ORGANIZATIONAL FACTORS INFLUENCING THE ADOPTION OF BLOCKCHAIN TECHNOLOGY BY DEPOSIT-TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES (SACCOs) 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 university or any other university. To the best of my knowledge and belief, the study contains no material previously published or written by another person except where due reference is made in the study itself.

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ABSTRACT

DT-SACCOs in Kenya are critical drivers of financial inclusion, serving over 6.4 million members. Despite their significant role, these institutions face fraud, inefficiencies, and governance failures, which hinder their sustainability. Blockchain technology offers transformative solutions to these issues by enhancing transparency, security, and operational efficiency. However, adoption among Kenyan DT-SACCOs remains critically low due to organizational barriers that have yet to be fully explored. This study investigated the organizational factors influencing blockchain adoption among DT-SACCOs in Kenya. Specifically, it examined the role of corporate governance (e.g., board size and ICT committees), financial health (e.g., profitability, liquidity, and asset quality), and firm characteristics (e.g., size and age) in shaping adoption decisions. The research was anchored on four theories: Institutional Theory, Organizational Readiness for Change Theory, the Technology Acceptance Model (TAM), and the Diffusion of Innovations Theory. A positivist philosophy and a quantitative cross-sectional design were adopted. The target population was approximately 352 managerial-level staff drawn from all 176 licensed DT-SACCOs in Kenya, with a sample size of 187 determined using Yamane's formula. Primary data were collected through structured questionnaires. Secondary financial data from SASRA (2023) was also used to complement the primary data. Data analysis involved descriptive statistics and binary logistic regression models to assess the likelihood of blockchain adoption. The findings revealed that SACCOs with larger boards and dedicated ICT committees were likelier to adopt blockchain technology due to improved decision-making and strategic alignment. Financially stable SACCOs with high profitability and liquidity demonstrated greater readiness for blockchain investment. Firm size positively influenced adoption due to access to resources and economies of scale, while older SACCOs resisted change due to rigid operational structures. The study highlighted the critical role of internal organizational factors in blockchain adoption among Kenyan DT-SACCOs. Strengthening corporate governance frameworks, improving financial health and fostering innovation-friendly cultures are essential for accelerating blockchain integration. The findings have significant implications for policymakers, regulators and SACCO managers seeking to enhance operational efficiency, reduce fraud and ensure long-term competitiveness in the evolving financial landscape. The study was limited to responses from DT-SACCOs, which may not fully capture the diversity of views within each organization. Additionally, the cross-sectional nature of the data limits the ability to draw causal inferences.

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DEFINITION OF TERMS

Blockchain Technology – A decentralized digital ledger that records transactions across multiple computers to ensure security, transparency, and immutability (Komalavalli et al., 2020).

Corporate Governance – The leadership structure, board composition, decision-making processes, and policies that guide the organization's strategic direction (Lie, 2023).

DT-SACCOs – Financial cooperatives that accept member deposits and provide loans and other financial services (Kathuo et al., 2020).

Financial Factors – Economic attributes of an organization, including profitability, asset quality, capital adequacy, and liquidity, influence decision-making and investment capabilities (Berger & Udell, 2006).

Financial technology (Fintech) –Technology integration into financial services to enhance efficiency, accessibility, and security. It includes blockchain, digital payments, peer-to-peer lending, and mobile banking innovations (Arner et al., 2015).

Organizational Characteristics – Attributes such as the organization's size and age influence its adaptability to change and innovation (Hannan & Freeman, 1984).

Organizational factors – The internal characteristics, structures, and conditions that influence its operations, decision-making, and overall performance. These factors can impact how an organization adopts new technologies, implements strategies, and responds to environmental changes (Daft, 2015).

Regulatory Framework – The legal and policy structures established by governing bodies such as the SACCO Societies Regulatory Authority (SASRA) to oversee and guide SACCO operations (SASRA, 2021).

Technology Adoption – The process by which organizations implement and integrate new technologies into their operations to improve efficiency and service delivery (Davis, 1989).

LIST OF ABBREVIATIONS

ATMs	Automated Teller Machines
CBK	Central Bank of Kenya
DIT	Diffusion of Innovations Theory
DTS	Deposit-taking, saving, and Credit Cooperative Society
FINTECH	Financial Technology
NPL	Non-Performing Loans
ROA	Return on Assets
SACCO	Savings and Credit Cooperative Societies
SASRA	SACCO Societies Regulatory Authority
TAM	Technology Acceptance Model

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Organizational factors are an institution's internal characteristics and structures that influence decision-making and strategic actions (Daft, 2015). These factors include corporate governance (such as board size and ICT committees), financial health (profitability, capital adequacy, liquidity, and asset quality), and organizational characteristics (firm size and age). In financial institutions like deposit-taking SACCOs, these factors determine the ability and readiness to adopt emerging technologies, including blockchain. Blockchain technology is a decentralized digital ledger system that records transactions transparently, securely, and tamper-proof, eliminating the need for intermediaries (Nakamoto, 2018).

Blockchain technology has emerged as a revolutionary tool for enhancing security, transparency, and efficiency in financial transactions. Globally, financial institutions are integrating blockchain to address operational inefficiencies, reduce fraud, and improve service delivery. Institutions like JPMorgan Chase and the People's Bank of China have successfully deployed blockchain in cross-border payments and digital currencies, demonstrating its potential (Chohan, 2021). In the cooperative financial sector, countries like Barbados and Italy have leveraged blockchain to improve interbank reconciliations and streamline SACCO operations (CUNA, 2018; ABI, 2020).

Regionally, Sub-Saharan Africa has seen increasing blockchain usage, particularly in countries like Nigeria and South Africa. Between July 2023 and June 2024, the region received an estimated $125 billion in on-chain value, reflecting growing adoption (Chainalysis, 2024). Nevertheless, challenges like low internet penetration, regulatory ambiguities, and financial illiteracy limit widespread implementation (OECD, 2023).

In Kenya, the cryptocurrency market is rapidly expanding, with over 6 million individuals reported to own digital assets as of 2024 (Emurgo Africa, 2024). The high mobile phone and mobile money usage rate, where mobile money agents handled 53% of GDP transactions in 2024, indicates potential for blockchain integration beyond cryptocurrency (BitcoinKE, 2024). However, broader adoption of blockchain in sectors like financial services remains hindered by regulatory uncertainty, cybersecurity concerns, and limited awareness (The Star, 2024; Capital FM, 2024).

However, blockchain adoption among DT SACCOs in Kenya remains limited despite its benefits, exposing them to governance challenges, fraud, and inefficiencies (SASRA, 2023). This study, therefore, sought to examine the organizational factors that influence the adoption of Blockchain technology by Deposit-Taking SACCOs in Kenya. The findings are expected to inform policymakers and SACCO leaders on fostering a more supportive internal environment for innovation, thereby enhancing the sector's capacity to embrace transformative technologies.

1.1.1 Blockchain Technology Adoption

The slow adoption of blockchain technology among DT SACCOs in Kenya is concerning, especially given their critical role in financial inclusion. DT SACCOs cater to millions of Kenyans who lack access to traditional banking services. As of 2023, there were 176 licensed DT SACCOs in Kenya serving over 6.4 million members with an asset base of Ksh. 722 billion (SASRA, 2023). Despite their significant financial footprint, most SACCOs still rely on manual processes, which are prone to fraud, inefficiencies, and poor record-keeping. Reports from SASRA (2023) indicate that over Ksh 10 billion was lost through internal fraud and mismanagement in DT SACCOs between 2019 and 2023, highlighting the urgent need for a more secure and transparent system like blockchain.

A recent study by Wekesa (2023) reports that, financial institutions adopting blockchain have experienced up to a 40% reduction in operational costs and a 30% improvement in transaction efficiency. However, findings across the literature are not entirely conclusive, with some scholars cautioning that the realized cost and efficiency benefits of blockchain depend on institutional readiness, regulatory environment, and implementation scale (Balasubramanian et al., 2021; Diakiv, 2024). However, Kenyan DT SACCOs continue to lag, exposing them to heightened regulatory risks, inefficiencies, and financial losses. Without blockchain, SACCOs may struggle to compete with fintech startups and commercial banks, leading to declining membership, reduced liquidity, and governance crises. This study explored the organizational factors influencing the adoption of blockchain technology by DT SACCOs in Kenya.

1.1.2 Organizational Factors and Blockchain Adoption

Blockchain technology adoption is influenced by various factors, including regulatory frameworks, technological infrastructure, financial capacity and organizational dynamics. While regulatory and

technological challenges have been extensively studied (Kshetri & Voas, 2018; Wekesa, 2023), the role of internal organizational factors in blockchain adoption remains underexplored, particularly in Deposit-Taking SACCOs (DT SACCOs) in Kenya. Organizational factors refer to the internal attributes of a firm that are directly actionable by the Sacco's management, including corporate governance, financial health, and firm characteristics (size and age), which collectively determine strategic decision-making and innovation readiness. Since SACCOs operate under cooperative principles emphasizing trust, transparency and member participation, blockchain technology offers significant potential to enhance operational efficiency and governance. However, without strong internal structures, SACCOs may struggle to integrate blockchain solutions effectively, leading to slow or failed adoption.

Corporate governance is pivotal in determining a SACCO's ability to embrace new technologies. Governance structures, particularly board size and the presence of ICT committees, influence how strategic technology investments are made. A study by Miduri (2021) indicates that SACCOs with dedicated ICT committees are more likely to implement digital financial innovations due to structured decision-making and proactive technology planning. Conversely, SACCOs with weak governance structures experience slow decision-making, resistance to change, and poor strategic alignment, making blockchain adoption difficult. Furthermore, larger boards often bring diverse expertise, facilitating informed technology adoption decisions, while smaller or less experienced boards may lack the technical know-how to evaluate blockchain solutions effectively (Taherdoost, 2022). Therefore, governance frameworks within SACCOs significantly influence the adoption of blockchain technology, yet their role remains understudied in the Kenyan SACCO context.

The financial health of a SACCO also determines its ability to invest in blockchain infrastructure. Profitability, liquidity, capital adequacy, and asset quality affect SACCO's financial flexibility in adopting technology. SASRA (2023) research shows that only 35% of Kenyan DT SACCOs have the capital reserves necessary to invest in new financial technologies. Highly profitable SACCOs with strong liquidity and asset quality are better positioned to invest in blockchain-based financial services without compromising operational stability. SACCOs struggle with non-performing loans (NPLs) and poor asset quality, making blockchain adoption a lower priority (Ondago, 2024). However, blockchain could reduce operational costs by up to 40% and enhance financial stability through automated lending, fraud detection, and transparent reporting (Chen & Bellavitis, 2020).

Without financial stability, SACCOs may find allocating resources toward blockchain adoption challenging, leaving them vulnerable to inefficiencies and security risks.

Firm characteristics such as SACCO size and age further influence blockchain adoption. Older, well-established SACCOs often have rigid operational structures and risk-averse cultures, leading to the slow adoption of disruptive technologies (Holbeche, 2019). In contrast, younger SACCOs tend to be more agile and open to innovation but may lack the financial strength to implement blockchain solutions. Larger SACCOs, measured by membership size and asset base, have better access to resources and economies of scale, making them more likely to adopt blockchain (Ringera, 2018). However, large SACCOs may also face bureaucratic challenges, slowing decision-making processes. Smaller SACCOs, while flexible, often lack the financial and technical expertise to explore blockchain solutions without external support. This study analyzed how these firm characteristics interacted with governance and financial factors to shape blockchain adoption decisions among DT SACCOs in Kenya.

Despite the transformative potential of blockchain technology, its adoption in the SACCO sector remains limited, which may be attributed to a lack of empirical studies examining internal organizational barriers. While previous research has explored fintech adoption broadly, few studies have analyzed the specific role of organizational structures in blockchain adoption among SACCOs (Mmari, 2023; Achieng, 2021). This study sought to bridge that gap by investigating how corporate governance, financial health, and firm characteristics influence blockchain adoption decisions in Kenyan DT SACCOs. Understanding these organizational factors is critical for designing targeted interventions, policy reforms, and financial strategies to enhance blockchain adoption and ensure SACCOs remain competitive in Kenya's evolving financial landscape.

1.1.3 DT SACCOs in Kenya: The Need for Blockchain Technology

DT SACCOs are a cornerstone of financial inclusion in Kenya, serving over 6.4 million members and managing an asset base of KSh. 722 billion as of 2023 (SASRA, 2023). These institutions provide savings, credit, and investment opportunities to members who may lack access to traditional banking services. However, despite their significance, DT SACCOs face persistent challenges related to fraud, inefficiencies, governance failures, and regulatory compliance, which hinder their sustainability and growth. Blockchain technology can revolutionize SACCO operations by enhancing security, transparency, and efficiency. However, adoption remains

critically low, exposing SACCOs to risks threatening their long-term viability. Without urgent intervention, DT SACCOs may struggle with governance weaknesses and financial losses, reducing their ability to serve members effectively.

One of the most pressing concerns for SACCOs is fraud and mismanagement, which have led to significant financial losses. Between 2019 and 2023, over KSh. Ten billion was lost due to internal fraud, poor record-keeping, and weak financial controls in SACCOs (SASRA, 2023). Many cases involve unauthorized withdrawals, falsified records, and loan defaults caused by manual or semi-automated systems prone to manipulation. Blockchain's tamper-proof ledger could address these vulnerabilities by ensuring that all transactions are securely recorded and immutable, reducing opportunities for fraud. Additionally, smart contracts, such as self-executing agreements built on blockchain, could automate loan processing, member verification, and financial reporting, eliminating inefficiencies associated with manual approvals. Despite these advantages, most SACCOs continue to operate using outdated systems, highlighting an urgent need for modernization.

Beyond fraud prevention, blockchain technology can improve regulatory compliance and financial reporting. SACCOs must submit regular financial statements to the SACCO SASRA to ensure transparency and accountability. However, many SACCOs struggle with inaccurate reporting, data inconsistencies, and delayed submissions, leading to regulatory penalties and reduced member confidence (SASRA, 2020). Blockchain's real-time tracking and audit capabilities could simplify compliance by automatically generating accurate and verifiable financial records. Moreover, blockchain can facilitate inter-SACCO collaborations and secure data-sharing, reducing regulatory burden and increasing operational efficiency. While these benefits are well-documented in financial institutions globally, Kenyan SACCOs have been slow to adopt blockchain due to financial constraints and a lack of technical expertise.

Despite blockchain's potential to enhance efficiency, security, and regulatory compliance, a significant concern is whether DT SACCOs can implement it. Cloud-based blockchain solutions could reduce implementation costs by up to 40%, making it financially feasible for SACCOs (Chen & Bellavitis, 2020). However, without proper financial planning, strategic investment and governance reforms, SACCOs may struggle to integrate blockchain effectively. Given the increasing competition from fintech startups and digital banks, SACCOs must embrace

technological innovation to remain relevant. This study explores the organizational factors influencing blockchain adoption among DT SACCOs in Kenya, identifying the barriers and enablers to successful implementation.

1.2 Overview of Deposit-Taking Savings and Credit Cooperative Societies In Kenya

The population for this study comprised all 176 deposit-taking SACCOs licensed by SASRA in Kenya as of December 2023. These SACCOs operate under a regulated financial environment, competing with commercial banks, microfinance institutions, and fintech startups. While SACCOs have traditionally dominated the low-income credit market, recent trends indicate increased competition from digital lending platforms, putting pressure on them to modernize their operations.

DT SACCOs serve a wide demographic, including employees, farmers, business owners, and self-employed individuals. However, many members are financially vulnerable, making trust and transparency critical in SACCO operations. Blockchain technology presents an opportunity to enhance trust through tamper-proof record-keeping, improved financial reporting, and secure digital transactions. Understanding the operating environment of DT SACCOs is crucial in assessing their readiness and capacity to adopt blockchain technology. This study provided empirical evidence on whether organizational factors such as governance structures, financial strength, and firm characteristics impact blockchain adoption, offering recommendations for policymakers and SACCO leaders to drive digital transformation in Kenya's cooperative financial sector.

1.3 Problem Statement

Blockchain technology has emerged as a transformative tool in the financial sector, offering enhanced security, transparency, and transaction efficiency. Financial institutions have integrated blockchain to improve fraud detection, regulatory compliance, and operational efficiency (Chohan, 2021). Studies show that banks and fintech firms adopting blockchain experience up to a 40% reduction in operational costs and improved financial reporting accuracy (Chen & Bellavitis, 2020).

Globally, blockchain technology has gained attention for enhancing transparency, reducing operational costs, and improving efficiency across finance, supply chains, and healthcare (Yli-Huumo et al., 2016; Tapscott & Tapscott, 2017). However, the adoption rate varies across regions

due to regulatory uncertainty, technological infrastructure, and awareness (World Economic Forum, 2023).

Regionally, Sub-Saharan Africa has seen increasing blockchain usage, particularly in countries like Nigeria and South Africa. Between July 2023 and June 2024, the region received an estimated $125 billion in on-chain value, reflecting growing adoption (Chainalysis, 2024). Nevertheless, challenges like low internet penetration, regulatory ambiguities, and financial illiteracy continue to limit widespread implementation (OECD, 2023).

However, blockchain adoption among DT SACCOs in Kenya remains limited despite its benefits, exposing them to governance challenges, fraud, and inefficiencies (SASRA, 2023). While previous research has explored general fintech adoption in financial institutions, there is limited empirical evidence on the specific role of organizational factors such as corporate governance, financial health, and firm characteristics in blockchain adoption by SACCOs. This study sought to fill that gap by investigating how internal organizational factors influence blockchain adoption decisions in DT SACCOs in Kenya.

In Kenya, the cryptocurrency market is rapidly expanding, with over 6 million individuals reported to own digital assets as of 2024 (Emurgo Africa, 2024). The high mobile phone and mobile money usage rate, where mobile money agents handled 53% of GDP transactions in 2024, indicates potential for blockchain integration beyond cryptocurrency (BitcoinKE, 2024). However, broader adoption of blockchain in sectors like financial services remains hindered by regulatory uncertainty, cybersecurity concerns, and limited awareness (The Star, 2024; Capital FM, 2024). Achieng (2021) and Wekesa (2023) examined financial technology adoption in Kenya's banking sector, finding that technological readiness, regulatory frameworks, and financial performance are critical determinants of adoption.

SACCOs in Kenya operate under a unique cooperative model, where decision-making is member-driven, and governance structures vary significantly from banks. This presents a conceptual gap, as bank findings cannot be directly applied to SACCOs. Additionally, while Moturi and Mbiwa (2018) highlighted the importance of ICT governance in SACCOs, the study did not examine how financial constraints and firm characteristics affect blockchain adoption decisions. This study

bridged these gaps by analyzing the combined effect of corporate governance, financial health, and firm characteristics on blockchain adoption in SACCOs, which remains largely unexplored.

From a contextual perspective, studies on blockchain adoption in Kenya have primarily focused on government projects and digital payments rather than cooperative financial institutions. Kangangi & Mang'ana (2024) investigated blockchain applications in Kenya's public sector, finding that regulatory uncertainty and financial constraints limit widespread adoption. Similarly, Kipkorir et al. (2016) analyzed investment decisions in SACCOs, but the study did not examine technology adoption. The lack of research focusing on blockchain adoption in DT SACCOs presents a significant gap that this study seeks to address. Given that SACCOs serve over 6.4 million Kenyans and hold KSh. Seven hundred twenty-two billion in assets, their ability to adopt secure and efficient technologies like blockchain is critical for financial stability and trust (SASRA, 2023). This research provided empirical insights into the barriers and enablers of blockchain adoption within Kenya's SACCO sector, offering valuable recommendations for policymakers and industry stakeholders.

DT SACCOs face significant risks without blockchain adoption, including financial fraud, governance inefficiencies, and declining competitiveness. Reports indicate that over KSh 10 billion was lost to fraud in SACCOs between 2019 and 2023, primarily due to weak internal controls and outdated record-keeping systems (SASRA, 2023). As fintech startups and digital banks continue to innovate and attract SACCO members, traditional SACCOs risk losing their relevance if they fail to modernize. However, blockchain adoption requires strong governance, financial investment, and strategic decision-making, areas where many SACCOs struggle. This study sought to determine whether internal organizational factors are key obstacles or facilitators of blockchain adoption in Kenya's DT SACCOs.

1.4 Research Objectives and Research Questions

This study's general objective was to analyze the influence of organizational factors on the adoption of blockchain technology among Deposit-Taking SACCOs in Kenya. The specific objectives were:

(i) Examine the effect of corporate governance factors (board size and ICT committee) on blockchain adoption among DT SACCOs in Kenya.

(ii) Assess the influence of financial factors (profitability, asset quality, capital adequacy, and liquidity) on blockchain adoption in DT SACCOs in Kenya.

(iii) Evaluate the effect of firm characteristics (SACCO size and age) on the likelihood of adopting blockchain technology among DT SACCOs in Kenya.

The study therefore used the following research questions.

(i) How do corporate governance factors (board size and ICT committees) influence blockchain adoption among DT SACCOs in Kenya?

(ii) How do financial factors (profitability, asset quality, capital adequacy, and liquidity) affect blockchain adoption in DT SACCOs in Kenya?

(iii) How do firm characteristics (SACCO size and age) affect the adoption of blockchain technology among DT SACCOs in Kenya?

1.5 Scope of the Study

This study focused on the conceptual, geographical, and time scope to define the research's boundaries. The study examined organizational factors that influence the adoption of blockchain technology among DT-SACCOs in Kenya. The study covered all 176 licensed DT SACCOs in Kenya as of September 2023 (SASRA, 2023). These SACCOs operate across various counties, including Nairobi, Mombasa, Kisumu, Nakuru, Eldoret, Meru, Nyeri, and other urban and rural regions. The selected SACCOs represented diverse economic zones, including agricultural SACCOs (e.g., in Central and Rift Valley regions), teachers' SACCOs (spread across the country), and business SACCOs (common in urban areas like Nairobi, Mombasa, and Kisumu). The study focused on the SASRA (2023) supervision report data, capturing the most recent trends in blockchain adoption and organizational performance within SACCOs. Primary data collection took place in April 2025, while secondary data was sourced from SASRA (2023) reports, financial statements, and previous studies covering blockchain adoption in the financial sector.

1.6 Significance of the Study

1.6.1 Policy Implications

This study has significant implications for policymakers and regulatory bodies in the financial sector, particularly those overseeing SACCOs and financial technology adoption in Kenya. The

research will provide valuable insights to inform the development of policies and regulations by identifying the organizational factors that influence blockchain adoption among SACCOs. These insights can help craft guidelines that balance promoting innovation and ensuring the stability and security of the financial system.

Moreover, the findings of this study can assist policymakers in designing targeted interventions to support SACCOS in their digital transformation journey. This could include developing capacity-building programs, creating incentives for technology adoption, or establishing sandbox environments for testing blockchain applications in the SACCO sector. The research outcomes can also contribute to the broader national strategy on financial technology and digital finance, helping to position Kenya as a leader in innovative financial services in the region.

1.6.2 Theoretical Contributions

Theoretically, this study will add to the expanding literature on technology adoption within financial institutions, particularly in cooperative financial institutions in developing economies. By examining the organizational factors influencing blockchain adoption in SACCOS, the research extended existing technology adoption models and theories, potentially identifying new factors or relationships specific to the cooperative financial sector of the Kenyan context.

Furthermore, this study aimed to bridge the gap between blockchain technology research and cooperative finance literature. It offered a theoretical framework to explore how the unique characteristics of SACCOs interact with the features of blockchain technology, leading to a deeper understanding of technology adoption in various organizational settings. This theoretical contribution laid the groundwork for future research on emerging technologies in cooperative financial institutions in Kenya and other developing economies.

1.6.3 Practitioner Implications

This study offered practical insights into the organizational dynamics that affect blockchain adoption. The findings can help SACCOS leaders assess their organizations' readiness for blockchain adoption, identify potential barriers, and develop strategies to overcome these challenges. This knowledge can inform decision-making processes related to technology investment and digital transformation initiatives, potentially leading to more effective and successful adoption of blockchain and other emerging technologies.

Additionally, the research outcomes will be valuable for technology providers and fintech companies seeking to serve the SACCOs sector. By understanding the factors influencing blockchain adoption in SACCOs, these companies can tailor their solutions and marketing strategies to meet SACCOs' needs better and address their concerns. This could lead to developing more appropriate and accessible blockchain solutions for the cooperative financial sector, benefiting Sacco's members through improved services and financial products.

1.7 Chapter Summary

This chapter introduced the research topic of organizational factors that influence the adoption of blockchain technology by deposit-taking SACCOs in Kenya. It offered a thorough background on the SACCOs movement in Kenya and the rise of blockchain technology in the financial sector. The chapter emphasized the vital role of SACCOs in Kenya's financial landscape. It provided a brief overview of the research gaps, the problem statement, research objectives, questions, the study's justification, and scope. The next chapter reviews theoretical and empirical literature to position the study in existing literature.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section introduces the theoretical and empirical review underpinning the factors influencing the adoption of blockchain technology by deposit-taking SACCOs in Kenya. Blockchain technology, known for its potential to enhance transparency, security, and efficiency in financial transactions, is increasingly being explored by SACCOs as part of their digital transformation efforts. However, organizational readiness, regulatory frameworks, resource constraints, the size of the Sacco, and corporate governance play a critical role in determining the extent of its adoption. This review delved into various theories and empirical studies that provide insight into how SACCOs can navigate these challenges and leverage blockchain technology effectively.

2.2 Theoretical Framework

A multiple-theory approach was necessary for this study to comprehensively capture the diverse organizational factors influencing blockchain adoption among deposit-taking SACCOs in Kenya. No single theory could fully explain the interplay between governance structures, financial capacity, and firm characteristics' influences on technology adoption.

2.2.1 Institutional Theory

Institutional Theory was first proposed by Meyer and Rowan (1977) and later expanded by DiMaggio and Powell (1983). This theory explains how organizations adopt structures, practices, and technologies in response to external pressures from regulatory bodies, industry norms, and societal expectations. It argues that organizations are influenced by three types of institutional isomorphism: coercive, driven by regulatory and legal requirements; mimetic, where organizations imitate successful peers to reduce uncertainty; and normative, shaped by professional standards and best practices (Scott, 2023).

While Institutional Theory effectively explains why organizations conform to external pressures, it has limitations in addressing the internal strategic motivations behind technology adoption. Critics argue that it overemphasizes compliance and legitimacy while underestimating the role of organizational agency and innovation (Thornton et al., 2022). Moreover, the theory does not fully

consider the financial and operational constraints that may hinder organizations from adopting new technologies, even when regulatory and normative pressures exist.

Institutional Theory explains blockchain adoption in Kenyan SACCOs through coercive pressures from emerging regulations like the Virtual Assets Service Providers Bill (2024), normative pressures from member demands for transparency and mimetic pressures driven by industry trends toward digital transformation (Wakagwi & Mose,2024; Saccotrend,2024). Practically, SACCOs may adopt blockchain to align with regulatory expectations, enhance governance credibility and mimic successful implementations in peer institutions, as seen in studies emphasizing standardized frameworks and smart contracts for automated compliance (Websacco,2023; Kisoso,2022). However, resource constraints and technological readiness gaps limit their ability to conform, demonstrating the practical challenges of Institutional Theory in this context.

Institutional Theory aligned with the first research objective, which examined the role of corporate governance factors (board size and ICT committee) in blockchain adoption. Coercive pressures from SASRA regulations and industry norms influence SACCO boards' strategic decisions on technology investments. Furthermore, mimetic pressures may drive SACCOs to adopt blockchain if larger or more established financial institutions successfully implement it. By integrating Institutional Theory, this study assessed whether regulatory and normative forces facilitate or hinder blockchain adoption among Kenyan DT SACCOs.

2.2.2 Organizational Readiness for Change Theory

Organizational Readiness for Change (ORC) Theory was developed by Weiner (2009) to explain how organizations assess and prepare for large-scale change, particularly in adopting new technologies or operational models. The theory posits that successful implementation of change depends on two key components: change commitment, which refers to the collective determination of an organization's members to implement change, and change efficacy, which is the shared belief in the organization's ability to successfully execute the change (Holt et al., 2017). According to Weiner (2009), organizations with strong readiness exhibit high motivation levels, resource availability, and technical preparedness, increasing the likelihood of successful adoption.

Despite its strengths in explaining internal preparedness for change, ORC Theory has some limitations. It assumes that all members of an organization react uniformly to change, overlooking

individual resistance and organizational inertia (Rafferty et al., 2023). Additionally, the theory does not fully account for external constraints, such as regulatory uncertainty or financial limitations, which may hinder an organization's ability to implement change despite being internally ready. The theory is also criticized for being qualitative, as measuring “readiness” can be subjective and difficult to quantify in empirical studies.

Organizational Readiness for Change (ORC) Theory explains blockchain adoption in Kenyan SACCOS through their capacity to mobilize technological infrastructure, leadership commitment, and employee skills to align with blockchain’s technical demands, as highlighted by studies linking financial capability and governance structures to adoption success (Clohessy &Action, 2019; Jaradat et al., 2023). Practically, SACCOs can apply ORC principles by conducting readiness assessments to identify gaps in regulatory compliance training, cost-benefit analysis frameworks and phased pilot implementations, as demonstrated in Kenyan studies emphasizing iterative learning and stakeholder collaboration (Wakwagwi &Mose,2014; Lokuge et al., 2019). Therefore, this theory was instrumental in examining how internal organizational dynamics shape blockchain adoption readiness among Kenyan SACCOs.

The ORC Theory is directly related to the second research objective, which assessed the influence of financial factors (profitability, asset quality, capital adequacy, and liquidity) on blockchain adoption. SACCOs with strong financial health are perceived to have the resources to implement blockchain solutions. At the same time, those struggling with low liquidity or poor asset quality lack the financial readiness for such a shift. Additionally, ICT committees (corporate governance factor) enhance organizational readiness by ensuring that technical expertise and strategic planning align with blockchain adoption goals. This study leveraged ORC Theory to evaluate whether financial and governance structures within SACCOs contribute to or hinder their preparedness for blockchain adoption.

2.2.3 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was proposed by Davis (1989) to explain how individuals within an organization decide to adopt and use new technology. The model identifies two primary factors influencing technology adoption: perceived usefulness (PU), which refers to the extent to which a person believes technology will enhance their performance and perceived

ease of use (PEOU), which relates to how effortless the technology is to learn and operate. The model suggests that when users perceive technology as valuable and easy to use, they are more likely to adopt it, leading to increased organizational acceptance (Venkatesh & Davis, 2000).

While TAM is widely used in technology adoption research, it has been criticized for focusing primarily on individual perceptions rather than organizational and environmental factors (Marangunić & Granić, 2019). The model assumes that technology adoption is a rational decision-making process, ignoring behavioral, cultural and emotional factors that may cause resistance. Furthermore, TAM does not account for financial constraints, regulatory influences or firm-wide strategic priorities, which are crucial in large-scale technology adoption like blockchain. Scholars have also pointed out that the model oversimplifies adoption by neglecting long-term usability challenges and post-adoption factors such as system maintenance and upgrade costs (Venkatesh et al., 2012).

The Technology Acceptance Model (TAM) links to blockchain adoption in Kenyan SACCOs by highlighting that perceived usefulness and perceived ease of use significantly influence members' and staff's willingness to embrace blockchain technology, as evidenced by studies showing that lack of understanding and knowledge leads to low uptake in financial institutions (Wakagwi &Mose,2024; Kisoso, 2022). Practically, SACCOs can leverage TAM by providing targeted training and demonstrating blockchain's benefits such as enhanced transaction security and operational efficiency to increase positive attitudes and behavioral intentions toward adoption (Nkonge & Kahonge,2018)

In Kenya, SACCOs' adoption of blockchain technology depends on how key decision-makers and employees perceive its usefulness and ease of integration into existing systems. Since many SACCOs still rely on manual record-keeping and traditional banking methods, blockchain may be perceived as complex and challenging to implement. Additionally, skepticism regarding data security, cost implications, and the need for specialized technical skills may create barriers to adoption. However, as digital financial services like mobile banking (M-Pesa) and agency banking gain widespread acceptance, blockchain adoption may follow a similar trajectory if its benefits are demonstrated. Regulatory uncertainty also plays a role, as SACCO leaders may hesitate to adopt blockchain if guidelines from SASRA and the Central Bank of Kenya (CBK) remain unclear.

TAM was particularly relevant to the third research objective, which evaluates how firm characteristics (SACCO size and age) impact blockchain adoption. Larger and younger SACCOs are expected to have higher perceived usefulness of blockchain due to greater digital transformation efforts. In comparison, smaller and older SACCOs perceive it as too complex or unnecessary. Additionally, TAM is tied to the corporate governance factor (ICT committee presence). If SACCOs have strong ICT committees, they are more likely to view blockchain as a valuable and manageable innovation. This study used TAM to analyze whether decision-makers in SACCOs perceive blockchain as beneficial and easy to implement.

2.2.4 Diffusion of Innovations Theory

The Diffusion of Innovations (DOI) Theory was developed by Rogers (1962) to explain how new ideas, technologies, and practices spread within a social system over time. The theory suggests that adoption occurs in five stages: knowledge, persuasion, decision, implementation, and confirmation. Rogers identified five key attributes influencing adoption: relative advantage which is perceived benefits over existing solutions, compatibility that is the fit with current needs and values, complexity that is ease of understanding and use, trialability which is the ability to experiment before full adoption, and observability which is the visibility of successful use cases. Additionally, DOI categorizes adopters into innovators, early adopters, early majority, late majority, and laggards, emphasizing that adoption spreads gradually within an industry.

Although the DOI Theory provides a comprehensive framework for understanding technology adoption, it has limitations in explaining why some organizations resist innovations despite clear advantages. Critics argue that it assumes a linear and inevitable adoption process, overlooking financial, regulatory, and organizational constraints that may hinder adoption (Greenhalgh et al., 2018). Furthermore, the theory focuses on social influence and communication channels, rather than internal organizational dynamics, such as governance structures, financial resources, and strategic decision-making (Sahin, 2006). Another challenge is that the DOI does not adequately address post-adoption challenges, such as scalability, maintenance, and security risks, which are critical for blockchain implementation in SACCOs.

Diffusion of Innovations Theory relates to blockchain adoption in Kenyan SACCOs by illustrating how awareness, persuasion, decision, implementation, and confirmation stages influence the

uptake of blockchain, with studies showing that SACCOs adopting innovative technologies experience improved performance and member satisfaction (Amriya, 2023; Wanjohi &Tumuti, 2021). On a practical approach, SACCOs can leverage this theory by facilitating knowledge-sharing forums and pilot projects to accelerate blockchain adoption among members and staff, thus enhancing the likelihood of successful implementation and organizational benefits (Amriya, 2023; Wanjohi & Tumuti, 2021). For example, mobile banking services like M-Pesa faced initial skepticism but later gained widespread adoption due to their observed benefits and increasing compatibility with financial needs. Similarly, blockchain adoption among SACCOs will likely follow a phased approach, with innovative SACCOs (early adopters) leading the way and more risk-averse institutions (late majority and laggards).

However, barriers such as regulatory uncertainty, cost of implementation, and resistance to change may slow diffusion. The observability factor is also significant. If early adopters of blockchain demonstrate improved efficiency, transparency, and fraud reduction, other SACCOs may be more inclined to follow suit.

DOI Theory aligned with the third research objective, which evaluated how firm characteristics (SACCO size and age) influence blockchain adoption. Larger and more technologically advanced SACCOs are more likely to be early adopters. In contrast, smaller and older SACCOs may belong to the late majority or laggard categories due to limited resources and higher risk aversion. DOI is also linked to the financial factors (profitability, asset quality, capital adequacy, and liquidity) examined in the second research objective. SACCOs with stronger financial health are better positioned to invest in blockchain. At the same time, those struggling financially may delay adoption. Applying the DOI Theory, this study assessed the pace and patterns of blockchain adoption among SACCOs in Kenya, identifying key factors that accelerate or hinder diffusion.

2.3 Empirical Review

This section presents past studies on the study's variables, focusing on corporate governance, financial factors, organizational characteristics, and regulatory influences on blockchain adoption. Each subsection critically analyzed previous research based on objectives, methods, findings, and contexts, comparing and contrasting studies while identifying research gaps relevant to the study of DT SACCOs in Kenya.

2.3.1 Corporate Governance and Blockchain Adoption

Corporate governance is critical in shaping strategic decisions, including adopting emerging technologies like blockchain. Board size and the presence of ICT committees influence how SACCOs allocate resources, manage risks, and integrate technological innovations. Rouf (2021) examined the relationship between board size and IT adoption in financial institutions using panel data regression analysis. The study found that larger boards contributed to better decision-making on technology adoption due to diverse expertise. However, the research also noted that huge boards slowed decision-making due to bureaucracy. While these findings provide valuable insights, the study focused on general IT adoption rather than blockchain. It was conducted in Bangladesh, a financial and regulatory environment different from Kenya's SACCO sector. This created a contextual gap in understanding how corporate governance affects blockchain adoption among DT SACCOs in Kenya.

The presence of ICT committees within corporate governance structures also influences technology adoption. Ayoro (2018) conducted a study on the role of ICT committees in SACCOs in Kenya using survey data from 50 SACCOs. The findings revealed that SACCOs with dedicated ICT committees were likelier to adopt fintech solutions, such as mobile banking and cloud-based financial management systems. The study attributed this to the committee's ability to provide strategic direction, allocate resources, and oversee technology implementation. However, the study did not examine blockchain adoption specifically, leaving a thematic gap in understanding whether ICT committees influence blockchain implementation in DT SACCOs. Additionally, Ayoro's (2018) study focused on SACCOs that had already implemented fintech solutions, meaning it did not capture the challenges faced by SACCOs that have not yet embraced digital transformation.

Comparing these findings to research in other financial sectors provides further insight into governance structures and technology adoption. Al-Matari et al. (2022) investigated the impact of corporate governance on fintech adoption in commercial banks in Saudi Arabia using a mixed-method approach combining qualitative case studies and quantitative analysis. Their findings indicated that strong governance frameworks fostered a culture of innovation, making banks more receptive to blockchain and AI-driven financial solutions. However, DT SACCOs differ significantly from commercial banks regarding member-driven decision-making, funding models, and regulatory oversight. SACCOs operate on cooperative principles, where governance structures

may be more conservative and risk-averse than banks, potentially leading to slower blockchain adoption (Gazu, 2024). This highlighted the need for a sector-specific study to determine whether DT SACCO governance models support or hinder blockchain adoption.

Despite these studies, research on corporate governance and blockchain adoption within DT SACCOs remains limited. Prior studies have focused on mobile banking, fintech, and general IT adoption, with little emphasis on how board structures and ICT governance influence blockchain implementation. Furthermore, most research has examined SACCOs that have already adopted technology, overlooking the governance challenges faced by SACCOs that are still hesitant. This study aimed to bridge these gaps by analyzing how board size and ICT committees influence blockchain adoption decisions in Kenya's DT SACCO sector.

2.3.2 Financial Factors and Blockchain Adoption

Most DT-SACCOs in Kenya operate with limited financial resources and tight margins, affecting their ability to invest in new technologies. While blockchain may offer long-term cost savings, the high upfront investment and uncertainty about return on investment deter adoption. As per the Technology-Organization-Environment Framework, the financial capacity of an organization is a critical internal factor that can either enable or constrain the adoption of innovation like blockchain.

Financial factors such as profitability, asset quality, capital adequacy, and liquidity significantly influence the ability of SACCOs to adopt new technologies like blockchain. Organizations with strong financial health are more likely to invest in blockchain infrastructure, while those facing financial constraints may struggle to allocate resources for technological transformation. Using financial statement analysis and regression models, Wekesa (2023) studied the relationship between profitability and financial technology adoption among DT SACCOs in Nairobi County, Kenya. The study found that highly profitable SACCOs were more willing to invest in fintech solutions, such as mobile banking and digital payment systems, as they had the financial flexibility to absorb implementation costs. However, the study did not assess blockchain adoption specifically, leaving a technological gap in understanding whether profitability plays a similar role in blockchain investment. Additionally, the study focused only on Nairobi-based SACCOs,

limiting its applicability to rural DT SACCOs, which may have different financial capacities and technology adoption behaviors.

Beyond profitability, capital adequacy and liquidity are crucial determinants of blockchain adoption. Singh and Padhi (2019) examined the impact of capital adequacy on IT adoption in Indian microfinance institutions using cross-sectional survey data from 200 firms. The study found that organizations with more substantial capital reserves were more likely to invest in expensive digital solutions, including blockchain. However, firms with weak capital structures faced difficulties adopting emerging technologies due to high initial costs and long return-on-investment periods. While these findings offer valuable insights, they may not fully apply to DT SACCOs in Kenya, which operate under a different regulatory framework and financial structure than microfinance institutions. Additionally, SACCOs rely heavily on member deposits, which may limit their ability to allocate capital toward blockchain projects without disrupting liquidity requirements.

Asset quality, particularly non-performing loans (NPLs), also affects SACCO's ability to adopt blockchain technology. Iletaach et al. (2024) analyzed the relationship between asset quality and digital banking adoption among Kenyan SACCOs using panel data from 60 institutions over five years. Their findings showed that SACCOs with high levels of non-performing loans (NPLs) were less likely to adopt new technologies due to financial instability and risk aversion. In contrast, SACCOs with low NPL ratios demonstrated greater financial flexibility and the ability to invest in digital solutions. While this study highlights the importance of asset quality in technology adoption, it does not specifically assess blockchain adoption. It creates a knowledge gap in whether blockchain could enhance loan management and risk mitigation in DT SACCOs.

Although existing studies have explored the role of financial factors in general fintech adoption, limited research has examined how profitability, capital adequacy, liquidity, and asset quality influence blockchain adoption among DT SACCOs in Kenya. Most studies focused on mobile banking, digital payments, and general IT adoption, overlooking the financial barriers and incentives unique to blockchain integration. Additionally, previous research primarily analyzed urban-based SACCOs, leaving a geographical gap in understanding how rural SACCOs, which may face liquidity constraints and lower profitability, approach blockchain adoption. The study filled these gaps by investigating the relationship between financial factors and blockchain

adoption in urban and rural DT SACCOs, offering valuable insights for SACCO leaders, policymakers, and industry stakeholders to enhance financial planning for digital transformation.

2.3.3 Organizational Characteristics and Blockchain Adoption

Kenyan SACCOs vary widely in size, age, and technological capability, with many still relying on legacy systems: organizational inertia and limited technical expertise present adoption barriers. The Diffusion of Innovation Theory highlights that perceived innovation attributes and internal characteristics influence adoption. In this context, SACCOs with flexible structures and higher innovation capacity are more likely to perceive blockchain as advantageous and thus adopt it sooner than others.

Organizational characteristics, such as SACCO size, age, and industry classification, play a significant role in determining the adoption of blockchain technology. Larger SACCOs often have more financial resources, advanced infrastructure, and technical expertise, making them better positioned to implement blockchain solutions. Kiilu (2018) examined firm size and fintech adoption among deposit-taking financial institutions in Kenya, using panel data from 80 firms. The study found that larger institutions were more likely to adopt fintech solutions due to economies of scale and higher resource availability. However, smaller institutions were found to be more agile and adaptable, allowing them to implement lower-cost digital solutions faster. While this study provided valuable insights, it focused on general fintech adoption rather than blockchain, leaving a technological gap in understanding how firm size influences blockchain adoption in DT SACCOs.

The age of a SACCO also plays a role in technology adoption. Older SACCOs often have well-established governance structures and financial stability, but may also resist change due to entrenched operational models. Holbeche (2019) conducted a study on organizational age and digital transformation in European credit unions, using survey data from 150 institutions. The study found that older financial institutions were less likely to adopt emerging technologies due to rigid structures and conservative leadership styles. In contrast, younger organizations were more willing to experiment with disruptive innovations. However, this study focused on credit unions in developed economies, where technological infrastructure and regulatory support for innovation are more advanced than in Kenya. Therefore, there is a contextual gap in understanding how the

SACCO age influences blockchain adoption in a developing country like Kenya, where digital transformation is still evolving.

Another critical organizational factor is industry classification. DT SACCOs belong to the financial cooperative sector, which differs from other cooperatives such as non-DT SACCOs, agricultural cooperatives, and housing cooperatives. While all DT SACCOs operate within the financial industry, their adoption of blockchain may vary depending on whether they serve urban or rural populations. Using qualitative interviews and regression analysis, Mushonga et al. (2019) studied technology adoption among urban and rural financial cooperatives in South Africa. The study found that urban-based financial cooperatives adopted blockchain technology due to better access to digital infrastructure and skilled personnel. However, rural cooperatives faced barriers such as low digital literacy, poor internet connectivity, and high implementation costs. This study provided valuable insights, but its findings may not directly apply to Kenyan DT SACCOs, as regulatory frameworks and financial landscapes differ.

Despite these studies, limited research has been conducted on how SACCO size, age, and industry classification impact blockchain adoption in Kenya. Existing studies focused on general fintech adoption and did not consider SACCOs' unique challenges in integrating blockchain. Furthermore, there is a lack of empirical studies comparing urban and rural DT SACCOs in blockchain adoption, making it unclear whether geographical factors influence digital transformation efforts. This study sought to address these gaps by analyzing the relationship between organizational characteristics and blockchain adoption in Kenya's DT SACCO sector. Findings will provide insights for SACCO leadership, policymakers, and technology providers, helping to develop targeted digital innovation strategies across different SACCO types.

Table 2.3.1: Summary of Literature Review and Research Gaps

Author/s	Research Topic	Research Findings	Research Gaps	The Current Study focuses
Rouf (2021)	The relationship between corporate governance and value of the firm in developing countries: Evidence from Bangladesh	Larger boards contributed to better decision-making on technology adoption due to diverse expertise, but excessive size led to bureaucracy and slower decisions.	The study focused on general IT adoption in Bangladesh's financial sector, not specific to blockchain or SACCO context.	This study examined the relationship between board size and blockchain adoption in Kenyan DT SACCOs.
Ayoro (2018)	The effect of ICT adoption on the financial performance of savings and credit co-operative societies in Western Kenya	SACCOs with dedicated ICT committees were likelier to adopt fintech solutions due to better strategic direction and resource allocation.	Did not examine blockchain adoption specifically and focused only on SACCOs already implementing fintech solutions.	Investigated how ICT committees influence blockchain adoption decisions in both adopting and non-adopting DT SACCOs
Wekesa (2023)	Effect of Financial Technology on Financial Performance of Deposit-taking Savings and Credit	Due to financial flexibility, highly profitable SACCOs showed greater willingness to invest in fintech solutions.	Limited to Nairobi-based SACCOs and general fintech adoption, excluding rural	Analyzed how profitability influences blockchain adoption

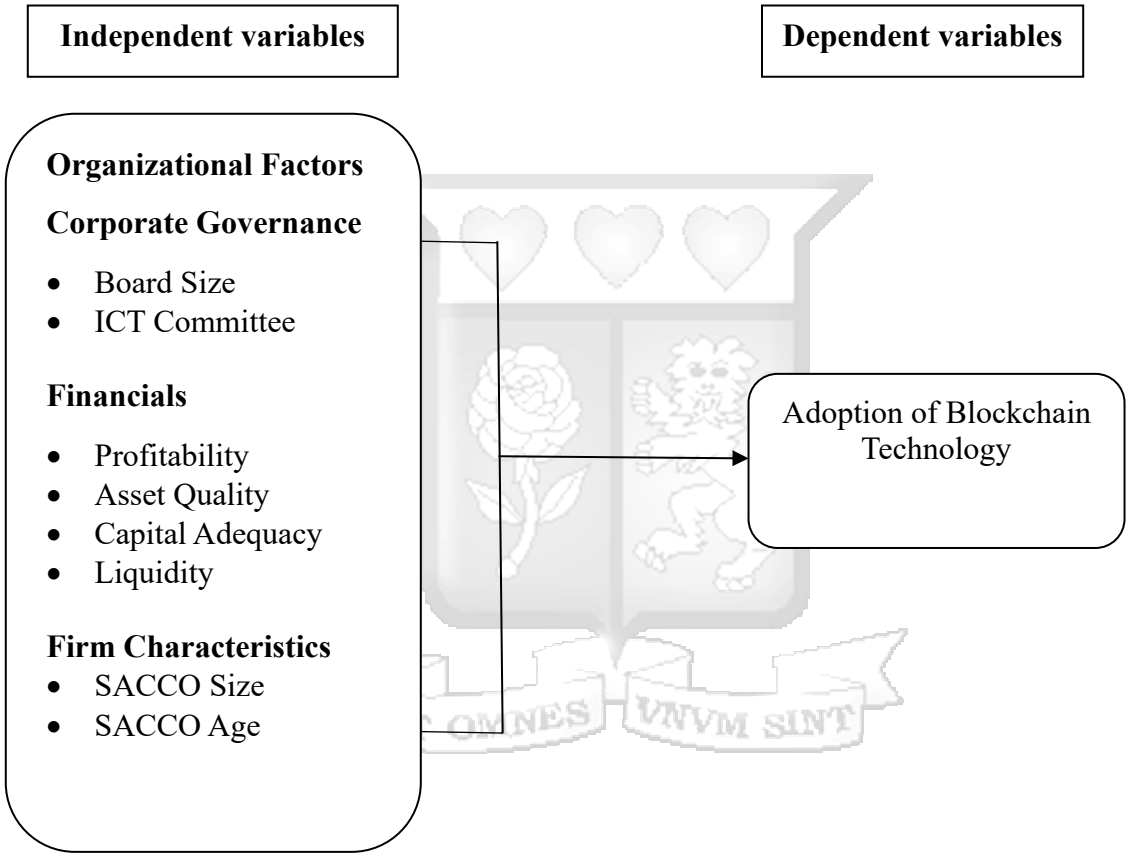
	Cooperative Societies in Nairobi County, Kenya		SACCOs and specific blockchain implementation	across both urban and rural DT SACCOs
Singh & Padhi (2019).	Factors influencing the outreach performance of the microfinance sector in India.	Organizations with more substantial capital reserves are more likely to invest in digital solutions, including blockchain.	Focused on microfinance institutions in India, different regulatory and financial structures from Kenyan SACCOs	Examined how capital adequacy affects blockchain adoption within Kenya's SACCO regulatory framework
Iletaach et al. (2024)	Assessing the Impact of Asset Quality on Financial Performance: A Study of Kenyan Deposit-Taking SACCOs.	Due to financial instability, SACCOs with high NPLs are less likely to adopt new technologies.	Did not specifically assess blockchain adoption or its potential for enhancing loan management	Investigated how asset quality influences blockchain adoption and its potential for improving loan portfolio management
Kiilu (2018)	Effect of Fintech firms on the financial performance of the banking sector in Kenya	Larger institutions are more likely to adopt fintech due to economies of scale, while smaller ones show greater agility.	Focused on general fintech adoption without specific attention to blockchain implementation challenges	Analyzed how SACCO size specifically influences blockchain adoption capability and readiness

Holbeche (2019)	Designing sustainably agile and resilient organizations.	Older institutions showed more resistance to emerging technologies due to rigid structures.	Study conducted in developed economies with different technological infrastructure	Examined how SACCO age influences blockchain adoption in Kenya's developing market context
Mushonga et al. (2019)	The cooperative movement in South Africa: Can financial cooperatives become sustainable enterprises?	Urban-based cooperatives are more to adopt blockchain due to better infrastructure and skilled personnel.	Due to different regulatory and financial landscapes, findings may not apply to the Kenyan context.	Investigated urban-rural differences in blockchain adoption among Kenyan DT SACCOs

2.4 Conceptual Framework

The conceptual framework below shows the independent variables and dependent variables that the study focused on.

Figure 2.1: The Conceptual Framework



Source: Researcher (2025)

Table 2.4.1 Operationalization and Explanation of the Variables

Variable	Construct	Adopted Definition	Measurement	Supporting Literature
Dependent Variable	Adoption of Blockchain Technology	The readiness and intention of SACCOs to implement and integrate blockchain technology into their operations	Measured using a composite score based on Likert-scale responses (1 = Strongly Disagree to 5 = Strongly Agree) on: 1. Perceived Usefulness (PU) – blockchain's impact on efficiency and transparency. 2. Perceived Ease of Use (PEOU) – difficulty or simplicity in adoption. 3. Relative Advantage – blockchain's benefits over existing systems. 4. Observability – seeing blockchain's success in peer institutions. 5. Trialability – the extent to which SACCOs can test	Achieng (2021), Balasubramanian et al. (2021)

			blockchain before full-scale adoption.	
Independent Variable: Corporate Governance	Board Size	Number of directors serving on the SACCO's board.	Continuous variable: Total count of board members.	Taherdoost (2022), Merendino et al. (2018)
	ICT Committee Activity	The existence and frequency of ICT committee meetings dedicated to strategic technology discussions.	Measured on a Likert scale (1 = No meetings, 5 = Very frequent meetings focused on tech adoption).	Moturi & Mbiwa (2018). SASRA (2023)
Independent Variable: Financial Factors	Profitability	The ability of the SACCO to generate income relative to its expenses and assets.	Measured using Return on Assets (ROA): Net Income / Total Assets. Converted into categorical scale: Low (ROA < 1%). Moderate (ROA 1%–3%). High (ROA > 3%)	Kipkorir et al. (2016). SASRA (2023)
	Asset Quality	The proportion of non-performing loans to total loans reflects credit risk.	**Categorical scale**: Poor (>10% NPL ratio). Moderate (5%-10%). Good (<5%)	Ondago (2024), SASRA (2023)

	Capital Adequacy	The SACCO's capital is a percentage of its risk-weighted assets.	Categorical scale: Weak (<8%) Adequate (8%-12%) Strong (>12%)	SASRA (2023), Ondago (2024).
	Liquidity	The SACCO's ability to meet short-term obligations.	**Categorical scale:** Low (<15%) Moderate (15%-25%) High (>25%)	SASRA (2023)
Independent Variable: Organizational Characteristics	SACCO Age	The number of years the SACCO has been in operation.	**Categorical scale:** - Young (<10 years) - Established (10–30 years) - Mature (>30 years)	SASRA (2023), Holbeche (2019),
	SACCO Size	Total assets measure the scale of SACCO operations.	Categorical scale: Small (Assets < KSh 1B). Medium (KSh 1B–5B). Large (>KSh 5B)	SASRA (2023), Kiilu (2018)

2.5 Chapter Summary

This chapter reviewed blockchain adoption's theoretical and empirical foundations in DT SACCOs. Theoretical perspectives underpinning this research have been discussed. Empirical studies were analyzed based on objectives, methods, findings, and research gaps. Key gaps identified include limited studies on blockchain adoption, the impact on financial health, and governance structures. The next chapter outlines the research methodology, including design, data collection, and analysis techniques.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the research philosophy, design, target population, sampling methods, data collection, and analysis, as well as the validity and reliability of the study, and concludes with ethical considerations.

3.2 Research Philosophy

Research philosophy provides the values and assumptions that direct the scientific research process, shedding light on how knowledge is developed and the nature of that knowledge (Creswell, 2009). They include positivism, interpretivism, critical realism, and pragmatism, each with distinct strengths and weaknesses. Positivism emphasizes objectivity and measurable facts, enabling generalizable and replicable findings but often overlooks the complexity of social phenomena (Cooper & Schindler, 2013; Limbd.org, 2023). Interpretivism values subjective meanings and context, offering deep insights into human experiences, yet its findings may lack generalizability and be influenced by researcher bias (Creswell, 2009; Cooper & Schindler, 2013). Critical realism bridges these approaches by acknowledging both objective reality and subjective interpretation, providing a nuanced understanding of complex systems, though it can be challenging to operationalize (Creswell & Creswell, 2018; Saunders et al., 2019). Pragmatism focuses on practical solutions, and mixed methods, allowing flexibility and relevance to real-world problems, but may be criticized for lacking philosophical rigor or consistency (Creswell, 2009; Cooper & Schindler, 2013; Saunders et al., 2019).

This study adopted a positivist philosophy, which aligned with the objective nature of the research examining organizational factors influencing blockchain adoption by DT SACCOs in Kenya. As Creswell and Creswell (2018) outlined, positivism assumes that objective reality exists and can be observed, measured, and understood through empirical observation and logical analysis. This approach was particularly suitable for this study as it enabled the investigation of concrete organizational factors and their measurable effects on blockchain adoption. The positivist approach allowed the researcher to remain objective, gather quantifiable data, and test hypotheses derived from existing theories, thus systematically and verifiably contributing to the body of knowledge.

In line with the positivist philosophy, this study employed a deductive approach, which involved progressing from broad observations (Saunders et al., 2019). The deductive approach started with an in-depth review of existing literature on technology adoption theories and organizational factors that influence blockchain implementation. This theoretical foundation formulated hypotheses regarding the relationships between specific organizational factors influencing Kenyan SACCOs' adoption of blockchain technology. These hypotheses were tested using quantitative primary data collected through structured questionnaires. The deductive approach allows for systematically testing theories in the context of Kenyan SACCOs, potentially validating or refining existing technology adoption models in the unique setting of cooperative financial institutions in a developing economy.

3.3 Research Design

Research design refers to the overall strategy used to integrate different study components in a logical and structured manner to achieve research objectives (Creswell & Creswell, 2018). Several research designs were considered for this study. A qualitative research design focuses on subjective experiences and uses interviews, focus groups, and thematic analysis to explore phenomena in-depth (Saunders et al., 2019). However, qualitative research was less suitable for this study since the objective was to measure and analyze relationships between organizational factors and blockchain adoption using quantifiable data. A qualitative approach would be appropriate for exploratory research but not for statistical hypothesis testing, which was central to this study.

On the other hand, a quantitative research design is based on structured data collection methods, such as surveys and financial reports, and applies statistical techniques to analyze relationships between variables (Bryman, 2016). This study focused on measurable constructs such as profitability, corporate governance, and organizational characteristics, making a quantitative approach the most appropriate. Unlike qualitative methods, which rely on subjective interpretation, quantitative research enables objective analysis and generalization of findings across DT SACCOs. A mixed-methods design, combining qualitative and quantitative approaches, was also considered. Mixed methods are practical in exploratory studies that require an in-depth understanding of a phenomenon while testing relationships statistically (Creswell & Plano Clark, 2017). However, this study was explanatory and predictive, requiring a more structured rather than interpretive approach.

The choice between a cross-sectional and longitudinal research design was also evaluated. A cross-sectional design collects data at a single point, making it ideal for studies that examine current conditions, patterns, or relationships (Flick, 2018). Conversely, a longitudinal design observes variable changes over an extended period, which is more suited for trend analysis or studies involving behavioral changes over time (Sekaran & Bougie, 2020). This study aims to analyze blockchain adoption at a specific moment rather than track changes over several years, so a cross-sectional approach is the most appropriate.

Based on these considerations, this study adopted a quantitative cross-sectional research design. This design allowed for a structured data collection on DT SACCO characteristics, financial factors, governance structures, and blockchain adoption systematically and objectively. Furthermore, a quantitative cross-sectional design enabled statistical analysis techniques, such as logistic regression, to examine the relationships between independent variables (corporate governance, financial factors, and organizational characteristics) and blockchain adoption (Field, 2018). Additionally, a cross-sectional approach was cost-effective and time-efficient, making it feasible given the study's scope and available resources.

3.4 Population and Sampling

A population refers to the complete set of individuals or objects sharing a common observable characteristic that a researcher is focused on (Sekaran & Bougie, 2016). This study's target population comprised managerial-level ICT and finance staff from Kenya's 176 licensed DT SACCOs, as recorded by the SASRA as of December 2023. Through purposive sampling, each SACCO was considered to contribute at most two respondents from its managerial tier, typically individuals involved in strategic decision-making processes related to technology adoption. Therefore, the estimated target population was approximately 352 potential respondents. To determine the appropriate sample size from this finite population, Yamane's (1967) formula was applied at a 95% confidence level and a 5% margin of error. Based on this calculation, the required sample size (n) was approximately 187 respondents, as shown below. The formula is given as:

$$n = \frac{N}{1+N(e)^2} = \frac{(352)}{1+352(0.05)^2} = \textit{approx}\ 187 \text{ respondents}$$

Where:

n = sample size

N = population size (176 × 2 = 352)

e = margin of error (0.05 for 95% confidence)

This sampling approach ensured that the study would achieve adequate statistical power while remaining manageable regarding data collection logistics. Stratified random sampling was used to ensure representativeness across different SACCOs (e.g., teacher-based, agricultural, urban, and rural). This technique helped to capture variations in governance structures, financial health, and organizational characteristics across the sector.

3.5 Data Collection Methods

Data collection is critical to this study, ensuring reliable and valid information is gathered to analyze the organizational factors influencing blockchain adoption in DT SACCOs in Kenya. The study utilized a combination of primary and secondary data sources to obtain perceptual and objective data related to blockchain adoption. Primary data was collected through structured questionnaire administered to key decision-makers within SACCOs, while secondary data was extracted from 2023 financial reports and regulatory documents from SASRA. The questionnaire was adapted from existing instruments used in prior blockchain adoption studies to align with this research's specific objectives and context. Modifications were made to reflect the organizational structure and regulatory environment of Kenyan DT-SACCOs while maintaining consistency with validated constructs from the literature. Integrating these data sources provided a comprehensive understanding of how corporate governance, financial health, and firm characteristics influence blockchain adoption.

This study considered primary and secondary data collection methods, each serving a distinct purpose. Primary data provided insights into perceptions, attitudes, and decision-making factors, while secondary data offered quantifiable financial metrics and governance records (Creswell & Creswell, 2018). This dual approach enhanced the study’s rigor by incorporating subjective and objective evidence (Saunders et al., 2019). The choice of data sources was guided by previous research on technology adoption in financial institutions, which has shown that combining

quantitative perceptions with financial indicators leads to more robust conclusions (Venkatesh et al., 2012).

The study employed a structured questionnaire with Likert-scale questions to measure respondents' perceived usefulness, ease of use, and strategic considerations related to blockchain adoption. The questionnaire was administered to managerial-level staff within SACCOs, the key decision-makers influencing technology adoption. The structured questionnaire method ensured standardized responses, allowing for comparability and statistical analysis (Bryman, 2016). Interviews were considered but not adopted, as this study sought quantifiable data rather than exploratory narratives. Surveys provide a cost-effective, time-efficient, and scalable method for collecting data across multiple SACCOs (Dillman et al., 2014).

This study utilized secondary financial data from SACCO's annual reports and SASRA regulatory publications to complement primary data. The financial reports provided quantitative measures of profitability, asset quality, capital adequacy, and liquidity, which are crucial indicators of SACCO's financial capability to invest in blockchain technology (SASRA, 2023). SASRA reports offered additional governance insights, including board structures, compliance levels, and sector-wide trends. Using secondary data enhanced the study's validity by ensuring that financial trends were objectively assessed rather than solely relying on self-reported survey data (Cooper & Schindler, 2021). Furthermore, secondary data helped triangulate findings, strengthening the study's overall conclusions by cross-referencing perceptions with actual financial indicators.

3.6 Data Analysis

The study employed a quantitative approach to analyze both primary and secondary data, ensuring a comprehensive evaluation of the organizational factors influencing blockchain adoption in DT-SACCOs in Kenya. The analysis involved descriptive statistics to summarize key variables, logistic regression to assess relationships between predictors and blockchain adoption, and comparative analysis to integrate perceptual and financial data. This mixed approach ensured that findings were statistically rigorous and practically relevant, aligning with the study's research objectives.

3.6.1 Primary Data Analysis

Primary data, collected through structured questionnaires, was analyzed using descriptive and inferential statistical techniques. The descriptive analysis summarized key independent variables, including corporate governance factors (board size, ICT committee activity), financial perceptions (perceived financial readiness), and organizational characteristics (SACCO size and age). The dependent variable, adoption of blockchain technology, was measured using a composite Likert-scale score based on constructs derived from the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) Theory. Data was presented using means, standard deviations, and frequency distributions, allowing for a clear visualization of blockchain adoption patterns across different SACCOs.

For inferential analysis, binary logistic regression was applied to determine the likelihood of blockchain adoption based on organizational factors. The logistic regression model was appropriate because the dependent variable was categorical (high, moderate, or low adoption of blockchain technology). Predictor variables such as board size, ICT committee activity, financial perceptions, and SACCO size and age were tested for statistical significance. The odds ratios (ORs) indicated the likelihood of blockchain adoption associated with each independent variable, while the Wald test assessed the contribution of each predictor. The Hosmer-Lemeshow test evaluated the goodness-of-fit of the regression model, ensuring that the findings were robust and reliable.

3.6.2 Secondary Data Analysis

Secondary data was extracted from the SASRA 2023 financial reports and regulatory documents to assess the actual financial factors of SACCOs and their influence on blockchain adoption. The financial indicators analyzed included profitability (ROA), asset quality (non-performing loan ratio), capital adequacy (core capital ratio), and liquidity (liquid asset ratio). The descriptive analysis summarized these financial indicators using means, medians, standard deviations, and frequency distributions. Since these financial variables were continuous, they were categorized into groups (low, moderate, and high) for ease of interpretation and alignment with primary data responses.

A separate logistic regression model was applied to secondary data to test the impact of financial factors on blockchain adoption. This model determined whether higher profitability, better asset quality, stronger capital adequacy, and higher liquidity increase the likelihood of blockchain adoption. The results from this financial model complement primary data analysis by objectively assessing how SACCOs' financial strength influences their ability to invest in blockchain technology.

3.6.3 Integration of Primary and Secondary Data

To provide a holistic analysis, the study integrated primary data (perceptions) and secondary data (financial performance) to assess the alignment between the adoption of blockchain and financial readiness. First, continuous financial data were converted into categorical variables (e.g., ROA categorized as low, moderate, and high) to match the Likert-scale responses in the survey data. This standardization ensured that data from both sources could be analyzed in regression models.

Next, a comparative analysis was conducted to examine whether SACCOs with higher blockchain adoption exhibit stronger financial health in secondary data. This step helped determine whether financial constraints were barriers to blockchain adoption or if other organizational factors, such as governance structures, play a more significant role. Lastly, a multivariate logistic regression model combined primary and secondary data to test the most significant predictors of blockchain adoption. This approach strengthened the study's findings by incorporating subjective decision-making factors and objective financial realities, ensuring a well-rounded conclusion.

3.6.4 Model Specification

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + \epsilon$$

Where:

- P = Probability that a SACCO is highly willing to adopt blockchain technology.
- X_1, X_2, X_3 … Xn = Predictor (independent) variables, including corporate governance, financial factors, and organizational characteristics.
- β_0 = Intercept (baseline log-odds of blockchain adoption willingness when all independent variables are zero).

- $\beta_1 ... \beta n$ = Coefficients measuring the influence of each independent variable.
- ϵ = Error term.

Model 1: Corporate Governance and Blockchain Adoption

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 \text{ (Board Size)} + \beta_2 \text{ (ICT Committee Activity)} + \epsilon$$

Where:

- Board Size = Continuous variable (total number of board members).
- ICT Committee Activity = Categorical variable (1 = No meetings, 2 = Low frequency, 3 = Moderate frequency, 4 = High frequency).

Model 2: Financial Factors and Blockchain Adoption

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_3 \text{ (Profitability)} + \beta_4 \text{ (Asset Quality)} + \beta_5 \text{ (Capital Adequacy)} + \beta_6 \text{ (Liquidity)} + \epsilon$$

Where:

- Profitability (ROA) = Categorical (Low, Moderate, High).
- Asset Quality (NPL Ratio) = Categorical (Poor, Moderate, Good).
- Capital Adequacy (Core Capital Ratio) = Categorical (Weak, Adequate, Strong).
- Liquidity (Liquid Assets Ratio) = Categorical (Low, Moderate, High).

Model 3: Organizational Characteristics and Blockchain Adoption

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_7 \text{ (SACCO Size)} + \beta_8 \text{ (SACCO Age)} + \epsilon$$

Where:

- **SACCO Size** = Categorical (Small, Medium, Large).
- **SACCO Age** = Categorical (Young, Established, Mature).

Model 4: Integrated Model (Primary & Secondary Data Combined)

A final model incorporated all independent variables from the corporate governance, financial factors, and organizational characteristics models to identify the most significant predictors of blockchain adoption.

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \sum_{i=1}^{n8} BiXi + \epsilon$$

This integrated approach helped determine whether perceptions (primary data) align with financial realities (secondary data), providing a comprehensive understanding of blockchain adoption drivers in DT SACCOs.

3.6.5 Diagnostic Tests for Binary Logistic Regression

A series of diagnostic tests was conducted before model estimation to ensure the reliability and validity of the logistic regression models. Multicollinearity tests were performed to check for high correlations among independent variables, which can distort coefficient estimates. The Variance Inflation Factor (VIF) and Tolerance Levels were used, with a VIF threshold of less than 5 indicating acceptable levels of multicollinearity (Gujarati & Porter, 2020). If multicollinearity were to be detected, corrective measures such as removing redundant variables or combining highly correlated predictors would have been considered.

The Hosmer-Lemeshow goodness-of-fit test was also applied to assess how well the logistic regression model fitted the observed data. A non-significant p-value ($p > 0.05$) indicated that the model fitted the data well (Hosmer, Lemeshow, & Sturdivant, 2013). The Wald test was used to determine the statistical significance of each independent variable in predicting blockchain adoption. Furthermore, classification accuracy tests such as sensitivity, specificity, and the area under the ROC curve (AUC-ROC) were employed to evaluate the model's predictive performance.

3.7 Data Quality

3.7.1 Reliability

Reliability is the degree to which the study can produce consistent findings if replicated. After data collection, Cronbach's alpha was calculated to determine if the internal consistency coefficient is satisfactory, at least 0.7 (Bell et al., 2022). Table 3.1 shows the Cronbach's alpha coefficients for

the subscales, which affirms the reliability of the questionnaire since they exceed the threshold coefficient of 0.7.

Table 3.1 Reliability Test

Constructs	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Corporate Governance	.748	.750	5
Financial Characteristics	.769	.940	5
Firm Characteristics	.782	.790	5

Source: (Researcher, 2025)

3.7.2 Validity

Several types of validity were considered to establish the validity of the research instrument. Content validity was addressed through a comprehensive literature review and expert evaluation of the questionnaire items. Construct validity was assessed using factor analysis techniques (Hair et al., 2019). Additionally, predictive validity was evaluated by examining the relationships between the measured constructs and theoretically related outcomes. These multifaceted approaches to validity assessment helped to ensure that the instrument accurately measures the intended constructs and can provide meaningful insights into the factors influencing blockchain adoption among SACCOs in Kenya.

3.8 Ethical Considerations

Ethical considerations were a central focus throughout the research process to maintain the study's integrity and safeguard participants' rights and well-being. As noted by Israel (2015), ethical research practices are essential for upholding public trust in scientific inquiry and respecting the dignity of participants. The ethical framework for this research addressed key areas such as informed consent, confidentiality, data protection, and voluntary participation.

The study was submitted for ethical approval to the Strathmore Institutional Ethics and Scientific Review Committee (SERSRC). It was also presented to the National Commission for Science, Technology and Innovation (NACOSTI) for approval. All referenced works were cited correctly

to ensure academic integrity, and permission to conduct the study was obtained from Strathmore University.

3.9 Chapter Summary

This chapter outlined the research methodology used to examine the organizational factors influencing blockchain adoption by DT SACCOs in Kenya. The study adopted a quantitative cross-sectional design under a positivist paradigm, utilizing both primary and secondary data. Data was collected through structured surveys and financial reports, ensuring a comprehensive analysis of governance structures, financial health, and organizational characteristics. The analysis employed descriptive statistics and binary logistic regression models to assess the likelihood of blockchain adoption. Diagnostic tests validated model reliability, including multicollinearity checks, Hosmer-Lemeshow, and Wald tests. The integration of perceptual (primary) and financial (secondary) data strengthened the study's findings.

CHAPTER 4: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter provides an in-depth analysis of data collected from DT-SACCOs in Kenya to evaluate the adoption of blockchain technology. The analysis focused on key financial variables, including profitability (Return on Assets), asset quality (Non-Performing Loan ratio), capital adequacy (Core Capital ratio), and liquidity (Liquid Asset ratio), to explore their influence on blockchain adoption. Employing descriptive and inferential statistical methods, the study examined how organizational factors such as corporate governance, financial health, and firm characteristics impacted blockchain adoption.

4.2 Response Rate and Sample Characteristics

4.2.1 Response Rate

187 questionnaires were distributed to managerial-level ICT and finance staff across licensed deposit-taking SACCOs in Kenya. Out of these, 176 completed responses were received, resulting in a response rate of 94.1%, as revealed in Table 4.1. This high response rate indicates strong engagement from the targeted respondents and provides a reliable basis for analysis. According to Baruch and Holtom (2018), a response rate exceeding 70% is considered excellent in organizational research, making the achieved rate highly commendable.

Table 4.1: Response Rate

Category	Frequency	Percentage
Targeted	187	100%
Responded	176	94.1%
Non-responded	11	5.9%

Source: (Researcher, 2025)

4.2.2 Demographic Characteristics of SACCOs

The demographic profile of the participating SACCOs revealed diversity in size, age, operational focus, and geographical distribution. Table 4.2 presents a summary of these demographic characteristics.

Table 4.2: Demographic Characteristics of Participating SACCOs

Characteristic	Category	Frequency	Percentage
SACCO Size	Small (Less than Ksh. 1B)	63	35.8%
	Medium (Ksh. 1B - 5B)	87	49.4%
	Large (Above Ksh. 5B)	26	14.8%
SACCO Age	Young (<15 years)	5	2.84%
	Established (15-30 years)	52	29.55%
Operational Focus	Mature (>30 years)	119	67.61%
	Urban	85	48.3%
	Rural	91	51.7%

Source: (Researcher, 2025)

As summarized in Table 4.2, the sample encompasses a broad spectrum of SACCOs reflecting the varied nature of these financial institutions within Kenya's economy.

Regarding SACCO size, based on total assets, the distribution includes 35.8% categorized as small (less than Ksh. 1 billion), 49.4% as medium (Ksh. 1 billion to 5 billion), and 14.8% as large (above Ksh. 5 billion). This distribution indicates a healthy mix of smaller, community-based SACCOs that often serve niche markets and larger, more established institutions with a broader reach. The age of the SACCOs varies considerably, with 2.84% being young (less than 15 years), 29.55% established (15-30 years), and a substantial 67.61% mature (over 30 years). The significant prevalence of mature SACCOs suggests Kenya's deeply rooted cooperative tradition. However, it also implies that many of these institutions may face inherent challenges or achieve benefits related to adapting to modern technologies.

Regarding operational focus, 48.3% of the SACCOs operate in urban areas, while 51.7% are based in rural settings, indicating a near-balanced representation. This even split between urban and rural SACCOs was crucial for ensuring that the study captured insights from institutions serving different demographic and economic environments.

4.3 Descriptive Analysis

4.3.1 Corporate Governance Factors

4.3.1.1 Board Size

Board size, measured by the number of directors serving on SACCO's board, was analyzed as a potential determinant of blockchain technology adoption. Board size, measured by the number of directors serving on SACCO's board, was analyzed as a potential determinant of blockchain technology adoption. Table 4.3 below presents the distribution of board sizes among the sampled SACCOs, revealing a diverse range within the cooperative sector.

Table 4.3: Distribution of Board Sizes among SACCOs

Board Size	Frequency	Percentage
Less than 5	44	25.0%
5 – 10	88	50.0%
More than 10 (Up to 15)	44	25.0%

Source: (Researcher, 2025)

The data indicates that 25.0% of the sampled SACCOs had a board size of less than 5 directors, representing smaller governance structures often found in community-based SACCOs. A substantial 50.0% of SACCOs report a board size ranging from 5 to 10 directors, indicating moderate governance complexity. The remaining 25.0% of SACCOs had boards exceeding 10 directors, suggesting larger, more complex governance frameworks typically seen in well-established institutions.

This distribution of board sizes suggests that decision-making dynamics and governance effectiveness may vary significantly across the sampled SACCOs. Smaller boards, with fewer

members, might be more agile and responsive to change, enabling quicker adoption of new technologies like blockchain. However, they may lack the diverse expertise and resources necessary for thorough evaluation and implementation. In contrast, larger boards bring a broader range of perspectives and skills but may face challenges related to coordination, communication, and decision-making speed. The potential for bureaucratic processes and conflicting interests within larger boards could impede the adoption of innovative technologies. These findings align with Rouf (2021), who examined the relationship between board size and IT adoption in financial institutions and found that larger boards contributed to better decision-making on technology adoption due to diverse expertise. However, this could also slow down decision-making due to bureaucracy.

As revealed by the analysis, the average board size among the sampled SACCOs provided a central tendency measure that helped contextualize the overall governance landscape. Understanding the distribution and average board sizes was crucial for examining the relationship between corporate governance and blockchain adoption.

4.3.1.2 SACCO ICT Committee

This section offers an in-depth analysis of how corporate governance factors, specifically the presence and functionality of ICT committees, influence blockchain adoption among DT SACCOs in Kenya. ICT committees within SACCOs were assessed to indicate organizational readiness for technological innovation. The analysis integrated the descriptive statistics with broader insights from the provided study to paint a comprehensive picture of organizational readiness for technological innovation. Table 4.4 summarizes the findings regarding ICT committee presence and activity levels.

Table 4.4: SACCOs with ICT committee

ICT Committee Status	Frequency	Percentage
Yes	107	60.8%
NO	69	39.2%

Source: (Researcher, 2025)

The findings showed that 60.8% of SACCOs (n = 107) have ICT committees, suggesting a foundational awareness of the importance of technology governance. However, the contrasting 39.2% (n=69) without such committees highlights a significant gap. According to the study, SACCOs with dedicated ICT committees are more likely to implement digital financial innovations due to structured decision-making and proactive technology planning. This aligns with Rauf (2021), who noted the same. The absence of these committees in many SACCOs may indicate a lack of strategic focus on technology, limited awareness of the benefits of technological innovation, or resource constraints. This deficiency could significantly impede the adoption of complex technologies like blockchain, which require careful planning and oversight.

To further quantify ICT committee activity, respondents were asked to rate the frequency of committee meetings and to what extent the ICT committee influences decisions on new technology adoption (e.g., blockchain) Tables 4.5 and 4.6 present the descriptive statistics for these activity indicators.

Table 4.5: ICT Committee Meeting Frequency

Meeting Frequency	Frequency	Percentage
Monthly	9	7.5%
Quarterly	16	13.3%
Twice a year	39	32.5%
Once a year	43	35.8%
Never	13	10.8%

Source: (Researcher, 2025)

While the presence of an ICT committee is a positive sign, its activity level is a critical determinant of its effectiveness. The data revealed that 10.8% of SACCOs with ICT committees reported that their committees never meet. This suggests that the existence of these committees may be purely symbolic with no real function. Furthermore, 35.8% indicated that their ICT committees met only once a year and 32.5% twice a year. Such infrequent meetings are unlikely to provide the consistent oversight and strategic guidance for effective technology adoption.

The fact that only a small fraction of SACCOs reported more frequent ICT committee activity, with 13.3% meeting quarterly and a mere 7.5% meeting monthly, underscored the need for more proactive engagement with technology governance. These findings highlighted the limitations of current ICT committee structures in driving technological innovation within SACCOs.

Table 4.6: ICT Committee Activity Indicators

Level of Agreement	Frequency	Percentage
1 (No Influence)	6	3.6%
2 (limited Influence)	27	16%
3 (moderate Influence)	49	29%
4 (Influence)	67	39.6%
5 (Strong Influence)	21	12.4%

Source: (Researcher, 2025)

The data on how ICT committees influence decisions on newblockchain adoption reveals further nuances in Table 4.6 above. A majority of respondents (39.6%) indicated that the ICT Committee has a clear influence, while 29% perceived the committee as having a moderate influence. This suggests that most stakeholders recognize the role of the ICT Committee in organizational processes, albeit with varying degrees of impact. Notably, only 12.4% of the respondents felt that the committee had a strong influence, indicating that while its presence is acknowledged, its influence may not be as extensive or authoritative as expected. On the other hand, 16% of respondents believed the committee has only limited influence, and a small minority (3.6%) reported no influence at all. These findings suggest that although the ICT Committee is seen as a relevant player in ICT-related matters, there remains room for strengthening its capacity, visibility, and strategic involvement to enhance its perceived effectiveness and impact.

4.3.2 Financial Factors

4.3.2.1 Perceived Financial Readiness (Primary Data)

The study assessed the SACCOs' perceived financial readiness to adopt blockchain technology through SACCO's profitability level, SACCO's asset quality (percentage of non-performing loans to total loans), the organization's view of the complexity of implementing blockchain technology, SACCO's capital adequacy, and SACCO's liquidity position.

The study revealed that the moderate profitability SACCOs (ROA 1%-3 %) have the highest frequency of adaptability of the blockchain (55.8%). This may be explained by the fact that they are investing in opportunities that promise returns using the available funds, expecting to achieve more efficiency and returns. The 23.7% with high profitability (ROA above 3%) are not so eager to adopt new technology like blockchain, with a percentage of 23.7%. This might be explained by their need to remain stable with the current working systems of their SACCOs and fear of changes that might destabilize operations. This is well explained by the study by Wekesa (2023) on the relationship between profitability and financial technology adoption, where highly profitable SACCOS were more likely to invest in fintech solutions as they had more financial flexibility to absorb implementation costs. However, it shows that the adoption possibility reduces as profitability rises, as the SACCOS seem to become laggards in adopting new technology, seeming to retain the status quo more. These findings are presented in Table 4.7.

Table 4.7: Profitability Level

Profitability Level	Frequency	Percentage
Low (ROA Less than 1%)	32	20.5%
Moderate (ROA 1% - 3%)	87	55.8%
High (ROA Above 3%)	37	23.7%

Source: (Researcher, 2025)

4.3.2.2 SACCO's Asset Quality (Primary Data)

This section presents an analysis of asset quality among SACCOs, measured by the percentage of non-performing loans (NPLs) to total loans. Asset quality is a critical indicator of financial health and credit risk management within financial institutions. The data categorized asset quality into three levels based on NPL ratios: good (0%–5%), moderate (5.1%–10%), and poor (more than 10%). The findings indicate that most SACCOs (55.11%) fall into the moderate asset quality category, suggesting that over half of the institutions have a non-performing loan ratio between 5.1% and 10%. While this level indicates some level of credit risk, it remains within a manageable range, implying that most SACCOs maintain relatively stable loan portfolios.

However, 27.84% of SACCOs reported a good asset quality, with non-performing loans accounting for 5% or less of their total loan portfolios. This reflects strong credit management practices and effective loan recovery mechanisms in these institutions, vital for maintaining financial sustainability and member trust.

On the other hand, 17.05% of SACCOs exhibited poor asset quality, with NPLs exceeding 10%. This raises concerns about the credit risk exposure of these institutions and may signal weaknesses in credit appraisal processes, loan monitoring, or economic pressures affecting loan repayment. Poor asset quality could limit SACCO's ability to generate income, impair liquidity, and threaten its long-term viability. These results align with Kiilu's (2018) findings, which revealed that larger institutions have better resource capacity for credit risk management, while smaller SACCOs may struggle due to limited financial and technical capacity. Nonetheless, smaller SACCOs were noted to have more flexible lending structures, which can sometimes help mitigate risk through close member engagement. These findings are presented in Table 4.8 below.

Table 4.8 SACCO's Asset Quality (Percentage of Non-Performing Loans to Total Loans)

Sacco's Asset Quality	Frequency	Percentage
Good (0% - 5%)	49	27.84%
Moderate (5.1% - 10%)	97	55.11%
Poor (More than 10%)	30	17.05%

Source: (Researcher, 2025)

4.3.2.3 Perceived Complexity in Blockchain Implementation (Primary Data)

This section examined the frequency and percentage distribution of how organizations perceive the complexity of implementing blockchain technology. Based on the study, perceptions are categorized into three levels: Good (More than 5%), Moderate (5% - 10%), and Poor (Less than 10%). The findings are summarized in Table 4.9 below.

The study revealed that most SACCOs (62.3%) perceive the complexity of implementing blockchain technology as moderate. This suggests that while these organizations recognize the potential benefits of blockchain, they also acknowledge the challenges and complexities involved in its adoption. This moderate perception may reflect a balanced view, considering the technical requirements and potential organizational changes needed to integrate blockchain successfully.

A notable proportion of SACCOs (21.1%) perceive the complexity as poor, indicating significant concerns about the challenges of implementing blockchain. These organizations may anticipate substantial difficulties regarding technical expertise, infrastructure requirements, and integration with existing systems. Conversely, a smaller percentage of SACCOs (16.6%) perceive the complexity nicely, suggesting that they believe implementing blockchain is relatively straightforward. These SACCOs may possess in-house expertise, have access to external support, or view blockchain as a natural extension of their existing technology infrastructure. The cloud-based blockchain solutions suggested in the study may also play a part in some SACCOs' "Good" perception of blockchain adoption.

This distribution of perceptions highlights the diverse attitudes toward blockchain implementation among SACCOs. While the moderate perception suggests a cautious but open approach, the significant proportion with a poor perception underscores the need for targeted interventions to address concerns and provide support. The positive outlook from the "good" perception group can be leveraged to help ease other SACCOs into blockchain adoption.

Table 4.9 Perceived Complexity in Blockchain Implementation

Perception of Complexity	Frequency	Percentage
Good (More than 5%)	29	16.6%
Moderate (5% - 10%)	109	62.3%
Poor (Less than 10%)	37	21.1%

Source: (Researcher, 2025)

4.3.2.4 Capital Adequacy Assessment (Primary Data)

This analysis focused on the capital adequacy of SACCOs, a critical factor influencing their financial stability and ability to invest in new technologies like blockchain. The study revealed that most SACCOs (79.2%) assess their capital adequacy as adequate (8% - 12%). This indicates that most SACCOs meet the minimum regulatory requirements for capital reserves. Only a smaller proportion (17.5%) assesses their capital adequacy as strong (More than 12%). These SACCOs are better positioned to absorb potential losses and invest in innovative technologies like blockchain. The final 3.5% have weak capital adequacy. These SACCOs will likely struggle with day-to-day operations and are unlikely to consider investments in new technologies. Overall, the study reveals a largely financially stable base but shows an opportunity for improvement to allow for innovation. These findings are presented in Table 4.10.

Table 4.10 Capital Adequacy Assessment

Capital Adequacy Assessment	Frequency	Percentage
Strong (More than 12%)	25	17.5%
Adequate (8% - 12%)	114	79.2%
Weak (Less than 8%)	5	3.5%

Source: (Researcher, 2025)

4.3.2.5 Liquidity Positions of SACCOs (Primary Data)

This analysis examined the liquidity positions of SACCOs, a key indicator of their ability to meet short-term obligations and maintain financial stability, which consequently influenced their capacity to invest in new technologies like blockchain. The study presented a distribution of SACCOs across three liquidity levels: high, moderate, and low.

A significant proportion (54.5%) of SACCOs maintain a moderate liquidity position (15% - 25%). This suggests that most SACCOs balance holding liquid assets for immediate needs and investing in longer-term assets to generate returns. Such a balanced approach is crucial for SACCOs to meet member withdrawal requests, cover operational expenses, and capitalize on investment opportunities.

A smaller but notable segment (25.4%) reports a high liquidity position (More than 25%). These SACCOs have a substantial buffer of liquid assets, providing them greater financial flexibility and security. A high liquidity position can enable SACCOs to withstand unexpected financial shocks, invest in new technologies, and offer competitive interest rates to attract and retain members. Based on the study, sound financial health, including liquidity, determines blockchain adoption.

However, 20.1% of SACCOs report a low liquidity (Less than 15%). These SACCOs may face challenges in meeting their short-term obligations, making them vulnerable to financial distress. The study points out that without financial stability, SACCOs may struggle to allocate resources toward blockchain adoption, leaving them vulnerable to inefficiencies and security risks. For SACCOs with low liquidity, investing in blockchain may seem like a distant prospect, as shown in Table 4.11 below. This can be due to the relatively high upfront costs.

Table 4.11 Liquidity Positions of SACCOs

Liquidity Position	Frequency	Percentage
High (More than 25%)	34	25.4%
Moderate (15% - 25%)	73	54.5%
Low (Less than 15%)	27	20.1%

Source: (Researcher, 2025)

4.3.2.6 Adoption of Blockchain Technology

Measurement of Blockchain Adoption

This analysis focused on the study's dependent variable: Adoption of Blockchain technology by DT SACCOs. The study measured the adoption using a composite scale derived from the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) Theory. This approach assessed key factors influencing technology adoption, including perceived usefulness, ease of use, compatibility, observability and trialability of blockchain technology. Each item is rated on a five-point Likert scale, providing a nuanced understanding of SACCOs' attitudes towards blockchain.

The perception of blockchain among SACCOs was positive, though varied. Blockchain's potential to improve efficiency and transparency scored a mean of 3.39 (SD=1.260), with 44.4% agreeing and 19.4% strongly agreeing, reflecting confidence in addressing fraud and mismanagement. Ease of integration scored slightly lower at 3.36 (SD=1.148), with 38.9% agreeing but notable disagreement (17.8%) due to technical complexity and cost concerns. Financial advantages scored 3.51 (SD=1.136), with 26.7% strongly agreeing, recognizing benefits like operational cost reduction transaction efficiency improvement. Peer influence scored highest at 3.73 (SD=1.039), with 77.2% agreeing or strongly agreeing that other SACCOs' adoption would encourage their own. Lastly, a mean of 3.39 (SD=1.130) showed a preference for small-scale testing to mitigate risks before full implementation, highlighting cautious but optimistic adoption attitudes. These findings are presented in Table 4.12.

Table 4.12 Descriptive Statistics for Blockchain Adoption

Level of Agreement	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	Std Dev
Blockchain will improve efficiency and transparency	10 (5.6%)	15 (8.3%)	40 (22.2%)	80 (44.4%)	35 (19.4%)	3.39	1.260
Blockchain is easy to integrate	12 (6.7%)	20 (11.1%)	35 (19.4%)	70 (38.9%)	30 (16.7%)	3.36	1.148
Blockchain offers clear financial advantages	9 (5.0%)	18 (10.0%)	30 (16.7%)	75 (41.7%)	48 (26.7%)	3.51	1.136
Other SACCOs' use would influence the adoption	6 (3.4%)	10 (5.6%)	25 (13.9%)	90 (50.0%)	49 (27.2%)	3.73	1.039
More likely to adopt if tested on a small scale	5 (2.8%)	9 (5.0%)	20 (11.1%)	85 (47.2%)	61 (33.9%)	3.39	1.130

Source: Researcher 2025

These findings highlight several key factors influencing SACCOs' adoption of blockchain technology. A significant number of SACCOs agree that it will be of benefit, but the limited knowledge discourages full adoption. The strong influence of social factors suggests that successful pilot projects and collaborative initiatives can significantly drive adoption rates. The research reveals that DT SACCOs serve a wide demographic that is financially vulnerable, making transparency critical.

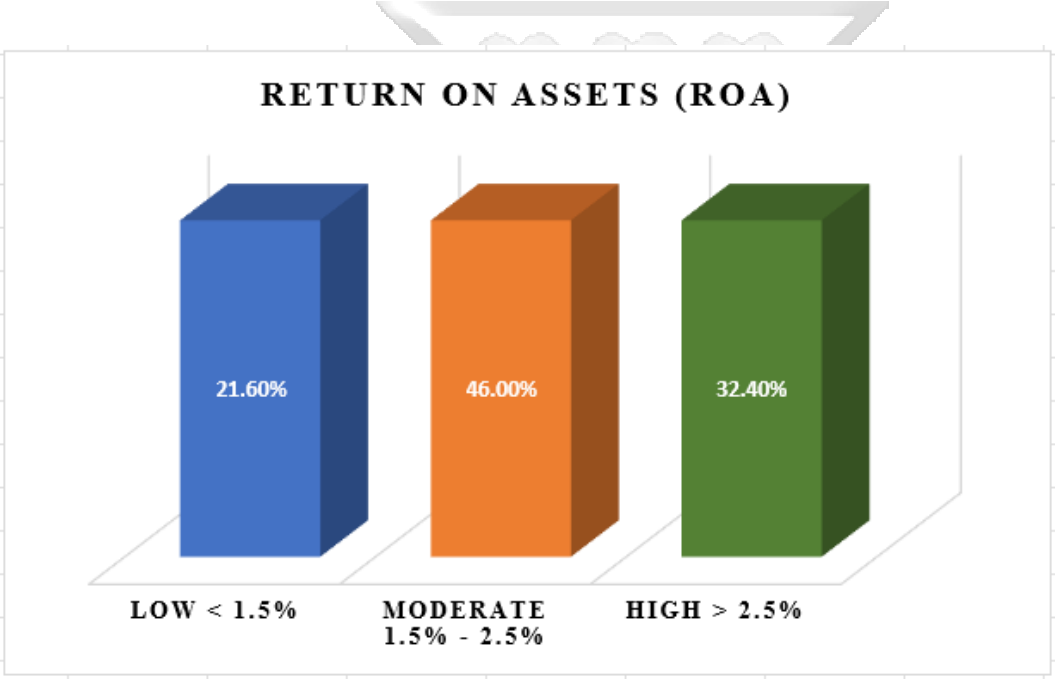
4.3.2.7 Financial Health of the of DT SACCOs (Secondary data)

This section examined the overall financial indicators of DT SACCOs, including profitability (Return on Assets (ROA), Asset quality (Non-Performing Loan (NPL) Ratio) and Liquidity (Liquid Asset Ratio). These indicators collectively painted a picture of the financial health and stability of the SACCO sector as per the SASRA report 2023, influencing its capacity for innovation and technology adoption, including blockchain technology.

Profitability - Return on Assets (ROA) (Secondary Data)

The distribution of ROA according to SASRA Financial reports 2023, revealed that 46.0% of SACCOs had a moderate ROA (1.5%-2.5%), 32.4% achieved high ROA (>2.5%), and 21.6% showed low ROA (<1.5%), indicating financial struggles. Highly profitable SACCOs with strong liquidity and asset quality are better positioned to invest in blockchain services without risking stability. These findings are supported by Olawalez et al. (2024), who alluded that organizations with strong liquidity and asset quality had a higher chance of investing in new technologies. This is shown in Figure 4.2 below.

Figure 4.1 Return on Assets (ROA)



Source: (Researcher, 2025)

Asset Quality (Secondary Data)

The Sacco Societies Regulatory Authority (SASRA) guidelines in Kenya, recommends that SACCOs keep their NPL ratio below 5% for stability, a high NPL ratio suggests poor loan quality and may signal potential financial distress.

The NPL ratio, a measure of asset quality, shows that 34.7% of SACCOs have a low (good) NPL ratio (< 5%), indicating healthy loan portfolios. A significant 42.0% fall into the moderate range (5% - 9%), suggesting some challenges in loan recovery. However, a concerning 23.3% have a high (poor) NPL ratio (> 9%) indicating a significant asset quality issues (SASRA, 2023). The study reveals that blockchain adoption becomes a lower priority for SACCOs with a struggling NPL ratio. This can strain their financial resources, limit their capacity to invest in new technologies and threaten the organization's viability. These findings are presented in Table 4.13 below.

Table 4.13 Non-Performing Loan Ratio (NPL Ratio)

Category	Range	Frequency	Percentage
Low (Good)	< 5%	61	34.7%
Moderate	5% - 9%	74	42.0%
High (Poor)	> 9%	41	23.3%

Source: (Researcher, 2025)

Capital Adequacy (Secondary Data)

Core Capital Ratio

This section presents summary statistics on core capital adequacy indicators for SACCOs in Kenya, based on data from the SACCO Societies Regulatory Authority (SASRA) 2023. The data reveals that, on average, SACCOs are well-capitalized relative to the regulatory benchmarks. With regulatory minimum core capital of Ksh. 10 million, the mean core capital across SACCOs stands significantly higher at Ksh. 74.37 billion, with a SD = 97.74 billion indicating a wide disparity in capital levels among SACCOs.

The core capital to total assets ratio, the regulatory requirement is a minimum of 10%, whereas the average observed ratio is 15.02%, suggesting that most SACCOs are meeting and surpassing the requirement. However, the relatively high SD =15.57% implies that some SACCOs may still be underperforming in this area. Similarly, the core capital to total deposits ratio shows strong

compliance, with a mean of 21.75% compared to the minimum requirement of 8%, but again with a wide variation across SACCOs, as shown by the SD = 22.65%.

The institutional capital to total assets ratio appears to be the weakest among the indicators, with a mean value of 8.5% only marginally above the regulatory threshold of 8%. This suggests that while SACCOs generally meet the requirement, some may be at risk of falling below it. The standard deviation of 11.39% further underscores the disparity in performance among different SACCOs. Overall, the findings suggests that SACCOs with stronger capital positions are more likely to have the financial and operational capacity to invest in blockchain infrastructure, training, and integration. In contrast, SACCOs operating closer to the regulatory minimums particularly those with marginal institutional capital levels may face resource constraints that limit their ability to adopt blochchain technology. These findings are presented in Table 4.14 below.

Table 4.14 Core Capital Ratio

Financial Indicator	Regulatory Minimum	Mean	Standard Deviation
Core Capital (Billions)	≥ Ksh. 10 Million	74.37	97.74
Core Capital / Total Assets	≥ 10%	15.02%	15.57%
Core Capital / Total Deposits	≥ 8%	21.75%	22.65%
Institutional Capital / Total Assets	≥ 8%	8.50%	11.39%

Source: (Researcher, 2025)

Liquidity Ratio (Secondary Data)

The Sacco Societies Regulatory Authority (SASRA) mandates that, Deposit-Taking SACCOs (DT-SACCOs) maintain a minimum liquidity ratio of 15%. This requirement ensures that SACCOs hold sufficient liquid assets to meet short-term obligations and member withdrawal demands. Table 4.15 below provide an analysis of the liquidity ratios of Deposit-Taking SACCOs, categorized into three distinct ranges: low, moderate, and high (SASRA, 2023). Out of the total SACCOs assessed, 22.2% (39 SACCOs) exhibited low liquidity, with liquidity ratios below 15%. This indicates potential challenges in meeting short-term financial obligations and may expose these SACCOs to liquidity risk. The majority of SACCOs, accounting for 47.2% (83 SACCOs),

fell within the moderate liquidity range of 15% to 22%, suggesting a generally stable liquidity position that aligns with regulatory expectations. Meanwhile, 30.6% (54 SACCOs) recorded high liquidity ratios exceeding 22%, indicating strong short-term financial health.

The findings revealed that, 77.8% of SACCOs are in a stable financial position, with moderate to high liquidity, making them well-positioned to adopt blockchain technology. These SACCOs have the financial flexibility to invest in new technologies. However, the 22.2% of SACCOs with low liquidity may face challenges in adopting blockchain due to limited financial resources as shown in Table 4.15 below.

Table 4.15 Liquidity Ratio

Category	Range	Frequency	Percentage
Low	< 15%	39	22.2%
Moderate	15% - 22%	83	47.2%
High	> 22%	54	30.6%

Source: (Researcher, 2025)

4.3.3 Organizational Characteristics in DT SACCOs

This analysis examines the organizational characteristics of DT SACCOs in Kenya, specifically focusing on SACCO size and age, and how these factors influence the adoption of blockchain technology. The analysis draws upon the provided data on SACCO size, age, composite size index, and insights from the study.

4.3.3.1 SACCO Size

SACCOs exhibit significant size variation, with a mean size of Ksh. 2.77B and a high standard deviation of Ksh. 10.93B as indicated in Table. 4.16 below.

Medium SACCOs (49.4%) hold assets between Ksh. 1B and 5B possess moderate resources but face challenges balancing technology investments. Small SACCOs (35.8%) lack financial and technical resources, while large SACCOs (14.8%) have assets over Ksh. 5B has the greatest capacity to adopt blockchain due to its substantial resources and economies of scale, as shown in

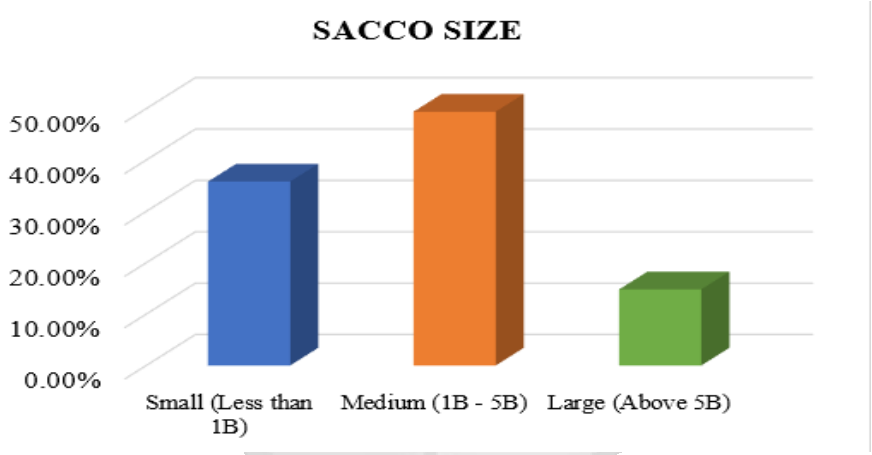
Figure 4.2 below. The study noted that larger SACCOs have better access to resources and economies of scale, making them more likely to adopt blockchain.

Table 4.16 SACCO Size and Age

Size Indicator	Mean	Standard Deviation
SACCO size	2.77B	10.93B
SACCO Age	37.29years	11.40 years

Source: (Researcher, 2025)

Figure 4.2 Distribution of SACCOs by Size Category



Source: (Researcher, 2025)

4.3.3.2 SACCO Age

The average age of SACCOs is 37.29 years (SD = 11.40) as shown in the Table 4.16 above. On the other hand, 67.61% classified as mature (over 30 years), exhibit rigid structures and risk-averse cultures that slow technology adoption. The study shows that established SACCOs (29.55%, aged 15-30 years) are more open to innovation due to greater flexibility. Young SACCOs (2.84%, under 15 years) are agile and innovative but may lack the financial strength and experience to effectively implement blockchain solutions, as shown in Figure 4.3 below.

Figure 4.3 Distribution of SACCOs by Age Category

Source: ***(Researcher,2025)***

4.3.3.3 Interplay of Size and Age

Organizational characteristics such as SACCO size and age are crucial in determining the likelihood of blockchain adoption. Addressing the specific challenges and opportunities associated with different size and age categories is essential for promoting the broader adoption of blockchain technology within the SACCO sector in Kenya.

4.4 Inferential Analysis

4.4.1 Binary Logistic Regression Analysis

A binary logistic regression analysis was conducted to examine the factors influencing SACCOs' adoption of blockchain technology (Chen et al., 2022). For this analysis, the dependent variable (adoption of blockchain technology) was dichotomized into two categories: high adoption (moderate and high adoption categories) and non-high adoption (low adoption categories). This dichotomization was performed to identify factors distinguishing SACCOs with high adoption intentions from the rest.

The independent variables included in the model were: Board size, ICT committee activity, Perceived financial readiness, SACCO size, and SACCO age.

Table 4.17: Binary Logistic Regression Analysis of Factors Influencing Blockchain Adoption

Variable	B	S.E.	Wald	df	Exp(B)	95% CI for Exp(B)
Board size	0.213	0.172	1.529	1	1.237	(0.883, 1.735)
ICT committee activity	0.871	0.287	9.221	1	2.390	(1.363, 4.192)
Profitability	1.025	0.324	10.009	1	2.786	(1.476, 5.258)
Asset Quality	1.073	0.592	3.280	1	2.923	(0.916, 9.331)
Capital Adequacy	1.961	0.652	9.019	1	7.104	(1.976, 25.533)
SACCO size	0.745	0.932	0.8343	1	0.412	(0.078, 1.756)
Liquidity	0.452	0.742	0.371	1	0.636	(0.149, 2.723)
SACCO age	0.887	0.806	1.211	1	0.412	(0.085, 1.996)
Constant	0.917	1.639	17.823	1	0.001	

Source: Researcher (2025)

4.4.2 Model Specification

The logistic regression model employed in this study aimed at determining the influence of organizational factors on the likelihood of blockchain technology adoption by Kenyan DT SACCOs (Wekesa et al., 2023). The model is expressed as;

$$\log\left(\frac{P}{1-P}\right) = 0.917 + 0.213\ (\text{Board Size}) + 0.871\ (\text{ICT Committee Activity}) + 1.025(\text{Profitability}) + 1.073\ (\text{Asset Quality}) + 1.961\ (\text{Capital Adequacy}) + 0.452\ (\text{Liquidity}) + 0.745\ (\text{SACCO Size}) + 0.887\ (\text{SACCO Age}) + \epsilon$$

predicts the log-odds of blockchain adoption (P) based on a combination of corporate governance, financial health and firm-specific variables. The positive coefficients associated with each

predictor variable suggested that higher levels of board size, ICT committee activity, profitability, asset quality, capital adequacy, liquidity, SACCO size, and SACCO age were all associated with an increased likelihood of blockchain adoption. The intercept term (0.917) represents the baseline log-odds of adoption when all predictor variables equal zero, and ϵ represents the error term. This model specification allows for a comprehensive assessment of the organizational determinants of blockchain adoption by the DT SACCO sector in Kenya.

Table 4.18 Model Summary:

Model Summary Metrics	Value
-2 Log Likelihood	94.627
Cox & Snell R Square	0.362
Nagelkerke R Square	0.505
Hosmer and Lemeshow Test	Chi-square = 7.351, df = 8, Sig. = 0.499

Source: Researcher (2025)

The logistic regression model exhibits a reasonably good fit to the data, as indicated by the model summary metrics. The non-significant Hosmer and Lemeshow test (Chi-square = 7.351, df = 8, Sig. = 0.499) suggests that the model adequately fits the observed data, with no significant difference between predicted and observed values. The Cox & Snell R Square value of 0.362 indicates that the model explains approximately 36.2% of the variance in blockchain adoption. In contrast, the Nagelkerke R Square value of 0.505 suggests a stronger explanatory power, accounting for about 50.5% of the variation. These results provide evidence that the included predictor variables collectively contribute to explaining the likelihood of blockchain adoption by Kenyan DT SACCOs.

4.5 Supplementary Analyses

4.5.1 Correlation Analysis

Pearson correlation analysis was conducted to explore further the relationships between the continuous independent variables and blockchain adoption (Bag et al., 2023). Table 4.19 presents the correlation matrix.

Table 4.19: Correlation Matrix of Continuous Variables

Variable	Blockchain adoption	Board size	ICT committee activity	Financial readiness	SACCO size
Blockchain adoption	1	0.21	0.54	0.59	0.47
Board size	0.21	1	0.18	0.12	0.38
ICT committee activity	0.54	0.18	1	0.41	0.33
Financial readiness	0.59	0.12	0.41	1	0.37
SACCO size index	0.47	0.38	0.33	0.37	1

Source: Researcher (2025)

The correlation analysis reveals significant positive associations between blockchain adoption and all four continuous independent variables. The strongest correlations were observed with financial readiness ($r = 0.59$, $p < 0.01$) and ICT committee activity ($r = 0.54$, $p < 0.01$), followed by SACCO size index ($r = 0.47$, $p < 0.01$) and board size ($r = 0.21$, $p < 0.05$). These findings supported the importance of adoption decisions, including financial perceptions, ICT governance, and organizational size, in shaping blockchain.

4.5.2 ANOVA

The ANOVA results revealed significant differences in blockchain adoption across different SACCO categories ($F = 14.621$, $p < 0.001$). Post-hoc Tukey HSD tests indicate that the differences

between all categories were statistically significant ($p < 0.05$), with larger SACCOs demonstrating progressively higher adoption, thereby conclusively rejecting the null hypothesis that the model variables.

Table 4.20 Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig
1	Regression	89.994	4	25.998	14.621	.000[b]
	Residual	85.154	170	.477		
	Total	175.445	174			

Source: Researcher (2025)

This robust finding confirms that the identified SACCO practices collectively explain a meaningful perception regarding adoption decisions of blockchain technology. The regression model accounted for 89.994 units of the total sum of squares (175.445), while the residual (unexplained) variance was 85.154. This variance partition quantifies how much of the adoption of blockchain technology is explained by the independent factors versus other unmeasured factors. The mean square values have degrees of freedom for regression of 4 and 170 for residuals.

These findings substantiated the theoretical framework positing that board size, ICT committee activity, profitability, asset quality, capital adequacy, liquidity, SACCO size, and SACCO age positively influence the adoption decisions of blockchain technology. The ANOVA results strengthen the study's validity and provide a solid statistical foundation for the conclusions about the relationship between board size, ICT committee activity, profitability, asset quality, capital adequacy, liquidity, SACCO size, and SACCO age and adoption of blockchain technology.

The blockchain adoption scale demonstrates strong reliability (Cronbach's alpha = 0.786). KMO (.786) confirms sampling adequacy, while Bartlett's test (Sig. = .001) indicates significant data relationships. This suggests that Kenyan DT SACCOs have significant interest and basic preparedness for adopting blockchain technology.

Table 4.21 KMO and Bartlett's Test

KMO Bartlett's Test for Validity		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.786
Bartlett's Test of Sphericity	Approx. Chi-Square	30.734
	df	10
	Sig.	.001

Source: (Researcher, 2025)

4.6 Chapter Summary

This chapter presented and analyzed data from the 176 completed questionnaires distributed to managerial-level staff of licensed DT-SACCOs in Kenya. The analysis included descriptive and inferential statistics to examine how various organizational factors influence blockchain adoption. Descriptive analysis highlighted patterns in SACCO characteristics, corporate governance structures, financial health, and perceptions of blockchain readiness. Key insights revealed that many SACCOs have active ICT committees and relatively strong financial indicators such as capital adequacy and profitability.

Inferential statistics, including binary logistic regression, revealed that corporate governance (specifically board size and ICT committee activity), financial factors (including profitability and capital adequacy), and organizational characteristics (such as SACCO size and age) all had a statistically significant positive influence on blockchain adoption. The model's explanatory power was confirmed by Nagelkerke $R^2 = 0.505$, and model fit was validated through the Hosmer-Lemeshow test ($p > 0.05$). Supplementary analyses, such as correlation and ANOVA tests, further supported these findings and indicated that internal organizational dynamics significantly shape technology adoption readiness among SACCOs. The blockchain adoption index demonstrated strong reliability (Cronbach's alpha = 0.786), affirming the robustness of the measurement tool used.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The general objective of this research was to assess the organizational factors that influence blockchain adoption among Kenya's DT SACCOs. This chapter discusses the key findings of this research. The structure of this chapter is as follows: Section 5.2 is the discussion of findings, Section 5.3 presents the conclusions, Section 5.4 outlines the recommendations, Section 5.5 describes the limitations of the present study and the suggestions for further research, and Section 5.6 summarizes the chapter.

5.2 Summary of Findings

The study examined the organizational factors influencing blockchain adoption among Deposit-Taking SACCOs in Kenya. The results revealed that corporate governance, financial factors and organizational characteristics had a statistically significant and positive influence on adopting blockchain technology. Corporate governance had the most decisive influence, suggesting that sound management practices and board oversight are critical in driving technological innovation. Financial capability was also important, with SACCOs having more resources and better positioned to implement blockchain systems. Organizational characteristics like size, age of the sacco further contributed to adoption readiness. These findings align with theoretical expectations that highlights the internal conditions for blockchain integration in SACCO operations.

5.3 Discussion of Findings

To assess the influence of corporate governance on blockchain adoption among DT-SACCOs in Kenya.

The findings revealed corporate governance's statistically significant and positive influence on blockchain adoption. SACCOs that demonstrated strong governance practices—such as active board oversight, transparency, and compliance with regulatory standards were more likely to implement blockchain technologies. This is consistent with prior studies by Wekesa (2023) and Mwangi (2022), highlighting that institutions with well-defined leadership structures and ethical management are more open to innovation. The results indicate that governance quality shapes

organizational direction and risk appetite, two critical factors for adopting emerging technologies like blockchain.

These results confirm the relevance of Institutional Theory, which argues that external and internal institutional pressures, including regulatory, normative, and mimetic influences, drive organizations toward innovation. In this context, DT-SACCOs face coercive pressures from SASRA and mimetic pressures from peer institutions to adopt technologies that enhance transparency and credibility. The Organizational Readiness for Change Theory is also validated, as strong governance systems are part of an organization's preparedness for change. Thus, SACCOs with stable governance structures are more equipped to implement disruptive technologies.

To evaluate the influence of financial factors on blockchain adoption among DT-SACCOs. The results demonstrated that financial factors significantly affect blockchain adoption, with SACCOs with greater financial capacity more likely to adopt the technology. Limited budgets, high implementation costs, and uncertainty about return on investment were cited as key financial barriers. This finding is consistent with studies such as Otieno and Mugo (2022) and Ndirangu (2021), emphasizing that capital availability is a prerequisite for investing in IT infrastructure. The implication is that without financial stability, SACCOs may hesitate to invest in relatively complex and resource-intensive innovations like blockchain.

These findings align well with the Organizational Readiness for Change Theory, which identifies resource availability as a core element of readiness. Financial strength enables organizations to absorb the costs and risks of adopting new technologies. Additionally, the Technology Acceptance Model (TAM) provides supporting insight: financial constraints may negatively affect perceived ease of use and usefulness, lowering adoption intent. Thus, SACCOs with sufficient resources are more likely to view blockchain as feasible and beneficial, increasing the likelihood of adoption.

To determine the influence of organizational characteristics on blockchain adoption among DT-SACCOs.

The study found that organizational characteristics significantly influenced blockchain adoption, including size, technological capacity and structural flexibility. Larger SACCOs with more formalized systems, well-trained personnel, and better IT infrastructure were more inclined to

adopt blockchain solutions. This is supported by the findings of Mutiso et al. (2020), who concluded that large, dynamic institutions are more capable of implementing disruptive technologies. Conversely, smaller SACCOs faced structural inertia, fewer skilled staff, and limited ability to experiment with new technologies.

These results align with Rogers' Diffusion of Innovations Theory, which states that innovation adoption is driven by an organization's internal characteristics such as size, culture, and compatibility. SACCOs that are structurally prepared and open to change tend to perceive blockchain as advantageous and less complex, thereby accelerating adoption. The findings also support the Organizational Readiness for Change Theory, which emphasizes that institutional structures and human capital must align to facilitate innovation. Organizational traits strongly shape how blockchain is perceived and ultimately implemented within SACCOs.

5.4 Conclusion

This study provides critical insights into the factors influencing blockchain technology adoption by DT SACCOs in Kenya. While the potential benefits of blockchain, including enhanced security, transparency, operational efficiency, fraud prevention, and regulatory compliance, are evident, their realization is significantly constrained by a complex interplay of organizational factors. The research highlights that corporate governance structures, financial health indicators, and specific firm characteristics are pivotal in determining a SACCO's readiness and ability to embrace blockchain technology. Weaknesses in corporate governance, such as smaller boards and a lack of dedicated ICT committees, hinder strategic decision-making and technological innovation. Financial instability, characterized by low profitability, poor liquidity, inadequate capital reserves, and high levels of non-performing loans, restricts SACCO's capacity to invest in blockchain infrastructure.

Furthermore, older SACCOs often resist change due to entrenched operational practices, while smaller SACCOs frequently lack the technical expertise necessary for successful implementation. These findings emphasize the need for targeted interventions that address these organizational shortcomings to facilitate broader blockchain adoption within the Kenyan DT SACCO sector, ensuring these crucial financial institutions can leverage technology to enhance their competitiveness, security, and service delivery to millions of members. Without these strategic

efforts, DT SACCOs will likely continue to face governance challenges, financial vulnerabilities, and operational inefficiencies, undermining their sustainability and vital role in promoting financial inclusion.

5.5 Study Implications

Theoretical Implications

This study extends the Technology Acceptance Model (TAM) by showing that organizational size and age shape blockchain adoption beyond individual perceptions of usefulness and ease of use. While TAM traditionally focuses on individual attitudes, the study's results suggest that firm-level variables play a critical role, especially in cooperative structures like SACCOs. Younger and larger SACCOs perceived blockchain as more beneficial, indicating that organizational maturity and scale may influence collective technology acceptance. The study thus advances TAM by integrating contextual organizational variables as antecedents to perceived usefulness and ease of implementation in institutional environments.

In addition, this research bridges a gap in blockchain adoption literature by exploring the cooperative finance context in a developing economy. Most previous studies have emphasized banks and fintechs, overlooking how member-driven institutions like SACCOs interpret and implement emerging technologies. Holbeche (2019) noted that organizational inertia is a significant obstacle for legacy institutions attempting digital transformation. By incorporating SACCO-specific dynamics, such as democratic governance and limited technical capacity, this study offers a unique extension of existing adoption theories. Future research could build on these findings by refining TAM and the Diffusion of Innovations Theory to include cooperative-specific factors in technology uptake models.

5.6 Recommendations

5.6.1 Policy Recommendations

The findings underscore the need for regulatory bodies such as the SACCO Societies Regulatory Authority (SASRA) to formulate clear guidelines and frameworks supporting blockchain technology integration in the cooperative sector. Regulatory uncertainty remains a critical barrier to adoption, as SACCOs hesitate to invest in blockchain without a clear policy direction.

Policymakers should establish sandbox environments where SACCOs can pilot blockchain innovations without fear of non-compliance. These pilot programs will help SACCOs assess the technology's value and build institutional capacity under regulatory oversight. Additionally, tax incentives or grants could be introduced to support SACCOs investing in secure and transformative digital infrastructure, ensuring that financial cooperatives are not left behind in the national digital finance agenda.

Moreover, public-private partnerships between SACCOs, technology providers, and government agencies should be encouraged to facilitate blockchain adoption. By collaborating with fintech companies and academic institutions, SACCOs can access technical support, training programs, and implementation toolkits tailored to their unique operational models. These collaborations can also ensure that blockchain platforms align with national financial inclusion goals and consumer protection policies. As Kangangi & Mang'ana (2024) demonstrated, government-backed initiatives in Kenya's public sector significantly accelerated blockchain pilot projects. Applying similar strategies in the SACCO sector could transform it into a hub for secure, transparent, and efficient member-based financial services.

5.6.2 Practitioner Recommendations

This study highlights the importance of strengthening internal governance and ICT oversight mechanisms for SACCO leaders and managers to facilitate blockchain adoption. SACCOs with active ICT committees and diversified boards are more likely to implement blockchain due to better decision-making and strategic alignment. Leadership training focused on digital transformation and innovation management should therefore be prioritized. Furthermore, board members should be equipped with basic blockchain literacy to make informed decisions about investment and implementation. As shown by Ayoro (2018), the presence of ICT governance structures was positively linked to fintech integration in SACCOs, suggesting that a similar approach can support blockchain readiness.

Technology providers and fintech companies targeting SACCOs must tailor their products to match these institutions' resource constraints and regulatory requirements. This includes developing modular, cloud-based blockchain platforms that are cost-effective, scalable, and easy to integrate with existing SACCO management systems. Vendors should also offer bundled

services, including training and technical support, to build SACCO confidence and capacity. Understanding the challenges of non-performing loans, liquidity pressures, and limited ICT budgets is critical for designing sustainable adoption pathways. By aligning product design with SACCO realities, fintechs can foster long-term partnerships that enhance financial transparency and trust in Kenya's cooperative sector.

5.7 Limitation of Scope

While providing valuable insights into blockchain technology adoption by Kenyan DT SACCOs, this study is subject to certain limitations of scope that should be considered when interpreting its findings. The study's focus on organizational factors, corporate governance, financial health, and firm characteristics means that other potentially relevant factors, such as the broader technological infrastructure, regulatory environment, and competitive landscape, receive less attention.

Secondly, the study is cross-sectional, providing a snapshot of blockchain adoption at a specific point in time. As such, it cannot establish causal relationships or capture the dynamic evolution of blockchain adoption over time. Longitudinal studies would be beneficial to track changes in adoption patterns and assess the long-term impact of organizational factors.

Thirdly, the study relied primarily on quantitative data from questionnaires and secondary sources and data obtained from SASRA reports and financial statements. While this data provides a comprehensive overview of the DT SACCO sector, it may not capture the nuances and complexities of individual SACCOs' experiences with blockchain technology. Qualitative research, such as case studies and interviews, could provide richer insights into the challenges and opportunities associated with blockchain adoption. Finally, the study is limited to DT SACCOs licensed by SASRA in Kenya. Its findings may not be generalizable to other types of financial institutions or SACCOs in other countries.

5.8 Areas for Further Studies

While this study provides valuable insights into blockchain technology adoption among Kenyan DT SACCOs, it also highlights several areas that warrant further investigation. Expanding the scope of future research could provide a more comprehensive understanding of the challenges and opportunities associated with blockchain implementation in the cooperative financial sector.

One key area for further study is the exploration of qualitative perspectives through in-depth case studies and interviews with SACCO managers, board members, and technology providers. This would provide richer insights into the real-world experiences of SACCOs that have attempted to adopt blockchain, capturing the nuances and complexities that quantitative data and questionnaires alone cannot reveal. Additionally, future research could further focus on the composition of the management boards to underscore the influence of professional and technical diversity and expertise in shaping blockchain adoption decisions. Understanding how this internal management factor interacts with organizational characteristics could provide a more holistic view of the adoption landscape.

Another promising area for further research is the exploration of specific blockchain use cases within the DT SACCO context. Studies could focus on the implementation and impact of blockchain-based solutions for loan management, member verification, and financial reporting. This would provide practical guidance to SACCOs considering blockchain adoption and help identify the most promising areas for investment. Furthermore, longitudinal studies are needed to track the long-term impact of blockchain adoption on SACCO performance, sustainability, and member satisfaction. These studies could assess how much blockchain contributes to improved governance, reduced fraud, enhanced efficiency, and greater financial inclusion over time. Finally, comparative studies across different countries or regions could shed light on the contextual factors influencing blockchain adoption in the cooperative financial sector.

5.9 Chapter Summary

This chapter presented a summary of results, a discussion of findings, and a linkage to existing literature and theory. The chapter also presented the study conclusion, recommendations, implications, limitations and gaps that could be areas for future studies.

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APPENDICES

Appendix I: Letter of Introduction

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu

Strathmore UNIVERSITY
BUSINESS SCHOOL

24th March 2025

To Whom It May Concern,

RE: FACILITATION OF RESEARCH – KIMANI, SARAH WANJIKU

This is to introduce Kimani, Sarah Wanjiku who is a Master of Commerce (MCOM) Student at Strathmore University Business School, admission number MCOM/88635. As part of our MCOM Programme, Sarah is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MCOM course. To this effect, Sarah would like to request appropriate data from your organization.

Sarah is undertaking a research paper on "**ORGANIZATIONAL FACTORS INFLUENCING THE ADOPTION OF BLOCKCHAIN TECHNOLOGY BY DEPOSIT-TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES (SACCOs) IN KENYA.**" The information obtained shall be treated confidentially and shall be used for academic purposes only.

Our MCOM Programme seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Njoki Kiagiri
Manager – Graduate Programmes
Strathmore University Business School.

Strathmore Business School is a Proud member of:
Association of African Business Schools AABS EFMD AACSB

Appendix II: Questionnaire for Primary Data Collection

This questionnaire is designed to collect data to investigate Organizational Factors That Influence Deposit-Taking Saccos in Kenya to Adopt Blockchain Technology. Please do not write any identifying information on the questionnaire for confidentiality reasons.

Answer all questions as indicated by ticking (✓) the option that best fits you.

SECTION ONE: Respondent Details

Name of SACCO (Optional) _____

Year of Establishment: _____

Location:

[ ] Urban

[ ] Rural

SACCO Size (Based on Total Assets):

[ ] Small (< KSh 1B)

[ ] Medium (KSh 1B–5B)

[ ] Large (> KSh 5B)

Section B: Corporate Governance.

How many members currently serve on the SACCO's board? _____

[ ] Less than 5

[ ] 5 – 10

[ ] More than 10 (Up to 15)

Does your SACCO have an ICT committee?

A) [ ] Yes

B) [ ] No

If yes, how often does the ICT committee meet to discuss technology adoption?

A) [ ] Never

B) [ ] Once a year

C) [ ] Twice a year

D) [ ] Quarterly

E) [ ] Monthly

Please indicate your level of agreement with the following statement using the scale: (1 = No Influence, 5 = Strong Influence)

Statement	1	2	3	4	5
To what extent does the ICT committee influence decisions on new technology adoption (e.g., blockchain)?					

Section C: Financial Factors

How would you describe your SACCO's profitability level?

A) [ ] Low (ROA < 1%)

B) [ ] Moderate (ROA 1%-3%)

C) [ ] High (ROA > 3%))

How would you classify your SACCO's asset quality (percentage of non-performing loans to total loans)?

A) [ ] Good (0% - 5%)

B) [ ] Moderate (5.1% - 10%)

C) [ ] Poor (More than 10%)

How does your organization view the complexity of implementing blockchain technology?

A) [ ] Poor (>10%)

B) [ ] Moderate (5%-10%)

C) [ ] Good (<5%)

How do you assess your SACCO's capital adequacy?

A) [ ] Weak (<8%)

B) [ ] Adequate (8%-12%)

C) [ ] Strong (>12%)

What is your SACCO's liquidity position?

A) [ ] Low (<15%)

B) [ ] Moderate (15%-25%)

C) [ ] High (>25%)

Section D: Blockchain Adoption

Please indicate your level of agreement with the following statements using the scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

Statement	1	2	3	4	5
Blockchain technology would improve SACCO's efficiency and transparency.					
Blockchain technology is easy to integrate into our current systems.					
Blockchain offers clear advantages over existing systems in financial management.					
Other SACCOs' use of blockchain would influence our decision to adopt it.					
We would be more likely to adopt blockchain if we could test it on a small scale first.					

Thank you

Appendix III: List of Licensed DT-SACCOS

	Names of Deposit taking Saccos for the period January 2024 to December 2024						
1	2NK Sacco Society Ltd	45	Good Faith Sacco Society Ltd	89		133	Strategic DT Sacco Society Ltd.
2	Acumen Sacco Society Limited	46	Good Hope Sacco	90	Mudete Sacco Society Ltd.	134	Suluhu Sacco Society Ltd
3	Afya Sacco Society Ltd	47	Goodway Sacco Society Ltd	91	Muki Sacco Sacco Society Ltd	135	Supa Sacco Society Ltd
4	Agrochem Sacco Society Ltd	48	Gusii Mwalimu Sacco Society Ltd	92	Mwalimu National Sacco Society Ltd.	136	Tabasamu Sacco Society Ltd
5	Ainabkoi Sacco	49	Harambee Sacco Society Ltd	93	Mwietheri Sacco Society Ltd	137	Tabasuri DT Sacco Society Ltd
6	Airports Sacco Society Ltd	50	Hazina Sacco Society Ltd	94	Mwito Sacco Society Ltd	138	Tai Sacco Society Ltd
7	Amica Sacco Society Ltd	51	Home Business SaccoSociety Ltd	95	Nacico Sacco Society Ltd	139	Taifa Sacco Society Ltd
8	Ammar Sacco Society Ltd	52	Ilkisonko Sacco Society	96	Nafasi Sacco Society Ltd	140	Taqwa Sacco Society Ltd
9	Ardhi Sacco Society Ltd	53	Imarika Sacco Society Ltd	97	Nandi Farmers Sacco Society Ltd	141	Taraji Sacco Society Ltd

10	Asili Sacco Society Ltd	54	Imarisha Sacco Society Ltd	98	Nation DT Sacco Society Ltd	142	Teleport Sacco Society Ltd
11	Azima Sacco Society Ltd	55	Invest&Grow(IG)Sacco Society Ltd	99	Nawiri Sacco Society Ltd	143	Tembo Sacco Society Ltd
12	Bandari Sacco Society Ltd	56	Jamii Sacco Society Ltd	100	Ndege Chai Sacco Society Ltd	144	Tenhos Sacco Society Ltd
13	Baraka Sacco Society Ltd	57	Jamii Yetu Sacco Society Ltd	101	Ndosha Sacco Society Ltd	145	Thamani Sacco Society Ltd
14	Baraton Sacco Society Ltd	58	Jitegemee Sacco	102	New Fortis Sacco Society Ltd	146	The Apple Sacco Society Ltd
15	Biashara Sacco Society Ltd	59	Joinas Sacco Society Ltd	103	Nexus Sacco Society Ltd	147	The Kenya Bankers Sacco Society Ltd.
16	Biashara Tosha Sacco Society Ltd	60	Jogoo Sacco Society Ltd	104	Ng'arisha Sacco Society Ltd	148	The Noble Sacco Society Ltd
17	Bi–High Sacco Society Ltd	61	Jumuika Sacco Society Ltd	105	Njiwa Sacco Ltd	149	Times U Sacco Society Ltd
18	Bingwa Sacco Society Ltd	62	Kabiyet Sacco Society Ltd	106	NRS Sacco Society Ltd	150	Tower Sacco Society Ltd
19	Boresha Sacco Society Ltd	63	Kencream Sacco Society Ltd	107	NSSF Sacco Society Ltd	151	Topkrim DT Sacco Society Ltd
20	Capital Sacco Society Ltd	64	Kenpipe Sacco Society Ltd	108	Nufaika Sacco Society Ltd	152	Trans Elite County Sacco Society Ltd

21	Centenary Sacco Society Ltd	65	Kenversity Sacco Society Ltd	109	Nyambene Arimi Sacco Society Ltd	153	Trans Nation Sacco Society Ltd
22	Chai Sacco Society Ltd	66	Kenya Achievas Sacco Society Ltd	110	Nyati Sacco Society Ltd	154	Trans–CountiesSaccoSociety Ltd
23	Chuka University Sacco Society Ltd	67	Kenya Highlands Sacco Society	111	Ollin Sacco Society Ltd	155	Trans – National Times Sacco Society Ltd
24	Chuna Sacco Society Ltd	68	Kenya National Police DT Sacco Society Ltd	112	Orient Sacco Society Ltd	156	Ukristo Na Ufanisi Sacco Society Ltd
25	Cosmopolitan Sacco Society Ltd	69	Keystone Sacco Society Ltd	113	Patnas Sacco Society Ltd.	157	Ukulima Sacco Society Ltd
26	County Sacco Society Ltd	70	Kimbilio Daima Sacco Society Ltd	114	Ports DT Sacco Society Ltd	158	Unaitas Sacco Society Ltd
27	Daima Sacco Society Ltd	71	Kimisitu Sacco Society Ltd	115	Prime–Time Sacco Society Ltd	159	Uni–County Sacco Society Ltd
28	Defence Sacco Society Ltd	72	Kingdom Sacco Society Ltd	116	Puan Sacco Society Ltd	160	Unison Sacco Society Ltd
29	Dhabiti Sacco Society Ltd	73	Kitui Teachers Sacco Society Ltd	117	Qwetu Sacco Society Ltd	161	United Nations DT Sacco Society Ltd
30	Dimkes DT Sacco Society Ltd	74	Kolenge Tea Sacco Society Ltd	118	Safaricom Sacco Society Ltd	162	Universal Traders Sacco Society Ltd

31	Dumisha Sacco Society Ltd	75	Koru DT Sacco Society Ltd	119	Sheria Sacco Society Ltd	163	Ushuru Sacco Society Ltd
32	Eco–Pillar Sacco Society Ltd	76	K – Pillar Sacco Society Ltd	120	Shirika DT Sacco Society Ltd	164	Vihiga County Farmers Sacco Society Ltd
33	Edis Sacco Society Ltd	77	K – Unity Sacco Society Ltd	121	Shoppers Sacco Society Ltd	165	Viktas Sacco Society Ltd
34	Egerton Sacco Society Ltd	78	Kwetu Sacco Society Ltd	122	Simba Chai Sacco Society Ltd	166	Vision Afrika Sacco Society Ltd
35	Elimu Sacco Society Ltd	79	Kwikas DT Sacco Society Ltd	123	Siraji Sacco Society Ltd	167	Vision Point Sacco Society Ltd
36	Enea Sacco Society Ltd	80	Lainisha Sacco Society Ltd	124	Skyline Sacco Society Ltd	168	Wakenya Pamoja Sacco Society Ltd.
37	Faridi Sacco Society Ltd	81	Lamu Teachers Sacco Ltd	125	Smart Champions Sacco Society	169	Wakulima Commercial Sacco Society Ltd
38	Fariji Sacco Society Ltd	82	Lengo Sacco Society Ltd	126	Smartlife Sacco Society Ltd	170	Wanaanga Sacco Society Ltd
39	Fortitude Sacco Society Ltd	83	Mafanikio Sacco Society Ltd	127	Solution Sacco Society Ltd	171	Wananchi Sacco Society Ltd
40	Fortune Sacco Society Ltd	84	Magadi Sacco Society Ltd	128	Sotico Sacco Society Ltd	172	Wanandege Sacco Society Ltd
41	Fundilima Sacco Society Ltd	85	Magereza Sacco Society Ltd	129	Southern Star Sacco Society Ltd	173	Washa Sacco Society Ltd

42	GDC Sacco Society Ltd	86	Maisha Bora Sacco Society Ltd	130	Stake Kenya Sacco Society Ltd	174	Waumini Sacco Society Ltd
43	Golden Pillar Sacco Society Ltd	87	Mentor Sacco Society Ltd	131	Stawisha Sacco Society Ltd	175	Wevarsity Sacco Sociey Ltd.
44	Yetu Sacco Society Ltd	88	Metropolitan National Sacco Society Ltd.	132	Stima DT Sacco Society Ltd	176	Winas Sacco Society Ltd

Appendix IV: Ethical review Approval

Strathmore UNIVERSITY

4th April 2025

Ms Kimani Sarah,
wanjiku.kimani@strathmore.edu

Dear Ms Kimani,

RE: Organizational Factors Influencing the Adoption of Blockchain Technology by Deposit-Taking Savings and Credit Cooperative 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-ISERC2832/25.** The approval period is from **4th April 2025 to 3rd April 2026.**

This approval is subject to compliance with the following requirements:

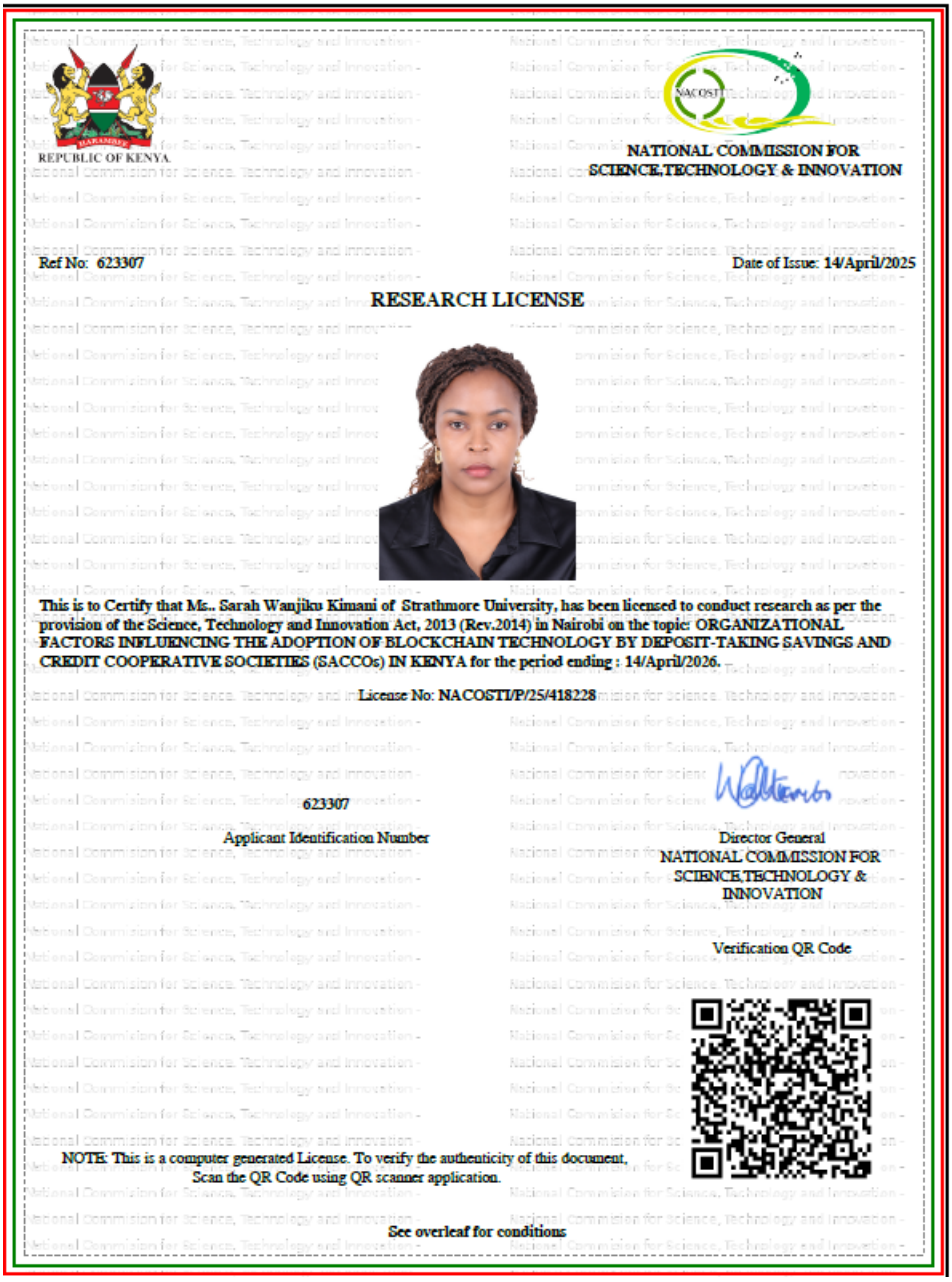
i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse 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

Appendix V: NACOSTI Research License



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NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 623307

Date of Issue: 14/April/2025

RESEARCH LICENSE

This is to Certify that Ms.. Sarah Wanjiku Kimani of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ORGANIZATIONAL FACTORS INFLUENCING THE ADOPTION OF BLOCKCHAIN TECHNOLOGY BY DEPOSIT-TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES (SACCOs) IN KENYA for the period ending : 14/April/2026.

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