 1.15

# Source: Primary data, 2024

## 4.1.3 The response to mobile money transfer services on financial inclusion

## Table 7: Effect of mobile money transfer services on financial inclusion

# 

# Statement N Mean SD

# 

# I always make payments using mobile

# Money services 273 2.22 1.190

# I always receive money using mobile

# Money services 273 2.25 1.154

# Mobile money is reliable in that

# Money can be received any time 273 2.32 1.224

# Transferring Money using Mobile

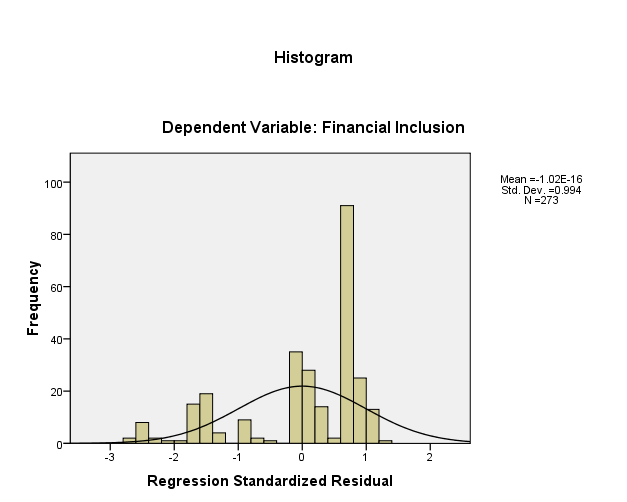
# Money is affordable 273 2.41 1.261

# Money can be transferred to my

# Bank account using mobile 273 2.24 1.165

# 2.28 1.18

# Source: Primary data, 2024



**Figure 2: Histogram showing the normality test of MFI**

**Source (primary data, 2024)**

**Skewness and Kurtosis**

The skewness is concerned with the symmetry of the distribution, and the Kurtosis is concerned with the peakiness of the distribution.

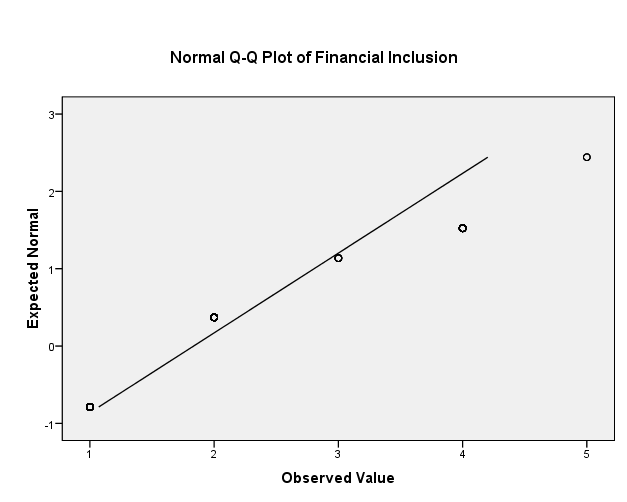
**Table 8: skewness and kurtosis**

| **Descriptive Statistics** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|  | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Mobile money services | 273 | 2.19 | 1.324 | .826 | .147 | -.712 | .294 |
| Financial Inclusion | 273 | 1.84 | .969 | 1.312 | .147 | 1.163 | .294 |
| Valid N (listwise) | 273 |  |  |  |  |  |  |

**Source: primary data (2024)**

**4.2 Linearity test**

The assumption was done in order to evaluate the degree of linear relationship between the input and the output of the variables.in this aspect, the linearity test assesses two values, linearity and deviation from linearity. The linearity of mobile money services and financial inclusion was tested through the use of scata plots as shown below.



**Figure 3: Scatter plot showing linearity of MMS and MFI**

**Source: Primary data (2024)**

**Table 9. Multi-collinearity Test**

|  |
| --- |
| **model** Collinearity Statistics  **Constant** ToleranceVIF  **MS** .999 1.001  **ML** .993 1.007  **MT** .994 1.006 |

**a. Dependent variable**: **FI**

**Source: primary data (2024)**

**4.3 Multiple Regression Analysis**

The study adopted multiple linear regressions to examine the effect of mobile money services and financial inclusion in Nsiika town council, Buhweju district. Multiple linear regressions were used to test the hypotheses. There is no significant relationship between mobile money services and financial inclusion was the overall hypothesis.

The statistical model was Y=. β0+ β1X 1+ β 2X2+ β 3X3

The results are shown in the tables below:

| **Table 10: Model Summarya** | | | | |
| --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .148a | .022 | .011 | 1.236 |
| 1. Predictors: (Constant), M S, ML, MT Services   **Source: Primary data, 2024** | | | | |

The R squared value of 0.022 (R2 =0.022) indicates that mobile money services variables in the regression model explain 2.2% of the variance in financial inclusion. This implies that 97.8% can be explained by other factors not considered in this study.

| **Table 11: ANOVAa** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 9.233 | 3 | 3.078 | 2.016 | .000b |
| Residual | 410.767 | 269 | 1.527 |  |  |
| Total | 420.000 | 272 |  |  |  |
| a. Dependent Variable: Financial Inclusion  b. Predictors: (Constant), M T, MS, ML | | | | | | |
|  | | | |  |  |  |

These results indicated that the model was a fit for the data (F=2.016, P=0.00 <0.5), implying that the model significantly and linearly predicted financial inclusion.

## Table 12: Coefficientsa

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| --- | --- | --- | --- | --- | --- | --- |
| B | Std. Error | Beta |
| 1 | (Constant) | 3.062 | .448 |  | 6.838 | .000 |
| Mobile Saving Services | .078 | .070 | .067 | 1.118 | .265 |
| Mobile Loan Service | .139 | .064 | .132 | 2.174 | .031 |
| Mobile Transfer Services | .021 | .071 | .018 | .304 | .762 |

a. Dependent Variable: Financial Inclusion

Y= 3.062+ 0.078X1 + 0.139X2 + 0.021X3

**5.0 Conclusions**

The study's findings on the impact of mobile money services on financial inclusion indicate that Mobile money saving services had little impact on the financial inclusion of Buhweju district residents. The field study accepted the null hypothesis, indicating no significant relationship between mobile savings services and financial inclusion.

## In contrast, mobile money loan services significantly impacted financial inclusion. The study confirmed the alternative hypothesis, showing a positive relationship between mobile loans and financial inclusion, suggesting that increased use of mobile loan services could enhance financial inclusion.

## However, mobile transfer services were found to be ineffective in improving financial inclusion due to low wages and limited access to the service in the district. Low-income levels and restricted access to services hindered financial inclusion for the local population.

## 6.0 Recommendations

To improve mobile money services and financial inclusion in rural areas like Nsiika Town Council, several actions are recommended from the findings: For mobile money saving services, the study suggests that since these services do not significantly impact financial inclusion, awareness campaigns should be launched by the government, mobile providers, and financial institutions. These campaigns should educate residents on the broader range of mobile financial services like banking, insurance, and investments to promote financial inclusion.

To develop mobile loan services, tailored loan products with affordable and flexible terms should be offered to support small businesses and low-income households. The study recommends improving information systems to ensure reliable data is available for enhancing access to mobile loans, which have a significant positive effect on financial inclusion in the area.

To advance mobile transfer services, infrastructure expansion is needed. Increasing the number of mobile money agents in rural areas would make deposits and withdrawals more accessible. The study also recommends offering additional services like mobile payments, health insurance, and securities exchange to further enhance financial inclusion in the community.

## 7.0 Suggestions for Further Reading

The mobile money services accounted for only 2.2 % effect on financial inclusion thus there is a still need for the study to ascertain the impact of the 97.8 % being explained by other factors that may affect financial inclusion such as financial literacy, government policy and mobile money tax.

**COMPETING INTERESTS DISCLAIMER:**

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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Details of the AI usage are given below:

1.

2.

3.

## References

1. Abiona, O., & Koppensteiner, M. F. (2020). Financial inclusion, shocks, and poverty: Evidence from the expansion of mobile money in Tanzania. *Journal of Human Resources*.
2. Aggarwal, S., Brailovskaya, V., & Robinson, J. (2020). Cashing in (and out): Experimental evidence on the effects of mobile money in Malawi. *AEA Papers and Proceedings*.
3. Ahmed, H., & Cowan, B. (2021). Mobile money and healthcare use: Evidence from East Africa. *World Development*.
4. Aker, J. C., Prina, S., & Welch, C. J. (2020). Migration, money transfers, and mobile money: Evidence from Niger. *AEA Papers and Proceedings*.
5. Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine*, 18(3), 91–93. https://doi.org/10.1016/j.tjem.2018.08.001
6. Amin, M. E. (2005). *Social science research: Conception, methodology and analysis*. Makerere University Press.
7. Andrew, B. (2024). E-commerce defined: Types, history, and examples. *Investopedia*. https://www.investopedia.com/ecommerce-defined-5114510
8. Batista, C., & Vicente, P. C. (2020). Improving access to savings through mobile money: Experimental evidence from African smallholder farmers. *World Development*, 129, 104905. https://doi.org/10.1016/j.worlddev.2020.104905
9. Bizoza, A. (2022). A mobile-based system for loans management: A case of Banque de Gestion et de Financement.
10. Bosco, I. B. (2021). E-banking and performance of financial institutions in Uganda: A case of Kabale District.
11. Chen, Y., & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth.
12. Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2020). *The Global Findex database 2017: Measuring financial inclusion and opportunities to expand access to and use of financial services*. The World Bank Economic Review.
13. Ebong, J., & George, B. (2021). Financial inclusion through digital financial services (DFS): A study in Uganda. *Journal of Risk and Financial Management*.
14. Economides, N., & Jeziorski, P. (2017). Mobile money in Tanzania. *Marketing Science*, 36(6), 815–837. <https://doi.org/10.1287/mksc.2017.1051>
15. Emmanuel, B. N. (2022). The determinants of participation in savings groups and the impact on input investment among smallholder farmers in Sironko District, Uganda.
16. Ezzahid, E., & Elouaourti, Z. (2021). Financial inclusion, mobile banking, informal finance and financial exclusion: Micro-level evidence from Morocco. *International Journal of Social Economics*.
17. Garcia, M. J. R. (2013). Financial education and behavioral finance: New insights into the role of information in financial decisions. *Journal of Economic Surveys*, 27(2), 297–315. https://doi.org/10.1111/j.1467-6419.2011.00705.x
18. Huang, A. (2023). Understanding financial inclusion: A comparative analysis of financial mechanisms in Uganda.
19. Johnen, C., Parlasca, M., & Mußhoff, O. (2023). Mobile money adoption in Kenya: The role of mobile money agents.
20. Jubril, T. S., Jimoh, A. B., & Kabiru, S. M. (2024). Financial inclusion in times of crisis: Assessing the threat of COVID-19 on access to banking services.
21. Mbidde, J. (2017). *Mobile money services and financial inclusion in rural areas of Uganda: A case study of Bukomansimbi* [Master’s dissertation, Uganda Management Institute]. <http://umispace.umi.ac.ug/xmlui/handle/20.500.12305/1011>
22. Muhumuza, W. (2020). *Contemporary social development issues in Uganda: A critical perspective*.
23. Musinguzi, I., Richard, A., & Muwanguzi, E. (2021). Financial inclusion and saving culture of individuals in Uganda: A case of Central Division, Kabale Municipality.
24. Oswald, K. J. (2024). Utilization of savings and credit by household characteristics in Uganda and the implications for linkage banking programs.
25. Raghunath, A., Ndubuisi, I. Obi Jr., & Mpogole, H. (2024). Beyond digital financial services: Exploring mobile money agents in Tanzania as general ICT intermediaries. *ACM Journal*.
26. Siano, A., Raimi, L., Palazzo, M., & Panait, M. C. (2020). Mobile banking: An innovative solution for increasing financial inclusion in Sub-Saharan African countries: Evidence from Nigeria.
27. Ssonko, G. W. (2010). The role of mobile money services in enhancing financial inclusion in Uganda. *Bank of Uganda*.
28. Must, B., & Ludewig, K. (2010). Mobile money: cell phone banking in developing countries. *Policy Matters Journal*, *7*(2), 27-33.
29. Okello Candiya Bongomin, G., & Munene, J. C. (2020). Financial inclusion of the poor in developing economies in the twenty-first century: Qualitative evidence from rural Uganda. *Journal of African Business*, *21*(3), 355-374.
30. Geraldes, H. S. A., Gama, A. P. M., & Augusto, M. (2022). Reaching financial inclusion: necessary and sufficient conditions. *Social Indicators Research*, *162*(2), 599-617.
31. Konstantakopoulou, I. (2023). Financial intermediation, economic growth, and business cycles. *Journal of Risk and Financial Management*, *16*(12), 514.
32. Borges, G. L., Marine, P., & Ibrahim, D. Y. (2020). Digital transformation and customers services: the banking revolution. *International Journal of Open Information Technologies*, *8*(7), 124-128.
33. Batista, C., & Vicente, P. C. (2025). Is mobile money changing rural Africa? Evidence from a field experiment. *Review of Economics and Statistics*, 1-10.