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RELATIONSHIP BETWEEN AUTOMATED TELLER MACHINE SERVICES AND FINANCIAL PERFORMANCE OF DEPOSIT TAKING SACCOS IN NAIROBI COUNTY, KENYA

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Abstract: **The main objective of the study was to examine the relationship between Automated teller machine services and financial performance of deposit taking SACCOS in Nairobi County, Kenya. The descriptive sample survey was adopted on a target population of 210 respondents across 3-tier savings and credit cooperatives and in all selected departments, from which a stratified random sample of 111 respondents was sampled. Questionnaires were used to collect primary data from the study sample while monthly reports provided secondary data and the relationship between variables was determined using inferential statistics. Results demonstrate a significant association between automated teller machine services and financial performance. This study recommends that deposit-taking savings and credit cooperatives; strategically position automated teller machines such that members do not have to use a third-party facility to access automated financial services. The study will benefit ICT policy makers from state department of cooperatives under ministry of trade and industrialization and from individual deposit-taking savings and credit cooperatives in re-aligning their ICT policy decisions.**

Keywords: **Automated Teller Machine, Financial Performance, and Deposit taking SACCOS.**

1. INTRODUCTION

Information and communication technology services are technologies that aid access to information or other services through telecommunication systems (Daniel,2015). In the business environment, the role of information and communication technology is changing drastically and this is causing a subsequent change in business modeling. In the past, many businesses were using ICT as a support function that was domiciled in the finance department. Partly, it was because primarily the majority of the functions at the finance department needed ICT support (Rockmart, 2017).Today, however, ICT is being provided as a portfolio of end-to-end services across the entire organization. Tracking of financial transactions, marketing of products and services can be integrated into these ICT services.

Savings and Credit Co-operatives are unions whose membership is voluntary among other principles. The history of cooperatives started in the United Kingdom with the formation of the Rochdale Society of Equitable Pioneers in 1844. This was a consumer cooperative and the first to pay patronage dividends to its members, forming the basis for modern cooperative movements (Henry, 2018).In the 1870s German formed the first Savings and Credit Co-operatives. Due to immigration, the idea would later spread to North America, Europe, Canada, the United States, Australia, and later Africa. The pooling of financial resources stood as the main reason for forming cooperative movements. Members are allowed to access loans at an affordable interest as compared to the banks. For efficiency in customer services, many microfinance institutions have adopted the use of ICT in both product marketing and ensuring financial accessibility to members in remote locations.

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Various services in the ICT sector drives growth in the economy. Software development services and online streaming services as the highest ICT services that drive growth on gross domestic products (WEF, 2018). Currently, e-business is the most preferred business model and ICT services have played a big role in increasing sales and market visibility for online companies like Amazon. This performance is reflected in the financial growth of the company over some time and measuring these financial growth can either be objective or subjective. (Dess & Robinson, 2016). Also, objective measurement entails sales growth, return on assets (ROA), and return on sales (Brews& Tucci, 2018).

Efficiency created in the market in terms of ease of doing business is attributed to the implementation of effective ICT service policies in most of the countries. IMF report (2018) predicted that by 2030 the majority of the banking services will be on online banking platforms and a number of the financial institutions in the world have implemented online payments. Also, most of the organizations are going beyond looking at product or service quality to ensuring the availability and accessibility of those products to the customer regardless of geographical location in the world. Leveraging on the ICT services makes entry into the new market much easier and with minimal operational cost (Ahmad, 2020). Although some organizations are not able to match the use of these ICT services and growth on the financial indicators. For instance, according to Bertelsmann and Hinloopen, (2017) spread of ICT services reduced operational costs resulting in the efficient matching of supply and demand, it was recommended that use ICT services should also be used to increase sales.

Most of the African countries are changing their business models to fit in the global market. This is attributed to the high penetration of ICT services in Africa which has created more competition through market innovation. ATU report (2019) shows 63% ICT penetration in Africa. In the financial sector over the counter, services are being offered online so customers can deposit or withdraw money from their bank accounts while at home. African development bank report (2019) indicates that in Nigeria 72% of the banks have fully implemented ICT services and most of the membership recruitment drives are done using online platforms. The report also relates an increase in liquidity on the use of ICT services.

It will be prudent for African countries to invest in ICT services to support business process, an argument supported by Indjikian and Siegel (2018) when they suggested that developing countries are yet to reap the full benefits of ICT services and therefore developing a business model that supports ICT investment will be a positive step to start with. For instance, South Africa has taken initiative in bridging the financial divide by introducing digital financing in the banking and cooperatives sector, Maumbe (2020). In his study, Maumbe argues that the poor in the community requires reliable financial technologies to enjoy financial inclusivity in society. Maumbe recommends that ICT and digital services like; ATMs, mobile, internet, and telephone banking should be extended to the township and rural areas in South Africa to add convenience in banking and SACCOs saving culture.

Kenyan financial market has been diversified and more services are now available to members. FSD Kenya report (2017) shows that 78% usage of ATM services in both informal and formal markets in the banking sector has encouraged more savings and membership registration. ICT services are taking shape in the Kenyan market considering the level of internet penetration championed by the government through its broadband programs. The use of a mobile phone is one of the most drivers of ICT services in the economy, more so in the financial sector (IDC, 2018). The following mobile phone services were rated in the report.

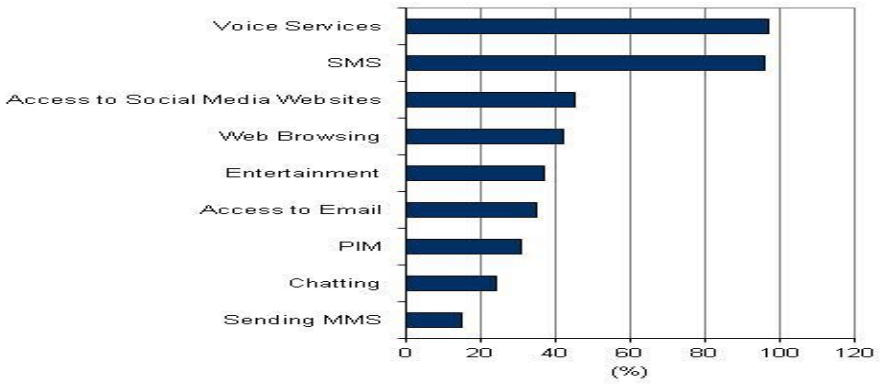

Figure 1: Services actively used on a mobile device

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From the mobile device services described in figure 1.1, voice services and SMS services provide the highest level of utilization in the market and therefore SACCOs operating in the same business environment have the strategic advantage in increasing financial performance in terms of new membership registration.

To allow cross-border credit information sharing by the financial institution including SACCOs, the law was amended to allow institutions and regulators like SASRA to advise SACCO to share credit information amongst themselves and ICT being an enabler to this function most SACCOs were required to invest in ICT infrastructure. This is one of the regulatory requirements that drive ICT penetration in the SACCO sector and with the influence brought by ICT service the sector has recorded as significant growth in terms of operational efficiency and effectiveness in service delivery to its customers (CBK, 2019).

Deposit-taking saving and credit cooperatives with front office service activities are regulated by the SASRA throughSASRA act 2008. It was formed to streamline the sub-sector after the government had mobilized saving culture among its citizen and now there was a need to ensure that citizens' savings are well protected by the law. SACCOs form a significant part of larger cooperatives in Kenya and currently they fall under the Ministry of Trade, industry, and Cooperatives. The SACCO society act 1997 as amended in 2014 provides a legal framework for the promotion; registration and development of cooperatives in Kenya.Cooperatives are broadly classified as either Financial Co-operatives or Non-financial Co-operatives with each category having its structural functionalities and responsibility within the sub-sector market.

The influx of SACCOs in the country was brought about after banks started demanding a high minimum operating balance in the name of sustaining their business. This made Middle and lower-income earners not able to operate a bank account and as an alternative, they opted for SACCOs and with this demand, FOSA was introduced among SACCOs where quasi banking services are offered at a competitive rate with the market. According to SASRA annual supervision report, 2016, shows that on average DT-SACCOs paid an interest rate of 9.7% in 2016 an increase from 8.1% paid in the year 2015 and the same period commercial banks paid at the rate of 12.37%. The same period witnessed an increase in dividends paid on the share capital recording 7.1% and an increase from 5.04% in 2015. With interest capping, DT-SACCOs were pressured to attract and retain deposits from their membership. SASRA 2018 report on licensed SACCOs shows that 166 SACCOs were licensed, eight SACCOs on restricted licenses were extended up to December 2018 and one lost its license.

The organizational structure of the co-operatives enterprises is well defined and with devolution, those SACCOs that are not licensed under SASRA are controlled by the county government under the ministry of trade and cooperatives through the state department of cooperatives.

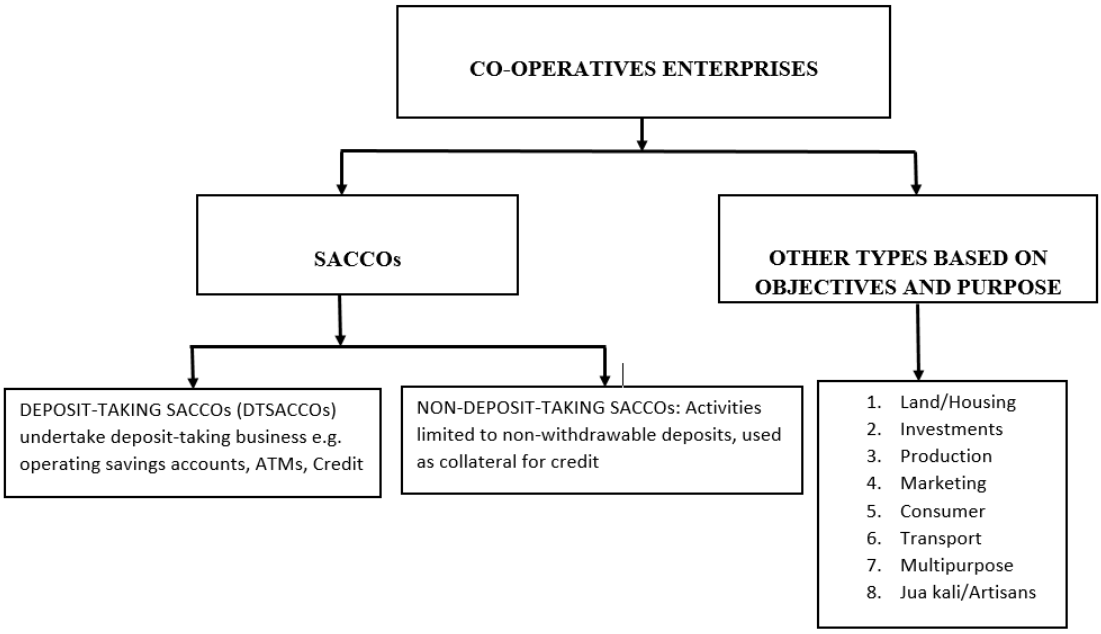

Figure 2: Structure of cooperatives in Kenya

Nairobi county borders Kiambu to the North and west, Machakos to the East, and Kajiado to the south. The county hosts the capital city of Kenya with an administrative boundary that covers 696 square km, location of (36°45'E, 1°18'S), and a population of 3, 138,369 as per to the 2009 census. According to the Nairobi city integrated plan 2014, the county has nine sub-counties namely; Starehe, Kamukunji, Kasarani, Makadara, Embakasi, Njiru, Dagoretti, Langata, and Westlands with a total of 27 divisions 64 locations, and 135 sub-locations. From the period ending December 2018, Nairobi County had 42 SACCOs licensed by the regulator (SASRA, 2019).

2. STATEMENT OF THE PROBLEM

Information and communication technology services play a big role in providing financial services. Many deposit-taking saving and credit co-operatives seek marketing and business opportunities using ICT services.However, the link between use of these information and communication technology services and financial performance remain largely unexploited. This has affected the management of liquidity ratio, capital adequacy among other measures of financial performance in many deposit-taking SACCOs.

On the global scale in the financial sector, SACCO contributes 46% to the economy by ensuring access to financial services (WOCCU, 2019).In Kenya, SACCOs act as alternative sources of funding and 67% of the business start-ups take loans from SACCOs, this has resulted in a 1.4% growth in Gross Domestic Product(KNBS,2019).Sara annual supervision report (2019), indicates that 39% of deposit-taking SACCOs use ICT services optimally to realize large deposits, high capital base, and good liquidity ratio, while 61% deploy ICT services to improve operational processes. For instance, fourteen Deposit-Taking SACCOs in Nairobi County were put under statutory management as per the statutory management guideline (SASRA, 2019). They failed to meet 8% core capital to total deposit ratio and some had a liquidity ratio of 7.2% which was below the 15% ratio prescribed by the SACCO Society act 2008, they were also faced with poor loan repayment rate and unstable asset quality.

Several studies show that the use of ICT services is a significant factor in SACCO's financial performance (Awino, 2016; Bowen, Morara & Mureithi, 2017; Gakure & Amurle, 2018; Okwachi et al., 2019.).Although, optimal utilization of adopted ICT services in many deposit-taking SACCOs in Nairobi County has been hindered by poor management of ICT services (Owino, 2019).Takauya and Shaun (2016) found that 51% of deposit-taking SACCOs fail to meet good financial performance due to ineffective ICT services management practices. There are scarce empirical studies that have specifically examined the question of how ICT services relate to SACCO financial performance and therefore this study addressed this knowledge gap by examining the relationship between ATMs services and the financial performance among deposit-taking SACCOs in Nairobi County.

3. LITERATURE REVIEW

The use of ATM services in the banking sector may include; making deposit, withdrawal, statement inquiry among other services. Riggins (2017), examined the impact of ATM services financial performance in 41 commercial banks for the year 2015.Using the least square, the result shows that there is a positive correlation between the use of ATM services and financial performance in terms of; enhancing efficiency, transparency, and ensuring minimal financial errors. Also, employing a macroeconomic approach with cluster analysis on 42 SACCOs in Nairobi, Eduard, and Totolo (2018) assesses how access to ATM services improved financial deposits. They find a profit margin attributed to more deposits from customers that used ATMs to deposit their loan patements. From the study it is found that in areas where access to SACCO offices is a challenge, 61% of the deposits are made using ATMs. The availability of these ATM services closer to the members has led to more loan repayments, Borrowers are now interested in reducing their loan repayment period. Kenya's financial sector (2017) to took and enterprise survey on ICT innovation in microfinance institutions in Kenya between the year 2015- 2016.Result show that microfinance institutions have intergrated ATM service in providing financial access have advantage of mobilizing financial deposits. The report recommended that microfinance institutions needed to introduce incentives that will encourage those members with lower transactions to use ATM as a compliment to teller services. The benefits linked to this recommendation were; reduction of congestion in the banking halls, a high number of served customers per day, high deposits and withdrawals.

With the introduction of the internet, basic knowledge on the use of ICT services in the developing countries is being realized, so most businesses stand to reap financial benefits by changing their models i.e. integrating ATM services in the financial services. Just as Eei, Husain, and Mustafa (2019) while using interracive quantile regression to determine the

benefit of simplified ATM interface to financial performance. The finding suggest that microfinance market and SACCOs stand to benefit from ICT services like ATMs if strategically adopted in the business operations. The study describes some of these benefits as; better utilization of staffs, increased customer service level, reduced cost, easier entry into a new market and increased transparency. In addition, Turaga (2017) assessed Impact of strategic use of ATM services on financial liquidity in SACCO sector.The study employed ordinary least squares and the result show that increased use of various ATM services enhance liquidity in a SACCO.The study also find that ICT innovation in the SACCO services can effectively support many services which entail; loan portfolios, memberships, and increased outreach.

Sum and Memba (2020), support the adoption of ATMs in the SACCO sub-sector with the argument being that ATMs as ICT services have made SACCOs competitive with depositors turning away from banks which apart from having ATM services have high-interest rate charged on their loan products. The study recommends that SACCOs should leverage on ATM services in rural areas where there branch offices aren't in existence, the reason for such a strategic move being to increase the number of deposits and quality of service in terms of reduced time access to the approved loan which is mostly channeled through member account. Stressing on reduced time spent on getting financial services, Auka and Mwangi (2019) singled out ATM services to be at 79% in facilitating easy access to disbursed loans or dividends to SACCO members. With this trend, financial barriers in terms of access to finance will be reduced and therefore SACCOs will financially perform since higher deductions will be realized on the number of loans approved.

According to Musiega (2016) study on financial innovation and financial performance with a specific interest in the use of ATM services, there exists a strong positive correlation between the use of ATM service and financial performance in the SACCO market in Kenya. The study shows that members have 24-hour withdrawal access at any cooperative bank ATM countrywide. Since the adoption and use of ATM service is a managerial decision Herzon and Muturi (2017) recommend that management level in the SACCO sector in Kisii County has responsibility for considering integrating some of these ICT services in business models to realize improved financial performance in terms of profit margin.

Report from WOCCU shows that ICT-enabled services mostly enhance performance when it comes to cost-saving, quality breakthroughs, increased revenue, time reduction, and better quality customer services (Morris and Brandon, 2015). According to Aduda and Kagoo (2019) while looking at the relationship between electronic banking and financial performance among commercial banks in Kenya, measured financial performance in terms of return on asset. Asset quality in SACCOs can be driven by giving value to a customer such that customer purchase behavior (retention, revenue growth) is altered and financial influence realized in terms of profit margins and return on the sale.

Crane (2014) argues that the measure of financial performance mainly focuses on five broad areas; liquidity, profitability, repayment capacity, and financial soundness in terms of capital adequacy, asset quality, and Earnings. ICT has provided services that drive SACCO financial performance by positively or negatively affecting almost some of the mentioned indicators of financial performance. In support of the fact Bayaraa (2016) when studying determinants of financial performance in Mongolia recommended cost structure and profitability in examining financial performance. Bayaraa also contradicts other researchers like Crane by arguing that financial performance may not be expressed by looking at profitability and growth only.

4. METHODOLOGY

This research focused on the financial performance of deposit-taking savings and credit cooperatives in Nairobi County. Specifically, the study examined the relationship between; Automated teller machine services, Mobile phone services, enterprise resource planning software services, media services, and financial performance. The descriptive sample survey was adopted on a target population of 210 respondents across 3-tier savings and credit cooperatives and in all selected departments, from which a stratified random sample of 111 respondents was sampled. Questionnaires were used to collect primary data from the study sample while monthly reports provided secondary data and the relationship between variables was determined using inferential statistics.

5. FINDINGS

The study examined all independent variables (ATMs services, mobile phone services, Broadcasting, and media services, and ERP services) through analysis of the research results from the research questions addressing each of the independent variables. This was meant to understand the usability level of those ICT services within the DT-SACCO sub-sector.

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In the questionnaire, respondents were required to provide a rating concerning the use of ATM services. Likert scale of 1-5 was used, 1 being strongly disagreed and 5 strongly agree. The researcher analyzed collected data on Automatic Teller Machine Services. The results of the descriptive analysis are presented in the 1:

Table 1: Descriptive statistics on the use of ATM services

Statement	Strongly Disagreed	Disagree	Not Sure	Agreed	Strongly Agreed	Mean	Standard Deviation
ATM services are well incorporated in the SACCO financial processes	0	10.8	0	23.4	65.8	4.44	0.95
SACCO members are well sensitized on the financial services that ATMs are capable of providing	0	10.8	0	33.3	55.9	4.34	0.94
Loan disbursed are accessed through SACCO link ATM card	0	0	9.9	30.6	59.5	4.49	0.67
SACCO members can withdraw their loan or dividend using ATM card	0	0	0	49.5	50.5	4.50	0.50
Those members who wish to deposit money to their account to increase share capital can do so at any cooperative ATM	27.9	29.7	15.3	16.2	10.8	2.52	1.34
M-Pesa money can be deposited into SACCO member's account for loan repayment	0	0	0	29.7	70.3	4.70	0.30
Withdrawal and deposit statements can be provided to the account holder on inquiry through ATM.	14.4	5.4	19.8	29.7	30.6	3.54	1.36
Aggregate scores						**4.08**	**0.87**

Table 1 shows the result of the use of automated teller Machine Services. The result shows that ATM services are well incorporated in SACCO financial processes (mean = 4.44, SD = 0.95) and therefore SACCO staffs are able to use ATM platforms to avail various financial services to members. Also, SACCO members are well sensitized on the financial services that ATMs can provide (mean = 4.34, SD = 0.94) and the implication of this is that members gain knowledge on how to use ATMs to make a withdrawal, deposit, and statement inquiries. The creation of this self-service concept decongests SACCO banking hulls such that even disbursed loans are accessed through SACCO link ATM card (mean = 4.49, SD = 0.67). From the knowledge imparted through sensitization, the result shows that most SACCO members can withdraw their loan or dividend using ATM card (mean = 4.50, SD = 0.50).

Making financial deposits proves to be a challenge to most of the members (mean = 2.52, SD = 1.34) and this can be attributed to a lack of advanced skills on the use of ATM by some members. As an alternative to the use of ATM in making deposits to members SACCO account, most members have resulted in the use of mobile money transfer like M-Pesa to deposit money into their accounts (mean = 4.70, SD = 0.30). Withdrawal and deposit statements can be provided to the account holder on inquiry through ATM (mean = 3.54, SD = 1.36). The result shows that few members take time to verify their account after making withdrawal or deposits and therefore SACCO should encourage members to always verify their account balance at the ATM to enhance instant reporting of complaints.

According to Kaumba(2019), ATM services give SACCO members full control over the management of their finances such that a member can make withdrawal and deposit to the same account without the need to wait in the queue that is witnessed in the SACCO banking hulls. From the study majority of members can withdraw their dividends using SACCO link ATM card, thereby reducing queues at the SACCO offices.

SACCO maintains liquidity by encouraging members to appreciate the importance of ensuring they repay their loan through monthly deposit using ATMs(Kundishora,2016), therefore good sensitization made to members on the use of ATM services created an easily available mechanism to members who were in rural areas where ATM services were the

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available option to make a loan repayment. The objective of SACCOs is financial intermediation so when a member can access his/her applied loan through near-by ATM then that SACCO would have achieved its objective (Massino & Kodric,2017).

Table 2: Cross tabulations on ATM services

Automatic teller machine * Financial performance				
Crosstab				
		Financial performance bin		Total
		0	1	
Use of automatic teller machine	0	13	30	43
	1	17	51	68
Total		30	81	111

The results show that 51 respondents suggested that high (M > 3.5) use of ATM services results in good financial performance (financial performance_bin = 1).

Table 3: Chi-Square statistics and Fishers tests

		Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Automatic teller machine * Financial performance	Pearson Chi-Square	.366[a]	1	0.545		
	Continuity Correction [b]	0.149	1	0.700		
	Likelihood Ratio	0.363	1	0.547		
	Fisher's Exact Test				0.661	0.348
	Linear-by-Linear Association	0.362	1	0.547		
	N of Valid Cases	111				

After analysis of data on the use of automated teller machine, it was found that the majority of respondents (70.3%) strongly agreed that many DT-SACCOs have integrated M-Pesa services on the ATMs and use of this M-Pesa services by the SACCO members was readily available (M = 4.70, SD = 0.30). A significant number of respondents 67% strongly agreed that the use of ATM services drove deposits on loan repayments. It was also found that there was a significant relationship between automated teller machine services and financial performance (χ^2 = .366, p = .545> 0.05). The findings support previous studies. RCA(2018), found that in Rwanda a high number of cash withdrawals and deposits in the SACCO sub-sector were strongly related to ATM incentives introduced to encourage the use of ATM services by the SACCO members.

6. CONCLUSION AND RECOMMENDATION

The use of ATM to make a withdrawal and deposits resulted in more loan repayment and this enhanced liquidity and capital base on the individual SACCOs. Also, lack of strategic deployment of automated teller machine was a factor that affected access to the disbursed loan by the applicants and therefore some members opted to endure long journeys to SACCO branches for over the counter cash transaction. This affected asset quality in terms of loan repayment. SACCO members have not fully adopted the use of M-Pesa services integrated on the automated teller machines as an alternative way of using ATM services, consequently, this additional module on automated teller machines had little impact on financial growth. Further, the use of ATM services had a significant relationship with financial performance.

Based on findings, the study recommends that SACCOs should strategically position ATMs such that third-party facilities to access ATM services should not be the first option for SACCO members. This will make the service convenient and relatively cheaper for the members. Consequently, more members will join the SACCOs and the result will be a higher financial performance to those SACCOs. SCCOs should also conduct training to delegates and provide a simplified user manual, explaining how to use M-Pesa services integrated on the automated teller machines. This will enhance financial performance in terms of growth on deposits.

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