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An Evaluation of organizational factors influencing the extent of digitalization of Deposit-Taking Savings and Credit Co-Operative Societies in Kenya.

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AN EVALUATION OF ORGANIZATIONAL FACTORS INFLUENCING THE EXTENT OF DIGITALIZATION OF DEPOSIT-TAKING SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KENYA

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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ABSTRACT

Kenya has gained global recognition for its advancements in financial technology, notably exemplified by the transformative impact of Mpesa on the economy since its inception in 2007. However, amidst Kenya's ongoing strides in financial sector innovation, the organizational factors influencing the extent of digitalization among Deposit-Taking Savings and Credit Cooperative Societies remain a compelling area for investigation. This study sought to elucidate the organizational factors influencing the degree of digitalization within Saccos, with a focus on understanding the effect of management support, organizational culture, and employee capability. The study carried out the control effect of firm size on the relationship between organizational factors and the extent of digitalization. The study was premised on the theoretical frameworks of the Diffusion of Innovation theory and Technology Acceptance Model and focused on the 176 licensed and authorized Deposit-Taking Savings and Credit Cooperative Societies in Kenya as of 2023. Data was gathered from secondary sources, such as the regulator's portal, i.e., SACCO Societies Regulatory Authority websites, as well as primary sources, including sending questionnaires to the institution's management over one month. The collected survey data was analyzed using a mix of descriptive, correlation, and ordinal regression analysis. Correlation analysis showed that organizational culture had a weak positive and significant relation to the digitalization of Saccos. The analysis further revealed a positive and significant association between employee capability and digitalization. On the third variable, the results demonstrated that there was a weak and positive relation between management support and digitalization. The regression results confirmed that organization factors and firm size had a positive and significant effect on the digitalization among the Saccos in Kenya. Regarding the first objective of management support, the study revealed a positive and insignificant effect on digitalization among DT-SACCOs in Kenya. The research further established that the effect of organization culture on the digitalization among deposit-taking DT-SACCOs in Kenya was positive and statistically significant. The analysis of the third variable, employee capability, demonstrated that employee capability had a positive and significant effect on digitalization among DT-SACCOs in Kenya. The analysis of the moderator variable firm size indicated that both the number of branches and the age of the DT-SACCOs had no significant effect on digitalization levels. The study then recommends that institutions cultivate a culture that values innovation, adaptability, and openness to technological change. The firms should make sustained investments in employee training, especially in emerging technologies relevant to financial services. The study further recommends that institutions should continue investing in advanced digital infrastructure, including mobile applications, online platforms, and secure transaction systems, that enhance service accessibility and efficiency. Further research could also be conducted on other financial institutions, such as microfinance banks or commercial banks, to offer insights into best practices, challenges, and unique factors influencing digitalization across different financial service providers.

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ABBREVIATIONS

AI	Artificial Technologies
ATM	Automated Teller Machines
BI	Business Intelligence
CBK	The Central Bank of Kenya
CRM	Customer Relationship Management
DOI	Diffusion of Innovation Theory
DT	Digital Transformation
DT-SACCOS	Deposit Taking Savings and Credit Co-operative Societies
ERP	Enterprise Resource Planning
FOSA	Front Office Service
ICT	Information Communication Technology
ILO	International Labor Organization
IT	Information Technology
IOT	Internet of Things
NACOSTI	National Commission for Science, Technology, and Innovation
NWDT	Non-Withdrawable Deposit Taking
PLS-SEM	Partial Least Squares Structural Equation Modeling
POS	Point of Sale
SACCO	Savings and Credit Co-operative Society, both non-deposit taking and deposit taking.
SASRA	Sacco Societies Regulatory Authority
SEM	Structural Equation Modeling
SERSRC	Strathmore Institutional Ethics and Scientific Review Committee

SME	Small Medium Enterprises
TAM	Technology Acceptance Model
TOE	Technology, Organization, and Environment
USSD	Unstructured Supplementary Service Data
VIF	Variance Inflation Factor

OPERATIONAL DEFINITION OF TERMS

Organizational factors	Organizational factors refer to those internal factors unique to an organization that defines the context in which digital technologies are used and refer to factors such as the organization's size, structure, culture, and resources (Eluekezi & Tuncay, 2021).
Digitalization	Digitalization (digital transformation) is a process involving the conversion of information from its raw, analog form into a digital format that can be used in the creation of new opportunities (Marcysiak & Pleskacz, 2021).
Deposit-taking savings and credit co-operative societies (SACCOs)	Sacco Societies which undertake both with-drawable and non-with-drawable deposits (Kihuha & Mungai, 2023).
Employee Capability	The ability of an employee to execute their job roles convincingly and effectively (Amaya, Campoverde, & Granda, 2024).
Firm Size	The scale on which an organization operates in terms of market share or total assets (Kaur, 2021).
Management Support	The willingness of the management to provide financial and resource support and champion organizational change (Alraja et al., 2021)
Organization Culture	The set of values, beliefs, and structures that influence how employees conduct themselves in an organization (Ko et al., 2022).

INTRODUCTION

1.1 Background of the Study

Digital technologies are revolutionizing every sector in the world economy, especially the financial services sector, where digital tools are transforming how financial services are delivered and members' expectations are met (Alraja, Hussein, & Ahmed, 2021). The need to adapt emerging technologies is even becoming more apparent as new competing business models, such as branchless banking and fintech, are becoming engrained into the sector (Ghorbani, 2019). Bandura (2021) remarks that digital technologies are especially important to savings and credit societies (SACCOs), where customers are calling out for seamless experiences, personalized services, and cutting-edge solutions. Indeed, according to Kimotho (2016), SACCOs have realized that digitalizing is not only key to competitiveness but essential to their survival. In response, many have been reassessing their strategies and adapting a wide range of technology solutions. However, Ayoro (2018) opines that the rate of adoption among SACCOs is too slow compared to other financial institutions, such as banks, which have been at the forefront of technology integration.

Digital technologies are recognized as disruptors of traditional models of service delivery and, in the financial sector, have been associated with improved capacity to meet customer expectations, competitive position, efficiency and cost reduction, and service diversification (Ekinci, 2021; Adeyemi, 2022). Accordingly, (Ndungu, 2021) asserts that some of the most competitive SACCOs have digitized most of their core operations with cloud computing, mobile banking, and artificial intelligence (AI) technologies and are reaping benefits such as cost reduction, increased efficiency, security, customer satisfaction, and data analytics. Mmari (2023) opines that without digitalizing their services, SACCOs face the risk of remaining stagnant, losing their members, and becoming operationally inefficient. Muraguri, Mwalili, and Mose (2019) link low adoption of emerging technologies among SACCOs with increased exposure to security risks, lack of transparency, reduced effectiveness, and loss of member confidence.

While mobile payments and Enterprise Resource Planning (ERP) systems have been instrumental to SACCOs service delivery in the last decade, Botta et al. (2022) opine that these tools are fast becoming outdated as they do not address the core functions of deposit taking SACCOs, which have to mobilize member's deposits and provide loans. In the study by Mmari (2023), it was revealed that SACCOs lag behind other financial services providers with regard

to technology integration. Mmari (2023) confirmed that as banks deploy AI, Internet of Things (IoT), Blockchain, and data analytics, SACCOs still rely on mobile payments and ERP systems that are highly insufficient for the current environment characterized by increased security risks, competition, and demand for more efficient services.

Kamau et al. (2024) aver that to remain competitive, SACCOs have to adapt tools built for a digital economy to enhance the speed of executing transactions such as loan processing and approval, customer acquisition and relationship management, as well as offer personalized services. Nabwire (2023) adds that they have to digitize functions such as loan scoring, restructuring management, and recovery, as well as automate interest management to enhance operational effectiveness. Adeyemi (2022) highlighted the value of integrating secure core banking systems that provide seamless integration through the use of omni-channels and cloud storage. Nabwire (2023) linked the digitalization of SACCOs processes with improved management of credit, liquidity, and operational risks but confirmed that while some SACCOs have started digitized conversations and even adopted strategies to guide their technology integration process, the process is moving slowly.

Adeyemi (2022) opines that SACCOs face numerous challenges in their digitalization efforts, such as a lack of the financial resources needed to acquire digitalization technology, internal resistance to change, and limited Information Technology (IT) competency. Zhang, Xu, and Ma (2022) added that many SACCO employees lack the skills required to execute an organization's digital strategy. Ayoro (2018) further explained that SACCOs are often ill-prepared for new technologies as they lack the necessary infrastructure and technical know-how to integrate them into their operations. Muithya et al. (2022) also revealed that many lack a clear digitalization strategy and innovative leadership, which has significantly impacted the pace and effectiveness of digitization efforts. Kamau et al. (2024) affirm that certain factors have to be in place for effective integration of digital tools into SACCOs operations, a revolutionary digital mindset, empowered decision makers, the upgrading of technological infrastructure, and the introduction of support policies.

In Kenya, Adeyemi (2022) and Kihuha and Mungai (2023) confirm that many DT-SACCOs have deployed 3rd generation digital technologies which, as mentioned by Mmari (2023) and Kamau et al. (2024), are not adequate in the digital era. Moreover, they are not inherently built to serve core banking operations such as deposit mobilization and loan risk management (Mmari, 2023). Many have integrated financial payments, which have increased financial

performance but have failed to incorporate loan processing and management systems, which can significantly increase the efficiency of loan disbursal (Simiyu & Olweny, 2018). As per Achieng (2021), failure to successfully digitalize DT-SACCO operations could significantly impact their performance and sustainability in the future.

Understanding the factors influencing the pace of digitalization in SACCOs is essential to guiding firms toward faster digitalization. However, most of the literature analyzing digitalization success determinants is from developed economies where technology adoption is high. Few focus on developing economies Jung and Gómez-Bengoechea (2022), and even less on the SACCOs sector, which faces stiff competition from banks and fintech firms. With minimal evidence from SACCOs in developing economies, this study seeks to contribute to the available literature by carrying out an analysis of the organizational factors influencing the extent of digitalization among DT-SACCOs in Kenya.

1.1.1 Organization Factors

Organization factors refer to those unique elements of an organization that determine its behavior (Alraja et al., 2021). Pyroh et al. (2021) explained that organization factors are those internal and external factors that influence an organization's performance and are represented under the technology, organization, and environment (TOE) framework. Organization factors represent firm-specific elements that can determine the success of an organization in dynamic operating environments. Research into the effect of organization factors link factors such as the work environment to employee satisfaction and engagement (Ozturk, Karatepe, & Okumus, 2021), employee IT skills, and warehouse design on improved decision-making (Adeyemi, 2022), leadership support and Information Communication Technology (ICT) skills adoption (Getambu, 2020), and organizational resources and IT competencies on digitalization of SMEs (Li & Shao, 2023; Ko et al., 2022). This study seeks to determine how these factors influence digitalization among SACCOs.

As explained by Pyroh et al. (2021), digitalization is a process that involves the transformation of an organization's technological capability through the integration of emerging technologies into firm operations. Tungpantong, Nilsook, and Wannapiroon (2022) assert that the process is complex and that many companies encounter numerous challenges on their road to digitalization. Asserting that digitalization has additional costs, Alraja et al. (2021) confirmed that successful digitalization hinges on factors unique to the organization, such as the support

and approval of its management, the ICT skills of its employees, and its technological readiness.

Kusuma et al. (2024) found that firms with transformative leaders, existing ICT infrastructure, financial resources, and a digitalization strategy are more fine-tuned for digitalization. Consequently, while some firms are able to digitize their operations fully, others digitalize certain aspects of their operations and struggle to achieve full digitalization, while others give up altogether (Ko et al., 2022). Muehlburger et al. (2019), in developing a framework for digitalization, categorized the key internal essentials into management-specific, resource-specific, workforce-specific, and value-specific factors.

Audrin (2019) asserts that digitalization is more of an organization-based endeavor surrounding executive decisions, resource availability, and technology readiness. Meanwhile, Eluekezi and Tuncay (2021) opine that larger firms, which can access resources at a cheaper cost and have experience with digital technologies, are better placed to digitalize their operations than smaller firms. Tungpantong et al. (2022) add that while smaller firms may use digitalization to carve out a niche consumer class, larger firms use it to dominate mature markets. According to Ghosh and Dash (2020), explaining the differences in the extent of digitalization requires a clear understanding of immediate environmental factors and how they facilitate or impede digitalization efforts. This study will use the framework provided by Muehlburger et al. (2019) and examine how management factors, workforce factors, institutional values factors, and resource factors influence digitalization in SACCOs.

Management factors refer to those factors unique to the management of an organization that can exert influence on its ability to digitalize its operations, such as their digital leadership skills, communication, and strategic embeddedness (Kariuki, 2019; Louw and Nieuwenhuizen 2020). According to Muehlburger et al. (2019), effective governance is critical to successful transformation within organizations, while Amaya et al. (2024) asserts that managers who understand the value of digital transformation, have some IT background, and view IT as an asset are more likely to pursue institution-wide digitalization. This study will investigate the effect of the top management's attitude towards IT, their IT competency, and strategic embeddedness on digitalization in SACCOs.

Organizational culture represents the value system, beliefs, and norms that shape an organization and its representatives' attitudes and behavior (Reisberger et al., 2024). Alraja et al. (2021) define it as a collective way of thinking that determines how organizations approach

things such as innovation, profits, and digital transformation. According to Eluekezi and Tuncay (2021), digitalization requires a digital cultural orientation that is willing to shift towards flexible, adaptable systems where collaboration, information sharing, and security all matter significantly. Reisberger et al.'s (2024) results showed that digital transformation maturity hinges on a digital culture that is open to change, supports agility, and has a learning orientation. This study will analyze how these cultural factors influence digitalization in SACCOs.

Employee capability is an element of workforce capabilities that defines the ability of employees to think creatively and work creatively with others in pursuit of organizational goals (Muehlburger et al., 2019). It encompasses the skills, aptitudes, and knowledge competencies that determine one's ability to use digital technologies (Ko et al., 2022). According to Stoica and Ionescu-Feleagă (2021), the ability of employees to use digital technologies is crucial to the effective adoption of digital technologies since more digitally competent employees require less training and can effectively use existing technologies to achieve organizational goals. Zhang et al. (2022) assert that organizations will struggle in their digital transformation process if they lack the appropriate skills, mindset, and adaptability. This study will operationalize employee capability in terms of their ICT Knowledge, ICT Skills, and ICT experience.

As per the TOE framework, Tungpantong et al. (2022) and Amaya et al. (2024), there is evidence that larger firms are better placed to fully digitalize their operations owing to being better prepared, possessing the infrastructure, strategy, and expertise needed to actualize system-wide digital transformation. Thus, this implies that while digitalization success is influenced by a host of internal and external factors, larger firms may have an added advantage that they can leverage to become more successful in their digitalization efforts, such as extra financial resources and access to IT support. Based on this, this study recognizes that larger SACCOs may possess unique advantages over smaller ones in terms of fully digitalizing their operation. This study will use firm size as a moderator variable and evaluate its impact on the relationship between organizational factors and the extent of digitalization within SACCOs.

1.1.2 Digitalization of Deposit-Taking SACCOs

Digitalization is a process involving the conversion of information from its raw, analog form into a digital format that can be used in the creation of new opportunities (Marcysiak & Pleskacz, 2021). Paivi (2017) referred to digitalization as digital transformation and confirmed that it refers to the application of digital technology in all aspects of organizational operations.

Li et al. (2023) explain that digitalization involves changes in process execution, work roles, and business offerings, providing SACCOs the opportunity to transform existing products and services into digital variants that have significantly more competitive advantages over current systems. Paivi (2017) remarked that in the digital era marked by the ubiquity of the internet, cloud computing, and mobile devices, digitalization has the potential to disrupt multiple industries.

Paivi (2017) opines that the digitalization of business operations boosts customer value in the context of internationalization and increased demand for higher-quality products and services and asserts that digitalization is a core necessity in all sectors of the economy, especially the financial sector. Louw and Nieuwenhuizen (2020) explained that digitalization should affect all organizational elements, including products and services, strategy, information technology, business processes, and even organizational culture. Digitalization has been associated with increased specialization in service provision, reduced costs, and increased competitive advantage (Ekinci, 2021). Audrina (2019) links digitalization to at least 20 percent improved productivity, confirming that the level of productivity increases with higher levels of digitalization. While important, however, Alraja, Hussein, and Ahmed (2021) ascertain that many companies are struggling to digitalize various aspects of their operations successfully.

Among financial institutions, Kusuma (2024) opines that digitalizing SACCO services should result in an increase in savings and loan management decisions, reduced reliance on consumption loans, efficient billing, and business expansion. It involves the use of Artificial Intelligence (AI), Big Data, the Internet of Things (IoT), robotics, cloud computing, blockchain technology, digital currency, data analytics, and other tools; the more technologies used, the more digitized the company. Therefore, the extent of digitization can be indicated by the number of digitized processes and services, the number of digitized technologies successfully integrated into firm operations, or by evaluating the number of digital platforms and channels used by the institutions (Maheshwari, 2019; Millan & Ibua, 2023). These were used as indicators of the extent of digitalization in the current study.

1.1.3 Savings and Credit Cooperative Societies (SACCOs)

Savings and Credit Cooperative Societies (SACCOs) play a critical role in every sector of the community, especially as a great vehicle for mobilizing savings and facilitating investment (Gathumbi, 2018). In Kenya, they are a key pillar of Kenya's economy and account for substantial savings and investments of the population, with income generation potential that is

higher than that of the banks and more widely distributed. SACCOs operate under regulations formulated by the SACCO Societies Regulatory Authority (SASRA), which requires that SACCOs comply with and maintain minimum capital adequacy requirements, minimum liquid assets to member borrowings, be ethical in their approach, and meet reporting specifications (Mugo, Muathe, & Waithaka, 2019).

The Regulator's report (SASRA, 2023) shows that Kenyan SACCOs are typically member-owned and offer savings and credit services that focus on groups like employees, farmers, women, the youth, or community members. The report confirms that the SACCOs can either be Deposit Taking (DT) or Non-Withdrawable Deposit Taking (NWDT) in nature, with 176 being licensed as DT SACCOs and 181 being categorized as NWDT SACCOs. Together, the 357 SACCOs held assets that exceeded KSH 1. Trillion, representing 6.43% of the national nominal GDP. In terms of performance, total assets grew by 9.17% between 2021 and 2023 and membership by 6.57% in the same period. Deposits also increased by 9.95% as gross loans surged to take a large share of SACCO asset portfolio.

Given that SACCOs hold up to 30% of Kenya's domestic savings, their level of digitalization should be at par with that of commercial banks in terms of sustainability. However, the Kenya Bankers Association (2023) reported that DT-SACCOs had over Kes 522 billion in total assets and generated over Kes 106 billion in income relative to all the commercial banks, which had Kes 6.5 trillion in total assets. The increase in deposits, loans, and other activities calls for the adoption of the latest technologies to guarantee information security and efficient financial management. SASRA (2023) reported that there were 176 DT-SACCOs in Kenya. These formed the population of the current study.

1.2 Statement of the Problem

Digital technologies are transforming the financial sector, and SACCOs have been digitizing their operations to improve service offerings, reduce expenses, increase efficiency, and promote financial inclusion (Adeyemi, 2022). Despite this, entrenching digitization is a complicated endeavor that requires a strategic and holistic approach where certain key elements have to be present (Ghosh & Dash, 2020). Many organizations pursuing digitalization encounter challenges such as resistance to change, talent shortages and skill gaps, insufficient infrastructure and financial resources, as well as privacy and security concerns (Muehlburger et al., 2019). In Kenya, where financial institutions have committed to digitalizing their operations, Kihuha and Mungai (2023) reveal that SACCOs have lagged behind banks and

other institutions in the digital transformation process, with SASRA (2023) reporting that out of 176 registered DT- SACCOs, 20% operate without USSD codes, 34% have no ATMs, 49% have no automated cheque clearing capabilities, and 14% do not collaborate with credit reference bureaus. These firms risk losing their competitive position if they continue to fall behind in transforming their operations (Ndungu, 2021).

The promise of digitalizing has raised the interest of various researchers who have since sought what determines the degree to which firms digitize their operations. In the study by Marcysiak and Pleskacz (2021), which sought after the determinants of digitization in SMEs, it was noted that while the firms had plans to invest in digital solutions within the year, financial challenges were the main barriers to the successful introduction of cloud solutions. Ghorbani (2019), on the other hand, found a link between access to accountants with IT and cloud computing knowledge and successful digitization of the accounting function. Kusuma (2024) made similar observations but confirmed that many credit unions struggle to digitally transform their operations owing to limited capability and management support. Jung and Gómez-Bengoechea (2022) found the influence of policy factors, digital strategy, management support, and human and capital resources as the main factors influencing a high degree of digitalization.

The influence of the top managers was also highlighted as a hindrance to the digital transformation of financial institutions by Magnus-Eweka (2023), who evaluated the determinants of DT at the Pan African Bank. In the study, limited awareness, change management, and a lack of an optimal digitalization strategy were the main hindrances to the bank's digital transformation. Kenya's Okumu (2023) also confirmed that management was a major hindrance, as many failed to prepare their institutions adequately by not incrementally improving their ICT infrastructure. Another research that focused on e-payment digitization factors by Matatu owners Sacco found a link between the owner's capacity and the firms' ICT knowledge base and e-payment digitization Gathumbi (2018), larger firms were confirmed to be better placed to integrate e-payment systems effectively.

While it is clear that SACCOs have to digitize their operations effectively, the above studies confirm that they experience numerous challenges in their digitalization efforts, and there is still room for improvement. Jung and Gómez-Bengoechea (2022) confirm that their size and limited resources often make it difficult for them to invest in digitizing technologies. Most of the studies are from developed countries (Marcysiak & Pleskacz, 2021; Ghorbani, 2019) or in larger financial institutions, such as Magnus-Eweka (2023), which evaluated the digitalization

of banks. Moreover, Magnus-Eweka (2023) used a case study approach, while Kusuma (2024) focused on credit unions, and the study by Jung and Gómez-Bengoechea (2022) used a systematic review of the literature. Few studies have evaluated deposit-taking SACCOs, which lag in adoption compared to large businesses. This study sought to contribute to this underexplored field by untangling the main factors impacting the extent of digitalization among Kenyan DT SACCOs.

1.3 Research Objectives

The overall objective of the study was to evaluate organizational factors influencing the extent of digitalization among DT-SACCOs in Kenya.

1.3.1 Specific Objectives

The specific objectives were to;

i. To determine the effect of management support on the extent of digitalization among DT-SACCOs in Kenya
ii. To evaluate the influence of the organizational culture on the extent of digitalization among DT-SACCOs in Kenya
iii. To assess the impact of employee capability on the extent of digitalization among DT-SACCOs in Kenya

1.3.2 Research Questions

i. What is the effect of management support on the extent of digitalization among DT-SACCOs in Kenya?
ii. To what extent does organizational culture influence the extent of digitalization among DT-SACCOs in Kenya?
iii. What is the influence of employee capability on the extent of digitalization among DT-SACCOs in Kenya?

1.4 Scope of the Study

The study focused only on all the one hundred and seventy-six (176) licensed and authorized DT-SACCOs in 2023, and the basis of research questions was their state of digitalization as of the end of March 2024. The contextual focus was on the effect of management support, organization culture, employee capability, firm size, and the level of digitalization among Saccos. The study was premised on the diffusion of innovation theory and the technology acceptance model. The methodological scope of the study was quantitative.

1.5 Significance of the Study

1.5.1 Policy Makers and Regulators

The justification of this study rests in the dual importance of fostering financial inclusion and ensuring the sustainability of DT-SACCOs. As digitalization becomes synonymous with financial services, assessing the readiness, challenges, and opportunities for DT-SACCOS shifts from being a scholarly pursuit to becoming a practical necessity. This study aims to bridge the gap between theory and practice by contributing actionable insights to the discourse on the future of DT-SACCOs in Kenya's financial fabric in the digital age. It has the potential to inform strategic decisions, policy formulations, and technological investments that can shape the future of financial cooperatives in the country. The perspectives generated from the study were useful for policymakers to help guide DT-SACCOs in digitalization.

1.5.2 Deposit-Taking SACCOs and their Technology Partners

The study will also be helpful for private sector players in the technology space to bring out affordable solutions for use. It is expected that insights from the study will help the management of the DT-SACCOs prioritize resources to help with their digitalization journeys. The study will serve to equip the members of DT-SACCOs with knowledge of what the market has to offer as pertains to the digitalization of banking services. By unravelling the complexities of digitalization among DT-SACCOs, the study will provide a roadmap for informed decision-making and strategic planning, ultimately contributing to the broader discourse on the intersection of technology, finance, and community development.

1.5.3 Academicians and Researchers

Given the scarcity of empirical studies on the topic of discourse, this research will go a long way in adding to the bank of literature available. Not only will the study recommend practical solutions to the digitalization of DT-SACCOs, but it will also fill some knowledge gaps in the process and identify new research insights and problems.

1.6 Chapter Summary

This first chapter presented the introduction to the study, providing details about the main study objectives and conceptualizing the definitions of the study variables, the study problem, the objectives, and the research questions. The chapter concludes by providing a summary of the study's expected significance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter brought out the theoretical framework that underpins the study, including specific objectives of these studies, a summary of the literature, a conclusion, recommendations, and research gaps thereof, and operationalization of the variables.

2.2 Theoretical Review

To delve into the topic from an empirical and academic perspective, this study was anchored on the Technology, organization, environment (TOE) framework and supported by the Diffusion of Innovation Theory and Technology Acceptance Model.

2.2.1 Technology, Organization, Environment (TOE) Framework

The technology, organization, environment (TOE) framework is an information systems theoretical framework formed by Tornatzky and Fleischer (1990) to explain how certain unique factors influence organizations' intention, preparedness, and ability to adopt and use new technologies (Felemban, Sohail, & Ruikar, 2024). The theory provides a theoretical model for understanding how factors unique to the technology, the organization, and the operating environment interact to influence an organization's decision and ability to use new technologies in their operations (Ghaleb, Dominic, Fati, Muneer, & Ali, 2021). The framework has been used extensively in research seeking to understand the adoption of and implementation of emerging technologies in organizations. According to Abdurrahman, Gustomo, and Prasetio (2024), it is a valuable tool for researchers to get a better understanding of the complex interplay between technology, the organization adapting the technology, and the environment in which the organization operates.

The TOE explains that three main factors determine the successful adoption of new technologies: the characteristics of the technology itself, implying the technology's cost, complexity, and compatibility with existing systems; characteristics of the organization such as its culture, technology orientation, resources and management support, and characteristics of the wider operating environment such as the rules and regulations, stakeholder and competitor pressure. Bastari et al. (2020), in the analysis of digitalization determinants, confirmed that internal organization factors have significant effects on an organization's intention and ability to integrate new technologies and digitize their operations effectively.

Abdurrahman et al. (2024) concur and assert that organizations struggle to continue integrating new technologies since they lack access to the right skills, knowledge, and attitude readiness, while according to Kusuma et al. (2024), smaller firms cite the high cost of adoption as a barrier to digitalization. While valuable, however, Abdurrahman et al. (2024) note that the TOE has been criticized for being too general and not providing the factors influencing the adoption of different technologies in dynamic environments, and according to Stjepić et al. (2021), it fails to explain how technology, organization, environment interact with each other.

Despite these criticisms, the TOE provides a base from which to carry out a holistic analysis of internal and external factors that influence the adoption of new technologies (Abdurrahman et al., 2024), is flexible and can be adapted to different industries, technologies, and organizational contexts. Kipkirui (2024) applied the theory in the analysis of the factors influencing digital transformation among manufacturers in Nairobi, while Kimotho (2016) used it in the analysis of the factors influencing digital innovation in the financial sector. This study will use it to anchor the variables of organizational resources and firm size, as well as their impact on digitalization among SACCOs.

2.2.2 The Diffusion of Innovation (DOI) Theory

The DOI theory was the main foundation of this study. The theory, postulated by Rogers (1962), is a tool social scientists have used to explain how the adoption of digital payments over time diffuses through a specific population, such as in this case from the World to the commercial banks in Kenya and finally to DT-SACCOs (Boston University School of Public Health, 2022). Syahadiyanti and Subriadi (2018) explain that the theory states that there are five types of adopters of digital payments: Innovative DT-SACCOs managers, who were quick to adopt digitalization of payments; early adopter managers who are opinion leaders; early majority managers, who are rarely leaders but take up new concepts before the average merchant in this case, late majority managers who are skeptical and will come on board digital payments platform once the majority has tested and finally, the laggard managers who are the conservative ones that was changed only by forceful events of say, law requiring them to adopt the technology (Akman & Koçoglu, 2017).

The theory argues that five factors would influence the digitalization of DT-SACCOs in Kenya, which play into the five adopter categories (Boston University School of Public Health, 2022). The relative advantage of digitalization influenced the Innovator DT-SACCOs managers had to them, such as in connecting multiple branch locations. The early adopter managers were

influenced by the compatibility of digital payment options with their experiences and needs at the time of adoption. They needed to decongest DT-SACCO banking halls. For the early majority, though, these came on board purely because of the convenience brought about by digitalization. The late majority of the DT-SACCOs manager category would adopt digital payment options based on trialability, which is the extent to which the new options can be experimented with before they are fully onboarded. Finally, the laggard DT-SACCOs managers would come based on observability, which is the extent to which they have seen and understood from others the tangible benefits of adopting it (Call & Herber, 2022).

The DOI uses five variables to determine the rate of adoption of digital technologies by the DT-SACCOs (Call & Herber, 2022) as follows. First, the perceived attributes of the digital technologies to DT-SACCOs in the form of relative advantage, compatibility, complexity, trainability, and observability. Second, the type of innovation-decision to be made before digitalizing, whether optional, authoritative, or collective. Third, the communication channels used to broadcast knowledge of digital technology among DT-SACCOs, such as from the regulator or members, whether in mass media or personal. Fourth, the nature of the social system of DT-SACCOs, such as norms and degree of network interconnectedness. Lastly, the extent of change agents, such as promotional efforts to encourage DT-SACCOs to digitalize. Call and Herber (2022) postulate that perceived attributes of digital technologies drive 49%-87% of the digitalization adoption rate; as such, this study, like theirs, mainly focused on that variable.

The theory was used in the study by Syahadiyanti and Subriadi (2018) to highlight the different financial technologies that have to be integrated into the operations of financial institutions, mentioning ATMs, Mobile Money, e-transfers, e-wallets, and credit cards. Bukvic (2021) adds that the theory explains that financial institutions adopt new technologies for their ability to simplify financial transactions, reduce risk exposure, increase transparency, reduce tax avoidance, and increase internal effectiveness. Nabwire (2023) applied the theory in the analysis of the determinants of process digitalization on loan performance of DT-SACCOs in Mombasa County and was also used by Munyambu and Obwogi (2017) in understanding factors affecting adoption of mobile banking by DT-SACCOs in Kenya. Munyambu and Obwogi (2017) confirmed that factors such as the organization's infrastructural readiness, management support, and resource capability all have significant influences on their ability to integrate new technologies comfortably.

Singer (2013) brings out several limitations of the diffusion of innovation theory; first, much of the evidence of it, including adopter categories, was not explicitly applied to the adoption of new behaviors in the adoption of digitalization by DT-SACCOs. This means that using the theory could create biases in how we analyze data in this research. Secondly, the theory also works best in explaining the adoption of digitalization in payments as opposed to the refusal to change (Singer, 2013). Lastly, it does not take into consideration an individual DT-SACCOs manager's circumstance in digitalizing, such as one who has relatively few members in a small community with low volumes of transactions versus the cost of adoption or even push by the members not to digitalize as a factor, for instance.

Despite its criticisms, the DOI theory is critical to understanding how new technologies become accepted and spread throughout society. In essence, it explains the patterns of technology adoption by identifying the elements that contribute to their diffusion (Ghosh & Dash, 2020). The DOI theory confirms that technology integration is a rational choice made consciously, and this study utilized the DOI theory to identify the firm-specific elements that influence the degree of digital transformation within financial institutions. Such elements include the degree of organizational readiness, managerial support, and even firm size, which were used as moderator variables.

The size was used as a moderator since, according to Ghosh and Dash (2020), the theory makes the case that large firms may not only have greater motivation/push from regulators and customers to digitize their services effectively but also the technical knowhow and resources to digitize their services fully. This theory anchors the variable of management support and employee competencies that should influence the internal acceptance of new technologies.

2.2.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) as an extension of the Theory of Reasoned Action by Aizen and Fishbein in 1980 (Stuttgart University of Applied Sciences, 2014). The TAM theory is an information systems theory that seeks to explain how and why people come to accept and utilize different types of technologies. It highlights the influence of two main factors: the technology's perceived usefulness and its perceived ease of use. Perceived usefulness was explained as the degree to which a person believes that using a particular system would enhance their job performance, while perceived ease of use denotes the degree to which a person believes that using a particular system would be free from effort (Bastari, Eliyana, Syabarrudin, Arief, & Emur, 2020). Davis (1989) argued that these factors

are pivotal in shaping an individual's behavioral intention to use technology and explained that technologies that offer competitive advantages and are easy to use (purchase and integrate) were adopted at a faster rate than those that are difficult to use.

TAM's relevance is evident in its widespread application across various fields to predict technology adoption and usage behaviors. The theory was anchored upon in the study by Kaur (2021), which sought after the adoption of digital banking channels drives in an emerging economy, and with the Diffusion of Innovation theory by Haidong (2020), who explored the intrinsic adoption drivers for communication-based mobile payments among young adults in the United States of America. Researchers have also improved the model by adding more variables to it to make it more robust, as was the case in the study on Alipay's mobile payments as an extension of the Technology Acceptance Model (Jun, 2019). In the study by Bastari et al. (2020), manager's awareness, intrinsic motivation, and perceived usefulness were all shown to influence digitalization in the banking sector significantly.

The model posits that DT-SACCOs managers would adopt digitalization based on two factors: either its perceived usefulness to their staff and members or perceived ease of use. In the study on the adoption of Alipay in China in testing TAM, it was concluded that where users perceived that the risks of adopting the technology were higher, they would resist using the application, therefore confirming the model (Jun, 2019). Despite its value, Tick (2019) critiques TAM, arguing that it neglects varied needs relevant to the context of digital payments because it was originally postulated to explain the adoption of information technology in the workplace. Despite the criticism, the theory has numerous values for its influence on explaining the intrinsic motivation behind technology acceptance and use.

In this study, the theory was used to lay the foundations for organizational readiness determinants, whereby organizations with qualified IT personnel, financial resources, and support from managers will find it easy to integrate digitalization technologies effectively. This theory anchors the variables of management support and employee competencies, which should influence the ease with which SACCOs can digitize their operations.

2.3 Empirical Review

2.3.1 Digitalization of DT-Sacco

Digital transformation of the DT-SACCOs would happen when digitalization has taken place at four levels: process, organization, business domain, and societal (Paivi, 2017; Oh, Kho, Choi, & Lee, 2022). According to the study, at the process level, DT-SACCOs would reduce manual processes such as over-the-counter transactions and replace them with digital channels. At the organizational level, changes would entail introducing new services, such as access to member's accounts throughout every day of the year. At the business domain level, this could mean DT-SACCOs offering payments by members to third parties in other DT-SACCOs or banks. At the societal level, it would be the peak of transformation, which might mean that DT-SACCOs play roles that commercial banks play (Paivi, 2017). This study focused on process and organization levels of digitalization, which, according to Oh et al. (2022), has the potential to cut costs by up to 90 percent and immensely improve turnaround times.

In this study, the digitalization of the DT-SACCOs is measured from a customer-centric perspective, which is primarily about how fast and efficiently members can access deposits and loans (Lähteenmäki, Nätti, & Saraniemi, 2022). This would encompass USSD, mobile banking, and internet banking capabilities, and whenever they visit their branch, if branches are interlinked for the larger DT-SACCOs with multiple front office service activities (FOSA) banking halls. The researchers also highlighted that the extent of digitalization offers varied benefits, with those at the peak deriving nearly 20 percent more economic benefits than those at the initial stages. For management discussion, the study explores aspects that influence the ease with which SACCOs can effectively integrate digitized technologies into their operations.

2.3.2 Management Support and the Extent of Digitalization

Management support is a management factor that describes the approval and intentional efforts by the management to promote certain behaviors within an organization (Saarikko, Westergren, & Blomquist, 2020). It comprises all encouragement efforts aimed at backing up subordinates to achieve a goal, such as to accept and use a new technology in executing their work roles (Dörr et al., 2023). Managers can also provide resources, offer guidance and direction, promote a culture of support, and remove any barriers to continued engagement in the desired behavior (Zhang, Xu, & Ma, 2022). Management support can influence an organization's extent of digitalization by increasing motivation for digital technologies, providing the resources and infrastructure needed to integrate digital tools, and providing guidance and psychological

support where subordinates feel comfortable to experiment, make mistakes, and seek help when they fail (Ko et al., 2022).

Werth et al. (2020) adopted a qualitative research method that sought after the factors determining the extent of digitalization in the financial services sector. The study explored internal and external determinant factors and, as such, utilized the PEST framework and Porter's Five Forces. Findings from interviews with specialists were that the management's orientation towards threats of entry is the most significant driver of digitalization. The researchers called on managers to ensure they have an IT-ready environment for the successful integration of emerging technologies.

Ko et al. (2022) used mixed methods in the analysis of the factors influencing firms' digital transformation in Hungary, confirming that there is little consensus on whether IT factors or management factors play a key role. Data analysis involved PLS-SEM, and the findings were that successful digital transformation is more of a management commitment factor than an IT strategy outcome. In the study, it was revealed that IT departments can only be successful at digitalization under supportive management.

The influence of management was also reported in a study by Mishrif and Khan (2023), which evaluated the effect of a digitization policy design on digitalization in Oman's logistics and supply chain sector. In the study, while financial resource capability was confirmed to be the most significant barrier to technology implementation, the managerial orientation towards new technologies was confirmed to be the main driver of the extent of digitalization. Companies with minimal digitalization struggled to provide sufficient investment for technology infrastructure and prepare their employees to digitalize effectively.

Dörr et al. (2023) highlighted the influence of executive management and leadership on the organization's attitude towards digitalization in research that used a systematic literature review in the analysis of factors influencing the digitalization of SMEs. The study confirmed that digitalization is highly dependent on the management's digital know-how, attitude, and commitment to digitalization. The study found that since SMEs possess limited resources, they have to prioritize their investments. Those with highly motivated, innovative, and transformative leadership were shown to have high levels of digitalization as they could not only address organizational resistance but also bring attention to the value of digitalization throughout the company.

Li, Tang, Zhou, and Yang (2023) combined elements of the resource-based view with upper-echelon theory in the analysis of the relationship between the Top Management Team, digitalization, and performance of listed firms in China. The study used logistic regressions in analysis, and the findings were that informational diversity had a greater impact on the digitization process. In contrast, a shared vision had a significant impact on resource dedication to digitization and the eventual firm's performance. These managers were found to have a better understanding of the benefits of adopting digital technologies and a much more positive expectation of digitizing.

Muehlburger, Rueckela, and Koch (2019) used a mixed method comprising a literature review and expert interviews in the analysis of the drivers of digital transformation. The analysis involved studies published between 2012 and 2019, and findings revealed a host of factors categorized into employee capabilities, organizational values and infrastructure, strategic embeddedness, and digital leadership as key drivers of digital transformation. More specific findings were that while IT agility has minimal impacts, ICT literacy and digital leadership were linked with more effective organizational transformation.

2.3.3 Organization Culture and the Extent of Digitalization

Organizational culture refers to those embedded norms, values, and beliefs governing the behavior of an organization and its interactions with the wider operating environment (Alraja et al. (2021). Li and Shao (2023) explain that an organization's cultural orientation gives its identity and meaning to members and shapes how they perceive and pursue strategic objectives. Mahmood et al. (2019) aver that dimensions of the degree of openness, involvement, adaptability, and consistency should characterize organizational culture. While leaders can influence and shape organizational culture, larger firms may have such strong identities that they can shape the cultural orientation of smaller organizations (Eluekezi & Tuncay, 2021). According to Li and Shao (2023), while some cultures promote digital transformation, others can act as sources of resistance.

Zhang and Wang (2024) evaluated digitalization facilitators from the context of Chinese manufacturers and with SEM models used in the analysis. The study deconstructed that while digital transformation is essential to manufacturers, their digitalization was a factor of a combination of core technology change, business model re-engineering, and organizational structure optimization. Specifically, a structure that supports innovation was shown to

significantly affect a manufacturer's readiness for digital technologies and the extent of digitalization. These factors were examined in the context of SACCOs.

Kumar and Ramanaiah (2023) examined the digitalization determinants in the supply chains of firms in the automobile sector using linear regression in analysis. The study focused on internal and external drivers, and according to the findings of the study, an innovative culture, an aligned strategy, management, and perceived market competitiveness were the most critical determinants of digitalization. These factors were evaluated within the financial sector.

Li and Shao (2023) used the upper echelons and the strategic orientation theory in the assessment of the role of the top management team in the successful digital transformation of listed firms in China. The study confirmed that digital transformation is a continuous strategic updating process that is highly reliant on successive managements in progressing the transformation process and that their knowledge reserves, learning ability, risk appetite, and innovation vitality have significant impacts on the firms' digital orientation and degree of digitalization.

De Lomana, Strese, and Brinckmann (2019) examined the effect of the management team characteristics on the digital orientation of 123 companies in the United States. The study used competitive intensity as the moderating variable. The findings were that management teams with functional members that operate interdependently have stronger digital orientation and a higher likelihood of digitalizing since information flow is more fluent in those teams.

Findings from the literature review by Mahmood, Khan, and Khan (2019) are in contrast to the observations made by Ko et al. (2022), whose analysis revealed that management commitment trumps IT factors when it comes to digital transformation. The study, which reviewed literature on digital organizational transformation issues, highlighted the significance of a coherent, proactive strategy that aligns with internal infrastructure and skills capability for digital transformation success.

Confirming that the implementation of digitization projects is complex and sophisticated, Watetu (2018) sought the determinants of the successful implementation of digitization projects in Kenya's banking sector. The study used a case study approach, and the findings were that the expertise of the project team has a significant impact on the successful implementation of digitization projects at Equity Bank. The study only focused on one digitization aspect, while the current explored digitization of multiple aspects of SACCO operations.

Monetary resources held by DT-SACCOs were also critical determinants of digital innovation adoption, according to Kimotho (2016), who evaluated the determinants of digital innovation adoption by Kenyan financial institutions. The study used regressions in analysis, and the findings were that organizational resources, strategic orientation, competitive pressure, and customer behavior have significant impacts on the extent of digitalization. In the study, firms with more monetary resources at their disposal were more likely to digitalize. In the study by Hansen and Kien (2015), innovation capacity, capability frameworks, organizational ambidexterity, and digital maturity of firms were confirmed to link business processes and organizational cultures to digitalization.

The research by Reuben, Obura, and Oginda (2019) focused on the factors driving the adoption of open-source ERP systems by Kenyan DT Saccos, confirming that the pace of adoption was too slow in the sector. The study used PLS-SEM in the analysis of quantitative data, and the findings were that factors such as competitive and stakeholder pressures, attitudes towards digital technologies and management support for digitalization, and the existence of internal skills development programs were instrumental to increased adoption and use of open-source ERP. This study focused on more than one digital system.

2.3.4 Employee Capability and the Extent of Digitalization

Employee capability refers to the set of knowledge, skills, and competencies that determine an individual's ability to pursue and achieve organizational objectives (Muehlburger et al., 2019). In the case of digitalization, these refer to the IT knowledge, skills, and desires that enable them to use digital technologies in pursuit of organizational goals (Stoica & Ionescu-Feleagă, 2021). Amaya et al. (2024) argue that digital literacy, technical skills, and soft skills are essential to perceived IT competency, IT acceptance, and effective use of digital technologies. Understanding which skills are needed to ensure the success of digitalization efforts in SACCOs is important for those seeking to build their employees' competencies.

Zhang et al. (2022) also explored the factors influencing the extent of digitalization. The researchers focused on the context of Chinese SMEs and based their study on the resource-based view and resource-dependence theory. The study applied a structural equation model in the analysis, and the findings showed that organizational readiness is key to successful digitalization. Specifically, the study confirmed that while many organizations can access technologies, as well as supportive leadership, organizational capabilities, and employee skills are the differentiators. The most digitally mature companies were confirmed to invest in

upskilling programs as it was confirmed that employees are the most important executors of an enterprise's digital strategy.

Stoica and Ionescu-Feleagă (2021) used a structured literature review of the factors determining the digitalization of processes in the accounting sector of financial firms in Romania. The study found that factors that have to do with employees' data analytics, knowledge, skills, and abilities beyond traditional accounting have significant impacts on digitalization acceptance and success. Kusuma (2024) used the capability approach in the analysis of the factors influencing digital transformation in the credit union sector using Sen's capability approach. The study based its observations on a systematic literature review, and the findings were that employee capabilities, such as the ability to integrate digital services and new technologies and analyze opportunities and risks of using digitalized services, have a significant impact on the use of digitalization. In this sense, the study confirmed that it is essential for firms to ensure they cultivate a technology-capable workforce.

Eluekezi and Tuncay (2021) sought after the critical factors influencing the digital transformation of manufacturing companies through a systematic literature review. The study singled out factors related to the management's awareness and orientation, readiness-related factors such as internal technical competency, and integration factors that have to do with the compatibility of existing infrastructure with emerging technologies. Previous digitalization efforts were also linked to higher chances of successful digitalization.

Confirming that technology grows consistently, Ghorbani (2019) used correlation methods in the analysis of the determinants of digitalization among SMEs, but in the context of digitalizing the accounting function. The study specified the integration of cloud accounting, the Internet of Things, big data, and blockchain in accounting. The findings were that a high level of experience and technology know-how is essential to successful digitalization. Accountants must advance their know-how beyond university learning, calling for firms to ensure they enroll their staff in upskilling sessions.

In Korea, Oh et al. (2022) evaluated the determinants of Successful Digital Transformation by analyzing data from 1000 financial institutions. The study based its findings on the planned behavior. The findings were that successful DT is highly reliant on the firms' internal digital knowledge, self-efficacy, innovativeness, and managerial push for digitalization, which are the main factors determining digital acceptance attitude. The study, however, confirmed that wholescale successful digitalization remains a challenge.

Nabwire (2023) carried out an analysis into the effect of process digitalization on loan performance of DT-SACCOs in Mombasa County and observed that while digitalization significantly improved loan performance metrics, DT-SACCOs managers who failed to digitalize lacked adequate information on what the journey entails, and the resources needed to digitize their operations fully. However, the study did not address the extent to which DT-SACCOs were digitalized to help bring out the gravity of the situation, nor did it suggest relevant interventions. In addition, it only focused on Mombasa County, so the sample may not have been representative of the entire sector.

2.3.5 Effect of Firm Size on the Extent of Digitalization

Firm size refers to the scale of an organization's operations in terms of the scope of its operations, the depth of its market reach, the number of employees, and the volume of its sales (Salah, Yusof & Mohamed, 2021). Kaur (2021) explained it as the scale on which an organization operates in terms of market share or total assets. According to Tungpantong et al. (2022), larger firms have more resources and larger markets, hence benefiting from digitalizing in terms of improved operational efficiency and reduced costs. On the other hand, while smaller firms can digitize their operations to reduce costs, they are also motivated by the possibilities of reaching a larger market at lower costs and carving out a niche for consumers (Salah et al., 2021).

Nkonge (2018) used the TOE framework in the analysis of internal and external determinants of technology adoption among SACCOs in Kenya, using a descriptive design and multiple logistic regressions in the analysis. Findings were that Kenyan firms lacked the resources needed to adapt to new technologies fully and that the management support was having minimal impacts on technology adoption. According to the study findings, the size of the organization has significant moderating effects on technology adoption, with larger firms having the resources necessary to fully digitize and being under sufficient pressure to respond to competitors' tactics.

In the study by Ghorbani (2019), which used correlational methods in the analysis of the factors influencing digitalization of the accounting function, it was observed that while a high level of experience and technology knowhow is essential, many of the firms avoided the use of new technologies in the accounting function due to the size of their company. The study found larger firms to be more receptive to digitalization than smaller firms, which had fewer financial transactions.

Li and Shao (2023) explored the influence of the characteristics of the top management team on the digital orientation of large firms in China. They confirmed that while digitalization success is highly reliant on the management teams' digital knowledge, the team's average age and tenure negatively impacted their digital orientation. The study also revealed that large firms have rich innovation resources and stronger transformation needs that can be met through digitalization and, as such, integrate digital transformation.

Amaya, Campoverde, and Granda (2024) researched the effect of dynamic capabilities on the digitalization of small firms in Ecuador, using the number of years in operation as a moderating variable. The firms; sensing and seizing capabilities were confirmed to be key to the firms' digital maturity. SEM models were used in the analysis, and the findings were that the age of the firm has a negative moderating effect on the firms' digital maturity, meaning the longer firms operate, the more they struggle to realize digitization successes.

Confirming that many companies struggle to adopt digitalized technologies, Clemente-Almendros, Nicoara-Popescu, and Pastor-Sanz (2024) examined the main determinants of digital transformation, focusing on the firm size as a moderating factor; the study applied the resource-based view and the TOE framework, and findings were that the manager's academic background and firm size are positive determinants of digital adoption, with the larger firms having more knowledge and professional expertise needed to digitize their operations successfully.

Salah, Yusof, and Mohamed (2021) found a significant positive effect of the moderating effect of firm size on the adoption of CRM among smaller financial firms in Palestine. The study relied on SEM models in analysis, and it was observed that larger firms face numerous competitive pressures, have more support from management, and have quality IT infrastructure compatibility, all conditions that push them to digitize more effectively. The study also confirmed that some large firms have complex structures that limit their ability to integrate innovations effectively.

Mwai, Njeru, and Memba (2019) focused on commercial banks in the analysis of the effect of bank size on the relationship between financial innovations adoption and financial deepening in Kenya. The study focused on innovations for withdrawals, deposit, and loan approval processes. It was anchored on the technology acceptance model, and findings showed that bank size has a significant moderating effect on the relationship between the adoption of financial

innovations and banks' increases in deposits and savings. These factors were examined in relation to SACCOs.

2.4 Summary of Empirical Review

The studies above have provided a lot of important information on the determinants of digitalization but from different contexts. From the review, it is clear that there is a gap in research focusing on SACCOs in developing economies. For starters, most of the studies, such as (De Lomana, Strese, & Brinckmann, 2019 Ko et al., 2022; Li & Shao, 2023), are based on developed economies. This study examined SACCO digitalization in a developing economy. Another gap is contextual, whereby some of the studies evaluated digitalization in SMEs (Dörr et al., 2023; Zhang et al., 2022) or in banks Mwai et al. (2019), which are either too small or bigger than SACCOs and should have more capacity than SACCOs to digitalize effectively. The study by Kusuma (2024) and Eluekezi and Tuncay (2021) also specified digitalization in credit unions and manufacturing companies, respectively, which is the current specified SACCO digitalization.

Methodological gaps also emerge in some of the studies, such as those of Eluekezi and Tuncay (2021) and Stoica and Ionescu-Feleagă (2021), who used a systematic literature review. Watetu (2018) also used a case study approach in the analysis. This study collected primary data from the SACCOs to get a clearer picture of the factors surrounding SACCOs. Moreover, it obtained data from multiple firms. Dörr et al. (2023) also looked only at how management support factors impact digitalization, while the current research explored how management support, resource readiness, and employee competency influence digitalization efforts. Finally, gaps emerge from studies such as Ghorbani (2019), which evaluated digitalizing determinants for the accounting function. The current study specifies the digitalization of multiple processes and services within SACCO firms. Table 2.1 below presents a summary of the gaps that were identified from the literature review.

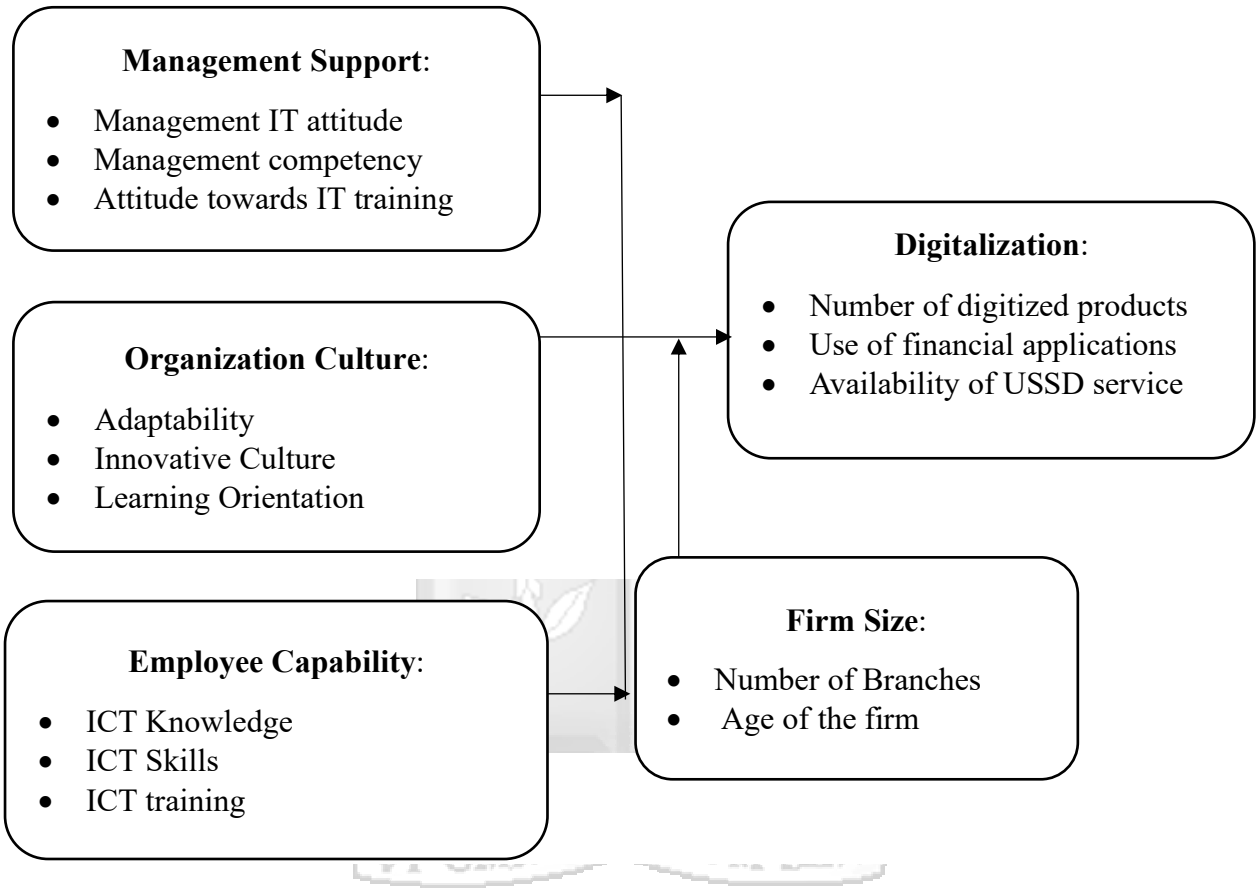
Table 2.1 Summary of Research Gaps

Author	Title	Findings	Gap in Study
Ko, Fehér, Kovacs, Mitev, and Szabó (2022)	Influencing factors of digital transformation: management or IT is the driving force?	Digital transformation is more of a management commitment factor than an outcome of an IT strategy.	The study was based in Hungary and focused on SMEs, while the current was unique to SACCO firms in Kenya.
Mishrif and Khan (2023)	Digitization policy design and implementation in the logistics and supply chain sector during the time of Covid-19	Financial resource capability was the most significant barrier, while managerial orientation towards new technologies was the main driver of the extent of digitalization.	The study looked at the digitalization of Oman's logistics and supply chain sector, while the current study examined digitalization determinants.
Li, Tang, Zhou and Yang (2023)	Digitalization and firm performance: The moderating role of top management team attributes	Informational diversity and a shared vision all have a significant impact on resource dedication to digitization.	The study only looked at the influence of the top Management Team, while the current evaluated multiple factors' impact.
Zhang and Wang (2024)	Research on influencing factors and path of digital transformation of manufacturing enterprises	A combination of core technology change, business model re-engineering, and organizational structure optimization have impacts on digitalization.	The study was unique to the Chinese manufacturing sector and used SEM models in analysis, while the current utilized logistic regression in analysis.
Watetu (2018)	Factors influencing implementation of digitization projects in commercial banks in Kenya: the case of Equity Bank Limited, Eazzy banking project	The expertise of the project team has a significant impact on the successful implementation of digitization projects.	The study used a case study approach that was unique to one firm in Kenya's banking sector.
Reuben, Obura and Oginda (2019)	Factors Influencing Adoption-Use of Open Source ERP by Deposit-Taking Saccos in Kenya	Competitive and stakeholder pressures, attitudes toward digital technologies, and management support for digitalization all impact the extent of digitalization.	The study was specific to open-source ERP integration, while the current focused on multiple digitalized services and processes in SACCOs
Stoica and Ionescu-Feleagă (2021)	Digitalization in accounting: A structured literature review.	Employees' data analytics, knowledge, skills, and abilities beyond traditional accounting have significant impacts on digitalization acceptance and success.	The study used a structured literature review, while the current collected primary data.
Li and Shao (2023)	How do top management team characteristics affect digital orientation? Exploring the internal driving forces of firm digitalization	Digitalization success is highly reliant on the management teams' digital knowledge and orientation.	The study was unique to large firms in China.

2.5 Conceptual Framework

A conceptual framework is a diagrammatical representation of the researcher's hypothesized relationship between study variables. The CF below was used for this research. It depicts the interaction between organizational factors and firm digitalization.

Independent Variables **Moderator Variable** **Dependent Variable**



Source: Researcher (2025)

Table 2.2 Operationalization of Variables

Variable	Construct	Measurement Scale	Indicators	Analysis
Independent	Management support	5-point Likert scale	• Management IT attitude • Management competency • Attitude towards IT training	Descriptive Correlation Regression
Independent	Organization culture	5-point Likert scale	• Adaptability • Innovative Culture • Learning Orientation	Descriptive Correlation Regression
Independent	Employee capability	5-point Likert scale	• ICT Knowledge • ICT Skills • ICT training	Descriptive Correlation Regression
Control	Firm size	Interval scale	• Number of Branches • Age of the firm	Descriptive Correlation Regression
Dependent	Extent of digitalization	5-point Likert scale	• Number of digitized products • Use of financial applications • Availability of USSD channel	Descriptive Correlation Regression

Source: Researcher (2025)

2.6 Chapter Summary

The second chapter of the research presented the anchoring theories, diffusion of innovation, and technology acceptance model. Further, an examination of various studies in line with the research objectives was provided. Lastly, the conceptualization and operationalization of variables were presented.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, methods that were used to delve into the objectives and research questions are discussed. The chapter tackles research philosophy, research design, target population, data collection methods, procedures, and analysis and ethical considerations.

3.2 Research Philosophy

The major research philosophies are positivism and post-positivism (Panhwar, 2017). On the one hand, the positivistic view is that research should be founded on facts guided by objectivity and neutrality in the measurement and validation of the outcomes thereof to neutralize any subjective experiences of the researchers. They believe that reality is socially constructed. On the other hand, post-positivists open the door to subjectivity by access to reality through social constructions such as observation and interpretation of languages, consciousness, and shared meanings. Research philosophy underpins the values and assumptions that guide scientific research (Mugenda & Mugenda, 2003). The adoption of the positivistic approach was ideal for the research as it was quantitative. This helped in designing the right tools for data collection and the analysis approach to be used in establishing the effect of organizational factors on the extent of digitalization among deposit-taking SACCOs in Kenya

3.3 Research Design

Researchers recommend the scientific collection and analysis of data for an efficient study outcome (Saunders, 2019). Research design highlights items such as techniques to be employed in the gathering of data, sampling, and tools for data collection. This study employed a quantitative research method. Researchers used this methodology to dive deep into problems that call for an examination of real-life contextual understandings, multi-level scenarios, and cultural nuances, such as we have in this case (Saunders, 2019). This study, therefore, used both descriptive and correlational design to analyze quantitative data cross-sectionally. Further, the approach was appropriate as it supported the examination of the phenomena within the current time scope, thus providing current insights on the association between the selected factors and the extent of digitalization among DT-SACCOs in Kenya.

3.4 Population and Sampling

A population denotes the sum of individuals, events, or objects having a common observable characteristic about which a researcher is interested (Saunders, 2019). The study surveyed all

the 176 DT-SACCOs licensed and authorized by the Regulator in 2023 (SASRA, 2024). The reason for focusing on the entire population was to ensure a more dependable outcome of the study based on all possible respondents as opposed to extrapolation from sampling a part of the population when the focus of the study is the whole population. A full list of these is found in Appendix III of this report. The unit of observation for the research consisted of senior managers in the DT-SACCOs, mostly chief technology, chief finance, or key signatories, as would be available.

3.5 Data Collection and Tools

The study depended on both secondary and primary data sources. The former was obtained from the Regulator of DT-SACCOs and their annual reports. While the latter was from structured questionnaires. The questionnaires included a Likert Scale and binary questions to support the various variables of the study. The operationalization informed the questionnaire development of the research variables. The use of the questionnaire enhances the uniformity of research data obtained and is easier when targeting a large population of participants, such as in the current research.

3.6 Data Collection Procedure

The research ensured that necessary approvals were obtained from both the Institutional Review Committee and the National Commission for Science Technology and Innovation before progressing to the fieldwork stage. Approval from the research supervisor was sought before commencing data collection. The list of licensed DT-SACCOs for the financial year ending December 31, 2023, was downloaded from the regulator's website (SASRA). The regulator's 2023 report categorizes the DT-SACCOs into three tiers: large as those with assets of more than 5 billion shillings, mid-tier as those with assets of between 1 and 5 billion shillings, and small with assets of less than 1 billion shillings. Most of the DT-SACCOs had websites with rich information on senior management names and even contacts for some general contacts. Information on the availability or non-availability of USSD, ATM, and mobile application services could be obtained from the websites of a majority of the institutions. The institutions that had no website or lacked information on digitalization were marked as non-responsive or without channels.

The list was then used to develop a detailed report of all 176 DT-SACCOs in Excel, and further information was obtained from each of their websites or financial reports available on their

portals to contact the DT-SACCOs via e-mail. Follow-up e-mails and phone calls, where required, were then conducted.

The advantages of administering the questionnaire online are many and include wider reach quickly given the time constraints, geographical coverage and size of the population, cost-effectiveness, convenience for participants, faster data collection, better data accuracy compared to manual data entry, anonymity and confidentiality for participants, and ease of analysis as information can very easily be exported to statistical software. The online survey is also environmentally sustainable as it has a minimal carbon footprint owing to reduced paper usage and traveling. It can allow for dynamic questioning and adjustment of the questionnaire as feedback jets in.

3.7 Research Quality

Research quality speaks to the enhancement of the credibility of the study and takes into account both the validity and reliability of the obtained data. The quality of the instrument was supported by a pilot test of the questionnaire among at least 20% of the sample respondents who were not engaged in the final survey. This was ideal in supporting the reliability and validity testing.

Validity is how the study measures what it aims to measure, while reliability is the consistency of the outcome over time and with different researchers (Creswell, 2014). The validity of the instrument was aided by content examination of the questionnaire with the aid of the supervisor and an expert in the DT-SACCOs digitalization efforts. Further, construct validity was conducted by revising the questionnaire to ensure that all the indicators were factored in the development of the questionnaire.

For the reliability analysis, the study will apply the Cronbach Alpha test to check for the tool's internal consistency. A standard Cronbach Alpha score of 0.7 and above was used as the cut-off of signifying reliability within the research questionnaire.

Table 3.1 Reliability Statistics

Variable	Reliability Statistics		
	Cronbach's Alpha	N of Items	Verdict
Digitalization of Sacco	.736	6	Accepted for inclusion in the main study
Management support	.781	6	Accepted for inclusion in the main study
Organization culture	.845	7	Accepted for inclusion in the main study
Employee Capability	.737	5	Accepted for inclusion in the main study

3.8 Data Analysis

The purpose of data analysis in this study is to establish the influence of the DT-SACCOS organization features on its digitalization and compare the extent of digitalization among DT-SACCOS with different characteristics. For the first objective, which is to establish the various digital channels DT-SACCOS uses in providing front office service activities (FOSA), the study surveyed all 176 institutions. It established the availability of USSD, mobile banking, internet banking, and ATM services. The data was analyzed using descriptive statistics and placed into three categories: low digitalization, medium digitalization, and high digitalization. Further, to investigate the effect of the individual organization factors on the extent of digitalization of the DT-SACCOS, the survey adopted descriptive (percentages, means, and standard deviation), correlation, and ordinal regression analysis. The following model was estimated;

Extent of digitalization = b0 + b1*mgt_Supp + b2*org_Cul + b3*emp_Cap + bn*controls + e

Where the extent of digitalization is the dependent variable

mgt_Supp denotes management support of DT-SACCOs

org_Cul denotes the organizational culture of DT-SACCOs

emp_Cap denotes the employee capability of DT-SACCOs

bn*controls denotes control variables age of DT-SACCOs and Number of branches

B_1- β_n is coefficients

ε is the error term

3.8.1 Diagnostic Test

The research conducted various diagnostic tests to ascertain whether the observations met the regression assumptions. First, collinearity tests were conducted to check if there was any high linear dependency between the independent variables. To determine whether multicollinearity levels would pose a challenge to the study, regression analysis was conducted to generate the Variance Inflation Factor (VIF) value. The researcher interpreted a VIF of above 10 as indicating problems with multicollinearity. Secondly, normality tests were conducted to ensure that the observations were drawn from a normally distributed sample. The study will adopt the normal p-p plot to check if the data points fit within the normality line (Fox, 2019).

Thirdly, the research will test for the linearity of data using univariate analysis to ascertain that the variables under examination are linearly related so that the study can qualify for the use of a regression model. These tests were done to confirm the analysis being done meets the regression assumption. Further, the Omnibus Test and Goodness of Fit tests were conducted in the ordinal regression analysis (Fox, 2019).

3.9 Ethical Considerations

Ethical issues can impact the validity of the study, so it is critical to ensure that the rights of the target population and respondents are respected. At the secondary data collection level, only published information was obtained and analyzed. At the primary data collection level, respondents were asked for their permission to participate in the study, and their rights to remain anonymous were not only clearly explained to them but also guaranteed in the design of the questions and analysis of data thereof. No personally identifiable information was collected in this research in line with the data privacy requirements of Kenya (CM Advocates LLP, 2022) . Prior to conducting a study, a proposal was reviewed and approved by the Strathmore Institutional Ethics and Scientific Review Committee (SERSRC) and the National Commission for Science, Technology, and Innovation (NACOSTI) for quality assurance of processes. Moreover, to ensure compliance with anti-plagiarism, all and any scholar's work used in the study was cited and referenced.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

The fourth chapter of the research presented the results that were drawn from the analysis of the collected survey data. The main areas covered were the background information, descriptive analysis, diagnostic tests, correlation analysis, and the findings of the ordinal regression model.

4.2 Background Information

The background section provided details on the demographics of the respondents, the response rate, and the profile of the DT-SACCOs institutions included in the survey.

4.2.1 Response Rate

The research sought to obtain data from the 176 licensed DT-SACCOs in Kenya; both physical questionnaires and online data collection were employed in obtaining the study data. The study was able to obtain 113 responses, translating to a 64% response rate, which is above the recommended 60% for quantitative analysis (Saunders, 2019), as shown below;

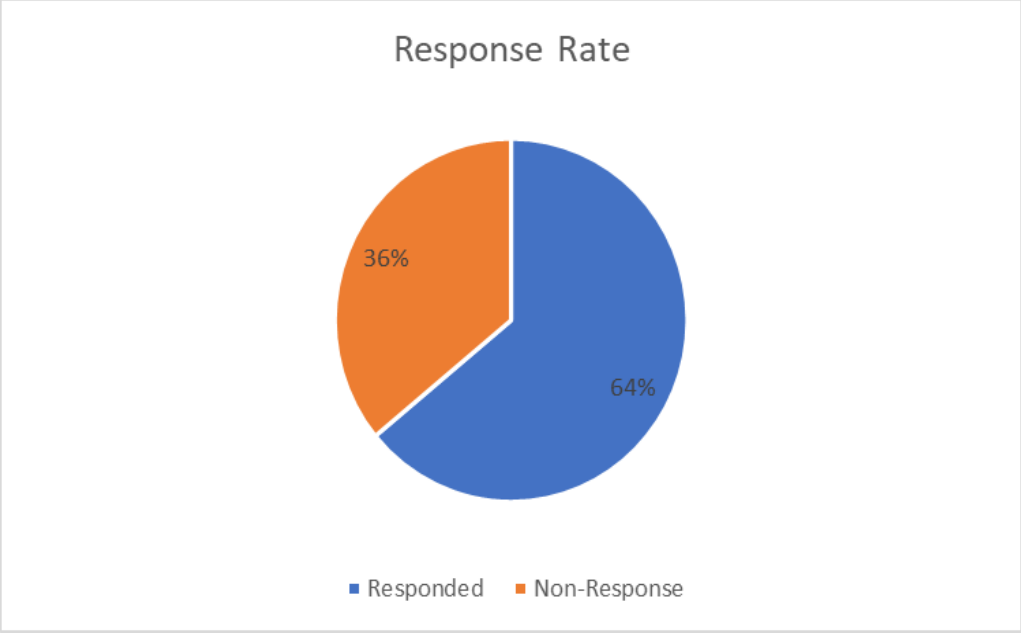


Figure 4.1 Response Rate

4.2.2 Characteristics of the DT-SACCOs

The study collected information on the profile of the DT-SACCOs included in the survey, and a summary of the results is shown in Table 4.1

Table 4.1 Summary of the Deposit-Taking SACCOs Profiles

	N	Mean
Duration	113	5.8936
Branches	113	6.7634
Firm Age	113	13.2021

The analysis indicated that, on average, the respondents included in the survey have worked for the institutions for almost 6 years, indicating they have knowledge and experience that was key to responding to the research questions. Findings pointed out that the DT-SACCOs have at least six branches operating with an average of 13 years of operations, showing that they have vast involvement in the financial services industry in the country. These profiles indicate generally strong profiles for management support, organizational culture, and employee capability toward the digitalization of DT-SACCOs.

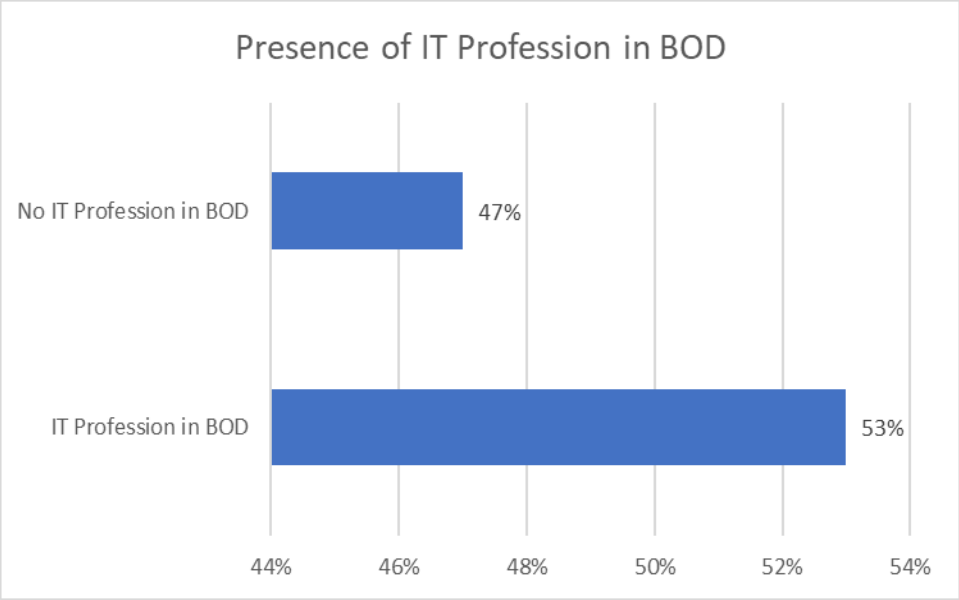


Figure 4.2 Information Technology (IT) Professionals on the Board of Directors

Results revealed that 53% of the DT-SACCOs institutions have an IT professional within their board of directors. In comparison, 47% did not have such a profession, indicating strong DT-SACCOs profiles for management support, employee capability, and organizational culture as catalysts for digitalization.

4.2.3 Utilization of Various Digital Platforms

The survey queried the participants on the extent of utilization of various digital platforms, and a summary is provided in Table 4.2 below.

Table 4.2 Utilization of Digital Platforms

Digital Platform	Very low utilization	Moderately Utilized	Highly Utilized
USSD	2.7%	34.5%	62.8%
Mobile App	20.4%	53.1%	26.5%
Internet Banking	33.6%	48.7%	17.7%
ATM	45.1%	46%	8.9%

Findings revealed that USSD was highly utilized within the SACCOs (62.8%) as compared to Internet banking (17.7%) and ATM (8.9%). This points out the ease of accessibility of USSD

platforms for most DT-SACCOs members as compared to platforms that require internet usage or physical access to the DT-SACCOs. The results also pointed out that mobile apps were moderately being utilized (53.1%), as shown in Table 4.2 above, which can indicate that DT-SACCOs are, on average, digitalizing their channels. However, the adoption of different digitalization tools varies with USSD, i.e., feature phone capabilities being more adopted than smartphone capabilities, i.e., internet banking and mobile apps. The use of ATM cards was way lower than the use of mobile phones in banking.

4.3 Descriptive Analysis

The structured question was analyzed using descriptive tests such as means and standard deviation to summarize the data obtained.

4.3.1 Digitalization of Saccos

The dependent variable for the study sought to examine the extent of digitalization within the DT-SACCOs, and a summary of responses is shown in the table below;

Table 4.3 Descriptive Summary of Digitalization of Saccos

	N	Mean	Std. Deviation
The DT-SACCO provides members with stable service provision through USSD services	113	4.1770	.69732
The DT-SACCO has invested widely in introducing new innovative channels, such as apps and online platforms to access our services	113	4.2566	.78807
DT-SACCO is continuously investing in new digitalized product provision	113	4.0088	.78485
The DT-SACCO members utilize our mobile app banking services effectively	113	4.2035	.67028
Our DT-SACCO members find our mobile app easy to use and efficient	113	4.1593	.71422
The DT-SACCO encourages our employees to embrace new innovative solutions in the service provision	113	4.0973	.66768
Overall score		**4.1504**	**0.7204**

The respondents noted that, to a very large extent (mean = 4.203), the DT-SACCO members utilize mobile app banking services effectively. Results indicated that, to a very large extent, the DT-SACCOs have invested widely in introducing new innovative channels, such as apps and online platforms, to allow users to access our services (mean = 4.257). The participants noted that, to a large extent (mean = 4.097), Sacco encourages our employees to embrace new innovative solutions in service provision. Findings pointed out that, to a large extent, Sacco provides members with stable service through USSD services (mean = 4.177). The overall score of 4.150 indicated that, to a large extent, digitalization has been achieved within the DT-SACCOs institutions.

4.3.2 Management Support

The research sought to examine the extent of management support for the digitalization of SACCOs, and the results are shown below.

Table 4.4 Descriptive Summary of Management Support

	N	Mean	Std. Deviation
The management team of DT-SACCO encourages employees to adapt to new ideas	113	4.5133	.69584
The management team within the DT-SACCO is receptive to new developments in the provision of digitalized services	113	4.2212	.54665
The DT-SACCO management teams have technical experience in emerging technologies	113	4.0354	.82299
The DT-SACCO management team continuously engages with experts in the tech ecosystem to enhance their competency	113	4.1150	.78777
The DT-SACCO management team attends training and workshop seminars to foster the skills and knowledge necessary for digitalization efforts	113	4.0619	.72313
The DT-SACCO management strives to realign its style to fit emerging industry-specific technologies	113	4.0973	.69391
Overall score		**4.1740**	**0.7117**

The study revealed, to a very large extent (mean = 4.513), that the management team of DT-Sacco encourages employees to adapt to new ideas. Results showed to a very large extent, the

management team within DT-Sacco is receptive to new developments in the provision of digitalized services (mean = 4.221). The survey indicated, to a large extent (mean = 4.062), that the DT-Sacco management team attends training and workshop seminars to foster the skills and knowledge necessary for digitalization efforts. Further respondents noted that, to a large extent, the DT-Sacco management strives to realign their style to fit emerging industry-specific technologies (mean = 4.097). The findings indicated that, to a large extent (mean = 4.174), management support has been critical to digitalization in the DT-SACCOs.

4.3.3 Organizational Culture

The research further examined the organizational culture of the DT-SACCOs, and the results are provided in Table 4.5 below.

Table 4.5 Descriptive Summary of Organization Culture

	N	Mean	Std. Deviation
Our DT-SACCOs are among the first adopters of new technology within the sector	113	4.2301	.80188
The DT-SACCO routinely revises the current technical infrastructure to align with new advancements within the industry	113	4.0531	.93389
The DT-SACCO has realigned the working approaches to meet the changing innovative workspace	113	4.1681	.76652
The DT-SACCO engages with employees in the development of new strategies to meet the developments in the IT space	113	4.0531	.93389
DT-SACCO has refocused its IT strategy to support the attainment of the overall vision and goals	113	3.9292	.95166
The DT-SACCO ensures that the adopted information systems deliver value to the institution	113	4.0354	.66721
The DT-SACCO organizes the Information Systems (IS) objectives in alignment with the business objectives	113	4.2212	.78757
Overall score		**4.0986**	**0.83466**

Analysis showed that, to a very large extent (mean = 4.230), the DT-SACCOs were among the first adopters of new technology within the sector. A mean of 4.221 showed that, to a very large

extent, the DT-SACCOs organize the Information Systems (IS) objectives in alignment with the business objectives. Respondents noted, to a large extent, that the DT-SACCOs engage with employees in the development of new strategies to meet the developments in the IT space (mean = 4.053). The results above indicated that, to a large extent, DT-Sacco has refocused its IT strategy to support the attainment of the overall vision and goals (mean = 3.929). The average mean of 4.0986 signified that DT-SACCOs have incorporated a supportive organizational culture that is key to achieving digitalization.

4.3.4 Employee Capability

The third variable focused on the level of employee capability in the attainment of digitalization within the DT-SACCOs, and the results are shown in the Table below.

Table 4.6 Descriptive Summary of Employee Capability

	N	Mean	Std. Deviation
The DT-SACCO supports employees in enhancing their competency in the utilization of new technologies	113	4.1681	.77808
The DT-SACCO recruits staff within the industry who have technical skills to support digitalization in the firm	113	4.1327	.76186
The DT-SACCO encourages employees to be innovative in problem-solving in their roles	113	4.1239	.89774
The DT-SACCO regularly conducts training and workshops to foster the IT skills of the employees	113	3.9204	1.01894
The DT-SACCO maintains an adequate IT support staff to ensure there is smooth running of the core digital systems	113	4.0708	.74062
Overall score		**4.08318**	**0.839448**

Respondents noted, to a large extent, that Sacco recruits staff within the industry who have technical skills to support digitalization in the firm (mean = 4.133). The results showed that, to a large extent, the DT-SACCOs maintain an adequate IT support staff to ensure that the core digital systems are running smoothly (mean = 4.071). The research indicated that, to a large extent, DT-Sacco regularly conducts training and workshops to foster the IT skills of its employees (mean = 3.920). The overall score of 4.0831 indicated that the DT-SACCOs, to a

large extent, have invested in enhancing the capabilities of their employees, which can be key to achieving better digitalization.

4.4 Correlation Analysis

The study conducted a correlation test to determine the direction of the relation between the variables. Spearman rank correlation was adopted due to the ordinal nature of the variables, and summary is shown in Table 4.6

Table 4.7 Summary of Correlation Test

			Digitalization Sacco	Organization Culture	Employee Capability	Management Support
Spearman's rho	Digitalization Sacco	Correlation Coefficient	1.000			
		Sig. (2-tailed)	.			
		N	113			
	Organization Culture	Correlation Coefficient	.384**	1.000		
		Sig. (2-tailed)	.000	.		
		N	113	113		
	Employee Capability	Correlation Coefficient	.297**	.328**	1.000	
		Sig. (2-tailed)	.001	.000	.	
		N	113	113	113	
	Management Support	Correlation Coefficient	.269**	.413**	.303**	1.000
		Sig. (2-tailed)	.004	.000	.001	.
		N	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

The findings above showed that organization culture had a weak positive and significant relation with the digitalization of the DT-SACCOs (rho = .384**, Sig = .000). The analysis revealed a positive and significant association between employee capability and the digitalization of the DT-SACCOs (rho = .297**, Sig = .001). On the third variable, the results demonstrated a weak and positive relationship between management support and the digitalization of the DT-SACCOs (rho = .269**, Sig = .004).

4.5 Diagnostic Analysis

The research adopted normality and collinearity tests to determine whether the data being used meets the regression assumptions and findings, which are shown in this section.

4.5.1 Collinearity Test

Collinearity tests were performed to determine if there was any linear dependency between the predictor variables. Both variance inflation factor and tolerance values were used in the tests.

Table 4.8 Collinearity Test

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	(Constant)		
	Management Support	.575	1.739
	Organization Culture	.524	1.908
	Employee Capability	.755	1.325

a. Dependent Variable: Digitalization of Sacco

Findings in the table above show that all the variables had VIF values that were less than 10 with corresponding tolerance values above 0.1, which indicated there was no multicollinearity problem within the model.

4.5.2 Normality Test

The research further checked whether the data being used was from a normally distributed sample. The study utilized the normal p-p plot, and results in Figure 4.3 indicated the observations fitted along the normality curve, thus indicating they were from a normally distributed sample.

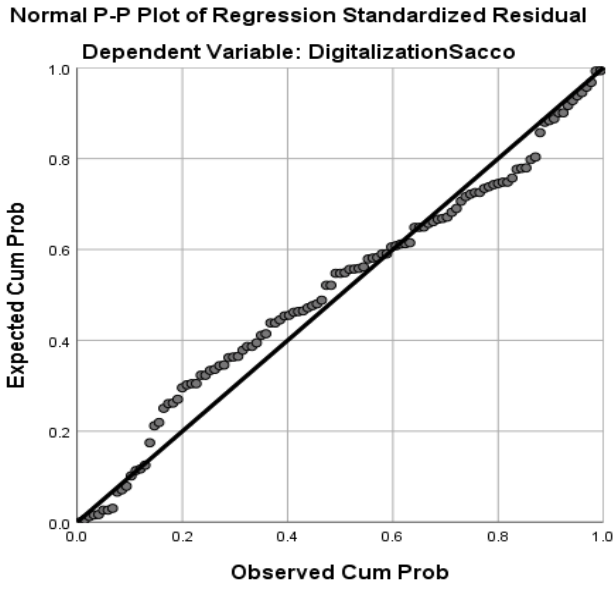


Figure 4.3 Normal P-P Plot

4.6 Simple Ordinal Regression Analysis

4.6.1 Simple Linear Regression Management Support and Digitalization of DT-SACCO

The research adopted simple linear regression to examine the extent of influence of management support on the digitalization of the DT-SACCOs, and the results are shown in Table 4.9

Table 4.9 Linear Regression Management Support and Digitalization of Sacco

Parameter Estimates								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	Digitalization Sacco	1.743	1.796	.942	1	.332	-1.777	5.263
Location	Management Support	.268	.066	16.424	1	.000	.139	.398

Link function: Logit.

On the first objective, management support, the study revealed a positive and significant effect on digitalization among DT-SACCOs in Kenya (b1 = .268, Wald-Chi2 = 16.424, Sig =

.000<.05). Thus, management support on its own can account for 26.8% improvement in digitalization of DT-SACCOs institutions in Kenya.

4.6.2 Simple Linear Organization Culture and Digitalization of DT-SACCOs

The research adopted simple linear regression to examine the extent of influence of organization culture on the digitalization of the DT-SACCOs, and the results are shown in Table 4.10

Table 4.10 Linear Regression Organization Culture and Digitalization of SACCO

Parameter Estimates								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	Digitalization Sacco	1.485	1.450	1.048	1	.306	-1.358	4.327
Location	Organization Culture	.241	.045	29.172	1	.000	.154	.329

Link function: Logit.

Findings on the second objective on organization culture indicated a positive and significant effect on digitalization among DT- SACCOs in Kenya (b2 = .241, Wald-Chi2 = 29.172, Sig = .000<.05). Thus, organization culture on its own can support 24.1% improvement in digitalization of DT-SACCOs institutions in Kenya.

4.6.3 Simple Linear Employee Capability and Digitalization of DT-SACCOs

The research adopted simple linear regression to examine the extent of influence of employee capability on the digitalization of the Saccos, and the results are shown in Table 4.11

Table 4.11 Linear Regression Employee Capability and Digitalization of DT-SACCO

Parameter Estimates								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	Digitalization SACCO	.904	1.590	.323	1	.570	-2.212	4.020
Location	Employee Capability	.300	.067	20.224	1	.000	.169	.430

Link function: Logit.

Analysis of the third objective on employee capability indicated a positive and significant effect on digitalization among DT-SACCOs in Kenya (b3 = .300, Wald-Chi2 = 20.224, Sig = .000<.05). Thus, employee capabilities on their own can yield a 30% improvement in digitalization of DT-SACCOs institutions in Kenya.

4.7 Overall Regression Analysis

The research adopted ordinal regression analysis to establish organizational factors influencing the extent of digitalization among DT-SACCOs in Kenya. The results of the regression and further diagnostic checks are shown below.

Table 4.12 Model Fitting Information

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	409.124			
Final	378.741	30.383	5	.000

Link function: Logit.

Results showed the log-likelihood for the final model was 378.741, Chi^2 = 30.383 with a sig = .00, which indicated there was a positive and significant relationship between selected organization factors, firm size, and the digitalization among DT-SACCOs in Kenya.

Table 4.13 Pseudo R-Square Results

Pseudo R-Square	
Cox and Snell	.279
Nagelkerke	.282
McFadden	.074

Link function: Logit.

The findings of Cox and Snell (.279), Nagelkerke (.282), and McFadden (.074) all revealed that there was a positive predictive power of the independent variables on the digitalization among DT-SACCOs in Kenya. This is indicative that the model can predict the level of digitalization of DT-SACCOs.

Table 4.14 Goodness of Fit Test

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	1134.645	1191	.877
Deviance	378.741	1191	1.000

Link function: Logit.

The results of the Goodness of fit tests showed a sig 1.000>.05, which confirmed the observed data was consistent with the estimated values in the model, thus showing significance in the predictive power of the model.

Table 4.15 Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	441.644			
General	439.300[b]	2.343[c]	39	1.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after the maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. The validity of the test is uncertain.

The null hypothesis for this test is that the null hypothesis states that the slope coefficients in the model are the same across response categories. The research results revealed a $Chi^2 = 2.343$, sig 1.000>.05; this is where we can conclude the assumption holds, revealing that the proportional odds assumption appears to have held in the model.

Table 4.16 Parameter Estimates

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	Digitalization Sacco	6.401	2.308	7.689	1	.006	1.877	10.926
Location	Management Support	.096	.093	1.058	1	.304	-.087	.279
	Organization Culture	.211	.068	9.697	1	.002	.078	.344
	Employee Capability	.158	.083	3.631	1	.057	-.005	.321
	Branches	.062	.057	1.161	1	.281	-.050	.174
	Firm Age	.002	.032	.004	1	.949	-.060	.064

Link function: Logit.

The regression results indicated a coefficient of 6.401, Wald-Chi2 = 7.689, Sig = .006<.05, which confirmed that organization factors and firm size had a positive and significant effect on the digitalization among DT-SACCOs in Kenya. On the first objective, management support, the study revealed a positive and insignificant effect on digitalization among DT-SACCOs in Kenya (b1 = .096, Wald-Chi2 = 1.058, Sig = .304>.05).

The research further sought to establish the effect of organization culture, and the yielded coefficient b2 = .211 was positive and statistically significant (Wald-Chi2 = 9.697, Sig = .002<.05); thus, changing organization culture by a unit will improve digitalization of Saccos by .211.

The analysis of the third variable, employee capability, resulted in a coefficient b3 = .158; Wald-Chi2 = 3.631, Sig = .05<.05, demonstrating there was a positive and significant effect of employee capability on the digitalization among deposit-taking SACCOS in Kenya. The analysis of the moderator variable firm size indicated that both the number of branches and the age of the DT-SACCOs had no significant effect on digitalization levels.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary of the findings and then discusses the findings based on the previous studies. The chapter then presents the conclusion and recommendations. Lastly, the chapter highlights the areas for further research that can be conducted in the future.

5.2 Summary

This study sought to elucidate the organizational factors influencing the degree of digitalization within DT-SACCOs, with a focus on understanding the effect of management support, organizational culture, and employee capability. The study carried out the control effect of firm size on the relationship between organizational factors and the extent of digitalization. The study was premised on the theoretical frameworks of Diffusion of Innovation (DOI) theory and the Technology Acceptance Model (TAM) and focused on the 176 licensed and authorized DT-SACCOs in Kenya as of 2023. Data was gathered from secondary sources, such as regulatory portals (SASRAs) and DT-SACCO websites, as well as primary sources, including sending questionnaires to DT-SACCO management over one month. The collected survey data was analyzed using a mix of descriptive, correlation, and ordinal regression analysis.

Correlation analysis showed that organizational culture had a weak positive and significant relation with the digitalization of the DT-SACCOs. The analysis further revealed a positive and significant association between employee capability and the digitalization of the DT-SACCOs. In the third variable, the results demonstrated that there was a weak and positive relationship between management support and the digitalization of the DT-SACCOs.

The regression results confirmed that organization factors and firm size had a positive and significant effect on the digitalization among DT-SACCOs in Kenya. Regarding the first objective of management support, the study revealed a positive and insignificant effect on digitalization among DT-SACCOs in Kenya. The research further established that the effect of organization culture on digitalization among DT-SACCOs in Kenya was positive and statistically significant.

The analysis of the third variable, employee capability demonstrated that there was a positive and significant effect of employee capability on the digitalization among DT-SACCOs in

Kenya. The analysis of the moderator variable firm size indicated that both the number of branches and the age of the DT-SACCOs had no significant effect on digitalization levels.

5.3 Discussions

The overall objective of the study was to evaluate organizational factors influencing the extent of digitalization among DT-SACCOs in Kenya. The results confirmed that organizational factors had a positive and significant effect on the digitalization among DT-SACCOs in Kenya. The study's findings align with the DOI theory, as organizational factors often contribute to the perceived relative advantage of digitalization. When DT-SACCOs recognize the significant benefits of digital tools, they are more likely to embrace digitalization initiatives.

For DT-SACCOs, having organizational factors that support a smooth integration of digital solutions can facilitate acceptance and usage, which resonates with the DOI's emphasis on compatibility as a critical element for innovation adoption. The findings further suggest that organizational factors reduce the perceived complexity of adopting new digital tools. Suppose DT-SACCOs invest in training and upskilling their workforce. In that case, employees may find it easier to adapt to and utilize new technologies, which aligns with the DOI theory that advocates for reducing perceived complexity to foster adoption.

The findings of the study are also well-aligned with the principles of the Technology Acceptance Model. The positive impact of organizational factors on digitalization suggests that DT-SACCOs recognize the usefulness of digital solutions in enhancing operational efficiency and customer service. When organizational factors foster an environment that highlights the benefits of digitalization, employees are more likely to perceive these technologies as useful, thereby promoting adoption. TAM also shows the role of external variables, such as organizational support and training, in shaping perceptions of usefulness and ease of use. The study's findings highlight the importance of organizational readiness, suggesting that supportive leadership and training programs can significantly influence employees' attitudes toward adopting digital solutions

5.3.1 Management Support and the Extent of Digitalization

The first objective of the study was to determine the effect of management support on the extent of digitalization among DT-SACCOs in Kenya. The findings revealed a positive and insignificant effect of management support on digitalization among DT-SACCOs in Kenya. This result is somewhat at odds with prior research, which often underscores the critical role of management support in digital transformation efforts. These findings are also at odds with

the expectations of the TOE framework that management support should improve the extent of digitalization and expectations of the diffusion of innovations theory that management support is critical to ensuring an organization is technologically ready to digitize its operations. They are also at odds with the technology acceptance model, which predicts that management support makes it easier for organizations to accept and integrate new technologies into their operations.

For instance, the findings were contrasted by Werth et al. (2020), who argue that management's orientation, especially towards competitive threats, significantly drives digitalization. The study highlights the necessity of an IT-ready environment under supportive management to integrate emerging technologies effectively. This perspective emphasizes management's strategic influence on digital adoption, aligning less with the current study's findings that deem management support as less impactful. This discrepancy could be attributed to variations in organizational priorities and the relative maturity of digital infrastructure between DT-SACCOs and broader financial services in different contexts.

Similarly, Ko et al. (2022) found that management commitment is a key factor in successful digital transformation, showing that IT departments thrive in digitalization under supportive management. This study implies that digital transformation may not be purely a technical endeavor but is also strongly dependent on managerial guidance. The findings from the current study, therefore, contrast with this emphasis on management commitment as a driving force in digitalization, suggesting that DT-SACCOs might rely more on other organizational or environmental factors for digitalization.

The findings were further disputed by Mishrif and Khan (2023), who further support the notion of managerial orientation as a main driver for digitalization, particularly when financial limitations hinder digital investment. Their study concluded that companies lacking management-driven digital vision struggled with adopting technologies due to insufficient resources. This point highlights the importance of a proactive managerial approach, suggesting that DT-SACCOs may require a more assertive management stance towards digitalization for significant progress, as opposed to management support alone.

Dörr et al. (2023) also contrasted the current study findings when they emphasized that digitalization in SMEs depends greatly on management's digital know-how and commitment. This study suggests that leadership with a clear vision can counter organizational resistance and prioritize digital investments, resulting in higher digital adoption. The fact that the current

study found an insignificant impact of management support might indicate a gap in management's digital expertise within DT-SACCOs, which could be an area for further exploration.

In the study by Li et al. (2023), a top management team's shared vision and diversity of information were critical in driving digitalization efforts. The positive relationship between a shared vision and digital transformation in this study implies that DT-SACCOs may benefit from a more unified, top-down commitment to digitalization, which may not have been sufficiently present in the current study. Finally, Muehlburger, Rueckela, and Koch (2019) highlight the influence of ICT literacy and digital leadership on effective transformation, emphasizing that while IT agility alone has minimal impact, organizational values driven by leadership are crucial. This insight suggests that while DT-SACCOs may possess supportive management, a focus on building digital leadership and fostering ICT literacy among leaders may yield more pronounced digitalization outcomes.

5.3.2 Organization Culture and the Extent of Digitalization

The research further sought to evaluate the influence of the organizational culture on the extent of digitalization among deposit-taking DT-SACCOs in Kenya. The research determined that organization culture had a positive and statistically significant effect on digitalization among deposit-taking DT-SACCOs in Kenya. This finding aligns with much of the existing literature, which shows the importance of an innovation-oriented and supportive organizational culture as a key driver of digital transformation across various sectors. These findings concur with the expectations of the TOE, DOI, and TAM, all of which predict that an innovative culture has significant effects on how organizations approach the digital transformation process.

The findings, for instance, were corroborated by Zhang and Wang (2024), who explored digitalization facilitators among Chinese manufacturers and found that a structure supporting innovation significantly enhanced readiness for digital technology adoption. Their findings suggest that a culture fostering innovation and re-engineering business models is essential for effective digitalization. This perspective aligns well with the current study's results. SACCOs with a culture that encourages innovation are more likely to integrate digital solutions, reflecting the importance of an adaptable organizational culture in driving digital transformation.

Similarly, Kumar and Ramanaiah (2023) confirmed that an innovative culture is among the most critical determinants of digitalization within the automobile sector. Their findings, which

highlight the role of cultural elements such as alignment with strategy and market competitiveness, support the current study's findings on the role of a supportive organizational culture in digitalizing DT-SACCO operations. Both studies illustrate that organizational culture acts as an enabler, suggesting that financial institutions, like DT-SACCOs, may benefit from fostering a culture that is open to change and innovation.

Additionally, the research by Li and Shao (2023) underscored that the top management team's knowledge, learning ability, and innovation drive are critical in shaping an organization's digital orientation. This insight resonates with the current study's findings, as DT-SACCOs with leaders who promote a culture of learning and digital engagement are likely to experience a smoother digitalization process. A supportive culture at the leadership level facilitates not only acceptance of digital transformation but also encourages employees to adapt and innovate, making digitalization efforts more successful.

De Lomana, Strese, and Brinckmann (2019) also found that management teams with interdependent and functional members have a stronger digital orientation. This highlights the role of cohesive team dynamics in promoting a culture that supports digital transformation. The current study's findings, which emphasize the importance of organizational culture in DT-SACCOs, align with this research, suggesting that a culture of teamwork and effective communication fosters better digital integration by enabling smoother information flow and shared digital goals within the organization.

Contrastingly, the literature review by Mahmood, Khan, and Khan (2019) highlights that while management commitment is essential, a coherent strategy aligned with internal infrastructure and skills capacity is critical to digital transformation success. Although the study emphasizes strategy over culture alone, it indirectly supports the current findings by indicating that an organizational culture aligned with strategic goals can lead to successful digitalization. This alignment of culture with strategic orientation likely plays a crucial role in DT-SACCOs as well.

Further supporting the current study's findings, Watetu (2018) found that team expertise is essential for implementing digital projects, focusing on digitization projects in Kenya's banking sector. While Watetu's study focused more on project-specific skills, it suggests that a culture promoting continuous learning and skill enhancement key elements of organizational culture can facilitate digital transformation. The current study's emphasis on the positive role

of organizational culture may thus involve such project-focused expertise by fostering a supportive learning environment in DT-SACCOs.

The research by Kimotho (2016) on digital innovation adoption in Kenyan financial institutions also aligns with the current study, emphasizing that organizational resources and strategic orientation influence digitalization levels. This finding resonates with the notion that a resourceful culture where resources and strategic intent are harmonized promotes successful digital transformation. SACCOs with a culture that strategically prioritizes digital investment may have higher digitalization levels, consistent with the current study's results. Finally, Hansen and Kien (2015) concluded that organizational ambidexterity and digital maturity integrated into the organizational culture are crucial for linking business processes to digitalization efforts. This perspective aligns well with the current study, as DT-SACCOs that embrace flexibility and adaptability in their culture are better positioned to implement digitalization. The current study's results reaffirm that DT-SACCOs with a culture supporting digital maturity and flexibility can more effectively implement digital technologies.

5.3.3 Employee Capability and the Extent of Digitalization

The third variable sought to assess the impact of organizational readiness on the extent of digitalization among DT-SACCOs in Kenya. The analysis of the third variable demonstrated that employee capability had a positive and significant effect on digitalization among DT-SACCOs in Kenya. The current study's findings align well with the majority of existing literature, which consistently points to employee capability as a key driver of digital transformation. These findings also concur with the TOE, DOI, and TAM framework, which emphasizes that employees with the right skills, knowledge, and readiness for digital tools are instrumental in enabling successful digitalization.

The results of the current study were in line with those of Zhang, Xu, and Ma (2022), who highlight that employee skills and organizational capabilities are essential differentiators in the digitalization journey of Chinese SMEs. Their findings align closely with the current study, emphasizing that while technology and supportive leadership are available to many organizations, digital success heavily relies on the organization's readiness, particularly the employees' skill levels. The focus on upskilling aligns with the study's emphasis on employee capability, indicating that SACCOs, similar to SMEs, need to prioritize employee development to support digitalization efforts effectively.

Stoica and Ionescu-Feleagă (2021) also found that employee skills in data analytics and digital knowledge are vital for digitalization success in Romania's accounting sector. This finding mirrors the importance placed on employee capabilities in the current study, where DT-SACCOs' readiness for digitalization hinges on employee competence. This supports the idea that a workforce equipped with advanced skills beyond traditional roles, whether in accounting or financial services, is better positioned to adopt and adapt to digital tools and processes, making digital transformation more attainable.

Kusuma's (2024) study in the credit union sector further supports the current study by demonstrating that employee capabilities, such as digital integration skills, significantly impact digitalization. Kusuma's reliance on Sen's capability approach to stress the need for a technology-capable workforce resonates with the current findings on DT-SACCOs, affirming that employee readiness is foundational to the successful adoption of digital systems. Ghorbani's (2019) research on SMEs also highlights the role of technology know-how and continuous upskilling for successful digitalization, especially in accounting functions. His recommendation for firms to enroll staff in upskilling sessions aligns with the current study's emphasis on employee capability. This suggests that DT-SACCOs, similar to accounting-focused SMEs, must view digital skills as an ongoing development area for employees, reinforcing the importance of continuous learning as digital technology evolves.

In the manufacturing sector, Eluekezi and Tuncay (2021) also emphasize the importance of technical competency and management's readiness for digital transformation. While the context differs, the study's findings align with the current research on DT-SACCOs, particularly regarding internal capabilities and the role of management in promoting digital transformation. DT-SACCOs with a management team that prioritizes skill enhancement and prepares employees for digital adaptation are more likely to experience successful digitalization, as the findings suggest.

In the financial sector context, Oh et al. (2022) found that internal digital knowledge, self-efficacy, and innovativeness are critical to digital transformation success among financial institutions in Korea. Their findings support the current study's results, as employee readiness, particularly in terms of digital knowledge and confidence in using technology, is critical for DT-SACCOs. This parallel suggests that DT-SACCOs, like other financial institutions, need to cultivate an environment that encourages employees to develop and leverage digital skills confidently. Additionally, Nabwire (2023) provides relevant insights into the specific context

of SACCOs in Kenya, observing that a lack of readiness among DT-SACCOs managers impedes the digital transformation process, as they lack the knowledge and resources required. This finding aligns with the current study by underscoring the need for a well-prepared workforce within DT-SACCOs to facilitate digital transformation.

5.3.4 Firm Size and the Extent of Digitalization

Finally, the study sought to determine the control effect of firm size on the relationship between organizational factors and the extent of digitalization among deposit-taking in Kenya. The analysis of the moderator variable firm size indicated that both the number of branches and the age of the DT-SACCOs had no significant effect on digitalization levels. The current study's findings contrast sharply with existing literature, which generally supports the notion that larger firms are more capable of successfully adopting digital technologies. These findings also contradict expectations of the TOE, DOI, and the TAM, which predict that larger firms may be better placed to adapt new technologies than smaller firms, which are likely to struggle to afford the new technologies, infrastructure, and support needed to digitalize their operations.

For instance, the findings were disputed by Nkonge (2018), who found that larger firms possess the necessary resources to adopt new technologies and fully respond to competitive pressures. This suggests that larger DT-SACCOs would be more likely to exhibit higher levels of digitalization compared to smaller ones. In contrast, the current study's results imply that the size of DT-SACCOs, whether in terms of branches or age, does not confer the expected advantages for digitalization. This divergence may indicate a unique characteristic of the DT-SACCO sector in Kenya, where even larger firms may still lack the requisite resources or strategic focus on digital initiatives.

Ghorbani (2019) corroborates the idea that larger firms are typically more receptive to digitalization due to their resources and higher transaction volumes. His findings indicate that smaller firms may avoid new technologies due to their limited financial transactions. This aligns with the expectation that larger DT-SACCOs should have more robust digitalization efforts. The absence of significant effects in the current study suggests that, unlike the accounting firms analyzed by Ghorbani, DT-SACCOs may face distinct challenges that neutralize the advantages associated with firm size.

Findings were further contrasted by Li and Shao (2023), who also noted that larger firms have greater innovation resources and transformation needs that can be met through digitalization. Their assertion that management teams' digital knowledge is crucial to successful digital

orientation implies that firm size should facilitate greater digitalization efforts. However, the current study's findings challenge this assumption, suggesting that factors beyond size might play a more critical role in determining digitalization levels among DT-SACCOs.

Clemente-Almendros, Nicoara-Popescu, and Pastor-Sanz (2024) support the premise that larger firms generally possess more knowledge and expertise, facilitating digital adoption. This finding casts doubt on the current study's results, indicating that DT-SACCOs, even if larger, may not have effectively leveraged their resources to enhance digitalization. It raises questions about whether DT-SACCO management is prioritizing digital initiatives or whether external pressures might not be as pronounced in the DT-SACCO sector compared to other industries. Salah, Yusof, and Mohamed (2021) further provide a similar narrative, highlighting that larger firms face competitive pressures that compel them to digitize effectively. The current study's findings challenge this notion, suggesting that DT-SACCOs, regardless of size, may not be responding to competitive pressures or might be facing barriers that limit their digitalization potential, such as outdated technology or lack of strategic vision.

The findings from Amaya, Campoverde, and Granda (2024) provide an interesting perspective by indicating that older firms may struggle with digitalization, which could explain why the age of SACCOs did not yield significant effects in the current study. Their assertion that longer-operating firms encounter challenges in realizing digitization successes might resonate with SACCOs. This suggests that operational history could create inertia that inhibits adaptability to digital changes, irrespective of size.

Lastly, in Kenya, Mwai, Njeru, and Memba (2019) found that bank size significantly moderates the relationship between financial innovations and financial deepening. Their findings suggest that larger institutions are better positioned to adopt innovations effectively. In contrast, the lack of significant findings in the current study regarding the relationship between firm size and digitalization in DT-SACCOs may imply that the financial innovations relevant to DT-SACCOs differ in nature from those in commercial banking, possibly requiring different resources and strategies.

5.4 Conclusions

Based on the findings, the study concludes that management support, while positively associated with digitalization efforts, does not significantly influence the extent of digitalization among DT-SACCOs in Kenya. This suggests that although management teams within DT-SACCOs show encouragement, openness to new developments, and active

engagement in the technology ecosystem, these efforts may not be robust or strategically aligned enough to drive substantial digital transformation on their own. Therefore, while management support is essential, it may need to be reinforced by additional strategies and resources to have a meaningful impact on the digitalization journey within DT-SACCOs in Kenya.

The study further concludes that organizational culture has a positive and statistically significant effect on the extent of digitalization among DT-SACCOs in Kenya. This finding implies that DT-SACCOs with a culture oriented towards innovation and adaptability are more likely to achieve greater progress in their digitalization efforts. The findings also highlight the commitment to integrating digitalization into core organizational objectives. The study concludes that an organizational culture that values innovation, collaboration, and alignment with technological advancements creates a supportive foundation for digital initiatives. This alignment between organizational culture and digitalization objectives reinforces the institution's capability to leverage digital tools effectively, ultimately supporting long-term strategic goals and enhancing operational efficiency.

The study also concludes that employee capability has a positive and significant impact on the extent of digitalization among DT-SACCOs in Kenya. This finding suggests that DT-SACCOs with well-trained, technically skilled, and capable staff are better positioned to implement and sustain digitalization initiatives effectively. The study also indicates that DT-SACCOs are investing in building a capable workforce ready for digital transformation, showing the importance placed on continuous learning and operational support in maintaining digital infrastructure. By prioritizing skill development, recruitment of technically proficient staff, and a culture of innovation, SACCOs create an environment conducive to digital transformation. This readiness helps ensure the smooth implementation and sustainability of digital initiatives, ultimately contributing to more efficient operations and enhanced service delivery.

The study concludes that organizational factors have a positive and significant influence on the extent of digitalization among DT-SACCOs in Kenya. This suggests that DT-SACCOs, which prioritize investment in digital infrastructure, innovative service channels, and employee adaptability, are more successful in advancing their digital transformation. By aligning these factors with digital initiatives, DT-SACCOs are better positioned to implement effective and accessible digital solutions, enhancing service quality and operational efficiency. This alignment between organizational factors and digitalization is essential for DT-SACCOs to

remain competitive and responsive to the evolving needs of their members in a digital-driven environment.

5.5 Recommendations

Based on the conclusions, the study suggests various recommendations. Although management support has shown a positive but insignificant effect on digitalization, DT-SACCOs should deepen this support by developing a comprehensive digital strategy that is championed by leadership. This strategy could include clear goals, dedicated budgets, and structured timelines for digital initiatives. The management should also focus on aligning their support with concrete actions, such as investing in pilot programs for digital services, measuring digital adoption rates, and regularly reviewing progress against digital goals. Additionally, management could enhance employee engagement in digital initiatives by creating a culture of innovation, where employees are encouraged to contribute ideas for digital transformation and rewarded for the successful implementation of digital practices.

Given the positive and significant impact of organizational culture on digitalization, the study recommends that DT-SACCOs should cultivate a culture that values innovation, adaptability, and openness to technological change. This could involve creating incentives for early technology adoption, offering awards or recognitions for digital innovators within the organization, and encouraging cross-departmental collaboration on tech initiatives. DT-SACCOs should also institutionalize a routine review of their technological infrastructure, ensuring it aligns with industry advancements and evolving member needs. By actively seeking out and testing new digital tools, DT-SACCOs can create a forward-looking culture that stays ahead of industry trends. DT-SACCOs could also establish a "digital champion" program, designating employees who are tech-savvy and enthusiastic about innovation to lead digital projects and mentor their colleagues on new tools and platforms.

Recognizing the positive impact of employee capability on digitalization, DT-SACCOs should make sustained investments in employee training, especially in emerging technologies relevant to financial services. Regular workshops, certifications, and partnerships with technology training institutes could help employees keep their skills current and applicable. DT-SACCOs should also consider hiring additional staff with specialized skills in digital transformation and technology management to reinforce their workforce’s technical capacity. This could include IT support staff or digital transformation specialists who can support complex digital initiatives. Furthermore, fostering a culture of continuous learning by regularly updating

training programs to include the latest technological trends will encourage employees to stay proactive in adapting to digital solutions.

Finally, to maximize the significant impact of organizational factors on digitalization, the study recommends that DT-SACCOs should continue investing in advanced digital infrastructure, including mobile applications, online platforms, and secure transaction systems, that enhance service accessibility and efficiency. DT-SACCOs should also prioritize user-centered design in digital solutions to ensure services are easy to use, reliable, and meet member expectations. Regular member feedback sessions or surveys can provide insights into app usability, service satisfaction, and potential areas for improvement. To drive higher member engagement with digital services, DT-SACCOs could implement educational campaigns highlighting the benefits and ease of using digital tools. These campaigns could include tutorials, webinars, or customer support for app-related queries, thereby enhancing members' digital literacy and satisfaction.

5.6 Areas for Further Studies

The study was focused on DT-SACCOs in Kenya. Further research could be conducted on other financial institutions, such as microfinance banks or commercial banks. A comparative type study could be adopted between DT-SACCOs and other financial institutions, which could offer insights into best practices, challenges, and unique factors influencing digitalization across different financial service providers. Additionally, the study was based on primary data and a qualitative approach. Further research work could be done utilizing secondary data and a quantitative approach. This could track the effects of digitalization on DT-SACCO performance metrics, such as member growth, loan processing speed, member satisfaction, and financial stability over time, and provide insights into the long-term benefits and potential drawbacks of digitalization in DT-SACCOs.

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APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam,

RE: Letter of Request for Permission to Collect Data

I am a student pursuing a Master of Business Administration (MBA) for Executives at the Strathmore University Business School.

I am kindly requesting data to complete my research titled '*An Evaluation of The Extent of Digitalization of the Taking Savings and Credit Co-Operative Societies in Kenya.*'

The data required is on the availability and adoption of USSD, mobile, and online banking channels by the SACCO and its members.

The data requested is for academic purposes, and the information was treated with utmost confidentiality.

Yours Sincerely

Daniel M. Muchika

E: Daniel.muchika@strathmore.edu

M: +254724409796

Appendix II: Questionnaire

Confidentiality

All information provided shall be treated with strict confidence. The questionnaire was designed with anonymity in mind, and as such, no reference was made to any individual(s) or organization in the study report.

Instructions

Kindly complete the following questionnaire using the instruments provided for each set of questions. Please tick appropriately or write your answers in the spaces provided.

Part A: Anonymized Respondent Details (*Please do NOT provide your name nor the name of the Organization*)

Position in the organization_____

Duration in the organization_____

How many branches do you have the organization _____

How long has your organization been in existence _____

Part B: Anonymized Organization's Details: Diversity of the Board

1. Do you have an information technology (IT) professional member on your board of directors? Please tick one.

    a. Yes ☐
    b. No ☐

2. What digital banking options do you have? Please tick all that apply.

    a. USSD ☐
    b. Mobile app ☐
    c. Internet Banking ☐
    d. ATM ☐

3. How would you rank the degree of utilization of the above-digitalized channels based on this scale*: 1 = very low utilization, 2 = moderately utilized, 3 = highly utilized*.

Digital channels	1	2	3
USSD			
Mobile Banking			
Internet Banking			
ATM			

Part C: Extent of Digitalization of the SACCO

In this section, please indicate your agreeableness level based on the provided scale. If not applicable, please select to no extent at all.

1 = to no extent at all, 2 = to some extent, 3 = to a moderate extent, 4 = to a large extent, 5 = to a very large extent

	Statements on the Extent of Digitalization	1	2	3	4	5
1.	The DT-Sacco provides members with stable service provision through USSD services.					
2.	DT-Sacco has invested widely in introducing new innovative channels such as apps and online platforms to allow users to access our services.					
3.	DT-Sacco is continuously investing in new digitalized product provision.					
4.	The DT-SACCO members utilize our mobile app banking services effectively.					
5.	Our DT-SACCO members find our mobile app easy to use and efficient.					
6.	The DT-Sacco encourages our employees to embrace new innovative solutions in the service provision.					

Part D: Organization Factors of Sacco

In this section, please indicate your agreeableness level based on the provided scale. If not applicable, please select to no extent at all.

1 = to no extent at all, 2 = to some extent, 3 = to a moderate extent, 4 = to a large extent, 5 = to a very large extent

	Statements on Management Support	**1**	**2**	**3**	**4**	**5**
1.	The management team of DT-Sacco encourages employees to adapt to new ideas.					
2.	The management team within the DT-Sacco is receptive to new developments in the provision of digitalized services.					
3.	The DT-Sacco management teams have technical experience in emerging technologies.					
4.	The DT-Sacco management team continuously engages with experts in the tech ecosystem to enhance their competency.					
5.	The DT-Sacco management team attends training and workshop seminars to foster the skills and knowledge necessary for digitalization efforts.					
6.	The DT-Sacco management strives to realign its style to fit emerging industry-specific technologies.					

	Statements on Organizational Culture	**1**	**2**	**3**	**4**	**5**
7.	Our DT-Saccos is among the first adopters of new technology within the sector.					
8.	The DT-Sacco routinely revises the current technical infrastructure to align with new advancements within the industry.					

9.	The DT-Sacco has realigned the working approaches to meet the changing, innovative workspace.					
10.	The DT-Sacco engages with employees in the development of new strategies to meet the developments in the IT space.					
11.	The DT-Sacco has refocused its IT strategy to support the attainment of the overall vision and goals.					
12.	The DT-Sacco ensures that the adopted information systems deliver value to the institution.					
13.	The DT-Sacco organizes the Information Systems (IS) objectives in alignment with the business objectives.					

	Statements on Employee Capability	**1**	**2**	**3**	**4**	**5**
14.	DT-Sacco supports employees in enhancing their competency in the utilization of new technologies.					
15.	DT-Sacco recruits staff within the industry who have technical skills to support digitalization in the firm.					
16.	The DT-Sacco encourages employees to be innovative in problem-solving in their roles.					
17.	The DT-Sacco regularly conducts training and workshops to foster the IT skills of the employees.					
18.	The DT-Sacco maintains an adequate IT support staff to ensure the smooth running of the core digital systems.					

Thank You

Appendix III: Ethical Review Letter

Strathmore UNIVERSITY

20th September 2024

Mr Muchika Daniel,
daniel.muchika@strathmore.edu

Dear Mr Muchika,

RE: An Evaluation of Organizational Factors Influencing the Extent of Digitalization of Deposit Taking Savings and Credit Co-Operative Societies (SACCOs) in Kenya

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** proposal. Your application reference number is **SU-ISERC2385/24.** The approval period is from **20th September 2024 to 19th September 2025.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

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

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

Appendix IV: NACOSTI Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **952987**

Date of Issue: **08/October/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Daniel Mukhwana Muchika of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Baringo, Bomet, Bungoma, Busia, Elgeyo-Marakwet, Embu, Garissa, Homabay, Isiolo, Kajiado, Kakamega, Kericho, Kiambu, Kilifi, Kirinyaga, Kisii, Kisumu, Kitui, Kwale, Laikipia, Lamu, Machakos, Makueni, Mandera, Marsabit, Meru, Migori, Mombasa, Muranga, Nairobi, Nakuru, Nandi, Narok, Nyamira, Nyandarua, Nyeri, Samburu, Siaya, Taita-Taveta, Tanariver, Tharaka-Nithi, Transnzoia, Turkana, Uasin-Gishu, Vihiga, Wajir, Westpokot on the topic: AN EVALUATION OF ORGANIZATIONAL FACTORS INFLUENCING THE EXTENT OF DIGITALIZATION OF DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES (SACCOs) IN KENYA. for the period ending : 08/October/2025.

License No: **NACOSTI/P/24/40639**

952987

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

Appendix V: List of Approved and Authorized in 2023 Deposit Taking SACCOs from the SASRA website

1. 2NK SACCO Society Limited
2. Acumen SACCO Society Ltd
3. Afya SACCO Society Ltd
4. Agro-Chem SACCO Society Ltd
5. Ainabkoi SACCO Society Ltd
6. Airports SACCO Society Ltd
7. Amica SACCO Society Ltd
8. Ammar SACCO Society Ltd
9. Ardhi SACCO Society Ltd
10. Asili SACCO Society Ltd
11. Azima SACCO Society Ltd
12. Bandari SACCO Society Ltd
13. Baraka SACCO Society Ltd
14. Baraton University SACCO Society Ltd
15. Biashara SACCO Society Ltd
16. Biashara Tosha SACCO Society Ltd
17. Bi-High SACCO Society Ltd
18. Bingwa SACCO Society Ltd
19. Boresha SACCO Society Ltd
20. Capital SACCO Society Ltd
21. Centenary SACCO Society Ltd
22. Chai SACCO Society Ltd
23. Chuna SACCO Society Ltd
24. Chuka University SACCO Society Ltd
25. Cosmopolitan D.T. SACCO Society Ltd
26. County SACCO Society Ltd
27. Daima SACCO Society Ltd
28. Defence SACCO Society Ltd
29. Dhabiti SACCO Society Ltd
30. Dimkes D.T. SACCO Society Ltd
31. Dumisha SACCO Society Ltd
32. Eco-Pillar SACCO Society Ltd

33. Edis SACCO Society Ltd
34. Egerton SACCO Society Ltd
35. Elimu SACCO Society Ltd
36. Enea SACCO Society Ltd
37. Faridi SACCO Society Ltd
38. Fariji SACCO Society Ltd
39. Fortitude SACCO Society Ltd
40. Fortune SACCO Society Ltd
41. Fundilima SACCO Society Ltd
42. GDC SACCO Society Ltd
43. Golden Pillar SACCO Society Ltd
44. Good Faith SACCO Society Ltd
45. Goodhope SACCO Society Ltd
46. Goodway SACCO Society Ltd
47. Gusii Mwalimu SACCO Society Ltd
48. Harambee SACCO Society Ltd
49. Hazina SACCO Society Ltd
50. Home Business SACCO Society Ltd
51. llkisonko SACCO Society Ltd
52. lmarika SACCO Society Ltd
53. lmarisha SACCO Society Ltd
54. Invest and Grow (IG) SACCO Society Ltd
55. Jacaranda SACCO Society Ltd
56. Jamii SACCO Society Ltd
57. Jamii Yetu SACCO Society Ltd
58. Jitegemee SACCO Society Ltd
59. Joinas SACCO Society Ltd
60. Jumuika SACCO Society Ltd
61. Kabiyet SACCO Society Ltd
62. Kencream SACCO Society Ltd
63. Kenpipe SACCO Society Ltd
64. Kenversity SACCO Society Ltd
65. Kenya Achievas SACCO Society Ltd
66. Kenya Bankers SACCO Society Ltd

67. Kenya Highlands SACCO Society Ltd
68. Kenya Midland SACCO Society Ltd
69. Kenya National Police D.T SACCO Society Ltd
70. Kimbilio Daima SACCO Society Ltd
71. Kimisitu SACCO Society Ltd
72. Kingdom SACCO Society Ltd
73. Keystone SACCO Society Ltd
74. Kitui Teachers SACCO Society Ltd
75. Kolenge Tea SACCO Society Ltd
76. Koru SACCO Society Ltd
77. K-Pillar SACCO Society Ltd
78. K-Unity SACCO Society Ltd
79. Kwetu SACCO Society Ltd
80. Lainisha SACCO Society Ltd
81. Lamu Teachers SACCO Society Ltd
82. Lengo SACCO Society Ltd
83. Mafanikio SACCO Society Ltd
84. Magadi SACCO Society Ltd
85. Magereza Sacco Society ltd
86. Maisha Bora SACCO Society Ltd
87. Mentor SACCO Society ltd
88. Metropolitan National SACCO Society Ltd
89. Mombasa Port SACCO Society Ltd
90. Mudete Factory Tea Growers SACCO Society Ltd
91. Muki SACCO Society Ltd
92. Mwalimu National SACCO Society Ltd
93. Mwietheri SACCO Society Ltd
94. Mwito SACCO Society Ltd
95. Nacico SACCO Society Ltd
96. Nafasi D.T. SACCO Society Ltd
97. Nandi Farmers SACCO Ltd
98. Nation D.T. SACCO Society Ltd
99. Nawiri SACCO Society Ltd
100. Ndege Chai SACCO Society Ltd

101. Ndosha SACCO Society Ltd
102. New Fortis SACCO Society Ltd
103. Nexus SACCO Society Ltd
104. Ng'arisha SACCO Society Ltd
105. NRS SACCO Society Ltd
106. NSSF SACCO Society Ltd
107. Nufaika SACCO Society Ltd
108. Nyala Vision SACCO Society Ltd
109. Nyambene Arimi SACCO Society Ltd
110. Nyati SACCO Society Ltd
111. Ollin SACCO Society Ltd
112. Orient SACCO Society Ltd
113. Patnas SACCO Society Ltd
114. Prime Time SACCO Ltd
115. PUAN SACCO Society Ltd
116. Qwetu SACCO Society Ltd
117. Rachuonyo Teachers SACCO Society Ltd
118. Safaricom SACCO Society Ltd
119. Sheria SACCO Society Ltd
120. Shirika Deposit Taking SACCO Society Ltd
121. Shoppers SACCO Society Ltd
122. Simba Chai SACCO Society Ltd
123. Siraji SACCO Society Ltd
124. Skyline SACCO Society Ltd
125. Smart Champions SACCO Society Ltd
126. Smart-Life SACCO Society Ltd
127. Solution SACCO Society Ltd
128. Sotico SACCO Society Ltd
129. Southern Star SACCO Society Ltd
130. Stake Kenya SACCO Society Ltd
131. Stawisha SACCO Society Ltd
132. Stima D.T. SACCO Society Ltd
133. Strategic-Urembo SACCO Society Ltd
134. Suluhu SACCO Society Ltd

135. Supa SACCO Society Ltd
136. Tabasamu SACCO Society Ltd
137. Tabasuri SACCO Society Ltd
138. TAI SACCO Society Ltd
139. Taifa SACCO Society Ltd
140. Taqwa SACCO Society Ltd
141. Taraji SACCO Society Ltd
142. Telepost SACCO Society Ltd
143. Tembo SACCO Society Ltd
144. Tenhos SACCO Society Ltd
145. Thamani SACCO Society Ltd
146. The Apple SACCO Society Ltd
147. The Noble SACCO Society Ltd
148. Times-U SACCO Society Ltd
149. Tower SACCO Society Ltd
150. Trans- Elite County SACCO Society Ltd
151. Trans Nation SACCO Society Ltd
152. Trans-Counties SACCO Society Ltd
153. Trans-National Times SACCO Society Ltd
154. Ufanisi D.T. SACCO Society Ltd
155. Ukristo Na Ufanisi Wa Anglicana SACCO Society Ltd
156. Ukulima SACCO Society Ltd
157. Unaitas SACCO Society Ltd
158. Uni-County Sacco Society Ltd
159. Unison SACCO Society Ltd
160. United Nations SACCO Society Ltd
161. Universal Traders SACCO Society Ltd
162. Ushuru SACCO Society Ltd
163. Viihiga County Farmers SACCO Society Ltd
164. Viktas SACCO Society Ltd
165. Vision Africa SACCO Society Ltd
166. Vision Point SACCO Society Ltd
167. Wakenya Pamoja SACCO Society Ltd
168. Wakulima Commercial SACCO Society Ltd

169. Wana-anga SACCO Society Ltd
170. Wananchi SACCO Society Ltd
171. Wanandege SACCO Society Ltd
172. Washa SACCO Society Ltd
173. Waumini SACCO Society Ltd
174. Wevarsity SACCO Society Ltd
175. Winas SACCO Society Ltd
176. Yetu SACCO Society Ltd