

Effect of Mobile Banking Technology on Loan Performance of Deposit Taking Savings and Credit Cooperative Organisations in Mombasa County, Kenya

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Abstract The present research is designed to explore the implications of mobile banking technologies on the loan performance of Deposit-Taking Savings and Credit Cooperative Organizations (DT SACCOs) in Mombasa County from a unique perspective. The digital financial sector has been revolutionized by technical advancements such as mobile banking, which have allowed financial services providers to increase efficiency and meet customer demands. The study examined mobile banking technology from three distinct viewpoints: transaction volume, loan disbursement, and transaction cost, applying both a descriptive research approach and a linear regression model. Data was collected from 63 respondents, including members of the board of management as well as staff members of the six SACCOs that accept deposits located in Mombasa County. The descriptive results reveal that a large proportion of respondents are of the opinion that mobile banking technology has a substantial influence on the performance of the loan by DT SACCOs in Mombasa County. The regression analysis and hypothesis testing additionally indicated that mobile banking technology has a significant influence on loan performance. The study concludes that the adoption of mobile technology has a positive effect on the loan processes and procedures of DT SACCOs in Mombasa County. Therefore, the study recommends that DT SACCOs upscale their digital financial innovation, especially mobile technology,

considering that the financial services industry is moving towards a digital environment. This will enable them to improve the performance of their loan portfolio and remain competitive in the market.

Keywords Financial Digital Innovation, Mobile Technology, Loan Performance, Deposit-Taking SACCOs

1. Introduction

1.1. Digital Financial Innovation

The way the financial system has historically been understood in the global financial industry has evolved as a result of swift advances in technology. The adoption of new business models, new financial products, and many delivery methods has all been made feasible by growing technological advancements. In addition, the development of digital financial innovations has increased the speed, transparency, security, and accessibility of customized financial services for all consumer categories. This is largely due to the advancements in modern technology.

Digital financial innovation is the use of technology innovations in the delivery of financial services [1]. In the last thirty years, there have been numerous technological

and digital disruptions that have made it possible for financial institutions to completely restructure their business models in order to provide clients with services via digital channels, boost efficiency, and be more customer-focused [2]. Enhanced internet access, mobile technology, modern computing approaches, portability of data, machine intelligence, and robots are a few of the technological advancements that have culminated in an entirely novel phase of digital financial innovations [3]. According to Kamau [7], nearly two-thirds of those who used digital credit were older than 30. This indicates that Kenyans of all ages embrace the use of digital credit. The adoption of mobile money transfer technology, which is a partnership between financial institutions and cell service providers, is one of Kenya's most significant recent digital transformations. Kenyans have embraced technology in significant numbers as well.

Through a variety of digital financial innovations, clients are provided with accessibility and the capability to engage in many different kinds of regular financial services at their comfort and in close proximity without being required to commute to a branch, which could prove time-consuming, expensive, and high-risk. Absolutely no other digital financial invention has had the comparable disruptive effect on the financial services sector as mobile banking technology, which enables clients to trade, save, acquire, and repay loans quickly and at their convenience [4]. According to the Global System for Mobile Communication Association (GSMA) [5], many of the socioeconomic and development challenges from the COVID-19 pandemic were being tackled with mobile banking money tools. As such, global remittances through mobile banking technology increased by 65 percent in 2020, and merchant payments increased by 43 percent. Also, this innovation provided a lifeline for businesses as well as enabled governments and other social enterprises to effectively continue with their business operations and serve their customers during the pandemic [6]. Kenyans, especially those who use mobile digital credit, have welcomed this digital revolution. This study's main concern is whether Kenyan Savings and Credit Cooperative Organizations (SACCOs) have utilized this innovation to enhance their loan performance. This study will investigate how Kenyan SACCOs' loan performance is impacted by mobile banking technologies.

1.2. Loan Performance

Investment in financial services constitutes a few of the most critical tasks of SACCOs, making the satisfactory repayment of loans essential to both the profitability and liquidity of SACCOs. Nsengiyumva and Harelimana [8] argue that, loan performance is a measurement used to determine the extent to which loans are successfully serviced in accordance with the loan contract and is essential to the financial viability of any financial institution offering loans. Loans are considered to be

performing when all agreed-upon installments and interest payments are made on time. However, there is always a chance that members won't be able to fulfill their obligations as anticipated. Whenever this happens, these loans are designated as "nonperforming," which somewhat drives down the SACCO's earnings. The economic downturn of 2008 uncovered inadequacies in loan performance tracking procedures and the finance sector's inability to notice and act swiftly. This resulted in a substantial proportion of non-performing loans globally [9].

Non-performing loans (NPLs) inhibit the concerned SACCO from earning interest revenue and lower the aggregate amount of money that is available for the financing of new credit [10]. In addition, he connects loan performance to lending capability, liquidity, and total institution profitability, emphasizing the significance of successful loans to the expansion of lending institutions. Poor client choice can be attributed to SACCOs' weak appraisal techniques, and inadequate credit tracking mechanisms have been identified as one of the primary contributors to loan default [11].

A number of researches focusing on digital financial innovations in financial cooperatives conclude that digital financial innovations reduce the risk of onboarding risky borrowers [12], foster savings in regards to both costs and time as well as minimize the risks that come along with managing cash and that include loss and fraudulent activities [13], reduce transactional and decision-making turnaround time [14] and lead to increased liquidity and profitability [15]. Memba and Sum [16] conducted a study focusing on the financial performance of financial institutions and the adoption of mobile money advancement, which observed that the deployment of mobile money advancement exacerbated loan performance by lowering the level of default and therefore needed to be adopted by the participants in the finance industry in order to reduce the risk associated with NPLs. Every SACCO aspires to engage in productive credit activities that boost member wealth. Loan distribution is greatly simplified by digital credit, particularly mobile credit. Furthermore, it makes loan repayment easier and faster, to the benefit of both creditors and SACCOs. SACCOs in Kenya should perform better on loans as a result of this.

1.3. Statement of the Problem

Over the past decade, several SACCOs throughout Kenya have tried to adopt the usage of digital financial innovations throughout their operational processes in an attempt to keep pace with the intense competition in the financial service industries. Studies recently undertaken have endeavored to understand the manner in which technological advances in finance have affected the SACCO sector [17-23]. Existing studies come to a conclusion that SACCOs will have greater service delivery, solvency, and profit growth, culminating to enhanced financial performance, provided digital financial

innovations are properly adopted.

Numerous SACCOs continue to deal with substantial percentages of loans that are not performing, which are considerably above the recommended threshold of 5% of the total loan portfolio, as stated by SASRA, despite such significant investments in digital financial technologies. The NPL rate for DT SACCOs above the 5% level has been steadily rising for the past five years, as shown by the following values: 5.12% (2015), 5.23% (2016), 6.14 (2017), 6.30% (2018), 6.15% (2019), and 8.39%, in accordance with the 2020 Sacco Societies Regulatory Authority (SASRA) supervisory report (2020). High loan delinquency rates frequently lead to non-performing loans, which worsen liquidity challenges that hinder SACCOs from keeping their obligations [23]. Although the SACCOs' primary focus is loan investment, the overall success of these advances is vital to the institution's financial liquidity as well as financial performance, and a spike in NPLs is an indication of the typically negative performance of loans.

It is observed that the currently available research on digital financial technology has largely centered on profitability and financial performance as a response variable [24-28], with hardly any evidence on loan performance as the main variable of interest. As a result, this study differs from the others, although it is focused on understanding whether mobile technology affects the performance of loans. The research particularly sought to determine whether advancements in mobile banking technology have any influence on the performance of loans and other credit at DT SACCOs in Mombasa.

1.4. Objective of the Study

The main purpose of this research is to assess the mobile banking technology's influence on the performance of loans at DT SACCOs in Mombasa County. The research will also examine the hypothesis that the performance of DT SACCOs's loans in Mombasa is not significantly affected by mobile banking technology.

2. Literature Review

2.1. Theoretical Review

2.1.1. Disruptive Innovation (DI) Theory

First presented by Clayton Christensen in 1995, the Disruptive Innovation Theory provides a detailed understanding of innovations and describes the impact and potential of new innovation technologies on organizations' existence [29]. The theory, which was based on a detailed study of the disk drive, explains how incumbent organizations ignore new technologies that don't fit within their business models. The theory further posits that in many cases, disruptive innovation does not follow the traditional product or service lifecycle, making the

transition between early adaptors and early majority unpredictable. The unpredictability of product lifecycle periods becomes a real challenge to organizations' ability to adopt new innovations [30]. Disruptive innovations also introduce products and services that tend to appeal to low-end market customers due to their ease of use and affordability.

Mobile banking technology is a disruptive innovation that has led to financial institutions providing basic banking services simply and cheaply to a large population [31]. By using a simple interface on mobile phones, customers can view their accounts, transfer money, withdraw and deposit cash, and make payments cheaply. This innovation, which is a hybrid of low-end and new market disruption, has enabled the financial institutions to reach the bottom of the pyramid and expand their customer base [32]. The theory of disruptive innovation is relevant to this study since it will provide an insight into the effects of the adoption of mobile banking and Internet banking technology on the loan performance of DT SACCOs. Digital credit disruptions innovation, like any other change, may have both favorable and unfavorable consequences on the performance of loans.

2.2. Empirical Review

The results of the study by Ruto [31] on the implications of mobile banking technology on the financial performance of SACCOs in Nakuru, Kenya, reveal that the financial performance of SACCOs has been significantly improved by the introduction of mobile banking technology. The study further revealed that SACCOs have been able to experience a reduction in administrative costs as members opted to access and transact on their accounts through their mobile phones at their convenience rather than visit their branch for services. Further, according to the results of the study by Njenga, Kiragu, and Opiyo [26], there exists a correlation between innovations in finance and financial performance of SACCOs. However, the research recommended the integration of all the financial innovations into one platform and that the adoption of financial innovation by SACCOs should go hand in hand with the installation of high-grade security features and staff training.

Mobile banking increases the speed of financial transactions by ensuring quick transfers of funds. This was the conclusion by Kiprop, Ayuma, and Ambrose [33] in their research on the effect of mobile money services on the financial results of commercial banks in Kenya. The study results further revealed that mobile banking made loan application, payment, and monitoring easy once a customer was deemed creditworthy as per the bank's loaning policy. According to Wanyonyi and Ngaba [34], adoption of the mobile banking innovation by SACCOs is not without challenges. Delays in fund transmission, changes in government legislation on technology, limits on the amount of funds to be transacted, and fraud are some of the challenges facing SACCOs and their members as they

embrace mobile banking technology.

A study by Tsuma et al [35] on the effects of financial innovations on the financial performance of SACCOs in Kenya concluded that financial innovations led to operational efficiency and better, more timely services to members. In addition, SACCOs' partnering with Cooperative Bank and the introduction of the SACCO Link Mobile Banking service have given rise to efficient and effective accessibility to finances by members across the country on a 24/7 basis. A similar study was done in Uganda on the use of mobile money as a disbursement tool for microloans to women. The results revealed increased profits among the businesses with reduced loan defaults. This was attributed to the ease of tracking income and expenditure and the ability to make numerous small loan repayments through their mobile phones [36]. After several years of research, no consensus has been achieved, and scholars cannot even agree on the same empirical evidence. Numerous ideas have been created over the years regarding the potential effects of digital transformations on financial performance, with varying degrees of success. Despite numerous studies, the implications of digital financial innovation, particularly mobile credit, on loan performance remain unknown. This study sought to examine the relationship between mobile technology and SACCO loan performance.

2.3. Conceptual Framework

A conceptual framework presents a graphic representation of how the dependent and independent variables of the research relate to each other. In an effort to articulate the relationship between the dependent as well as independent variables in DT SACCOs in Mombasa County, this study applied the disruptive innovation theory (DI).

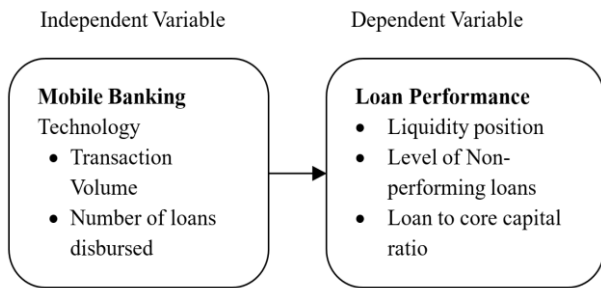


Figure 1. Conceptual Framework

3. Methodology

3.1. Target Population and Sample Size

To determine how digital financial innovations affect loan performance, the study used a descriptive research approach. Graphs, tables, and cross tabulations were

adopted for presenting the results, while descriptive statistics were employed to explain the qualities (outcomes, patterns, and trends) of the study's subjects. Based on the findings from the descriptive statistics, inferential statistics were utilized to make generalizations about the population. The population being studied was one hundred and ninety people, which included all of the board members and employees of the six Mombasa based DT Saccos that were granted SASRA licenses [37,38].

For the purpose of selecting respondents, the researcher used stratified random sampling methods. The researcher first obtained a set of a total of six DT Saccos in the county of Mombasa that were accredited by the SASRA. She subsequently categorized all members of every single Sacco selected into two strata: members of the governing board and SACCO personnel. Enhanced data collection, management, and interpretation are required for this. The retrieval of relevant research data is made possible by stratified random sampling, which also gives the researcher complete control over each strata division and produces a high level of statistical precision for both larger and smaller sample sizes [39]. A representative sample of seventy respondents was calculated by use of the Nassiuma equation (Nassiuma, 2008), as highlighted by Orangi & Kimemia, [39]), which asserts that an interval of $21\% \leq C \leq 30\%$ for the corresponding coefficient of variability and $2\% \leq e \leq 5\%$ for the standard variation is desirable for many surveys.

$$n = \frac{NC^2}{(C^2 + (N-1)e^2)}$$

Where:

n = Sample size used

N = Eligible population

C = Coefficient of Variance in the range of $21\% \leq C \leq 30\%$

e = Standard error in the range of $2\% \leq e \leq 5\%$

3.2. Data Collection Procedures and Instruments

Primary data was obtained through questionnaires, while secondary data was extracted for review and analysis from data sets, documents, newsletters, annual reports, financial statements, and internet sites. The study instrument's content validity was examined using the Lawshe formula. The suitability of a research instrument's measures is known as content validity. It discusses how the metrics—feedback, observation data, queries, etc.—exactly estimate the variables you're trying to evaluate. In other words, the extent to which the idea being measured is covered by the measurement [40]. Content validity indices that are greater than the generally accepted critical score of 0.778 for a panel of 9 were deemed acceptable [41]. After estimation of the content validity index, which eventually came up to be 0.882, the researcher was able to ascertain that the data collection instrument was effective in measuring the variables it was designed to measure.

3.3. Validity and Reliability of Research Instruments

The Cronbach's alpha index was used to evaluate the questionnaire's reliability. The degree to which the survey's results are consistent across surveys is its reliability. When measurements are consistently taken using the same tools and techniques, it illustrates how consistently a quantifying instrument can produce the same results [42]. A pilot test study with a total of ten questionnaires was carried out to estimate the Cronbach Alpha Index. The overall Cronbach alpha index from the study came out to be 0.97. Consequently, the questionnaire was considered valid and reliable since the analysis of the variables generated a Cronbach's alpha score of 0.7 or higher [43].

3.4. Data Analysis

A simple linear regression analysis was carried out to assess the causal interactions between the variables and their sub variables. The model for the multiple regression model is shown below:

$$Y = \beta_0 + \beta_1 X_1 + \epsilon$$

Where:

Y = Loan Performance

β_0 = Intercept (Constant)

β_1 = Coefficients

X_1 = Mobile Banking Technology

ϵ = Probable Error Term

Testing of hypotheses was carried out in order to determine precisely the correlations that existed among the study variables and what they implied in terms of significance. The study's null hypothesis was examined using the z test with a five percent level of significance. If the p-value is less than or equals to 0.05 and the null hypothesis is rejected.

4. Results

The statement is describing the response rate of a research study. The researcher issued a total of 70 questionnaires to respondents, and out of these 70, 63 of them answered and returned the survey questionnaires, which corresponds to a response rate of 90%. To evaluate the quality of the response rate, the statement is cited by Mwanja and Murithi [44], who provide guidelines for acceptable response rates in a research study. According to these guidelines, a response rate of 50% is considered acceptable, 60% is considered deserving, and 70% and higher is considered excellent. This information is summarized under table 1.

Based on this guideline, the response rate of 90% in the current study is considered excellent. This high response rate indicates that the respondents were willing and able to participate in the study, which increases the study's reliability and validity. However, it's important to note that a high response rate does not necessarily guarantee the study's quality. The study's design, methodology, and analysis are also important factors that determine the study's quality.

Table 1. Response Rate

Number of questionnaires issued	Number of questionnaires validly completed	Percentage
70	63	90.0%

4.1. Descriptive Statistics on Effect of Mobile Banking Technology on Loan Performance

In seeking to determine the effect of mobile banking technology on loan performance in DT Saccos, the researcher requested that the respondents rate sub-criteria under the parameters of loan transaction volume, number of loans disbursed, and loan transaction cost. A Likert scale of 1 (very low), 2 (low), 3 (average), 4 (high), and 5 (very high) was used by the respondents. The table below shows the results returned.

Table 2. Descriptive statistics on Mobile Banking Technology and Loan Performance in DTS

Category	VL (%)	L (%)	A (%)	H (%)	VH (%)	Mean	Std Dev.
Transaction Volume							
loan repayments deposits through mobile.	0	1.6	9.5	42.9	46	4.33	0.713
loan withdrawals through the mobile.	0	0	3.2	47.6	49.2	4.46	0.558
Loan disbursement							
loans disbursed through mobile banking technology.	0	1.6	12.7	46	39.7	4.24	0.728
Transaction Cost							
Cost of mobile banking	4.8	6.3	34.9	34.9	19	3.56	1.050
Aggregate mean and standard deviation						4.15	0.763

VL - Very low, L - Low, A - Average, H - High, VH - Very High

In table 2 above, when asked to indicate the number of loan repayment deposits made through mobile banking technology, 46% of the respondents noted a very high number of loan repayments: 42.9% high, 9.5% average, and 1.6% low. In terms of loan withdrawals using mobile technology, 49.2% indicated that loan withdrawals through mobile devices were very high, 47.6% were high, and the remaining 3.2% cited an average number of loan repayment deposits. Further, 46% and 39.6% cited high and very high numbers of loan disbursements via mobile device, respectively; 12.7% of the respondents maintained that the number disbursed was average, with only 1.6% noting that the number is low. The cost of mobile banking transactions was determined to be average (34.9%), high (34.9%), very high (19%), low (6.3%), and very low (4.8%).

The aggregated mean of 4.15 implies that most of the respondents agree with the statement that mobile banking technology has a significant effect on loan performance. This could imply that mobile banking technology is one of clients' preferred channels for loaning processes. Further, the standard deviation of 0.763 indicates that there was no significant variation in the responses provided by the respondents.

4.2. Inferential Analysis

The study's dependent and independent variables were subjected to inferential analysis in order to see if there were any correlations between them.

4.3. Regression Coefficient

To evaluate the association between loan performance and mobile banking technologies, multiple regression analysis was carried out.

Table 3. Regression Coefficient

Model	Unstandardized coefficients		Standardized coefficients	
	B	Std. Error	Beta	
(Constant)	1.645	.322	4.959	
Mobile Banking Technology	.214	.117	.281	1.825

- a. Dependent Variable: Loan performance of DT SACCOs in Mombasa County

The study found that mobile banking technology has a favorable and significant effect on the performance of loans made by DT SACCOs, with a coefficient of regression of $\beta = 0.214$. This means that there is a direct relationship between the use of mobile banking technology and the performance of loans, and an increase in mobile financial services technology leads to an increase in loan performance.

To be specific, the research data demonstrates that for an increase of one unit in mobile banking technology, the

performance of the loan of Mombasa County-based DT SACCOs will go up by 0.214 units. This finding suggests that employing mobile banking technology can enhance the overall loan performance of DT SACCO. Overall, the study provides important insights into the potential benefits of mobile banking technology for DT SACCOs, which can help inform decision-making and policy development in the financial sector.

4.4. Hypotheses Testing

Testing of hypotheses was conducted at the expected significance level of 0.05. After the study's p-values were compared to the expected significance level of 0.05, the acceptance and rejection principles were formulated

Table 4. Summary of Hypotheses Results

Hypothesis statement	Sig.	Decision rule
H ₀₁ : Mobile banking technology has no substantial influence on DT SACCOs's loan performance in Mombasa County.	0.001	Reject the Null hypothesis

Based on the statistical test conducted, with a significance level of 0.001, we reject the null hypothesis that mobile banking technology has no significant effect on loan performance of DT SACCOs in Mombasa. This means that there is evidence to suggest that mobile banking technology does have a substantial influence on the loan performance of the DT SACCOs within Mombasa County. However, it is pertinent to understand that the presence of statistical significance is not necessarily indicative of practical significance, and further assessment may be crucial to establishing the magnitude and direction of the effect.

4.6. Interpretation of Research Findings

On the influence of mobile banking technologies on the performance of loans, the study has established how important the use of mobile devices in undertaking financial transactions has been in improving the performance of loans at DT SACCOs in Mombasa. The majority of the respondents were in agreement that there has been a great increase in the total number of loans requested, disbursed, and repaid through the use of mobile banking. This finding resonates with Patnam and Yao [45], who noted that by adopting mobile banking technology, organizations have seen increases in transaction volume, digital loans, and reduced administrative costs due to minimal visits by customers who transact using their phones at their comfort.

Similarly, Njenga, Kiragu, and Opiyo [26] concluded that mobile banking is one of the main drivers as Saccos seek to utilize technology more and more in their operations. Through improved service delivery, increased consumer comfort and satisfaction, and increased

geographic coverage and access to previously unbanked populations, mobile banking improves the Sacco loan portfolio. Similarly, Kariuki [46] asserts that there is a link between Sacco financial performance and the adoption of mobile banking technology and the digitalization of Sacco operations. Therefore, the management of SACCOs should promote the use of mobile banking services to cut overhead costs. The study further showed that the majority of the respondents decried the high cost of transacting using mobile technology, which concurs with the findings of Abdinoor, Mbamba, and Ardito [47] that transaction costs have a direct effect on consumer usage of mobile money services. SACCOs should therefore ensure that the transaction costs of their mobile banking services remain affordable.

5. Discussion of Findings

Descriptive Results

Table 2 presents survey results related to the usage of mobile banking technology for loan repayment, withdrawal, and disbursement, as well as the cost of mobile banking transactions. The survey respondents were asked to indicate the number of loan repayment deposits, withdrawals, and disbursements made through mobile banking technology and their perception of the cost of mobile banking transactions.

According to the results, a significant proportion of respondents reported a high or very high number of loan repayment deposits, withdrawals, and disbursements made through mobile banking technology. This indicates that mobile banking technology plays a key role in a substantial portion of loan-related operations. Respondents' perceptions of the cost of mobile banking transactions were varied, with a significant number of them noting it to be high or extremely high. This indicates that some customers are concerned about the cost of mobile banking transactions, despite the convenience they provide.

In conclusion, our research results show that mobile banking technology is widely used for loan-related transactions, but that in an attempt to encourage greater adoption of this technology, it may be important to look into the cost of such transactions. To encourage more consumers to adopt this technology, financial institutions and mobile banking providers may need to consider providing more affordable mobile banking options.

Results of Regression Analysis

In accordance with Table 3 results, the study concludes that mobile banking technology has a significant and positive impact on the performance of DT SACCOs' loans. With a regression coefficient of 0.214, this suggests that adoption of mobile banking technology is associated with an improvement in DT SACCOs' loan performance.

Based on the regression coefficient of $\beta = 0.214$, loan

performance increases by 0.214 unit for every unit that mobile banking adoption rises. This implies that DT SACCOs' loan performance is expected to improve and more mobile banking technologies are embraced by them.

This finding concerns the DT SACCOs and larger financial institutions in a number of ways. The first is that it suggests DT SACCOs can enhance their loan performance by implementing mobile banking technologies. The efficiency, cost-effectiveness, and convenience advantages of mobile banking technology may allow DT SACCOs to increase the quality of their loan portfolio and the services they provide to their members.

Second, this finding could have more diverse implications for credit availability as well as financial accessibility. Adoption of mobile banking technologies could increase access to financial services, especially in underprivileged or far-flung remote regions where traditional banking services might not be easily accessible. By utilizing mobile technology, DT SACCOs might be able to reach more individuals with financial services and increase financial inclusion.

In general terms, the finding that mobile banking technology has a positive and substantial effect on the loan performance of DT SACCOs is an important milestone that could have profound implications for the financial ecosystem as well as society at large.

Hypothesis Testing Results

According to what is exhibited in Table 4, the results of the hypothesis test may be interpreted to have the following implications: First and foremost, it implies that the use of mobile banking technologies may help improve loan performance. This may be particularly pertinent for DT SACCOs due to the fact that it could help them increase the quality of their loan portfolio and better serve their members.

Second, the research finding might have additional implications for loan accessibility and financial inclusion. In regions where traditional banking services may not be easily accessible, such as remote or underbanked communities, the use of mobile banking has the potential to increase accessibility to financial services. DT SACCOs could be able to increase its reach and offer financial services to more individuals through the application of mobile technologies.

However, it's worthwhile to note that the practical significance of the impact brought about by mobile banking technology on loan performance is yet to be established. To identify the specific causes of the outcomes that have been observed and to determine the magnitude and pattern of the effect, further research could possibly be recommended.

Generally, the research finding that the loan performance of DT SACCOs in Mombasa is significantly influenced by mobile banking technology is an important observation that could have major implications for financial inclusion and credit accessibility.

6. Summary, Conclusions and Recommendations

6.1. Summary of Findings

The overall objective of the study was to evaluate the ways mobile banking technology influenced DT Saccos' loan performance in Mombasa County. This included taking a look at transaction volume, loan disbursement, and transaction cost. Descriptive statistics was utilized to examine the data, including mean, figures, frequency tables, and standard deviation. Linear Regression model was used to obtain coefficients and the z-test results at a 5% significance level were used to evaluate the null hypothesis.

The results of the study revealed that there exists a positively correlated and statistically significant relationship between mobile banking technology and loan performance in DT SACCOS in Mombasa. The results (z test $p = 0.0010 \leq 0.05$; Aggregate mean = 4.15; Regression coefficients of $\beta = 0.214$) led to rejection of the null hypothesis which stated that mobile banking technology has no significant effect on the loan performance of DT Saccos in Mombasa County.

6.2. Conclusions and Recommendations

The descriptive results showed that the majority of respondents believe that mobile banking technology has a significant effect on the performance of loans in Mombasa's DT SACCOS. The findings of the regression analysis and test of hypotheses indicate that mobile banking technology had a significant effect on loan performance. Mobile banking technology has not only created new opportunities for increased loan repayment convenience but has also expanded the market and made innovative loan products and services more widely available to members of DT SACCOS in Mombasa County. DT SACCOS have seen the number of loans applied for and disbursed increase, as well as a reduction in loan defaults as members are able to repay loans from the convenience of their phones. Monitoring of loans that are overdue has also been enhanced since members are alerted promptly. Therefore, the study concluded that the adoption of mobile technology had a positive effect on the loaning procedures and processes of DT SACCOS in Mombasa County.

First, this study advocates for Saccos to embrace modern, secure, and effective mobile banking technologies. This would make it possible for them to service a greater number of customers while spending less on transaction costs. The proposal emphasizes the need to employ modern technology to boost financial services, which may result in more efficiency, lower costs, and higher levels of client satisfaction.

Second, the study encourages Saccos to adopt secure digital financial communication services to lower the risk of financial theft caused by unauthorized access to

members' mobile banking data. This recommendation emphasizes that it's important for Saccos to give client security of information first priority when providing mobile banking services. Saccos may safeguard their clients' financial information by implementing secure digital communication services, which lowers the risk of loss or fraud. In summary, the recommendations enable Saccos that aspire to boost their mobile banking services and guarantee the security of their customers' financial information to benefit from insightful guidance. Saccos can improve their reputation, attract more clients, and eventually meet their financial objectives by putting the aforementioned ideas into practice.

6.3. Limitations of Study

Considering that this study only included DT SACCOS, it might not apply to other financial service providers very well. Only SACCOS situated in Kenya's Mombasa County were the subject of the study. Despite the homogeneous characteristics of SACCOS, care must be used when extrapolating the study's conclusions to SACCOS in other geographical regions. Regression analysis, which was employed to test the hypothesis, was also the sole methodology used in the study.

Abbreviations

- COVID-19:** Coronavirus Disease 2019
- DI:** Disruptive Innovation Theory
- DT SACCOS:** Deposit Taking Savings and Credit Cooperative Organizations
- GSMA:** Global System for Mobile Communication Association
- NPLs:** Non-Performing Loans
- SACCOS:** Savings and Credit Cooperative Organizations
- SASRA:** Sacco Societies Regulatory Authority

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