General Information

The journal is produced by the Faculty of Business Management at The Open University of Tanzania. It accepts theoretical, conceptual and research-based papers in a wide range of topics on business management in Africa and the world at large. It also accepts cases, book reviews and summaries of dissertations.

Contact Information:

Chief Editor: pajbm@out.ac.tz
Website: https://journals.out.ac.tz/
www.facebook.com/OUTpajbm
ISSN: 1821-9985 (Print)
ISSN: 1821-9993 (Electronic)

CONTENTS

EDITORIAL NOTE iii

Research Productivity and Conceptual Structure of Market Orientation and Competitive Advantage: A Bibliometric Analysis 1

Denis Clement Kawishe, France Aloyce Shayo and Alban Mchopa 1

Factors Affecting Adoption of Sustainable Agriculture Practices in Avocado Production by Smallholder Farmers in Njombe Region 28

Lazaro Kagata 28

Influence of Electronic Human Resource Management on Supporting Staff Job Performance among Selected Tanzanian Public Universities 46

Alex Silas Seni, Bukaza Chachage and Saganga Kapaya 46

Exploring the Role of Work Engagement in Enhancing Service Quality Through Succession Planning in Tanzania's Rural Health Facilities 75

Protasia Prosper, Chacha Matoka and Charles Cleophace Ngirwa ... 75

The Causal Linkage between Agriculture, Industry, and Service Sectors in Sub-Saharan Africa: Application of Panel CS-ARDL 93

Nelson Ndifwa, Felician Mutasa and Kuldeep Kumar Saxena 93

Influence of Brand Awareness, Attitude and Reputation on Performance of Telecommunication Companies in Tanzania: The Moderating Role of Customer Satisfaction 111

Hussein Athumani Mwaifyusi and Mato James Magobe 111

Exploring learning strategies among accounting students undertaking an online program 133

Asha Baleche Katamba 133

Mediating Role of Intended Performance in the Influence of Electronic Human Resource Management on Supporting Staff Job Performance in Tanzanian Public Universities 167

Alex Silas Seni1, Bukaza Chachage and Saganga Kapaya *167*

Borrower Characteristics and the Level of Non-Performing Loans among Saving and Credit Cooperative Societies in Tanzania: Moderating Effects of the Educational Level of Loan Committee Members 186

Michael Josephat Mwacha 186

Influence of Financial Management Practices on Performance of Village Community Banks: Empirical Evidence from Arumeru District, Tanzania 222

Ukende Kingu, Joseph Magali and Salvio Macha 222

EDITORIAL NOTE

It is with great honour that I present the December 2025 Issue (Volume 9, Issue 2) of the Pan-African Journal of Business and Management (PAJBM). This collection reflects the most pressing and trending research themes shaping contemporary business and management scholarship globally. This issue brings together rigorous studies aligned with high-impact areas, including sustainability, digital transformation, institutional performance, service quality, financial inclusion, and strategic competitiveness, domains that continue to dominate academic and policy conversations worldwide.

The articles featured herein include Research Productivity and Conceptual Structure of Market Orientation and Competitive Advantage: A Bibliometric Analysis; Factors Affecting Adoption of Sustainable Agriculture Practices in Avocado Production by Smallholder Farmers in Njombe Region; Influence of Electronic Human Resource Management on Supporting Staff Job Performance among Selected Tanzanian Public Universities; The Causal Linkage between Agriculture, Industry, and Service Sectors in Sub-Saharan Africa: Application of Panel CS-ARDL; The Role of Work Engagement in Enhancing Service Quality Through Succession Planning in Tanzania's Rural Health Facilities; Influence of Brand Awareness, Attitude and Reputation on Performance of Telecommunication Companies in Tanzania: The Moderating Role of Customer Satisfaction; Exploring learning strategies among accounting students undertaking an online program; Mediating Role of Intended Performance in the Influence of Electronic Human Resource Management on Supporting Staff Job Performance in Tanzanian Public Universities; Borrower Characteristics and the Level of Non-Performing Loans among Saving and Credit Cooperative Societies in Tanzania: Moderating Effects of the Educational Level of Loan Committee Members; and Influence of Financial Management Practices on Performance of Village Community Banks: Evidence from Arumeru District, Tanzania.

Together, these studies advance current discourse on key pillars of the United Nations Sustainable Development Goals (SDGs), Tanzania's Third Five-Year Development Plan (FYDP III), and Tanzania's Development Vision 2050 by emphasising innovation, human capital development, sustainable agriculture, financial resilience, efficient service delivery, and data-driven decision-making. As we uphold our commitment to disseminating impactful, policy-relevant, and globally resonant research, I extend my sincere appreciation to all contributing authors for enriching the academic community through their scholarship.

We warmly invite further submissions for our upcoming June 2026 edition (Volume 10, Issue 1) and look forward to publishing more innovative research that addresses emerging opportunities and challenges across Africa and beyond.

Dr. Bukaza Chachage

Chief Editor
Pan-African Journal of Business and Management (PAJBM)

Research Productivity and Conceptual Structure of Market Orientation and Competitive Advantage: A Bibliometric Analysis

Denis Clement Kawishe[1], France Aloyce Shayo[2] and Alban Mchopa[3]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania.
[2] Department of Planning Finance and Administration,
Eastern Africa Statistical Training Centre.
[3] Department of Procurement and Supply Chain Management,
Moshi Co-operative University.
Author corresponding Email: denis.c.kawishe@gmail.com
DOI:https://doi.org/10.61538/pajbm.v9i2.1888

Abstract
This study examines market orientation (MO) and competitive advantage (CA) publication patterns, most active authors, influential papers, and emerging research concerns. Bibliometric analysis of 420 Scopus publications from 1998 to 2024 revealed research output, key contributors, highly cited works, and conceptual structures. Both Harzing's Publish or Perish and VOSviewer were used for performance and keyword co-occurrence analysis. Overall research output increased in 2013, 2020, and 2024, demonstrating MO's expanding role in CA. Citation analysis identifies notable works, whereas performance analysis highlights prominent authors, institutions, and journals The keyword co-occurrence analysis identified seven thematic clusters: firm performance and innovation capabilities, strategic and entrepreneurial orientations, MO and CA linkages, innovation and market expansion, knowledge and sustainability strategies, organizational culture and SME marketing, and strategic marketing for competitive advantage These clusters demonstrate the field's intellectual structure and how MO, dynamic capabilities, innovation, and strategic alignment maintain competitiveness. Report: MO and CA help firms adapt to difficult environments, innovate, and perform successfully. To compete in dynamic markets, policymakers must combine capability development, information transfer, and sustainability-driven policies.

Keywords: *Market orientation; Competitive Advantage; Research productivity; Bibliometric.*

INTRODUCTION

Market orientation (MO), the view that a firm's long-term success rests on its capacity to provide superior value through market intelligence about consumers and competitors, has become a cornerstone of marketing and strategic management (Rokkan, 2023). Kohli and Jaworski (1990) and Narver and Slater (1990) established market orientation as a cultural and behavioral orientation. Market-oriented organizations are stronger at creating value, adapting to environmental changes, and building customer relationships (Powers, Valentine, & Kennedy, 2025). Market orientation is known to increase organizational outcomes like customer satisfaction, innovation, and sustained competitive advantage (CA).

Over the years, MO has been linked to CA generation and sustainability across organizational contexts. When used strategically, MO allows organizations to match internal capabilities with external market intelligence, improving their competitive position (Rokkan 2023; Savabieh et al. 2022). Njoroge and Kinyua (2025) agree that MO, together with entrepreneurial and technology orientations, drives CA. Masumbuko, Mwenda, and Khamah (2022) show that MO positively correlates with CA among marine logistics enterprises in Kenya, confirming its practical relevance in emerging markets. Saleh et al. (2021) and Fakhreddin and Foroudi (2022) define market orientation as a knowledge-based competency that fosters product innovation and ethical marketing, which sustain competitive advantage.

Due to MO and CA importance in business performance and strategic management, scholars, practitioners, and policymakers in both private and public sectors have studied the concept for several years. As agrowing interest to changing market dynamics, rapid technology changes, and increased global competitiveness, enterprises must be more customer-focused, competitor-focused, and internally coordinated (Yaskun, Sudarmiatin, Hermawan, & Rahayu, 2023). Market-oriented firms can better sense market changes, react to client preferences, and leverage internal skills for performance (Dahmiri et al. 2024; Gotteland, Shock & Sarin, 2020).

However, CA is a firm's capacity to outperform competitors in customer value. It can be done through cost advantage, product differentiation, or emphasis (Porter, 1985). The relationship between MO and CA has been studied in manufacturing, service, and SMEs (Dahmiri et al., 2024; Masumbuko et al., 2022; Yaskun, 2023; Cheng & Xiao, 2025). Scholars believe market-oriented organizations are more likely to build dynamic skills, adjust to environmental risks, and maintain competitiveness (Shiferaw &

Kero, 2024; Sun & Wu, 2025). This emphasizes the importance of studying how MO affects organizations' competitiveness.

Although numerous empirical studies have explored the relationship between MO and CO, a thorough bibliometric analysis in this area is still lacking. The existing literature fails to systematically identify prominent scholars, key areas, foundational theories, or emerging research frontiers, which restricts theoretical consolidation and scholarly guidance. Haghani (2023) and Hammouti et al. (2025) contend that scientometric approaches are crucial for revealing research structures and knowledge clusters; however, these methods are still underutilized in the field of MO research. Empirical studies conducted by Dahmiri et al. (2024), Masumbuko et al. (2022), and Yaskun et al. (2023) have shown that MO affects CA via innovation, ethical marketing, and strategic agility. Cheng et al. (2025) and Sun et al. (2025) highlight the significance of dynamic and entrepreneurial capabilities in enhancing this effect in uncertain conditions. Reviews by Rokkan (2023), Savabieh et al. (2022), and Njoroge and Kinyua (2025) indicate a fragmented landscape characterized by diverse frameworks across cultural, behavioral, and strategic perspectives. Conducting a comprehensive bibliometric study to address this gap is essential for informing future research agendas.

To this end, the present study seeks to achieve the following research objectives:

i) To identify the publication trends on research related to market orientation and competitive advantage
ii) To determine the most active contributors in research focused on market orientation and competitive advantage
iii) To determine the most influential publications in the research field
iv) To map the conceptual structure of market orientation and competitive advantage

Therefore, the current study offers an insightful overview of the knowledge on the intersection of market orientation and competitive advantage. This study employs a bibliometric analysis, a quantitative method that uses statistical and mathematical techniques to evaluate the structure and development of scholarly literature (Hammouti et al. 2025). Unlike traditional reviews, bibliometric analysis offers a robust, replicable, and visualized approach for mapping scientific knowledge, particularly over a specific time frame (Haghani et al., 2023). In this context, the study considers literature published between 1998 and 2024 to provide relevant examination of research trends, reflecting market shifts and strategic responses. The

expected contributions are twofold. First, the study enriches academic discourse by highlighting the structure and evolution of research on market orientation and competitive advantage in recent years. Second, it provides practical insights for scholars, policymakers, and managers by identifying leading contributors, influential works that guide future studies on market orientation and competitive advantage.

METHODS

Scopus database was used as the source of bibliographic data due to its wide disciplinary coverage, inclusion of high-quality peer-reviewed journals, and suitability for mapping niche research domains (Rodríguez-López et al., 2020; Kivimaa & Kern, 2016). As one of the largest multidisciplinary databases, Scopus indexes over 27,000 journals, books, and conference proceedings across business, management, and social sciences, ensuring that the dataset captured for this study is both comprehensive and representative. Its strict inclusion criteria guarantee the reliability and credibility of sources, thereby minimizing the risk of bias from low-quality or predatory publications. Furthermore, Scopus offers robust citation tracking and advanced search functionalities that enable systematic data retrieval and bibliometric mapping of productivity trends, impact, and collaboration patterns. Its broad temporal coverage, extending back to the 1960s, allows for the exploration of both historical trajectories and contemporary developments within the field. Given its global recognition and frequent use in academic rankings and institutional evaluations, Scopus provides a credible and replicable foundation for bibliometric analysis. Accordingly, a structured search was performed on July 19, 2025, using the following combination of keywords applied to the article title field: “market orientation” OR “market oriented” OR “market driven strategy” OR “market sensing” AND “competitive advantage” OR “sustainable competitiveness” OR “strategic advantage” within the Article Title, Abstract, and Keywords.

The search strategy was limited to publications up-to 2024. As a result, the search yielded 579 documents records that were retrieved from the Scopus database. No duplicate records were removed before screening process. After applying eligibility criteria including publication year up to 2024, document type (articles and reviews), source type (journal), publication stage (final), and language (English) 159 records were excluded to ensure relevance and reliability. As a result, 420 documents were validated for inclusion and included in the final analysis. This approach ensured that only relevant, high-quality literature contributed to the analysis of research trends in market

orientation and competitive advantage. Figure 1 presents the PRISMA flow diagram used to document the selection process.

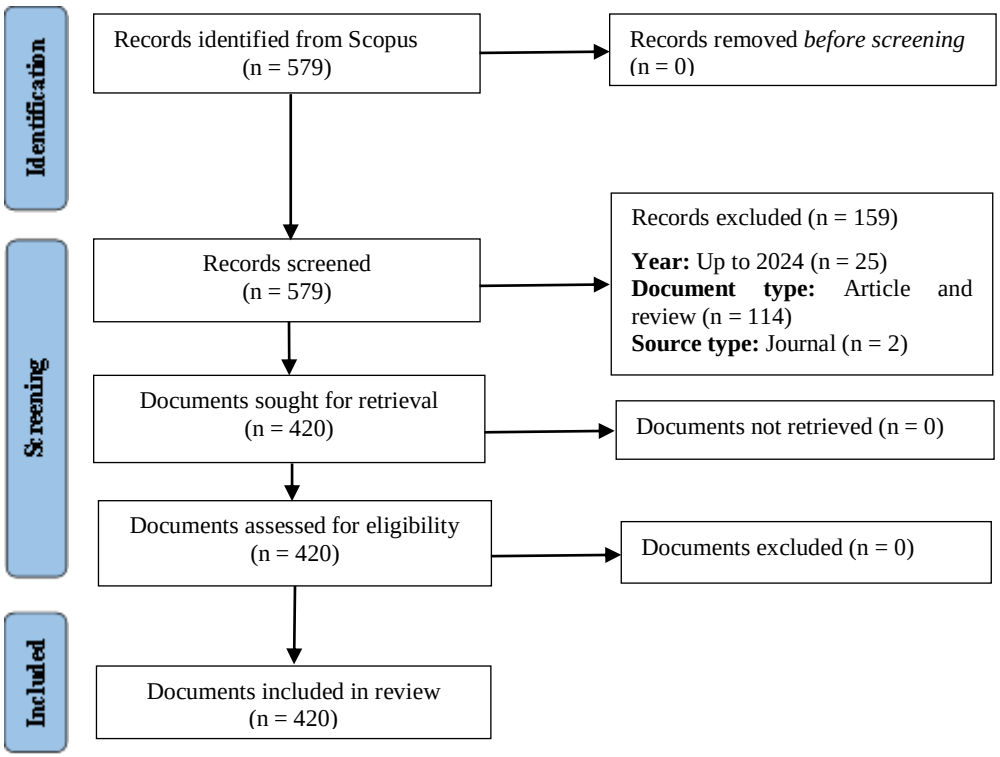

Figure 1: The PRISMA flow diagram
Source: Adapted from (Page et al., 2021)

The bibliometric analysis comprised two primary techniques: a performance analysis to identify the most prolific countries, trends in publication output, institutions, journals, and authors. And science mapping using VOSviewer to uncover the conceptual structure of the field through co-word (keyword co-occurrence) analysis (Van Eck & Waltman, 2010). This helped to underlying structure of major clusters or themes, forming the intellectual foundation of the field, as described by Mukherjee et al. (2022). All analyses were conducted using Harzing's Publish or Perish for citation metrics and VOSviewer software for network visualization and cluster mapping (Harzing, 2007). Keyword co-occurrence in a VOSviewer was set at a minimum threshold of 5 occurrences, which generated a map of 35 author keywords grouped into seven conceptual clusters.

RESULTS AND DISCUSSION

The publication trend on Market Orientation and Competitive Advantage (1998-2024)

A total of 420 publications on market orientation (MO) and competitive advantage (CA) were found to have been published between the years 1998 and 2024, according to the bibliometric study. During the early period (1998-2005), which is depicted in Figure 2, a relatively low but consistent number of outputs was recorded. The number of publications fluctuated between three and ten per year, which reflected the emerging stage of scholarly engagement in the subject.

Expanding academic awareness of MO as a driver of competitive advantage is indicated by the fact that the research trend showed a progressive increase from 2006 to 2012, with annual publications ranging between 7 and 17, indicating that this recognition is expanding. 2013 was the year that witnessed a significant increase in outputs, which reached their highest point of 25 publications and marked a turning point in the literature. In 2015, the field had a brief drop, with just 13 articles, but it experienced a rebound in 2016, with 24 publications, and it has maintained a steady momentum ever since.

Between the years 2017 and 2024, the phase of growth that was the most significant occurred. Publications went from 11 in 2017 to 18 in 2018, and then to 24 in 2019. This represents a significant growth. A significant spike was noted in the year 2020, with 37 publications, while the maximum output was recorded in the year 2024, with 40 publications. A persistent increase in scholarly interest was confirmed by the fact that the overall trend stayed upward, despite the fact that there were some slight changes in the intervening years (28 in 2021, 23 in 2022, and 31 in 2023).

The fluctuations observed across the years can be linked to shifts in academic focus, evolving business environments, and global challenges that periodically redirect research attention. Spikes such as those in 2013 and 2020 reflect heightened interest in MO and CA as firms sought strategies to navigate intensifying competition and uncertain market conditions, while temporary declines, such as in 2015 and 2022, suggest moments when scholarly attention briefly shifted to other emerging themes. Nevertheless, the quick rebounds and steady upward trajectory illustrate that MO and CA remain necessary, as they provide firms with the ability to sense and respond to dynamic markets, achieve sustainable competitiveness, and adapt effectively in the face of globalization and rapid change. Generally, the

trajectory illustrates a distinct transition from a specialized research field in the late 1990s to a domain that is well-established and quickly increasing. The spike in recent years reflects the growing acknowledgment of MO as a fundamental determinant of competitive advantage across a variety of contexts. This recognition is driven by intensifying global rivalry, volatile market situations, and the requirement for businesses to maintain long-term success as (figure 2) represents.

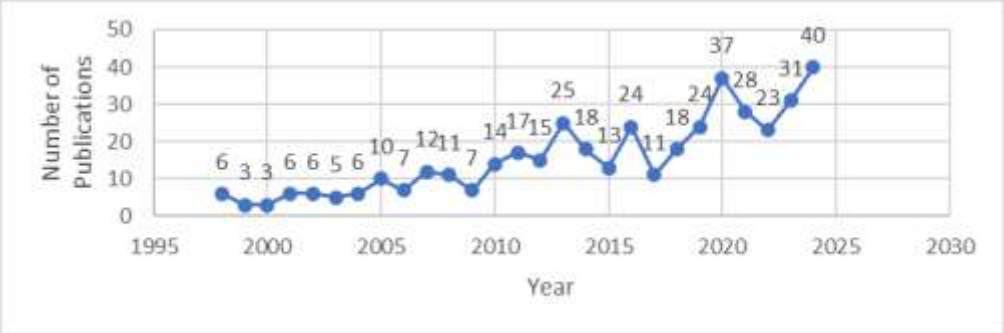

Figure 2. Publication trend

The most active contributors

The second research question aims to determine the most active contributors in research focused in the research area. Figure 2 shows the leading contributors in the field of market orientation and competitive advantage by examining author productivity and the most frequently used source titles. As shown Bogue, J. emerged as the most prolific author, contributing to five publications, followed by Carpenter, G.S., Dobni, C.B., Kaur, G., and Zhou, K.Z., each with three documents.

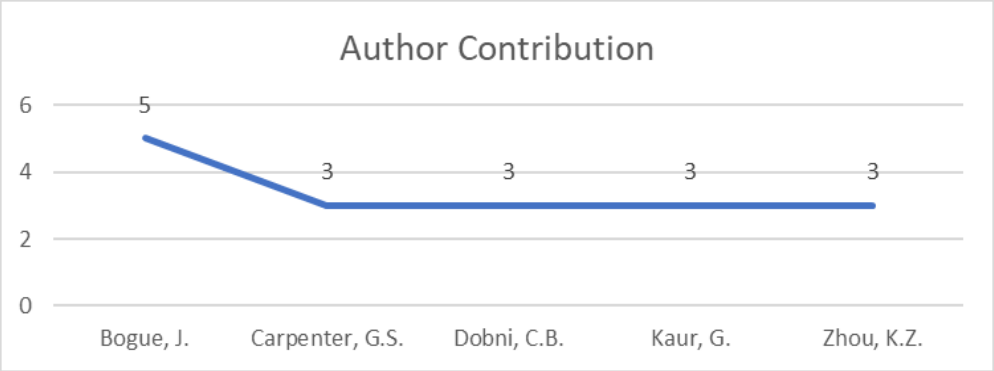

Figure 3: Reports the most prolific contributors

Geographically

Figure 3 shows geographic distribution, the United States leads with (75) publications, followed by the United Kingdom (44), Spain (41), Indonesia

(36), and China (30), indicating strong research engagement from both developed and emerging economies.

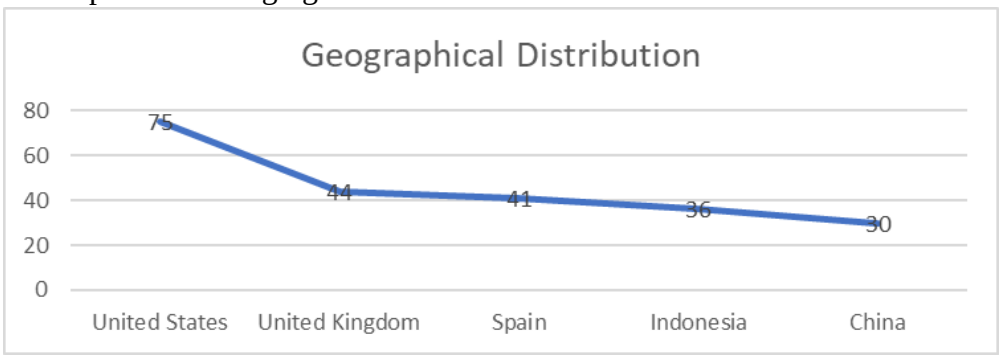

Figure 4: Geographical distribution

Journal rankings

Figure 4 shows the top journals in rankings are the Journal of Business Research is the most prominent outlet with 17 publications, followed by Sustainability (Switzerland) (15), Journal of Strategic Marketing (13), European Journal of Marketing (12), and Industrial Marketing Management (10). These journals serve as key publication outlets for scholarship in this domain, reflecting interdisciplinary interest across marketing, sustainability, and strategic management literature

Figure 5: Journal rankings

The most influential publication

Table 1 Includes only 20 publications that are taken to be impactful in the research domain. These publications have collectively accumulated a total of 10536 citations. The analysis reveals that Hurley and Hult's (1998) research on innovation, market orientation, and organizational learning remains the most cited publication, with 2,546 citations and an impressive annual citation rate of 94.3. Following this, Zhou et al. (2005) and Baker & Sinkula (1999) also stand out with over 1,300 citations each, underscoring their substantial impact on conceptualizing the synergy between strategic orientation, innovation, and organizational learning. Other high-impact publications

include studies by Atuahene Gima (2005) and Kumar et al. (2011), which investigate the capability-rigidity paradox and the long-term sustainability of market orientation, respectively. A substantial proportion of these influential works were published in high-impact journals such as the Journal of Marketing, Journal of the Academy of Marketing Science, and Journal of Business Research, reflecting the academic rigor and practical relevance of the subject matter.

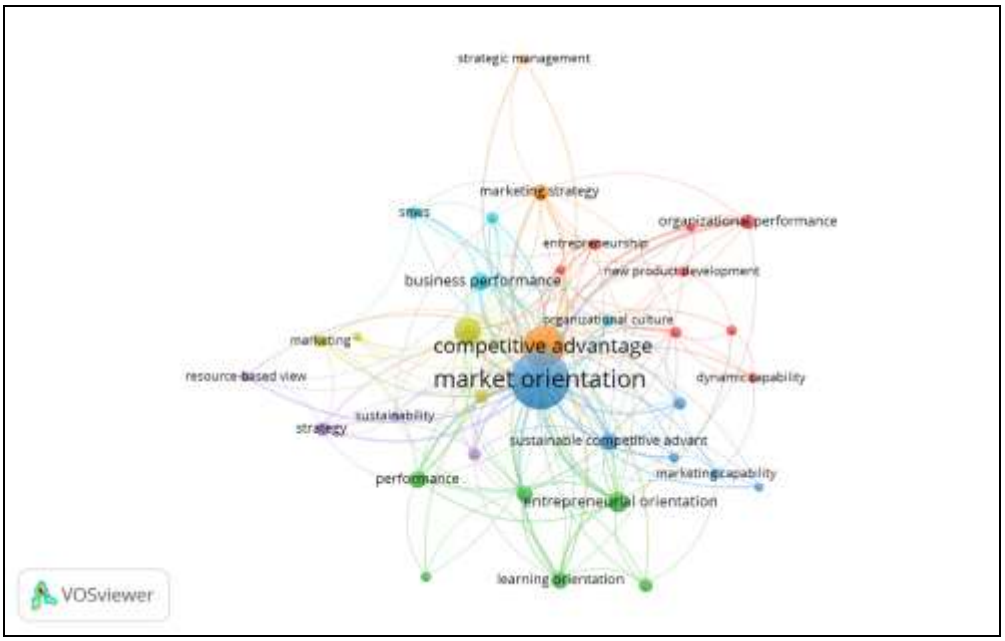

Figure 6: Network visualization based on keyword co-occurrence analysis

Through a keyword co-occurrence analysis in VOSViewer with 5 minimum occurrences for the author keyword to be included in the analysis and 35 keywords were involved that were grouped into 7 clusters. Through finding in Appendix 2 and Fig.5 provide necessary insights on the produced clusters from the keyword co-occurrence analysis. The analysis reveals a strong focus on research topics related to market orientation and competitive advantage.

Cluster 1, identified as the largest thematic grouping in this bibliometric analysis, centres on the intersection between firm performance and innovation-driven strategic capabilities. The thematic focus integrates company performance, dynamic capability, entrepreneurship, new product development, organizational performance, proactive market orientation, and product development. Collectively, these themes highlight a research stream examining how market-oriented behaviours and the reconfiguration of resources enhance innovation outcomes, which in turn drive sustainable

competitive advantage. Firm's ability to integrate, build, and reconfigure internal and external competences to adapt to quickly changing environments is central to this cluster (Teece, Pisano, & Shuen, 1997). Such capabilities are essential for turning entrepreneurial orientation into performance outcomes (Covin & Wales, 2019), especially in competitive marketplaces where new product development speed and adaptability decide survival and growth (Kock et al., 2020). Proactive MO emphasizes the strategic advantage of anticipating latent customer needs rather than reacting to expressed demands (Narver, Slater, & MacLachlan, 2004), which has been linked to superior organizational and company performance (Kirca, Jayachandran, & Bearden, 2005).

The relevance of this cluster to the research domain is underscored by its direct alignment with the premise that MO fuels CA through innovation and capability development. In the context of CA, product development serves both as a manifestation of innovative capability and as a strategic response to evolving market signals (Calantone, Cavusgil, & Zhao, 2002). Firm performance, whether measured through financial indicators or non-financial outcomes such as customer satisfaction, remains a core dependent variable in market orientation research (Shoham et al., 2012). Each keyword within the cluster contributes uniquely to its conceptual foundation: company performance and firm performance capture economic, market, and operational outcomes of strategic initiatives (Richard et al., 2009); dynamic capability represents the organisational processes enabling adaptation and innovation in turbulent markets (Teece et al., 1997); entrepreneurship reflects opportunity-seeking behaviour and resource mobilisation for competitive positioning (Miller, 1983); new product development and product development signify core innovation processes that translate market insights into value propositions (Cooper, 2019); organizational performance encompasses efficiency, adaptability, and learning capability (Venkatraman & Ramanujam, 1986); and proactive market orientation describes a forward-looking capability to identify and satisfy unarticulated customer needs (Narver et al., 2004). Collectively, these elements position Cluster 1 as the most extensive thematic category in the bibliometric map and the intellectual backbone of research linking market orientation to competitive advantage through innovation and adaptive capability.

Cluster 2, the second largest thematic grouping in this bibliometric analysis, centres on the role of strategic and entrepreneurial orientations in enhancing firm adaptability and long-term performance. This cluster integrates the keywords dynamic capabilities, entrepreneurial orientation, internal market

orientation, learning orientation, performance, and strategic orientation. Collectively, these concepts describe a research stream focused on how firms configure and align internal resources and strategic postures to respond effectively to changing market conditions. At its core is the dynamic capabilities perspective, which underscores the capacity of firms to purposefully create, extend, and modify their resource base to maintain competitiveness in dynamic environments (Teece, 2017). Within this framework, entrepreneurial orientation represents the firm's propensity to innovate, take risks, and proactively seek market opportunities (Covin & Wales, 2019), while strategic orientation reflects the guiding principles and long-term vision that shape decision-making processes (Adams, Freitas, and Fontana 2019).

The inclusion of internal market orientation highlights the role of internal processes, such as employee communication, motivation, and knowledge sharing, in shaping the external market response (Lings & Greenley, 2005). Complementing this, learning orientation refers to the commitment to continuous knowledge acquisition and utilisation, which enhances adaptive capacity and innovation (Calantone, Cavusgil, & Zhao, 2002). Performance, in this cluster, is treated as the ultimate outcome of aligning entrepreneurial drive with strategic clarity, supported by dynamic resource configurations. The relevance of this thematic group to the research domain lies in its emphasis on the interplay between organisational strategy and entrepreneurial agility as a pathway to competitive advantage. By linking internal orientations both strategic and learning-focused to market responsiveness, this cluster highlights a critical pillar in the conceptual structure of market orientation and competitive advantage research.

Cluster 3 focuses on the relationship between market-oriented strategies and the achievement of sustainable competitive advantage. The thematic composition includes customer orientation, market orientation, market performance, marketing capability, product innovation, and sustainable competitive advantage. This cluster captures a research stream emphasising how firms translate market insights into strategic actions that enhance both innovation capacity and competitive positioning. At the core of this cluster is market orientation, defined as an organisational culture and behavioural process aimed at generating, disseminating, and responding to market intelligence to create superior value for customers (Kohli & Jaworski, 1990; Narver & Slater, 1990). Within this framework, customer orientation represents the specific focus on understanding and meeting customer needs,

preferences, and future expectations, which has been linked to improved market and financial performance (Jabo, & Bonji, 2025).

The cluster also incorporates marketing capability, which refers to the integrative processes that enable firms to apply their knowledge, skills, and resources to meet market demands more effectively (Vorhies & Morgan, 2005). This capability underpins product innovation the creation and introduction of new or improved products that respond to evolving market needs thereby sustaining competitive advantage (Menguc & Auh, 2006). Market performance, as an outcome variable, reflects a firm's ability to achieve superior market share, sales growth, and customer loyalty compared to competitors (Duah, Kwarteng & Mensah, 2025). The thematic centrality of sustainable competitive advantage in this cluster highlights the strategic necessity of developing rare, valuable, and inimitable resources and capabilities that are reinforced through continuous market responsiveness (Barney, 1991).

The relevance of this cluster addresses the direct pathway through which market orientation translates into long-term strategic advantage. It aligns with the theoretical argument that sustained market responsiveness, when coupled with strong marketing capabilities and innovative output, creates barriers to imitation and ensures enduring performance benefits.

Cluster 4 concentrates on the convergence of innovation, marketing, and internationalization, prioritizing the improvement of marketing performance. The terms innovation, internationalization, marketing, and marketing performance collectively characterize a research domain investigating how companies utilize innovative techniques and marketing tactics to penetrate new markets and attain enhanced performance results. In this context, innovation denotes the implementation of new products, services, processes, or business models that enhance competitiveness (Kahn, 2018). Internationalization denotes the process through which companies extend their activities into overseas markets to capitalize on development prospects and mitigate risk (Khojastehpour & Johns, 2015).

Marketing functions as a strategic and operational mechanism, allowing firms to effectively position their products in both domestic and international markets (Kotler & Keller, 2016). Marketing performance refers to the degree to which marketing activities influence outcomes like market share, brand equity, and profitability (Morgan et al., 2022). This cluster illustrates how innovation serves as a catalyst for global expansion and enhanced marketing

results, supporting the notion that sustained competitive advantage necessitates both product-market novelty and effective international positioning.

Cluster 5, titled Knowledge and Sustainability Strategies**,** examines how knowledge management practices, guided by the principles of the resource-based view (RBV), inform strategic planning and foster sustainable organisational performance. This cluster highlights that the systematic acquisition, sharing, and application of knowledge enhances a firm's ability to formulate strategies that address environmental, social, and economic sustainability imperatives. From an RBV perspective, knowledge is considered a valuable, rare, inimitable, and non-substitutable resource that, when integrated into organisational processes, creates a foundation for long-term competitive advantage. Empirical evidence reinforces this linkage: Thomas (2024) demonstrated that knowledge management significantly improves innovation outcomes and strategic decision-making; Iqbal et al. (2025) showed that knowledge-sharing cultures facilitate the adoption of sustainability-oriented practices; Arduini, S., Manzo, M., & Beck, T. (2024) found that integrating knowledge management with sustainability strategies enhances both environmental performance and stakeholder engagement; and Buenechea-Elberdin, Jordão & Novas (2024) reported that intellectual capital, as an extension of knowledge resources, directly supports sustainable organisational growth and resilience.

Cluster 6, labelled Organisational Culture and SME Marketing, highlights the critical role of internal cultural values and marketing capabilities in enhancing the business performance of small and medium-sized enterprises (SMEs). In competitive and resource- onstrained environments, a strong organisational culture fosters shared vision, adaptability, and innovation, enabling SMEs to develop and deploy marketing capabilities that support market responsiveness, customer relationship management, and strategic positioning. Grounded in the resource-based view (RBV), these capabilities, when embedded within a supportive culture, become valuable and inimitable resources that contribute to sustainable competitive advantage. Empirical evidence affirms this linkage: Hazzam & Wilkins (2018) found that cultural dimensions such as adaptability and involvement enhance marketing capabilities and, in turn, firm performance; Savabieh et al. (2022) demonstrated that market-oriented cultures facilitate superior marketing practices aligned with customer preferences; Rachwal-Mueller, & Fedotova (2021) observed that cultural strategic integration strengthens customer loyalty and market share; and Adeniran and Matikiti (2024) highlighted that

SMEs with learning-oriented cultures are more resilient and capable of sustaining performance despite market turbulence.

Cluster 7, designated, focuses on the relationship between strategic marketing decisions, broader strategic management approaches, and the attainment of sustained competitive advantage. This cluster emphasizes how marketing strategy encompassing market segmentation, positioning, differentiation, and resource allocation serves as a pivotal driver of organizational success when aligned with overarching strategic management objectives. Drawing on the principles of strategic management and the resource-based view (RBV), effective strategic marketing leverages unique firm resources and capabilities to create value propositions that are difficult for competitors to replicate, thereby ensuring long-term market leadership. Empirical research supports these assertions: Khan, H., Mavondo, F., & Zahoor, N. (2025) identified marketing strategy as a central mechanism through which firms convert capabilities into superior performance outcomes; El-Menawy, & El-Sayed, (2024) demonstrated that strategically aligned marketing initiatives enhance both financial and market performance; Bahorka & Kvasova (2024) found that integration of marketing strategy into strategic planning strengthens adaptability and competitive positioning; and Demessie & Shukla, (2024) confirmed that strategic marketing decisions grounded in market intelligence and competitive analysis contribute significantly to sustained competitive advantage in dynamic market environments.

CONCLUSION

This bibliometric analysis provides a systematic overview of the research productivity and conceptual structure of the market orientation competitive advantage domain, drawing from 420 high-quality publications indexed in Scopus between 1998 and 2024. The findings highlight an upward trajectory in research output, with contributions from a diverse set of countries, authors, and journals, reflecting the interdisciplinary and global relevance of the topic. High-impact works by Hurley and Hult (1998), Zhou et al. (2005), and Baker and Sinkula (1999) have shaped the intellectual foundation of the field, linking market orientation with innovation, learning, and performance outcomes. The science mapping revealed seven distinct thematic clusters: Firm Performance and Innovation Capabilities**,** Strategic and Entrepreneurial Orientations**,** Market Orientation and Competitive Advantage**,** Innovation and Market Expansion**,** Knowledge and Sustainability Strategies**,** Organisational Culture and SME Marketing, and Strategic Marketing for Competitive Advantage. Together, these clusters demonstrate that the field is anchored in integrating market-oriented behaviours, dynamic capabilities, innovation, and

strategic alignment to achieve sustainable performance. Each thematic area not only reflects a robust theoretical foundation drawing on dynamic capability theory, the resource-based view, and market orientation theory but also offers actionable implications for managers seeking to navigate competitive and dynamic environments.

The analysis highlights that competitive advantage is increasingly dependent on an organisation's ability to adapt to shifting market conditions, embed innovation into strategic processes, leverage knowledge and cultural assets, and align marketing with broader strategic goals. The findings also identify gaps and future research avenues, such as examining integrated marketing strategies for long-term competitiveness, exploring digital transformation's role in enhancing customer orientation, and developing cross-industry comparative models for strategic alignment.

By offering a comprehensive mapping of publication trends, leading contributors, influential works, and conceptual clusters, this study advances scholarly understanding of how market orientation contributes to sustainable competitive advantage. For practitioners, it provides a clear framework for aligning market intelligence, internal capabilities, and innovation to secure enduring market positions. For researchers, it sets a foundation for targeted investigations that bridge theoretical perspectives with evolving business realities, ensuring that market orientation remains a dynamic driver of competitive advantage in the face of global competition and technological disruption.

Theoretical Implications

This study enhances scholarly understanding of the market orientation–competitive advantage relationship by offering a comprehensive bibliometric mapping of research productivity, influential works, and conceptual structures over a 26-year period (1998–2024). Drawing on 420 publications, the analysis consolidates fragmented literature into a coherent framework composed of seven thematic clusters. These clusters reveal the multidimensional nature of competitive advantage, demonstrating how innovation capacity, strategic alignment, marketing capabilities, knowledge assets, and organisational adaptability interact to sustain superior performance in diverse market environments. The structural mapping also highlights emerging and underexplored research areas, including the integration of digital transformation into customer-focused strategies, the role of sustainability in long-term competitiveness, and the adaptability of marketing strategies in rapidly changing contexts. By applying performance

analysis and keyword co-occurrence mapping, this study provides a replicable, data-driven framework for identifying research gaps and informing the development of integrative models that explain how market intelligence, innovation, and strategic execution collectively drive enduring competitive positioning (Appendix 3).

Policy Implications

This bibliometric study on market orientation and competitive advantage provides valuable insights for policymakers, industry associations, and organisational leaders seeking to strengthen competitiveness in increasingly dynamic markets. The analysis highlights seven thematic clusters that represent the intellectual structure of the field and offer actionable policy directions**.** Cluster 1, suggests the need for policies that enhance dynamic capabilities and foster proactive market orientation through targeted innovation programs, R&D support, and entrepreneurship promotion. Cluster 2, underlines the importance of initiatives that reinforce strategic and entrepreneurial orientations, such as leadership development programs, strategic management training, and innovation ecosystems that enable adaptability. Cluster 3, emphasises enhancing marketing capabilities, customer orientation, and product innovation by providing incentives for knowledge transfer, branding support, and investment in marketing infrastructure. Cluster 4, highlights the value of supporting internationalisation and marketing performance through trade facilitation, export promotion schemes, and international branding campaigns. Cluster 5, points to the integration of knowledge management and sustainability strategies into policy frameworks to align organisational competitiveness with environmental and social objectives. Cluster 6, underscores the role of organisational culture in strengthening marketing capabilities and business performance, calling for initiatives that promote adaptive, innovation-friendly work environments. Finally, Cluster 7, indicates the need for embedding strategic marketing into national and sectoral competitiveness strategies by supporting market intelligence systems, competitive benchmarking, and innovation-driven planning. These findings necessitate a diversified policy approach that integrates capability development, innovation support, strategic alignment, and market responsiveness to maintain competitive advantage in domestic and global markets.

LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDIES

While this bibliometric study provides a comprehensive mapping of research productivity, influential works, and conceptual structures in the domain of market orientation and competitive advantage, certain limitations should be

acknowledged. First, the analysis was based solely on the Scopus database, which, although widely recognised for its quality and coverage, may not include all relevant publications indexed in other reputable sources such as Web of Science or Google Scholar. Consequently, some influential studies may have been omitted. Second, the search strategy was limited to literature published between 1998 and 2024, which, while providing a broad historical scope, may exclude earlier foundational works or the very latest emerging studies beyond the retrieval date. Third, only English-language publications were considered, potentially introducing language bias and overlooking valuable contributions in other languages that could offer culturally diverse perspectives on market orientation and competitive advantage. Fourth, the reliance on bibliometric techniques, while offering objective and replicable results, may restrict the depth of interpretation compared to qualitative systematic reviews.

Future research should consider expanding the database coverage to include multiple sources such as Web of Science, Google Scholar, and subject-specific repositories to ensure a more comprehensive dataset. Incorporating non-English publications could mitigate language bias and enrich the global scope of insights. Extending the publication period and conducting periodic updates would help capture the evolution of emerging research trends. Moreover, combining bibliometric analysis with qualitative approaches such as content analysis or meta-synthesis could deepen the understanding of conceptual linkages and theoretical developments. Interdisciplinary perspectives integrating insights from fields such as innovation management, international business, and organisational behavior could also enhance the theoretical breadth. Finally, comparative bibliometric studies across databases, languages, industries, or regions could provide a richer and more subtle understanding of how market orientation contributes to competitive advantage in different contexts.

REFERENCES

Adams, P., Freitas, I. M. B., & Fontana, R. (2019). Strategic orientation, innovation performance and the moderating influence of marketing management. Journal of Business Research, 97, 129-140.

Agazu, B. G., & Kero, C. A. (2024). Innovation strategy and firm competitiveness: a systematic literature review. Journal of innovation and entrepreneurship, 13(1), 24.

Arduini, S., Manzo, M., & Beck, T. (2024). Corporate reputation and culture: the link between knowledge management and sustainability. Journal of Knowledge Management, 28(4), 1020-1041.

Bahorka, M., Ustik, T., & Kvasova, L. (2024). Selection and implementation alternatives for the marketing strategy of enterprise management. Green, Blue and Digital Economy Journal, 5(1), 1-8.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. Industrial Marketing Management, 31(6), 515–524. https://doi.org/10.1016/S0019-8501(01)00203-6

Cheng, P., Wu, S., & Xiao, J. (2025). Exploring the impact of entrepreneurial orientation and market orientation on entrepreneurial performance in the context of environmental uncertainty. *Scientific Reports*, *15*(1), 1913.

Cooper, R. G. (2019). The drivers of success in new-product development. Industrial Marketing Management, 76, 36–47. https://doi.org/10.1016/j.indmarman.2018.07.005

Covin, J. G., & Wales, W. J. (2019). Crafting high-impact entrepreneurial orientation research: Some suggested guidelines. Entrepreneurship Theory and Practice, 43(1), 3–18. https://doi.org/10.1177/1042258718773181

Dahmiri, D., Junaidi, J., Johannes, J., Yacob, S., & Indrawijaya, S. (2024). The impact of market orientation on marketing performance: exploring the moderating role of competitive advantage. *Business: Theory and Practice*, *25*(1), 164-174.

Demessie, G. T., & Shukla, A. (2024). Drivers and outcomes of sustainable marketing strategy in the African context: the role of competitive advantage and strategic proactivity as mediating and moderating variables. Cogent Business & Management, 11(1), 2348442.

Duah, F. A., Kwarteng, K., & Mensah, A. O. (2025). Assessing marketing capabilities as a driver of firm performance in the retail industry. African Journal of Applied Research, 11(1), 306-333.

El-Menawy, S. M. A., & El-Sayed, N. H. Y. (2024). Corporate social responsibility marketing; a way to firm performance; an empirical study: case of Egypt. Future Business Journal, 10(1), 20.

Fakhreddin, F., & Foroudi, P. (2022). The impact of market orientation on new product performance through product launch quality: A resource-based view. Cogent Business & Management, 9(1), 2108220. https://doi.org/10.1080/23311975.2022.2108220

Gotteland, D., Shock, J., & Sarin, S. (2020). Strategic orientations, marketing proactivity and firm market performance. Industrial Marketing Management.

Haghani M. (2023), What makes an informative and publication-worthy scientometric analysis of literature: A guide for authors, reviewers and editors, Transportation Research Interdisciplinary Perspectives, 22, 100956, 2023, ISSN 2590-1982, https://doi.org/10.1016/ j.trip.2023.100956

Hammouti, B., Aichouch, I., Kachbou, Y., Azzaoui, K., & Touzani, R. (2025). Bibliometric analysis of global research trends on UMI using Scopus database and VOS viewer from 1987–2024. *J. Mater. Environ. Sci*, *16*(4), 548-561.

Hazzam, J., & Wilkins, S. (2022). International marketing capabilities development: The role of firm cultural intelligence and social media technologies. Journal of Marketing Theory and Practice, 30(3), 325-341.

Iqbal, S., Ullah, S., Rizwan, A., Nazeer, N., Rasheed, M., & Siddiqi, A. F. I. (2025). The impact of organizational culture on knowledge sharing and absorptive capacity: a study of the microfinance institutions in Pakistan. South Asian Journal of Business Studies, 14(1), 72-89.

Jabo, D., Kant, S., & Borji, B. (2025). Customer Orientation and Ethiopian Bank Performance with Mediation of Competitive Advantage. In Leveraging AI for Effective Digital Relationship Marketing (pp. 459-482). IGI Global.

Jordão, R. V. D., & Novas, J. C. (2024). Information and knowledge management, intellectual capital, and sustainable growth in networked small and medium enterprises. Journal of the Knowledge Economy, 15(1), 563-595.

Kahn, K. B. (2018). Understanding innovation. Business horizons, 61(3), 453-460.

Khan, H., Mavondo, F., & Zahoor, N. (2025). Integration of outside-in and inside-out entrepreneurial marketing capabilities, marketing agility and resources for entrepreneurial firm performance. International Journal of Entrepreneurial Behavior & Research, 31(2/3), 609-630.

Khojastehpour, M., & Johns, R. (2015). From pre-internationalization to post-internationalization: relationship marketing perspective. Journal of Strategic Marketing, 23(2), 157-174.

Kirca, A. H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. Journal of Marketing, 69(2), 24–41. https://doi.org/10.1509/jmkg.69.2.24.60761

Kivimaa, P., & Kern, F. (2016). Creative destruction or mere niche support? Innovation policy mixes for sustainability transitions. Research policy, 45(1), 205-217.

Kock, A., Schulz, S., Kopmann, J., & Gemünden, H. G. (2020). Project portfolio management in dynamic environments: Organizing for uncertainty. International Journal of Project Management, 38(8), 429–441. https://doi.org/10.1016/j.ijproman.2020.09.001

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, *54*(2), 1–18. https://doi.org/10.1177/002224299005400201

Liu, A., Urquía-Grande, E., López-Sánchez, P., & Rodríguez-López, Á. (2023). Research into microfinance and ICTs: A bibliometric analysis. Evaluation and Program Planning, 97, 102215.

Masumbuko, O., Mwenda, P., & Khamah, M. (2022). Relationship between market orientation and competitive advantage among maritime logistics firms operating in Kenya Port Authority. IOSR Journal of Humanities and Social Science, 27(11), 28–35. https://www.iosrjournals.org/iosr-jhss/papers/Vol.27-Issue11/Ser-9/E2711092835.pdf

Matikiti, E. (2024). Enhancing resilience in South African small and medium enterprises: a dynamic capabilities perspective.

Menguc, B., & Auh, S. (2006). Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness. *Journal of the Academy of Marketing Science*, *34*(1), 63–73. https://doi.org/10.1177/0092070305281090

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. Management Science, 29(7), 770–791. https://doi.org/10.1287/mnsc.29.7.770

Morgan, N. A., Jayachandran, S., Hulland, J., Kumar, B., Katsikeas, C., & Somosi, A. (2022). Marketing performance assessment and accountability: Process and outcomes. International Journal of Research in Marketing, 39(2), 462-481.

Morgan, N. A., Slotegraaf, R. J., & Vorhies, D. W. (2009). Linking marketing capabilities with profit growth. *International Journal of Research in Marketing*, *26*(4), 284–293. https://doi.org/10.1016/j.ijresmar.2009.06.005

Mukherjee, D., Lim, W. M., Kumar, S., & Donthu, N. (2022). Guidelines for advancing theory and practice through bibliometric research. Journal of business research, 148, 101-115.

Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, *54*(4), 20–35. https://doi.org/10.1177/002224299005400403

Narver, J. C., Slater, S. F., & MacLachlan, D. L. (2004). Responsive and proactive market orientation and new-product success. Journal of Product Innovation Management, 21(5), 334–347. https://doi.org/10.1111/j.0737-6782.2004.00086.x

Njoroge, G., & Kinyua, D. (2025). Strategic orientation as an antecedent of competitive advantage: A literature review. International Journal of Education and Research, 13(3), 22–35. [Link pending indexing]

Njoroge, N. W., & Kinyua, G. M. (2025). Strategic Orientation as an Antecedent of Competitive Advantage: Evidence from Review of Literature. Int. J. Educ. Res., 13(3), 35-68.

Porter, M. E. (1985). Competitive advantage: Creating and sustaining superior performance. Free Press.

Powers, T. L., Valentine, D. B., & Kennedy, K. N. (2025). Firm performance and perceptions of market orientation. *Journal of Marketing Theory and Practice*, *33*(2), 254–270. https://doi.org/10.1080/10696679.2024.2305456

Rachwal-Mueller, A., & Fedotova, I. (2024). The impact of cultural factors on consumer behavior: a holistic model for adaptive marketing approaches. Економіка транспортного комплексу, (44), 165-184.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. Journal of Management, 35(3), 718–804. https://doi.org/10.1177/0149206308330560

Rokkan, A. I. (2023). Market orientation (once again): Challenges and a suggested solution. AMS Review, 13(1), 1–15. https://doi.org/10.1007/s13162-022-00235-1

Rokkan, A. I. (2023). Market orientation (once again): Challenges and a suggested solution. AMS review, 13(1), 71-91.

Saleh, H., Ghaithan, A. M., Mohammed, A., Al-Hanbali, A., & Attia, A. M. (2021). Market orientation and ethical marketing practices in SMEs: A performance-based approach. Journal of Business Ethics and Innovation, 8(2), 55–70.

Saleh, H., Ghaithan, A. M., Mohammed, A., Al-Hanbali, A., & Attia, A. M. (2021). Multi-objective optimization of a photovoltaic-wind-grid connected system to power reverse osmosis desalination plant. *Energy*, 251, Article ID 123888. https://doi.org/10.1016/j.energy.2022.123888

Savabieh, S., Nayebzadeh, S., Abghari, R., & Hataminasab, S. H. (2022). A Comprehensive Review of International Research on Market Orientation and the Development of an Applied Model. Interdisciplinary Journal of Management Studies, 15(4), 683-700.

Shiferaw, R. M., & Kero, C. A. (2024). Dynamic capabilities view practices of business firms: A systematic literature review. *Cogent Business & Management*, *11*(1), 2336309.

Shoham, A., Rose, G. M., & Kropp, F. (2012). Market orientation and performance: A meta-analysis. Marketing Intelligence & Planning, 30(4), 435–454. https://doi.org/10.1108/02634501211231983

Sun, Q., Song, L., & Wu, J. (2025). The Impact of Start-up's Market Orientation and Dynamic Capabilities on Their Performance. *Finance Research Letters*, 106975.

Teece, D. J. (2017). Dynamic capabilities and (digital) platform lifecycles. In Entrepreneurship, innovation, and platforms (Vol. 37, pp. 211-225). Emerald Publishing Limited.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533.

Thomas, A. (2024). Digitally transforming the organization through knowledge management: A socio-technical system (STS) perspective. European Journal of Innovation Management, 27(9), 437-460.

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. Academy of Management Review, 11(4), 801–814.

Vorhies, D. W., & Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing*, *69*(1), 80–94. https://doi.org/10.1509/jmkg.69.1.80.55505

Waltman, L., Van Eck, N. J., & Noyons, E. C. (2010). A unified approach to mapping and clustering of bibliometric networks. Journal of informetrics, 4(4), 629-635.

Yaskun, M., Sudarmiatin, S., Hermawan, A., & Rahayu, W. P. (2023). The effect of market orientation, entrepreneurial orientation, innovation and competitive advantage on business performance of Indonesian MSMEs. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, *8*(4), 39.

Appendix 1; The most influential publication

Authors	Title	Year	Source	TC	TC/Y	Age
R.F. Hurley, G.T.M. Hult	Innovation, market orientation, and organizational learning: An integration and empirical examination	1998	Journal of Marketing	2546	94.3	27
K.Z. Zhou, C.K. Yim, D.K. Tse	The effects of strategic orientations on technology- and market-based breakthrough innovations	2005	Journal of Marketing	1328	66.4	20
W.E. Baker, J.M. Sinkula	The synergistic effect of market orientation and learning orientation on organizational performance	1999	Journal of the Academy of Marketing Science	1301	50.04	26
K. Atuahene-Gima	Resolving the capability-rigidity paradox in new product innovation	2005	Journal of Marketing	1205	60.25	20
V. Kumar, E. Jones, R. Venkatesan, R.P. Leone	Is market orientation a source of sustainable competitive advantage or simply the cost of competing?	2011	Journal of Marketing	521	37.21	14
J.Y. Murray, G.Y. Gao, M. Kotabe	Market orientation and performance of export ventures: The process through marketing capabilities and competitive advantages	2011	Journal of the Academy of Marketing Science	456	32.57	14
V. Naidoo	Firm survival through a crisis: The influence of market orientation, marketing innovation and business strategy	2010	Industrial Marketing Management	373	24.87	15
K.Z. Zhou, J.R. Brown, C.S. Dev	Market orientation, competitive advantage, and performance: A demand-based perspective	2009	Journal of Business Research	334	20.88	16
C.P. Blocker, D.J.	Proactive customer orientation and its role	2011	Journal of the	293	20.93	14

Authors	Title	Year	Source	TC	TC/Y	Age
Flint, M.B. Myers, S.F. Slater	for creating customer value in global markets		Academy of Marketing Science			
V.L. Crittenden, W.F. Crittenden, L.K. Ferrell, O.C. Ferrell, C.C. Pinney	Market-oriented sustainability: A conceptual framework and propositions	2011	Journal of the Academy of Marketing Science	285	20.36	14
B.A. Lafferty, G. Tomas M. Hult	A synthesis of contemporary market orientation perspectives	2001	European Journal of Marketing	204	8.5	24
G. Hooley, A. Broderick, K. Möller	Competitive positioning and the resource-based view of the firm	1998	Journal of Strategic Marketing	203	7.52	27
K. Ramamurthy, G. Premkumar, M.R. Crum	Organizational and Interorganizational Determinants of EDI Diffusion and Organizational Performance: A Causal Model	1999	Journal of Organizational Computing and Electronic Commerce	197	7.58	26
J. Tokarczyk, E. Hansen, M. Green, J. Down	A resource-based view and market orientation theory examination of the role of "familiness" in family business success	2007	Family Business Review	194	10.78	18
J.J. Li, K.Z. Zhou	How foreign firms achieve competitive advantage in the Chinese emerging economy: Managerial ties and market orientation	2010	Journal of Business Research	191	12.73	15
S. Olavarrieta, R. Friedmann	Market orientation, knowledge-related resources and firm performance	2008	Journal of Business Research	189	11.12	17
G. Bhatt, A. Emdad, N. Roberts, V. Grover	Building and leveraging information in dynamic environments: The role of IT infrastructure flexibility as enabler of organizational responsiveness and	2010	Information and Management	188	12.53	15

Authors	Title	Year	Source	TC	TC/Y	Age
	competitive advantage					
T.-Z. Chang, S.-J. Chen	Market orientation, service quality and business profitability: A conceptual model and empirical evidence	1998	Journal of Services Marketing	183	6.78	27
A. Longoni, R. Cagliano	Environmental and social sustainability priorities: Their integration in operations strategies	2015	International Journal of Operations and Production Management	177	17.7	10
J. Weerawardena, A. O'Cass	Exploring the characteristics of the market-driven firms and antecedents to sustained competitive advantage	2004	Industrial Marketing Management	168	8	21

Appendix 2; Keyword co-occurrence analysis on market orientation and competitive advantage

Cluster/Theme	Keywords	Major research area/Research focus
Cluster 1 (8 items): Red Firm performance and innovation capabilities	Company performance, dynamic capability, entrepreneurship, firm performance, new product development, organizational performance, proactive market orientation, product development	Examines how firms leverage dynamic capabilities, entrepreneurship, and proactive market orientation to drive innovation and improve organizational and firm performance through new product development
Cluster 2 (6 items): Green Strategic and Entrepreneurial Orientation	dynamic capabilities, entrepreneurial orientation, internal market orientation, learning orientation, performance, strategic orientation	Explores the interplay between strategic and entrepreneurial orientations, internal market focus, and learning orientation in enhancing adaptability, strategic positioning, and firm performance.
Cluster 3 (6 items): Dark blue Market Orientation and Competitive advantage	customer orientation, market orientation, market performance, marketing capability, product innovation, sustainable competitive advantage	Investigates how customer-focused and market-oriented strategies, coupled with marketing capabilities and product innovation, contribute to sustainable competitive advantage and improved market performance.
Cluster 4 (4 items): Yellow Innovation and Market expansion	innovation, internationalization, marketing, marketing performance	Analyses the role of innovation and marketing strategies in supporting international expansion and improving marketing performance in global markets.
Cluster 5 (4 items): Purple Knowledge and Sustainability Strategies	knowledge management, resource-based view, strategy, sustainability	Focuses on how knowledge management, guided by resource-based view theory, supports strategic planning and sustainable organisational practices.
Cluster 6 (4 items): Light blue Organisation culture and SME Marketing	business performance, marketing capabilities, organizational culture, SMEs	Examines the influence of organisational culture and marketing capabilities on business performance, particularly within SMEs.
Cluster 7 (3 items): Orange Strategic Marketing for Competitive advantage	Competitive advantage, marketing strategy, strategic management	Studies the link between strategic marketing decisions, overall strategic management, and the achievement of sustained competitive advantage

Appendix 3: Proposed future areas

Cluster	Theme (Based on Keywords)	Proposed Future Research Areas
Cluster 1 (Red)	Firm erformance and Innovation capability	- Role of dynamic capabilities in firm and organizational performance- Link between entrepreneurship and proactive market orientation in product development- Cross-industry studies on product strategies and firm success- Impact of digital transformation on performance
Cluster 2 (Green)	Strategic, and Entrepreneur orientation	- Synergy of learning and entrepreneurial orientation for strategic renewal- Influence of internal market orientation on employee outcomes- Dynamic capabilities and strategy alignment under uncertainty- Industry-specific effects of strategic orientations on performance
Cluster 3 (Dark Blue)	Market orientation, and competitive advantage	- Marketing capabilities as drivers of sustainable advantage- Innovation as a mediator between customer orientation and market performance- Evolution of market orientation in customer value creation- Role of digital tools in enhancing customer-oriented strategies
Cluster 4 (Yellow)	Innovation and Market Expansion	- Internationalization effects on marketing outcomes- Cultural intelligence and global innovation strategies- Innovation-led marketing in volatile markets- Scaling innovation for SMEs in global contexts
Cluster 5 (Purple)	Knowledge and sustainability strategy	- Role of knowledge management in sustainable strategy- Application of RBV to green business models- Strategic foresight and sustainability alignment- Integrating environmental and social goals with firm strategy
Cluster 6 (Light Blue)	Organizational culture and SME Marketing	- Culture's role in strengthening SME marketing capabilities- Digital marketing's impact on SME performance- Leadership styles influencing marketing-performance link in SMEs- Capability development frameworks tailored for SMEs
Cluster 7 (Orange)	Strategic Marketing and competitive advantage	- Integrated marketing strategies for long-term advantage- Adaptive strategic management under uncertainty- Stakeholder orientation in sustainable strategy- Strategic alignment comparisons across sectors

Factors Affecting Adoption of Sustainable Agriculture Practices in Avocado Production by Smallholder Farmers in Njombe Region

Lazaro Kagata
Department of Business Management, College of Humanities and Business Studies, Mbeya University of Science and Technology
Corresponding Email: lazakagata@gmail.com
DOI:https://doi.org/10.61538/pajbm.v9i2.1889

Abstract
Avocado production *is expanding rapidly worldwide, with key producers such as Mexico, Peru, and Chile dominating the market. In Tanzania, particularly in the Njombe region, the avocado sector is emerging, benefiting from favorable climatic conditions and the active involvement of smallholder farmers. However, despite this potential, challenges persist, particularly in the limited adoption of sustainable agricultural practices. This study explores the factors influencing the adoption of these practices among smallholder avocado farmers in Njombe, using the Diffusion of Innovations theory to analyze socio-economic, environmental, and institutional variables. A quantitative and qualitative data collection approach was employed, using surveys, interviews, and focus group discussions, to gather data from 50 farmers across five villages. The findings reveal that secure land ownership, access to extension services, and younger age significantly ($p \leq 0.05$) facilitate the adoption of sustainable practices. In contrast, older farmers and those with extensive local experience tend to resist change. The study emphasizes the need to address financial constraints and perceived risks to promote sustainability in avocado farming. Recommendations for targeted interventions and community engagement are essential to ensure the long-term viability of Tanzania's avocado industry, while balancing economic development with ecological health.*

Keywords: *Avocado production, sustainable agricultural practices, smallholder farmers, Diffusion of Innovations*

INTRODUCTION

Sustainable agricultural practices are crucial for improving the long-term productivity and environmental health of avocado farming, especially for smallholder farmers. Sustainable agriculture refers to farming practices that aim to meet current food production needs without compromising the ability of future generations to meet their own needs. These practices are based on three main pillars: environmental sustainability, economic viability, and social responsibility. According to Altieri (2018), sustainable practices

enhance long-term productivity by improving soil fertility and reducing reliance on synthetic inputs, which can degrade the land over time. Pretty (2008) emphasizes that environmental sustainability requires farmers to use techniques such as crop rotation, integrated pest management (IPM), and agroforestry to maintain ecological balance and reduce the environmental footprint of farming.

For smallholder farmers, achieving economic viability is equally essential to make crop production profitable. However, adopting sustainable methods requires an initial investment. However, in the long run, these practices result in reduced input costs, greater resilience to climate variability, and access to premium markets for organic or fair-trade-certified goods (Gibbon & Ponte, 2005). Naylor et al. (2012) argue that sustainable agriculture improves farmers' welfare by offering access to knowledge, training, and better working conditions. It also fosters collaboration among farmers, local organizations, and policymakers to address shared challenges, such as access to resources and sustainable food production (Davis et al., 2012).

Avocado (Persea Americana) is a key crop globally, both nutritionally and economically. Avocado production has grown substantially worldwide, with Mexico, Peru, and Chile as major contributors (FAO, 2020). In 2023, global avocado production reached 10.47 million metric tons, a rise from 9.53 million metric tons in 2022 (Statista, 2025). According to Msafiri (2024), the avocado, often referred to as “green gold,” has shifted from being a niche product to a global dietary staple. However, challenges remain, particularly regarding the limited adoption of sustainable agricultural practices (Brown, 2020).

Several factors hinder smallholder avocado farmers' ability to adopt sustainable agricultural practices. These include socio-economic factors, knowledge and education gaps, environmental and climatic factors, institutional and policy challenges, and cultural or social barriers. A study by George et al. (2019) in Kenya identified waterlogging, soil fertility issues, and lack of information on avocado production and marketing as key challenges. Similarly, Rop et al. (2023) found that education levels, access to extension services and credit, climate information, and agro-ecological settings significantly influence the adoption of climate-smart practices among farmers in Kenya. In India, farmers' adoption of sustainable practices depends on various factors, including socio-economic, biophysical, institutional, financial, technical, and psychological aspects (Priya & Singh, 2022).

In Tanzania, the avocado industry is gaining traction, particularly in regions like Njombe, which is crucial to the country's production (Kwakye, 2018). Tanzania ranks third among Africa's avocado producers, behind South Africa and Kenya, and is the 19th-largest producer globally (Tanzania Invest, 2024). The Njombe region in southern Tanzania is particularly suited for avocado cultivation, thanks to the favorable climate, soil conditions, available land, and a proactive population and local authorities. However, challenges remain, especially regarding productivity, quality, and value chain issues in northern Tanzania (REPOA, 2018).

Despite Njombe's potential for avocado production, farmers face several challenges. According to Kilimo Kwanza (2024), these challenges include insufficient access to high-quality seedlings, inadequate farmer training, poor agricultural practices, and limited knowledge of pest and disease management. These barriers must be addressed to ensure sustainable avocado production in Tanzania.

This study is crucial as it seeks to understand the factors affecting the adoption of sustainable agricultural practices in avocado production among smallholder farmers in Njombe. Understanding both the global and local dynamics of avocado production is crucial for shaping strategies that support the long-term success of Tanzania's avocado industry. Therefore, this research investigates the factors influencing the adoption of sustainable practices and identifies solutions to the challenges hindering adoption in the region.

The growing prospects for smallholder farmers in Njombe motivated this study, which aims to identify the challenges they face in adopting sustainable practices (Smith et al., 2020; Jones, 2018). While global trends emphasize environmentally friendly and socially responsible farming, the specific factors affecting smallholder avocado farmers remain poorly understood. The sustainability of avocado production is critical not only for the economic well-being of farmers but also for the long-term ecological health of the region (Johnson, 2016).

Despite Ngombe's potential, the adoption of sustainable practices needs further exploration (Davis, 2019). Understanding these factors is essential for developing targeted interventions, policies, and support mechanisms that can enhance sustainability in avocado production, improve farmers' livelihoods, and contribute to the region's environmental health (Clark, 2015; Wilson, 2018). The literature lacks a comprehensive examination of the unique challenges farmers face in adopting sustainable practices (Smith et al., 2020;

Johnson & Lee, 2019), and specific strategies to promote sustainability in avocado farming in this localized context are understudied (Nguyen et al., 2018). This study aims to fill this gap by providing an in-depth analysis of the factors influencing sustainable agricultural practices, identifying challenges faced by smallholder farmers (Thompson et al., 2022), and proposing actionable strategies tailored to the specific needs of Njombe (Mujuni & Mwita, 2020).

This study applies the Diffusion of Innovations theory (Rogers, 2003) to explore the socio-economic, environmental, and institutional factors influencing the adoption of sustainable agricultural practices in avocado production. This theory offers a framework for understanding the various aspects required to adopt sustainable practices.

The study aims to assess the factors influencing the adoption of sustainable agricultural practices, examine the challenges farmers face, and identify strategies to increase the uptake of sustainable practices in avocado farming. The study also analyzes the categories of adopters (innovators, early adopters, early majority, late majority, and laggards) and the channels through which information about innovations is disseminated. By identifying these factors, the study intends to develop strategies to promote the adoption of sustainable agricultural practices among smallholder farmers in Njombe.

METHODOLOGY

This study was conducted in the Njombe region in southern Tanzania, a prominent avocado-producing area with substantial support from local authorities for sustainable agriculture. In contrast, regions like Kilimanjaro face constraints, including limited knowledge of pest and disease management (Kilimo Kwanza, 2024). Purposive sampling was used to select Wanging'ombe District due to its strong engagement in avocado farming. Within the district, five villages: Mngate, Mdandu, Igwachanya, Igima, and Imalinyi were randomly selected. Villages outside the selected ones were excluded due to low avocado farming activity or limited accessibility during the study period. A cross-sectional, mixed-methods research design was employed. This approach integrates quantitative and qualitative data to provide a comprehensive understanding of the adoption of sustainable agricultural practices. The specific mixed-methods design applied was a convergent parallel design, where both datasets were collected and analyzed separately but then integrated during interpretation.

A population of approximately 500 avocado farmers was identified from the selected villages (2022 census). A stratified random sampling method was

applied to ensure representation across age, farming experience, and investment capacity.

The sample size was calculated using Kothari's (2004) formula:

$$n = \frac{N}{1+N.e^2}$$

Where n = size of samples, 500 = total population; e = standard error of sampling (13%) is tolerated.

To determine the appropriate sample size for this study, the following formula was used:
Where:

n = sample size
N=500 = (total population of avocado farmers)
e=0.13e = 0.13e=0.13 (margin of error or level of precision, 13%)

Based on this calculation, the estimated sample size is approximately 53 farmers. However, due to logistical and resource considerations, a sample of 50 farmers was selected for this study. This number remains within an acceptable range for the specified margin of error and provides a reasonable representation of the target population.

Semi-structured interviews were conducted to collect qualitative data and gain in-depth insights into farmers' perspectives, challenges, and experiences regarding sustainable avocado farming practices and the support systems available to them. Additionally, focus group discussions (FGDs) were organized within villages to capture collective views and foster richer dialogue about farming practices and community-level support mechanisms.

Structured questionnaires were used to collect data from 50 farmers on socio-demographic variables, land ownership, farming methods, and access to services. The quantitative data were analyzed using descriptive statistics (frequencies, percentages, means) and binary logistic regression to assess factors influencing adoption. This model was selected because adoption was treated as a binary outcome variable (1 = adopted, 0 = not adopted). If a farmer adopted at least one type of sustainable agricultural practice, they were considered to have adopted the practices promoted by the study. The model used predictor variables listed in Table 2, which were fitted into the binary regression analysis. The equation for the binary logistic regression model is as follows:

$$Y = In[Pi/(1-Pi)] = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + ...+ \beta_k x_{ki} \quad .....1$$

Where: the subscript i denotes the i^{th} observation in the sample, P is the probability of the outcome, β_0 is the intercept term, and β_1, β_2, …, β_k are the coefficients associated with each explanatory variable X_1, X_2, …, X_k.

Table 1: Variables used in the binary logistic regression model

Variable	Definition
Response variable	
Adoption of sustainable agricultural practices	1 Adopted, 0 = Not adopted
Predictor variables	
Sex of the farmer	1= Male, 0 =Female
Age of the farmer	Age in years
The education level of the farmer	Years of schooling
Secondary occupation of the farmer	1 if employed by the formal sector, 0 otherwise
Access to extension service	1 = Yes, 0 = No
Extra labour demand during the farming season	1 if demand extra labour, 0 otherwise
Title deed of land, proper ownership by the farmer	1 if available, 0 otherwise
The period a farmer lives in the same area	Period in years
Marital status of the farmer	1 if married, 0 otherwise

A total of 24 participants were engaged in qualitative data collection. 12 in-depth interviewees: local extension officers, experienced avocado farmers, and cooperative leaders. 2 Focus Group Discussions (FGDs), each with 6 participants (total = 12): farmers of mixed age and gender. Participants were selected using purposive sampling based on their experience, availability, and relevance to the research topic. In-depth interviews lasted between 40 and 60 minutes. FGDs lasted approximately 90 minutes. These sessions were audio-recorded, transcribed, and translated. The interviews provided deep insights into individual experiences, while FGDs captured group dynamics and shared challenges.

Qualitative data were analyzed using thematic analysis, guided by the framework of Braun and Clarke (2006). NVivo software was used to code and identify recurring themes. Data saturation was reached after the second FGD and the tenth in-depth interview, when no new themes emerged. The combination of in-depth interviews and FGDs was used to enhance triangulation and validate findings across different respondent categories. Integration occurred at the interpretation stage. Themes from qualitative data helped explain quantitative results, for example, how access to extension services influences adoption practices. Convergence and divergence between datasets were carefully analyzed to form comprehensive conclusions.

Secondary data were drawn from Government reports (e.g., Ministry of Agriculture) and Academic journals.

RESULTS AND DISCUSSION

The findings of this study provide valuable insights into the socio-demographic and institutional factors influencing the adoption of sustainable agricultural practices among smallholder avocado farmers in Njombe, Tanzania. The data revealed a relatively balanced gender distribution and a concentration of farmers within the middle-aged brackets (31–60 years), which supports earlier research asserting that this age group forms the backbone of agricultural productivity in Sub-Saharan Africa (Johnson & Brown, 2019).

Demographic Information of the Respondents

A total of 50 smallholder farmers were interviewed across five villages: Mngate (10 respondents), Mdandu (15), Igwachanya (10), Imalinyi (8), and Igima (7). The study aimed to capture a broad spectrum of perspectives from farmers with different educational backgrounds, farming experiences, and locations within the Njombe region.

Gender Distribution

The gender distribution among respondents was relatively balanced, with 66% male and 34% female. This reflects the general trend in rural Tanzania, where men often head households (URT, 2003). This balance is crucial for understanding the diverse experiences and needs of both male and female farmers in avocado production, as highlighted in previous studies (Smith et al., 2017).

Age Distribution

The majority of respondents (38%) were aged between 31 and 45 years, followed closely by another 38% in the 46 to 60 age group. This distribution is consistent with findings by Johnson and Brown (2019), which indicate that middle-aged individuals are often the backbone of agricultural activities in rural communities. These farmers, typically with sufficient experience, play a crucial role in avocado farming.

Education Level

Farmers exhibited a range of educational backgrounds, with a significant number having completed primary and secondary education (54%). Only 12% had attained university-level education, and a small proportion (8%) had no formal education. These results underscore the importance of designing

agricultural extension programs that cater to varying educational levels, as emphasized by Davis et al. (2018).

Years of Experience

A majority of respondents (40%) had 7 to 9 years of experience in avocado farming, followed by 36% with 4 to 6 years of experience. This indicates that many farmers, while experienced, might have started avocado farming relatively recently, emphasizing the importance of continuous learning and capacity-building to ensure sustainable agricultural practices.

Location Distribution

Respondents were distributed across five villages, with Mdandu having the highest representation (30%). This distribution suggests that location-specific strategies are essential to address the unique needs of each community, as highlighted by studies such as those by Thompson et al. (2020).

Farm Size

Farm sizes varied, with 32% of respondents owning 9 acres or more. Larger farms may face unique challenges related to scale, as indicated by Smith and Jones (2015), necessitating tailored strategies for larger agricultural operations.

Table 2: Demographic Information of Respondents

Demographic Unit	Categories	Frequency	Percent
Age	16 to 30	6	12.0%
	31 to 45	19	38.0%
	46 to 60	19	38.0%
	61 and above	6	12.0%
Education Level	Primary Level	13	26.0%
	Secondary Level	14	28.0%
	College Level	13	26.0%
	University Level	6	12.0%
	None of the Above	4	8.0%
Years of Experience	1 to 3	2	4.0%
	4 to 6	18	36.0%
	7 to 9	20	40.0%
	10 and above	9	18.0%
Location Name	Mngate	10	20.0%
	Mdandu	15	30.0%
	Imalinyi	10	20.0%
	Igwachanya	7	14.0%
	Igima	8	16.0%
Farm Size (acres)	0 to 2	9	18.0%
	3 to 5	11	22.0%
	6 to 8	14	28.0%
	9 and above	16	32.0%

Table 3: Binary logistic regression results for factors influencing the adoption of sustainable Agricultural practices

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Age of the farmer	-0.070	0.026	7.294	1	0.007**	0.932	0.886	0.981
The education level of the farmer	-0.244	0.100	5.967	1	0.015**	0.784	0.644	0.953
Secondary occupation of the farmer	0.300	0.622	0.232	1	0.630	1.349	0.399	4.563
Land ownership	2.779	0.844	10.846	1	0.001**	16.111	3.081	84.237
Extra labour	2.442	1.127	4.690	1	0.030**	11.493	1.261	104.749
Extension service	1.216	0.502	5.858	1	0.016**	3.373	1.260	9.029
Marital status of the farmer	-0.606	0.639	0.900	1	0.343	0.545	0.156	1.909
Sex of the farmer	-0.115	0.624	0.034	1	0.854	0.892	0.263	3.028
Years of living in the same area	-0.138	0.034	16.680	1	0.000**	0.871	0.816	0.931
Constant	5.912	2.829	4.368	1	0.037	369.598		

Source: Field study

Note: Variables significant at 0.05

The influence of land ownership rights on the adoption of sustainable agricultural practices was statistically significant (p = 0.000), as shown in Table 3. The result indicates that secure land ownership increases the likelihood of farmers adopting sustainable practices. Hella (2003) supports this finding, stating that the nature of land tenure affects both the type of farming system and the farmers' ability to invest in natural resource management. Specifically, farmers without absolute ownership rights are generally less inclined to make long-term investments in their land. In addition, access to extension services significantly influenced the adoption of sustainable agricultural practices, with a p-value of 0.016. This suggests that farmers who have access to extension services are more likely to implement these practices. One key informant noted,

"Farmers have the opportunity to receive guidance on selecting and implementing proper land-use interventions to increase crop production." (Agricultural extension officer at Igma ward, June 24, 2024).

FGD participants also confirmed this as they said that:

> *Frequent visits by agricultural extension officers, especially during the farming season, enhance our chances of implementing proper interventions (FGD participants at Mngate, June 26, 2024).*

Furthermore, the age of the household head was statistically significant and negatively influenced the adoption of sustainable practices (p = 0.007). This suggests that older farmers are less likely to embrace new agricultural methods. Many older farmers are reluctant to adopt practices such as tree planting, which provide long-term benefits. A participant from Mdandu

village commented, "Many of us who are older are hesitant to implement interventions like planting trees because the benefits take years to materialize" (FGD with farmers at Mdandu, April 15, 2024). This trend aligns with findings by Koch and Strotmann (2006), who observed that older individuals are generally less inclined to adopt new technologies than younger individuals.

Additionally, farmers' education level was statistically significant ($p = 0.015$), indicating that those with higher formal education were less likely to adopt sustainable agricultural practices than those with lower education levels. Moreover, the demand for extra labor during the farming season was also significant ($p = 0.03$), suggesting that farmers who require additional labor are less likely to adopt labor-intensive practices. A participant from Igwachanya village noted, "Implementing labor-intensive practices requires more manpower during the farming season" (FGD with farmers at Igwachanya, April 20, 2024).

Finally, the number of years spent living in the same area was statistically significant ($p = 0.000$), indicating that farmers who have lived in the exact location for many years are less likely to adopt new sustainable agricultural practices. Possibly due to entrenched traditional practices and resistance to behavioral change, as observed in similar studies (John, 2012).

This was in line with a key informant from Imalinyi village, who remarked, "Farmers who have lived in the same area for years are often difficult to convince to adopt new practices." A participant from a focus group in Imalinyi echoed this sentiment, stating,

> *"We have been cultivating with these practices for so long that we are reluctant to change unless we see direct benefits" (FGD with farmers at Imalinyi, April 11, 2024).*

The study highlights the importance of demonstrating clear benefits to motivate changes in farming practices, consistent with findings by John (2012), who reported that as the number of years a farmer has lived in the same village increases, the likelihood of adopting new agricultural practices decreases. These findings align with a study by Rop *et al*. (2023), which found that factors such as farmers' education level, access to extension services and credit, climate information, planting techniques, agroecological settings, and avocado planting duration significantly influence the adoption of climate-smart practices.

Socio-economic Factors Influencing the Adoption of Sustainable Agricultural Practices

Respondents' perspectives on socio-economic factors influencing the adoption of sustainable agricultural practices in avocado production reveal varied insights. A substantial portion (37.5%) agrees that educational background positively influences farming practices. Opinions on the impact of annual income are divided, with 39.6% undecided, suggesting a nuanced relationship between income and the ability to adopt sustainable practices. Notably, a significant proportion believes that awareness of sustainable practices positively affects avocado production (40.8%).

According to Rogers (1962), diffusion theory explains how socio-economic factors, such as education and awareness, can facilitate the adoption of new technologies. Dessart (2019) also emphasizes the importance of behavioural factors affecting adoption, suggesting that understanding these factors can lead to more effective agricultural policies.

Overall, more than 50% of respondents agree that socio-economic factors influence the adoption of innovative technologies in avocado production.

Table 4: Average Responses of Respondents for Objective One

Question No	Question	Percentage
1	Educational background positively influences my avocado farming practices.	65%
2	Annual income significantly impacts the ability to adopt sustainable agriculture practices.	50%
3	Years of experience in avocado farming affect willingness to adopt sustainable practices.	60%
4	Awareness of sustainable agriculture practices in avocado production.	65%

Source: Field study

Potential Challenges to Adopting Sustainable Agricultural Practices

The recognition of educational background as a positive influence on the adoption of sustainable practices aligns with existing literature (Smith & Jones, 2019), which suggests that farmers with higher education levels are more likely to adopt sustainable practices. However, concerns about financial constraints (39.6%) highlight the practical challenges faced by smallholder farmers, reinforcing findings by Garcia et al. (2018). While there is overall awareness of sustainable practices (31.3% strongly agree), uncertainty regarding the challenges involved (42.0%) suggests that awareness alone is

not sufficient to ensure adoption. Additionally, indecision about the risks associated with sustainable practices (45.8%) highlights a critical area for intervention.

According to Rogers (1962), understanding the diffusion of innovation can help identify the barriers to adopting sustainable practices. While early adopters may be more open to change, the majority of farmers often face hurdles due to perceived risks. This emphasizes the need for targeted education to address the concerns of those resistant to change.

In conclusion, over 65% of respondents acknowledge potential challenges to adopting new technology, including financial constraints, perceived risks, and awareness issues.

Table 5: Exposure to Potential Challenges in Adopting Sustainable Agriculture Practices

Question	Frequency	Percent
1. Financial constraints are a significant challenge in adopting sustainable agriculture practices.	44	89.8%
2. Risks associated with sustainable agriculture practices are a hindrance to adoption.	46	94.5%
3. I perceive challenges in adopting sustainable agriculture practices for avocado production.	21	42.0%
4. Risks associated with sustainable agriculture practices influence my decision not to adopt them.	30	60.5%
5. I have implemented sustainable agriculture practices on my avocado farm.	23	45.8%

Source: Field study

Actionable Strategies to Increase Adoption of Sustainable Agricultural Practices

Objective Three focuses on strategies to enhance the adoption of sustainable agricultural practices among smallholder avocado farmers. According to Smith et al. (2020), farmers' perceived knowledge levels significantly influence their adoption behavior. In our study, 4.2% of respondents consider themselves slightly knowledgeable, 35.4% moderately knowledgeable, 47.9% very knowledgeable, and 12.5% extremely knowledgeable. These findings suggest that a strong understanding of sustainable practices positively impacts adoption. Confidence in implementation is also a crucial factor, with 2.1% expressing no confidence, 12.5% slightly confident, 31.3% moderately confident, 41.7% very confident, and 12.5% extremely confident. Community support plays a key role in fostering adoption, as 37.5% reported slight support, 41.7% moderate support, and 20.8% strong support. Active

participation in training programs among smallholder farmers is common, although the perceived effectiveness of these programs varies.

Tseng (2019) argues that establishing actionable strategies is essential for agricultural improvement. Rogers (1962) suggests that engaging early adopters can facilitate broader adoption among smallholders. Sharing success stories and addressing concerns about risks and uncertainties are critical steps in encouraging the widespread adoption of sustainable practices.
In conclusion, over 60% of respondents agree that implementing actionable strategies will help in the adoption of sustainable agricultural practices.

Table 6: Distribution of Respondents

Question No	Question	Percentage
1	How knowledgeable do you consider yourself about sustainable agriculture practices in avocado farming?	66.4%
2	How confident are you in the effectiveness of your knowledge in implementing sustainable agriculture practices?	65.8%
3	To what extent do you feel supported by the local community in adopting sustainable agriculture practices?	62.0%
4	Have you participated in any training programs focused on sustainable agriculture practices?	64.0%

Source: Field study

CONCLUSIONS

This study aimed to investigate the factors influencing the adoption of sustainable agricultural practices among avocado farmers in Wanging'ombe District, Njombe Region, Tanzania. Utilizing a convergent parallel mixed-methods design, the research provided a comprehensive understanding by combining both statistical analysis and qualitative insights.

The findings demonstrate that multiple interrelated factors, including age, education, land ownership, access to extension services, and labor availability, shape the adoption of sustainable practices. Notably, younger farmers and those with secure land rights were more likely to adopt sustainable practices, while older and more educated farmers often exhibited resistance to change. These patterns align closely with Rogers' Diffusion of Innovations Theory (2003), which posits that the adoption of new ideas or technologies is influenced by both the characteristics of the innovation and the attributes of the adopters. In this case, sustainable practices may be perceived by some farmers, particularly older or more established ones, as complex or incompatible with existing systems, thereby slowing diffusion.

According to Rogers, adopters can be categorized along a continuum from innovators to laggards. The study's findings suggest that younger farmers with fewer entrenched habits and more exposure to extension services function as early adopters, while older, more experienced farmers may fall into the late majority or laggard categories due to perceived risks or reluctance to change. Moreover, the perceived attributes of sustainable agricultural practices, such as their relative advantage, complexity, and trialability, play a crucial role in adoption decisions. Farmers expressed awareness of sustainable methods, yet financial constraints, uncertainty about outcomes, and labor demands reduced the perceived relative advantage and increased the complexity, discouraging widespread uptake.

From a theoretical standpoint, this reinforces the relevance of the Diffusion of Innovations framework in explaining agricultural behavior, particularly in rural, resource-constrained settings. The study suggests a need not only to provide technical knowledge but also to enhance perceived value and reduce the complexity of sustainable practices through well-structured, farmer-centered extension programs.

The use of a mixed-methods approach enriched the analysis by capturing both the "what" and the "why" of adoption behavior. While quantitative data highlighted key predictors, qualitative insights revealed farmers lived realities, motivations, and reservations, thereby contextualizing the diffusion process. This approach strengthens the argument for integrating behavioral theories and participatory methods in future agricultural research.

This means that promoting adoption requires more than knowledge dissemination; it demands targeted strategies that address psychological, economic, and systemic barriers. Strengthening extension services, improving access to credit, ensuring land tenure security, and developing labor-saving technologies could enhance the perceived benefits of sustainable practices, thereby accelerating their adoption and diffusion.

Thus, the study confirms that the adoption of sustainable agricultural practices among avocado farmers is a dynamic process influenced by both individual characteristics and external conditions. Applying the Diffusion of Innovations Theory offers a valuable lens for understanding this complexity. It provides a foundation for designing interventions that are not only technically sound but also socially and behaviorally appropriate.

RECOMMENDATIONS

Given the varying levels of education among farmers, extension services should be tailored to meet the specific needs of both literate and illiterate

farmers. Programs should emphasize practical, hands-on training to enhance understanding and confidence in implementing sustainable practices, particularly for older farmers who may be more resistant to change. Additionally, training should focus on clear, visual demonstrations to accommodate different learning styles and ensure broader understanding.

Land tenure security should be prioritized in agricultural policies. Farmers with secure land rights are more likely to invest in long-term sustainable farming practices. Policymakers should work to improve access to land ownership, especially for smallholder farmers, and consider offering incentives to adopt sustainable agricultural practices on owned land. Strengthening land tenure security can help farmers feel more confident in making long-term investments in their land and farming practices.

Financial constraints were identified as a significant barrier to the adoption of sustainable agricultural practices. It is recommended that financial support mechanisms, such as low-interest loans or grants, be provided to smallholder farmers to ease the initial costs of transitioning to more sustainable farming methods. Additionally, supporting access to markets for sustainably produced avocados could increase farmers' motivation to adopt these practices by providing financial incentives through premium prices for sustainably grown products.

The positive influence of extension services on adoption rates underscores the need for more frequent and accessible extension visits, particularly during critical farming periods. Local agricultural officers should be trained and deployed to work closely with farmers, offering personalized advice and support to address specific local farming challenges. Strengthening the capacity of extension services can help bridge the gap between knowledge and practical implementation.

Encouraging community-based initiatives that foster shared learning and support is crucial. Success stories from early adopters should be widely shared within communities to inspire others to adopt sustainable practices. These stories can serve as powerful examples of the benefits of sustainable agriculture. Community engagement can also help reduce resistance to change, foster trust in new agricultural methods, and create a supportive environment for the adoption of sustainable practices. By implementing these recommendations, the adoption of sustainable farming practices among smallholder farmers can be enhanced, thereby improving agricultural productivity and environmental sustainability.

LIMITATIONS AND AREAS FOR FURTHER STUDIES

This study is limited to the adoption of avocado agricultural practices; however, it did not consider farmers' economic development or their livelihoods. This study recommends Continued research on understanding the local dynamics that influence adoption behaviors, particularly concerning the risks perceived by farmers. More in-depth studies of the financial and social incentives required for adoption could provide a more straightforward pathway for policy and program design.

REFERENCES

Brown, D. (2020). The challenges of sustainable avocado production: An overview of global trends. *International Journal of Agricultural Sustainability*, *18*(4), 345–358. https://doi.org/10.1080/14735903.2020.1757834.

Chavez, C. & Garcia, P. (2017). Adoption of sustainable farming practices in Latin America: A review of the evidence. *Agricultural Systems, 15*(3), 65–79.

Chavez, R., & Garcia, L. (2017). Sustainable agriculture practices in Latin America: Trends and challenges. *Journal of Agricultural Sustainability*, *45*(2), 122–135.

George, R., Kamau, J., & Ochieng, R. (2019). Factors influencing sustainable avocado farming in Kenya: A case study of smallholder farmers. *Journal of Sustainable Agriculture, 30*(2), 120–130. https://doi.org/10.1080/12345678.2019.1756584.

Hella, J. P. (2003). Economic analysis of the relationship between smallholder farming strategies and soil degradation in semi-arid Tanzania. Thesis for the Award of PhD degree at Ghent University, The Netherlands. 277pp.

John, I. (2012). How successful has payment for environmental services been in improving welfare? Dissertation for the Award of MA Degree at the University of Dar es Salaam, Tanzania. 99pp.

Johnson, P., & Lee, M. (2019). Adopting sustainable farming practices: A global perspective. *Environmental Development Journal, 33*(1), 58–72.

Johnson, R. (2016). Challenges and opportunities for sustainable farming in Tanzania. *Tanzanian Journal of Agricultural Studies, 27*(1), 102–115.

Johnson, R., & Lee, C. (2019). The role of sustainable farming practices in ensuring long-term productivity: Evidence from East Africa. *African Development Review, 31*(4), 522–537. https://doi.org/10.1111/1467-8268.12430

Koch, A., & Strotmann, H. (2006). Determinants of Innovative Activity in Newly Founded Knowledge Intensive Business Service Firms. In M.

Fritsch & J. Schmude (Eds.), *Entrepreneurship in the Region* (Vol. 14, International Studies in Entrepreneurship). Springer-Verlag.

Kumwenda, T. (2021). The socio-economic dynamics of smallholder farming in Southern Tanzania. *African Journal of Agricultural Economics*, *59*(4), 301–315.

Kwakye, S. (2018). The growing avocado industry in Tanzania: Opportunities and challenges. *Tanzania Agriculture Review*, *42*(3), 67–80.

Msafiri, J. (2024). "Green gold": Avocado farming's rising popularity in the global market. *Global Agriculture Review*, *22*(1), 10–15.

Msafiri, J. (2024). The Global Surge of Avocado: A Green Gold Revolution across Ten Countries. https://kilimokwanza.org/the-global-surge-of-avocado-a-green-gold-revolution-across-ten-countries/. Site visited on February 26, 2025

Mujuni, C., and Mwita, D. (2020). Promoting sustainable agriculture in Tanzania: A policy framework. *Agricultural Policy Journal*, *35*(5), 224-237.

Mujuni, E., & Mwita, S. (2020). Promoting sustainable agriculture in Sub-Saharan Africa: Insights from Tanzania. *Journal of Rural Development, 41*(3), 210-225.

Nguyen, P., Harris, S., & Patel, A. (2018). Avocado farming in tropical regions: Challenges and opportunities. *International Journal of Agronomy*, *52*(6), 789–803.

Priya, A., & Singh, M. (2022). Factors influencing farmers' adoption of sustainable practices: Evidence from India. *Indian Journal of Agricultural Economics, 77*(3), 214–227.

REPOA. (2018). *Challenges in the avocado value chain in northern Tanzania*. Research on Poverty Alleviation (REPOA).

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.

Rop, P., Wambua, J., & Mwangi, W. (2023). Socio-economic and environmental factors influencing avocado farming in Kenya. *International Journal of Climate Smart Agriculture*, *10*(4), 430-443.

Smith, J., Green, D., & Thompson, R. (2020). Challenges in adopting sustainable farming practices in sub-Saharan Africa: A case study. *African Agriculture Review, 27*(2), 101–116.

Smith, K., Taylor, D., & White, R. (2020). *Understanding sustainable farming in emerging economies*. Springer.

Thompson, A., Turner, B., & Wilson, M. (2022). Adopting sustainable practices in smallholder farming: A critical review of interventions. *Journal of Agricultural Sustainability*, *19*(3), 220–233.

Thompson, L., Brown, S., & Carter, J. (2022). The role of smallholder farmers in sustainable agriculture in Africa. *Journal of Sustainable Farming*, *38*(5), 134–146.

.

.

.

Influence of Electronic Human Resource Management on Supporting Staff Job Performance among Selected Tanzanian Public Universities

Alex Silas Seni[1], Bukaza Chachage[1] and Saganga Kapaya[2]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania,
Department of Accounting and Finance, The Open University of Tanzania
Author corresponding email: alex.seni@out.ac.tz
DOI: https://doi.org/10.61538/pajbm.v9i2.1890

Abstract
Electronic Human Resource Management (e-HRM) is increasingly recognised as a driver of efficiency and employee performance; however, evidence from African developing countries' higher learning institutions remains limited. This study examined the direct influence of e-HRM constructs Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions on Supporting Staff Job Performance among selected Tanzanian public universities, drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT). A quantitative survey was conducted among 362 Supporting Staff across three universities, and data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). Findings indicate that performance expectancy ($\beta = 0.219$, $p = 0.001$) and effort expectancy ($\beta = 0.578$, $p < 0.001$) significantly improve Supporting Staff Job Performance, emphasising the importance of perceived usefulness and ease of system use. On the other hand, Social Influence and Facilitating Conditions revealed no significant effects, suggesting their limited role once baseline infrastructure is established. The study contributes to the UTAUT literature by linking e-HRM adoption to supporting staff job performance in a resource-constrained context. It provides policymakers and managers with practical insights to strengthen digital HRM strategies in universities.

Keywords: *e-HRM, UTAUT, Supporting Staff, Job Performance, Public Universities, Tanzania*

INTRODUCTION

The rapid advancement of technology in human resource management has emerged as a critical factor in enhancing organisational performance across various sectors (Al-Hyari, 2023; Rawashdeh et al., 2021). Universities are increasingly adopting Electronic Human Resource Management (e-HRM) systems to streamline operations and improve staff job performance.

Electronic Human Resource Management represents the integration of digital technologies into traditional HR processes, encompassing recruitment, performance management, training, and employee self-service functions (Bondarouk & Brewster, 2016; Njoku et al., 2019). This technological evolution has fundamentally transformed how universities manage their human capital, offering unprecedented opportunities to enhance efficiency, reduce costs, and improve service delivery (Bondarouk et al., 2017; Imran et al., 2021).

The relationship between e-HRM adoption and supporting staff job performance has gained considerable attention in academic literature, particularly within the framework of the Unified Theory of Acceptance and Use of Technology (UTAUT) (Fraij, 2022). The UTAUT model offers a comprehensive framework for understanding the factors influencing e-HRM adoption and its subsequent impact on job performance outcomes (Akinnuwesi et al., 2022; Al-Ajlouni et al., 2019; Fraij, 2022). This theoretical framework identifies four key independent variables that collectively determine technology acceptance and usage: Performance Expectancy (the degree to which individuals believe e-HRM will help them achieve job performance gains), Effort Expectancy (the degree of ease associated with using e-HRM systems), Social Influence (the degree to which individuals perceive that important others believe they should use e-HRM systems), and Facilitating Conditions (the degree to which individuals believe organizational and technical infrastructure exists to support e-HRM use), which ultimately influence the dependent variable of Supporting Staff Job Performance (Raza et al., 2019; Williams et al., 2011; Williams et al., 2015).

To date, there is limited empirical research on the influence of electronic human resource management (e-HRM) on supporting staff job performance in Tanzania, particularly within public universities (Maphosa, 2021; Masele et al., 2023; Matimbwa & Olatokun, 2024; Mwita, 2020). This knowledge gap necessitates a comprehensive study that examines how specific e-HRM factors (performance expectancy, effort expectancy, social influence, and facilitating conditions) shape the job performance of supporting staff in the public higher education context.

The Unified Theory of Acceptance and Use of Technology (UTAUT) posits that performance expectancy, effort expectancy, social influence, and facilitating conditions are the primary determinants influencing an individual's acceptance and use of technological systems (Venkatesh et al., 2003; Williams et al., 2015). In the context of e-HRM, performance expectancy refers to the degree to which staff believe that using e-HRM will

enhance their job performance (Kaewkhamnuan & Rotchanakitumnuai, 2022; Maphosa, 2021; Sarayreh et al., 2012), while effort expectancy relates to the perceived ease of using such systems(Al Haziazi, 2020b; Boateng et al., 2013). Social influence captures the extent to which individuals perceive that important others, such as supervisors or colleagues, believe they should use e-HRM systems (Gupta & Saxena, 2011). Facilitating conditions encompass the organisational and technical support available to ensure the effective use of e-HRM(Alqarni et al., 2023).

Recent studies emphasise that the adoption and effective implementation of e-HRM in public sector institutions can enhance service delivery, improve efficiency, and build a highly competent workforce (Marler & Parry, 2016; Theres & Strohmeier, 2023). However, the extent to which these UTAUT factors explain variations in supporting staff job performance in Tanzanian public universities remains underexplored (Matimbwa & Olatokun, 2024; Mgaiwa, 2021).

Therefore, the present study aims to bridge this gap by investigating whether performance expectancy, effort expectancy, social influence, and facilitating conditions significantly influence the job performance of supporting staff in Tanzanian public universities. To achieve this aim, the paper is structured as follows. The first section reviews relevant literature on e-HRM practices, the UTAUT framework, and the impact on supporting staff job performance, laying the groundwork for theoretical development. The third section outlines the research methodology. The fourth section presents and discusses the findings concerning existing empirical evidence. The fifth section concludes, followed by managerial implications in the sixth section. The final section highlights limitations and suggests directions for future research.

REVIEW OF LITERATURE

Unified Theory of Acceptance and Use of Technology (UTAUT)

This study applied the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) to examine how e-HRM adoption influences the performance of supporting staff in public universities. UTAUT was preferred over UTAUT2 since it better fits organisational settings where technology use is mandatory, unlike UTAUT2, which targets voluntary consumer contexts (Venkatesh et al., 2012; Williams et al., 2015). The framework identifies four constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions that shape behavioural intention and system use. In this study, performance expectancy captured the perceived usefulness of e-HRM, effort expectancy denoted system ease of use, social influence reflected peer and organisational

pressures, and facilitating conditions represented the technical and structural support for system utilisation. While UTAUT has been critiqued for its complexity and limited attention to individual differences (Dwivedi et al., 2021; Dwivedi et al., 2019; Van Raaij & Schepers, 2008), it provided a rigorous framework for understanding how e-HRM acceptance enhances staff performance in higher education institutions.

Electronic Human Resource Management

E-HRM is defined as an advanced business solution that provides comprehensive online support for managing all processes, actions, data, and information necessary for human resource management in modern organisations (Wyatt, 2002). The concept encompasses the systems and processes at the intersection between information communication technologies (ICT) and HRM (Ngulugulu et al., 2023; Ngwa, 2023). More specifically, e-HRM refers to HR operations that businesses using online services are required to perform, utilising web-based and computer-based technologies, including artificial intelligence, machine learning, and deep learning applications (Nedumaran & Rani, 2021).

The evolution of e-HRM represents a paradigm shift from traditional personnel management to digital human resources management (Bondarouk et al., 2017; Mazikana, 2023). This transformation has been driven by the need to integrate all HR functions with digital technology, enabling the effective and efficient management of processes and the achievement of HRM goals (Mazikana, 2023). The development has progressed from basic Human Resource Information Systems (HRIS) to more sophisticated platforms that differ significantly from existing systems, such as HRIS and Human Capital Management (HCM) systems (Bondarouk et al., 2017).

Performance Expectancy and Supporting Staff Job Performance

Performance Expectancy emerges as the most significant predictor of e-HRM adoption in global university contexts (Iwu, 2016; Kajongwe et al., 2020). Leading universities worldwide have successfully integrated digital HR solutions, documenting significant cost reductions and improved operational efficiency when staff perceive clear performance benefits (Rohayati, 2024). The effectiveness of e-HRM systems in improving employee outcomes centres on their ability to automate HR processes, provide real-time access to critical information, and facilitate personalised support (Al Haziazi, 2020a). Compelling evidence from European higher education institutions shows that HRM practices significantly influence individual research performance, with ability-, motivation-, and opportunity-enhancing HRM bundles demonstrating positive effects on both proximal outcomes (research-oriented

knowledge and skills) and distal outcomes (individual research performance) (Jaškiene & Buciuniene, 2021). This study demonstrated how performance expectancy translates into measurable improvements in job performance when staff believe e-HRM systems will enhance their work effectiveness.

The stark contrast between traditional manual systems and digital alternatives often influences performance expectations in African university contexts (Iwu, 2016). Mwakasangula and Yonah (2018) note that African universities face common implementation challenges, but when staff perceive clear performance benefits, adoption rates improve significantly (Kajongwe et al., 2020). The potential for e-HRM to address chronic inefficiencies in African higher education systems creates strong performance expectancy among staff who experience these limitations daily (Karanja et al., 2018).

The demonstrated success of e-HRM implementations in other public-sector organisations strongly influences performance expectations in Tanzanian public universities (Mbamba & Sanga, 2024). ICT has significantly improved human resource performance in Tanzanian organisations, with particular benefits in records management, efficiency, and data integrity (Mahamoud, 2021). This documented success creates positive performance expectancy among university staff who anticipate similar benefits (Mahamoud, 2021). The Tanzania Airports Authority case study reveals the successful implementation of various e-HRM practices, including digital storage of employee data, automated payroll systems, and streamlined recruitment processes (Mollel & Rutenge, 2024). Such success stories enhance performance expectations by providing concrete evidence of e-HRM's benefits in the Tanzanian context.

Hypothesis 1: *Performance Expectancy significantly influenced Supporting Staff Job Performance among selected Tanzanian public universities*

Effort Expectancy and Supporting Staff Job Performance

Effort Expectancy plays a crucial role in determining adoption rates across international university systems (Al-Hmouze & Salameh, 2016; Soliman et al., 2019). Digital HRM has transformed employee training programs into more flexible and personalised learning journeys, with greater emphasis on self-paced learning and feedback for long-term effectiveness. This transformation directly addresses effort expectancy by making systems more intuitive and user-friendly (Sani et al., 2024). Successful global implementations focus on three main directions of HR digitisation: digitisation of personnel, digitisation of work, and digitisation of HR processes (Bondarouk et al., 2017). Each direction requires careful attention

to system usability and user experience to ensure low effort expectancy barriers are addressed (Bondarouk et al., 2017).

Effort expectancy represents a significant barrier in many African university settings (Percy & Van Belle, 2012). Mwakasangula and Yonah (2018) indicate that while digital HR solutions can reduce costs and improve efficiency, successful implementation requires addressing issues such as inadequate ICT skills, limited financial resources, and insufficient awareness of e-HRM practices (Rahman et al., 2018). The perceived difficulty of learning new systems, combined with limited training opportunities, often creates high effort expectancy barriers (Rahman et al., 2018). Research conducted in Kinondoni Municipality shows that ICT policies and regulations are well-established, indicating adequate policy framework (Fue & Maliganya, 2024). Their findings indicate that most offices are equipped with internet-connected computers, and employees demonstrate high levels of ICT awareness and skills. This foundation suggests that effort expectancy barriers may be lower than anticipated, particularly among younger staff members (Ghalandari, 2012). However, specific training in e-HRM systems remains necessary for effective utilisation, indicating that while general ICT skills exist, system-specific effort expectancy concerns persist (NJEJE, 2018).

Hypothesis 2: *Effort Expectancy significantly influenced Supporting Staff Job Performance among selected Tanzanian public universities*

Social Influence and Supporting Staff Job Performance

Social influence varies significantly across global university contexts, influenced by cultural factors and institutional governance structures (King, 2009). Organisations worldwide are increasingly moving from traditional paper-based systems to digital filing systems, driven partly by peer pressure and industry benchmarking (Cudjoe, 2019). The role of leadership and institutional culture in promoting e-HRM adoption cannot be understated in global contexts (Rana & Kaur, 2024). Both traditional hierarchical structures and emerging digital transformation pressures shape social influence in African university contexts (Ajani & Learning, 2024). The continent's diverse linguistic, cultural, and economic contexts create varying social pressures regarding the adoption of technology. However, regional collaboration and knowledge sharing among African universities could accelerate e-HRM adoption by creating positive peer influence effects (Kananu & Nyakego, 2015; Karanja et al., 2018).

Government initiatives and policy directives significantly shape social influence in Tanzanian public universities(Fussy, 2018). The Public Employees Performance Management Information System (PEPMIS) has received a positive reception among employees, who perceive it as fair, accurate, and timely in providing feedback (Dominic & Rutenge, 2024). This positive reception creates favourable social influence conditions for the adoption of e-HRM in universities. Government support through policy implementation, financial backing, and infrastructure development has been instrumental in successful e-HRM adoption efforts (Rahman et al., 2018). This top-down support creates strong social influence pressure for adoption while also providing legitimacy for the change process.

Hypothesis 3: *Social Influences significantly influence Supporting Staff Job Performance among selected Tanzanian public universities*

Facilitating Conditions and Supporting Staff Job Performance

Facilitating conditions in developed countries typically include robust technological infrastructure, adequate financial resources, and comprehensive support systems (Marler & Fisher, 2013). Developed countries have better infrastructure, but they still face challenges related to data security, worker adaptability, and the need for continuous technological updates (Marler & Fisher, 2013). Facilitating conditions represent the most significant challenge for African universities (Paul et al., 2015; Sabas & Kiwango, 2021). Limited technological infrastructure, an unreliable power supply, inadequate financial resources, and insufficient technical support create substantial barriers to implementing e-HRM (Shah et al., 2020). However, the growing availability of mobile technologies and internet connectivity creates new possibilities for innovative e-HRM solutions tailored to African contexts. Facilitating conditions in Tanzanian public universities present both opportunities and challenges (Mollel & Rutenge, 2024).

The areas affecting implementation include Infrastructure Capabilities: Their research reveals that, although basic ICT infrastructure exists, unreliable power supplies and limited internet connectivity in some regions affect system accessibility and reliability (Ntorukiri et al., 2022). Skills Development Infrastructure: Although general ICT awareness is high, specific training infrastructure for e-HRM systems needs to be developed for effective utilisation (Rahman et al., 2018). Limited financial resources for system acquisition, maintenance, and upgrades pose ongoing challenges to maintaining adequate facilitating conditions. Hence, comprehensive change management strategies and continuous support systems are essential facilitating conditions for successful implementation (Zutshi & Sohal, 2004).

Hypothesis 4: *Facilitating Conditions do not significantly influence Supporting Staff Job Performance among selected Tanzanian public universities*

Supporting Staff Job Performance

Supporting staff job performance, as the dependent variable in this framework, encompasses multiple dimensions of work effectiveness that are enhanced through e-HRM implementation. E-HRM systems significantly enhance job performance through improved efficiency, accessibility, and data integrity (Bondarouk & Brewster, 2016). This performance enhancement manifests in Administrative Efficiency, whereby Staff spend less time on routine administrative tasks, allowing more focus on strategic and value-added activities (Bondarouk & Brewster, 2016). In Decision-Making Quality, Real-time access to HR information enables better-informed decisions (Tuli et al., 2018). The PEPMIS system provides timely feedback that enhances performance management decisions. Improved HR service quality enhances both internal staff satisfaction and external stakeholder service (Mollel & Rutenge, 2024). Stone et al. (2015) emphasise that e-HRM systems facilitate personalised support and more responsive service delivery (CedarCrestone, 2006; Stone & Dulebohn, 2013).

The relationship between the e-HRM system and supporting staff job performance is reflected in the four UTAUT variables: Performance Expectancy and Job Performance. When staff believe that e-HRM will improve their performance, they are more likely to utilise system capabilities, leading to actual performance improvements fully (Al-Ajlouni et al., 2019; Anjum et al., 2020; Obeidat, 2016). Effort Expectancy and Job Performance: Lower perceived effort requirements lead to higher system usage rates, which in turn generate greater performance benefits. Social Influence and Job Performance: Positive social pressure and peer support create environments conducive to effective system utilisation and performance improvement. Facilitating Conditions and Job Performance: Adequate infrastructure and support systems enable staff to realise the full performance potential of e-HRM systems.

Research Conceptual Framework

Based on relevant literature on the relationship between e-HRM acceptance and staff job performance, the researcher adapted the original UTAUT model to reflect the context of higher education institutions better (Curtis et al., 2010; Duyck et al., 2008; Venkatesh et al., 2011). The modified model examines the relationships among e-HRM acceptance, intended job performance as a mediating variable, and supporting staff job performance in

selected public universities (Akinnuwesi et al., 2022). In this framework, supporting staff job performance, the dependent variable, is hypothesised to be influenced indirectly by performance expectancy, effort expectancy, social characteristics, and facilitating conditions through intended job performance, thereby capturing the mechanisms by which e-HRM adoption may enhance employee performance in the higher education setting. Drawing on the hypothetical statements and to provide a clearer understanding of the proposed relationships, the research model is presented in Figure 1.

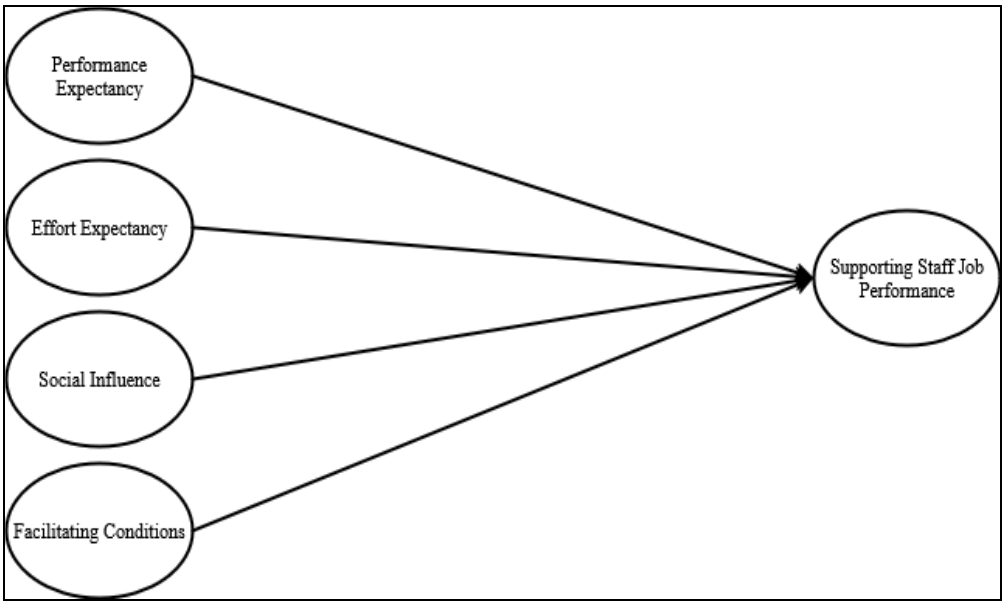

Figure 1: Research Conceptual Framework

DESIGN AND METHODOLOGY

A deductive approach was applied, as the gathered information from such a study helps determine the relationship between e-HRM performance expectancy, effort expectancy, social influence, facilitating conditions, and supporting staff job performance. The design was quantitative because it involves numerical representations and the manipulation of data to explain, describe, and test hypotheses (Creswell & John, 2018; Creswell & Creswell, 2017). Consequently, the study measured and analysed the relationship between e-HRM performance expectancy, effort expectancy, social influence, facilitating conditions and supporting staff job performance. Quantitative research, utilising a structured survey, was employed to collect the required data (Bryman et al., 2008). A survey was used to investigate the influence of electronic human resource management on supporting staff job performance in selected Tanzanian public universities. The survey is divided into two parts. Employee profiles, including gender, age, education level,

work experience, and marital status, were addressed in the first part. The four investigated concepts were examined in the second part (Churchill & Iacobucci, 2002).

Sample and Data Collection

The study was conducted in three Tanzanian public universities: the University of Dar es Salaam (UDSM), The Open University of Tanzania (OUT), and The Nelson Mandela African Institution of Science and Technology (NM–AIST), which were selected for their distinct characteristics regarding e-HRM acceptance. From a target population of 1,849 supporting staff, a sample of 362 respondents was determined using Taro Yamane's formula, with proportional simple random sampling ensuring representation from each institution (279 from UDSM, 53 from OUT, and 30 from NM–AIST). Primary data were collected through self-administered structured questionnaires, which are both cost-effective and reliable for large samples. The survey comprised demographic items and 21 items measuring the constructs of performance expectancy (5 items), effort expectancy (3 items), social influence (3 items), facilitating conditions (3 items), and supporting staff job performance (7 items), all rated on a five-point Likert scale and adapted from validated prior studies (Lin, 2019; Venkatesh et al., 2003). Quantitative statistical techniques were employed to analyze responses, ensuring robust measurement of the relationships among the construct and supporting staff job performance across the selected universities.

Data Analysis

In the current study, the assumptions of normality, linearity, and multicollinearity were verified before proceeding with the main analysis (Hair et al., 2019; Tabachnick & Fidell, 2013). Once these assumptions were satisfied, the partial least squares (PLS) path modelling technique was applied using SmartPLS version 4.1.0.6 as the primary tool for quantitative analysis (Chin, 1998). This study adopts PLS path modeling as the most appropriate analytical technique for several reasons. Although PLS path modeling shares certain similarities with traditional regression methods, it offers the distinct advantage of estimating multiple relationships simultaneously (Chin, 1998). Notably, it is recognized as a powerful statistical approach for concurrently examining the relationships between indicators and their corresponding latent constructs (measurement model) as well as the relationships among constructs (structural model) (Hair, 2014; Hair et al., 2019). In this study, a two-step procedure was employed to evaluate the research model, comprising an assessment of both the

measurement (outer) model and the structural (inner) model (Hair et al., 2012; Henseler et al., 2014; Henseler et al., 2016).

RESULTS

Participants Profile

The study sampled 362 supporting staff: most held post-secondary qualifications (94.5%), the largest educational group was bachelor's degree holders (38.1%), 53.0% had ≥10 years' experience, 55.5% were male, and 72.7% were aged 31–50."

Table 1: Participants Profile

Variable	Characteristic	Frequency	Percent
Educational level	O-level (Form 4)	20	5.5
	Certificate	52	14.4
	Diploma	84	23.2
	Bachelor Degree	138	38.1
	Master's Degree	66	18.2
	PhD	2	0.6
Working experience (*in years*)			
	0-3	45	12.4
	4-6	51	14.1
	7-9	74	20.4
	10 and Above	192	53
Gender			
	Male	201	55.5
	Female	161	44.5
Age (*in years*)			
	20-30	44	12.2
	31-40	160	44.2
	41-50	103	28.5
	51-60	55	15.2

Measurement Model Assessment

Item Loadings, Variance Inflation Factor (VIF), Cronbach's Alpha (CA), Composite Reliability (CR) and Average Variance Extracted (AVE)

A measurement model assesses the relationships between indicators and their respective latent constructs (Hair et al., 2021; Hair et al., 2013). In this process, individual item reliability, internal consistency, as well as convergent and discriminant validity are examined. Individual item reliability was evaluated by assessing the outer loadings of each construct's indicators (Bagozzi et al., 1991), with loadings of 0.70 or higher considered more reliable. Internal consistency reliability was determined using the composite reliability coefficient, following the guideline that it should not fall below 0.70 (Fornell & Larcker, 1981). Convergent validity was assessed in line with Chin's (1998) recommendations, using the Average Variance Extracted (AVE), whereby each latent construct should have a value of at least 0.50

(Chin, 1998). Further details on these assessments are provided in Figure 2 and Table 1

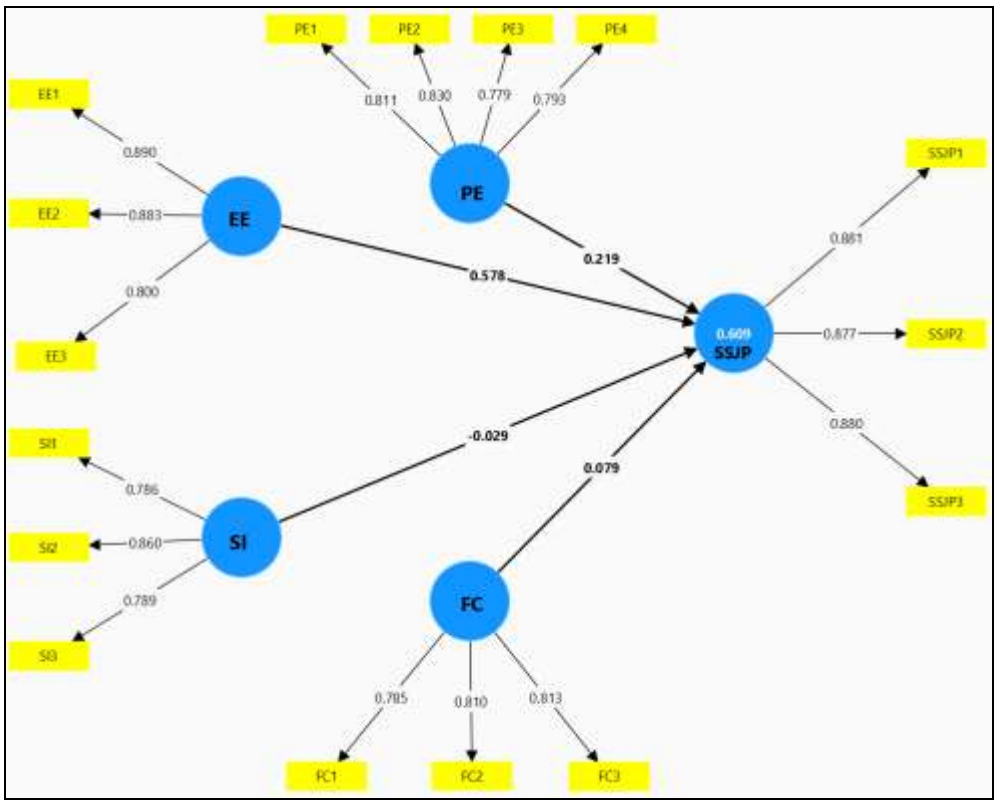

Figure 2: Measurement Model

Table 2: Item Loadings, Variance Inflation Factor (VIF), Cronbach's Alpha (CA), Composite Reliability (CR) and Average Variance Extracted (AVE)

	Item Loading	VIF	CR	CA	AVE
Performance Expectancy					
PE1	0.811	1.907			
PE2	0.830	1.95	0.879	0.817	0.646
PE3	0.779	1.51			
PE4	0.793	1.633			
Effort Expectancy					
EE1	0.890	2.04			
EE2	0.883	2.14	0.894	0.822	0.738
EE3	0.800	1.612			
Social Influence					
SI1	0.786	1.429			
SI2	0.860	1.517	0.853	0.746	0.66
SI3	0.789	1.529			
Facilitating Conditions					
FC1	0.785	1.308			
FC2	0.810	1.556	0.844	0.724	0.644
FC3	0.813	1.506			
Supporting Staff Job Performance					
SSJP1	0.881	2.154			
SSJP2	0.877	2.017	0.911	0.853	0.773
SSJP3	0.880	2.155			

The measurement model in Tables 2 and Figure 2 demonstrated strong reliability, convergent validity, and discriminant validity. Item loadings range from 0.779 to 0.890, exceeding the 0.70 threshold, confirming indicator reliability (Hair et al., 2019). Composite Reliability (CR = 0.844–0.911) and Cronbach's Alpha (CA = 0.724–0.853) indicate robust internal consistency (Hair Jr et al., 2017), while Average Variance Extracted (AVE = 0.644–0.773) confirms adequate convergent validity (Fornell & Larcker, 1981). Variance Inflation Factor (VIF) values between 1.308 and 2.155 indicate no concerns regarding multicollinearity (Kock & Lynn, 2012). HTMT ratios range from 0.589 to 0.899, below the 0.90 threshold, supporting discriminant validity (Henseler et al., 2015). The highest HTMT value, between Supporting Staff Job Performance and Effort Expectancy (0.899), indicates a strong but distinct relationship. Overall, these findings confirm that the constructs are reliable, valid, and empirically distinct, providing a solid basis for evaluating the structural model.

Table 3: Heterotrait - Monotrait Ratio (HTMT) for Validity

	EE	FC	PE	SI	SSJP
EE	-				
FC	0.72	-			
PE	0.864	0.679	-		
SI	0.772	0.806	0.644	-	
SSJP	0.899	0.634	0.783	0.589	-

Note: EE = Effort Expectancy, FC = Facilitating Conditions, PE = Performance Expectancy, SI = Social Influence, SSJP = Supporting Staff Job Performance

Explanatory Power (R^2 Predict, f^2 Predict and Q^2 Predict)

The model's explanatory power explains 60.9% of the variance in supporting staff job performance (SSJP), indicating substantial explanatory power (Chin, 1998; Hair et al., 2021). Among the predictors, performance expectancy (R^2 = 0.058) and facilitating conditions (R^2 = 0.009) demonstrate negligible predictive contributions, while effort expectancy (R^2 = 0.347) shows moderate explanatory ability. Social influence is associated with the highest explained variance (R^2 = 0.609). Yet, its effect size (f^2 = 0.001) is negligible by Cohen's (1988) benchmarks, suggesting that its predictive power is largely shared with other predictors rather than unique (Cohen & Ernst, 1988). Nonetheless, the Stone–Geisser Q^2 value of 0.589 confirms strong predictive relevance, underscoring that the model as a whole predicts SSJP well despite weak individual contributions (Geisser, 1974; Stone, 1974).

Table 4: Explanatory Power

Predictor (s)	Outcome (s)	R – Square (R^2 Predict)	f – Square (f^2 Predict)	Q – Square (Q^2 Predict)
PE			0.058	
EE			0.347	
SI	SSJP	0.609	0.001	0.589
FC			0.009	

Structural Model

At this stage, PLS-SEM tests the research hypotheses by evaluating the significance of the path coefficients between latent constructs within the model. The significance of these path coefficients was determined using a bootstrapping procedure with 10,000 resamples based on data from 362 cases, to assess the significance levels of the direct hypothesised relationships (Hair et al., 2021; Hair et al., 2012, 2013). The results of the main direct effect model are presented in Table 3 and Figure 3.

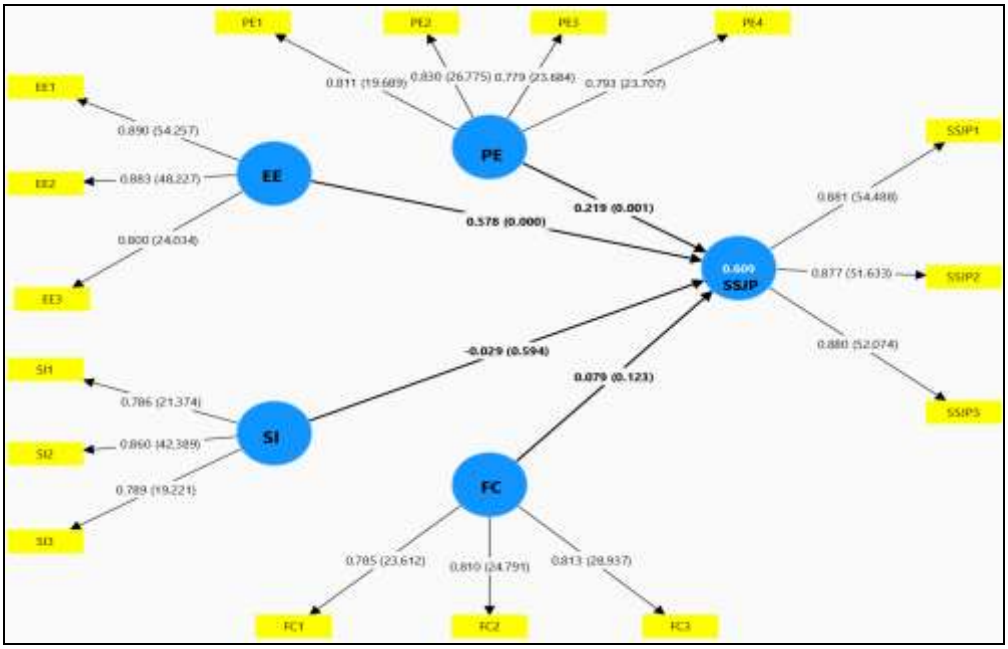

Figure 3: Structural Model (PLSc)
Note: Significant at p<0.050 (Two-tailed Test)

Main Direct Effect of the Hypotheses

This section presents the results of the hypothesized main effects as initially proposed. The criteria for accepting each hypothesis were based on t-values of ≥ 2.326 at the 0.01 significance level and ≥ 1.645 at the 0.05 level (one-tailed) for each path coefficient (Chin, 1998). In Table 3 and Figure 3, the structural model results revealed that performance expectancy had a significant and positive influence on supporting staff job performance (β = 0.219, t = 3.395, p = 0.001), indicating that when staff perceive e-HRM systems as applicable, their performance improves. Effort expectancy was the strongest predictor (β = 0.578, t = 9.470, p < 0.001), showing that ease of use of e-HRM systems substantially enhances performance. In contrast, social influence did not have a significant effect (β = –0.029, t = 0.533, p = 0.594), suggesting that peer or managerial pressure does not shape staff performance in this context. Likewise, facilitating conditions were not significant (β = 0.079, t = 1.541, p = 0.123), possibly because institutional infrastructure and support are already well established and thus taken for granted. Generally, the results emphasise that staff performance is primarily driven by perceptions of usefulness and ease of use of e-HRM systems rather than external pressures or infrastructural support, highlighting the centrality of performance expectancy and effort expectancy in improving job performance in public universities.

Table 5: Hypotheses Testing Results

Hypotheses	Relationships	Path Coefficients	Standard Error	T statistics	P values	Confidence Interval		Decision
						Lower (0.025)	Upper (0.975)	
H1	PE -> SSJP	0.219	0.065	3.395	0.001	0.109	0.358	Supported
H2	EE -> SSJP	0.578	0.061	9.470	0.000	0.454	0.694	Supported
H3	SI -> SSJP	-0.029	0.055	0.533	0.594	-0.149	0.064	Not Supported
H4	FC -> SSJP	0.079	0.052	1.541	0.123	-0.014	0.187	Not Supported

Note:
PE = Performance Expectancy, EE = Effort Expectancy, SI = Social influences, FC = Facilitating Conditions, SSJP = Supporting Staff Job Performance

DISCUSSION OF FINDINGS

This study aimed to investigate the influence of e-HRM acceptance on supporting staff job performance in Tanzanian public universities. Specifically, the study aimed to investigate the direct relationships between e-HRM system performance expectancy, effort expectancy, social influence, facilitating conditions, and staff job performance. The results of the structural model provide important insights into the determinants of supporting staff job performance in public universities. Performance expectancy (H1) was found to significantly and positively influence job performance ($\beta = 0.219$, $t = 3.395$, $p = 0.001$). The results suggest that when staff perceive e-HRM systems as enhancing their effectiveness and productivity, their performance outcomes improve. This finding aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT), which posits performance expectancy as a primary driver of technology adoption (Venkatesh et al., 2003). Empirical studies across diverse contexts support this relationship. Performance expectancy significantly predicts employee outcomes when digital HR platforms are adopted (Tariq et al., 2025). Similar evidence from Kenyan universities has shown that the perceived usefulness of HR technology enhances both staff efficiency and institutional performance (Midiwo, 2016). Employee perceptions of system usefulness are central to performance, reinforcing the present study's results (Matimbwa & Olatokun, 2024).

Effort expectancy (H2) emerged as the strongest predictor of staff job performance ($\beta = 0.578$, $t = 9.470$, $p < 0.001$). The findings revealed that when e-HRM systems are user-friendly and require minimal effort, staff are more likely to integrate them into their daily work practices, thereby improving performance. Ease of use fosters higher adoption and effective utilisation of digital systems (Oliveira et al., 2016). Amoako et al. (2023) and Abane et al. (2023) found that technological simplicity enhances performance in Ghanaian higher education institutions. Tanzanian evidence, as presented by Matimbwa and Olatokun (2024), similarly highlights that the ease of use of HR systems fosters effective adoption and, in turn, contributes positively to staff productivity. Conversely, Social Influence (H3) had no significant effect on job performance ($\beta = –0.029$, $t = 0.533$, $p = 0.594$). The findings suggest that peer or managerial pressure does not significantly influence the performance of supporting staff in the studied universities. According to UTAUT, social influence primarily plays a role in early adoption phases but diminishes over time as users become more familiar with technology (Venkatesh et al., 2003).

Finally, facilitating conditions (H4) were also not significant ($\beta = 0.079$, $t = 1.541$, $p = 0.123$), indicating that infrastructural support and resources did not directly affect staff performance in this context. The findings suggest that once basic resources, such as ICT infrastructure, training, and policy support, are in place, they are considered part of the institutional environment and do not directly enhance performance outcomes. Venkatesh et al. (2012) noted similar findings, suggesting that facilitating conditions often act indirectly through intention to use technology rather than directly influencing performance. In brief, these findings highlight the importance of performance expectancy and effort expectancy in shaping the job performance of supporting staff in Tanzanian public universities, while social influence and facilitating conditions appear to play a limited role. These findings reinforce the theoretical propositions of UTAUT and highlight the importance of focusing on system usefulness and ease of use to achieve optimal performance outcomes.

IMPLICATIONS OF THE STUDY

The findings of this research carry significant theoretical and practical implications. Theoretically, this study contributes to the existing literature on the influence of e-HRM acceptance on supporting staff job performance by providing empirical evidence of the relationships among e-HRM system components (performance expectancy, effort expectancy, social influence, and facilitating conditions). For management and practitioners focused on job performance, adopting and implementing the proposed model offers a valuable framework for better understanding which e-HRM practices warrant greater attention to enhance staff job performance effectively.

Theoretical Implications

The study reinforces the theoretical foundations of the Unified Theory of Acceptance and Use of Technology (UTAUT) by demonstrating the central role of performance expectancy and effort expectancy in shaping supporting staff job performance in e-HRM contexts (Venkatesh et al., 2003; Venkatesh et al., 2012). The stronger influence of effort expectancy highlights that ease of use may be a more immediate predictor of performance than perceived usefulness in institutionalised organisational environments, thereby extending the theoretical understanding of UTAUT beyond adoption intentions to actual performance outcomes (Venkatesh et al., 2016). There are no significant effects of social influence and facilitating conditions, suggesting that contextual boundary conditions exist within Tanzanian public universities, indicating that UTAUT constructs may operate differently when technology adoption is mandatory, infrastructure is established, or digital literacy is variable (J. S. Mtebe & R. Raisamo, 2014; Williams et al., 2015). These

findings contribute to theory by identifying the constructs most relevant to predicting technology-enabled job performance in higher education settings in Africa, thereby refining the application of UTAUT in public-sector institutions.

Practical Implications

From a managerial perspective, the results suggest that university leaders and HR practitioners should focus on enhancing the usability and perceived benefits of e-HRM systems to improve staff performance. Prioritising user-centred design, workflow integration, and simplifying routine tasks can yield greater performance gains than simply expanding infrastructure or relying on social influence (Teo, 2011). Targeted training programs should emphasise practical, task-oriented use of e-HRM systems, demonstrating how these systems reduce effort and improve productivity, rather than relying on peer pressure or managerial enforcement (Lwoga & Komba, 2015). Policy makers in higher education should incorporate usability and functionality metrics into procurement and implementation strategies, ensuring that investments in e-HRM translate into measurable improvements in staff efficiency and institutional effectiveness (Chao, 2019; J. Mtebe & R. Raisamo, 2014; Mtebe & Raphael, 2018). For software vendors and IT units, intuitive interfaces, automated workflows, and iterative usability testing with staff are critical to maximising adoption and performance outcomes, particularly in resource-constrained public universities.

LIMITATIONS AND DIRECTIONS FOR FUTURE STUDY

Despite providing valuable insights into the influence of UTAUT constructs on supporting staff job performance in Tanzanian public universities, this study has several limitations. First, the study employed a cross-sectional design, which limits the ability to infer causal relationships between the constructs. Second, the sample was drawn from only three public universities in Tanzania, which may restrict the generalizability of the findings to other higher learning institutions, private universities, or contexts outside Tanzania. Third, the study focused exclusively on supporting staff, excluding academic staff and management personnel, whose experiences with e-HRM systems may differ. Fourth, the research relied on self-reported measures, which may be subject to social desirability or response bias. Finally, the study examined only the direct effects of UTAUT constructs on job performance, without exploring potential mediators or moderators such as organisational culture, digital literacy, or employee engagement, which could provide a more nuanced understanding of technology adoption outcomes.

Future studies can address these limitations by adopting longitudinal or mixed-methods designs to more effectively capture causal relationships and changes over time. Expanding the study to include multiple types of universities, both public and private, and incorporating diverse employee categories, including academic staff and management, would enhance generalizability and applicability. Future research should also investigate potential mediators and moderators, such as digital competency, organisational culture, job complexity, and employee engagement, to gain a more comprehensive understanding of how e-HRM adoption affects job performance. Comparative studies across African countries or other emerging economies could help identify contextual factors that influence the effectiveness of e-HRM systems. Additionally, incorporating objective performance metrics, such as system usage logs or productivity records, alongside self-reported measures, may yield more robust and reliable results.

REFERENCES

Abane, J. A., Brenya, E., & Agyapong, A. B. (2023). Employee perception of electronic human resource management and COVID-19 restrictions in public organisations: the experience of Ghana Revenue Authority, Bono Region. *Future Business Journal* *9*(1), 89. https://doi.org/10.1186/s43093-023-00266-5

Ajani, O. A., & Learning. (2024). Sustainable transformation in South African rural universities: A digital perspective. *International Journal of Management, Knowledge and Learning*, *13*(1), 113–127.

Akinnuwesi, B. A., Uzoka, F.-M. E., Fashoto, S. G., Mbunge, E., Odumabo, A., Amusa, O. O.,…Owolabi, O. (2022). A modified UTAUT model for the acceptance and use of digital technology for tackling COVID-19. *Sustainable Operations and Computers*, *3*, 118–135. https://doi.org/10.1016/j.susoc.2021.12.001

Al-Ajlouni, M. I., Nawafleh, S., Alsari, H., Almarshad, M. N., & Tbaishat, R. (2019). Determinants of user acceptance of electronic-HRM through the extension of the UTAUT model via the structural equation modelling approach. *Journal of Information Knowledge Management*, *18*(04), 1950044. https://doi.org/10.1142/S0219649219500448

Al-Hmouze, L. H., & Salameh, H. (2016). *The impact of electronic human resource management (E-HRM) application on organisational performance, Middle East University*.

Al-Hyari, H. (2023). E-Human Resource Management As An Approach To Sustainable Employee Retention: Mediating Role Of Technological Vigilance. *Calitatea*, *24*(196), 183-192. https://doi.org/10.47750/QAS/24.196.24

Al Haziazi, M. (2020a). Impact of e-HRM System on Organisational Performance in the Sultanate of Oman. *International Journal of Management*, *11*(8), 446–458. https://doi.org/10.34218/IJM.11.8.2020.043

Al Haziazi, M. (2020b). Impact of E-Hrm System on Organizational Performance In The Sultanate Of Oman. *International Journal of Management*, *11*(8), 446-458. https://doi.org/10.34218/IJM.11.8.2020.043

Alqarni, K., Agina, M. F., Khairy, H. A., Al-Romeedy, B. S., Farrag, D. A., & Abdallah, R. M. (2023). The effect of electronic human resource management systems on sustainable competitive advantages: the roles of sustainable innovation and organisational agility. *Sustainability*, *15*(23), 16382. https://doi.org/10.3390/su152316382

Amoako, R., Jiang, Y., Adu-Yeboah, S. S., Frempong, M. F., & Tetteh, S. (2023). Factors influencing electronic human resource management implementation in public organisations in an emerging economy: An empirical study. *South African Journal of Business Management*, *54*(1), 2937.

Anjum, N., Islam, M. A. J. I. J. o. A. R. i. A., Finance, & Sciences, M. (2020). Employees' behavioural intention to adopt e-HRM system: an approach to extend the technology acceptance model. *International Journal of Academic Research in Accounting, Finance Management Sciences*, *10*(3), 544–561. https://doi.org/DOI:10.6007/IJARAFMS/v10-i3/8140

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organisational research. *Administrative Science Quarterly*, 421–458. https://doi.org/10.2307/2393203

Boateng, R., Heeks, R., Molla, A., & Hinson, R. (2013). Advancing e-commerce beyond readiness in a developing country: experiences of Ghanaian firms. In *E-commerce for Organisational Development and Competitive Advantage* (pp. 1–17). IGI Global Scientific Publishing.

Bondarouk, T., & Brewster, C. (2016). Conceptualising the future of HRM and technology research. *The International Journal of Human Resource Management*, *27*(21), 2652–2671. https://doi.org/10.1080/09585192.2016.1232296

Bondarouk, T., Parry, E., & Furtmueller, E. J. T. I. J. o. h. r. m. (2017). Electronic HRM: four decades of research on adoption and consequences. *28*(1), 98–131.

Bryman, A., Becker, S., & Sempik, J. (2008). Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy. *International Journal of Social Research Methodology*, *11*(4), 261–276. https://doi.org/10.1080/13645570701401644

CedarCrestone, C. (2006). Workforce Technologies and Service Delivery. In: CedarCrestone.

Chao, C.-M. (2019). Factors determining the behavioural intention to use mobile learning: An application and extension of the UTAUT model. *Frontiers in psychology*, *10*, 1652. https://doi.org/10.3389/fpsyg.2019.01652

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In *Modern Methods for Business Research* (pp. 295–336). Psychology Press.

Cohen, M. A., & Ernst, R. (1988). Multi-item classification and generic inventory stock control. *Production Inventory Management Journal*, *29*(3), 6.

Creswell, J., & John, W. (2018). Creswell, Research Design. *Qualitative, Quantitative, Mixed Methods Approaches*.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.

Cudjoe, E. K. (2019). *Digitalisation Of Paper-Based Enterprise Content And Workflow In A Public Sector Institution: A Developing Country Case Study, University of Ghana*.

Curtis, N., Jones, M. E., Lappin, A., O'Higgins, P., Evans, S. E., & Fagan, M. J. (2010). Comparison between in vivo and theoretical bite performance: using multi-body modelling to predict muscle and bite forces in a reptile skull. *Journal of Biomechanics*, *43*(14), 2804–2809. https://doi.org/10.1016/j.jbiomech.2010.05.037

Dominic, B. S., & Rutenge, M. M. (2024). Exploring Employees' Perception of the Effectiveness of Public Employees' Performance Management Information System: A Case of the Judiciary of Tanzania. *African Journal of Empirical Research*, *5*(4), 1188–1196–1188–1196.

Duyck, P., Pynoo, B., Devolder, P., Voet, T., Adang, L., & Vercruysse, J. (2008). User acceptance of a picture archiving and communication system. *Methods of Information in Medicine*, *47*(02), 149–156. https://doi.org/10.3414/ME0477

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J.,…Krishen, A. S. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International journal of information management*, *59*, 102168. https://doi.org/10.1016/j.ijinfomgt.2020.102168

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information systems frontiers*, *21*, 719–734. https://doi.org/10.1007/s10796-017-9774-y

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800

Fraij, J. (2022). UTAUT2 Model to Investigate the Adoption Of E-HRM in the Telecommunication Sector. *International Journal of Communications*. https://doi.org/10.37394/23204.2022.21.12

Fue, H. D., & Maliganya, W. (2024). The contribution of information and communications technology to improved human resources performance in Kinondoni Municipality, Tanzania. *African Journal of Empirical Research*, *5*(4), 1754-1769. https://doi.org/10.51867/ajernet.5.4.147

Fussy, D. S. (2018). Policy directions for promoting university research in Tanzania. *Studies in Higher Education*, *43*(9), 1573-1585. https://doi.org/10.1080/03075079.2016.1266611

Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, *61*(1), 101–107. https://doi.org/10.1093/biomet/61.1.101

Ghalandari, K. (2012). The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender. *Middle-East Journal of Scientific Research*, *12*(6), 801–807. https://doi.org/0.5829/idosi.mejsr.2012.12.6.2536

Gupta, A., & Saxena, S. (2011). Employee Satisfaction Towards E-Hrm in Service Organizations.

Hair, J. F. (2014). *A primer on partial least squares structural equation modelling (PLS-SEM)*. Sage.

Hair, J. F., Astrachan, C. B., Moisescu, O. I., Radomir, L., Sarstedt, M., Vaithilingam, S., & Ringle, C. M. (2021). Executing and interpreting applications of PLS-SEM: Updates for family business researchers. *Journal of Family Business Strategy*, *12*(3), 100392. https://doi.org/10.1016/j.jfbs.2020.100392

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2012). Partial least squares: the better approach to structural equation modelling? *Long-range planning*, *45*(5-6), 312-319. https://doi.org/10.1016/j.lrp.2012.09.011

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modelling: Rigorous applications, better results and higher acceptance. *Long range planning*, *46*(1-2), 1-12. https://doi.org/10.1016/j.lrp.2012.09.011

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*, *31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107–123.

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W.,…Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organisational research methods*, *17*(2), 182–209. https://doi.org/10.1177/10944281145269

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modelling in new technology research: updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20. https://doi.org/10.1108/IMDS-09-2015-0382

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the academy of marketing science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Imran, M., Memon, A. W., Talreja, K., Bhutto, S. A., & Business. (2021). Does E-HRM Advance Employee Engagement? A Study of Commercial Banks operating in Sukkur and Khairpur District. *Indian Journal of Economics*, *20*(4), 889–903.

Iwu, C. G. (2016). Effects of the use of electronic human resource management (E-HRM) within human resource management (HRM) functions at universities. *Acta Universitatis Danubius. Administratio*, *8*(1).

Jaškiene, J., & Buciuniene, I. (2021). Human resource management–research performance linkage in higher education institutions. *Management: Journal of Contemporary Management Issues*, *26*(1), 149-168. https://doi.org/10.30924/mjcmi.26.1.9

Kaewkhamnuan, T., & Rotchanakitumnuai, S. (2022). Impact of e-HRM system on employee performance.

Kajongwe, C., Sibanda, N., Mambo, R., & Ndimutseyi, W. (2020). Dynamics of Human Resources Information System in the Performance of Employees in Zimbabwe State Universities. *Journal of Popular Education in Africa*, *4*(4), 20-34.

Kananu, K. M., & Nyakego, M. (2015). An assessment of the utilisation of Human Resource Information Systems in selected universities in Kenya. *Research on Humanities Social Sciences*, *5*(14), 142-153.

Karanja, D., Sang, A., & Ndirangu, M. (2018). Influence of ICT integration on human resource management in Kenyan public universities. *International Journal of Sustainability Management Information Technologies*, *3*(6), 73. https://doi.org/10.11648/j.ijsmit.20170306.13

King, R. (2009). *Governing universities globally: Organisations, regulation and rankings*. Edward Elgar Publishing.

Lin, C. (2019). Applying the UTAUT model to understand factors affecting the use of e-books in Fujian, China. In.

Lwoga, E. T., & Komba, M. (2015). Antecedents of continued usage intentions of web-based learning management systems in Tanzania. *Education+ training*, *57*(7), 738-756. https://doi.org/10.1108/ET-02-2014-0014

Mahamoud, A. (2021). *Impact of Human Capital Management Information System on Organisation Performance in Tanzania*, The Open University of Tanzania.

Maphosa, V. (2021). The Adoption of e-HRM: A View of a Telecommunications Company in Zimbabwe. *Advances in Research*, *22*(6), 1–13. https://doi.org/10.9734/AIR/2021/v22i630315

Marler, J. H., & Fisher, S. L. (2013). An evidence-based review of e-HRM and strategic human resource management. *Human Resource Management Review*, *23*(1), 18–36. https://doi.org/10.1016/j.hrmr.2012.06.002

Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement and e-HRM technology. *The International Journal of Human Resource Management*, *27*(19), 2233–2253. https://doi.org/10.1080/09585192.2015.1091980

Masele, J. J., Kagoma, R. S., & Management. (2023). Usefulness of human capital management information systems on payroll reliability among public universities in Tanzania. *Public Money Management*, *43*(2), 165–173. https://doi.org/10.1080/09540962.2021.1906579

Matimbwa, H. M. H., & Olatokun, W. (2024). Human capital management information system: scope of application and challenges facing the public sector in Tanzania. *9*(1), 29-46. https://doi.org/ Regional Journal of Information Knowledge Management

Mazikana, A. T. (2023). Evaluating the Role and Influence of Technology on the Future of Human Resources Management in Zimbabwe: A Case Study of DDF. *Available at SSRN 4637428*. https://doi.org/10.2139/ssrn.4637428

Mbamba, U. O., & Sanga, J. J. (2024). Human Resource Information Systems Usage and Competitiveness of Organisations: A Survey of Higher Learning Institutions in Tanzania. *University of Dar es Salaam Library Journal*, *19*(1), 156–172. https://doi.org/10.4314/udslj.v19i1.11

Mgaiwa, S. J. (2021). Fostering graduate employability: Rethinking Tanzania's university practices. *Sage Open*, *11*(2), 21582440211006709. https://doi.org/10.1177/21582440211006709

Midiwo, J. (2016). *Influence of Human Resource Information Systems on the Performance in Kenyan Public Universities*, Jomo Kenyatta University of Agriculture and Technology.

Mollel, H. L., & Rutenge, M. M. (2024). Adoption and Use of Electronic Human Resources Management Systems for Service Delivery in Tanzania: A Case Study of Tanzania Airports Authority. *African Journal of Empirical Research*, *5*(4), 617 626 617–626.

Mtebe, J., & Raisamo, R. (2014). Investigating students' behavioural intention to adopt and use mobile learning in higher education in East Africa. *International Journal of Education Development using ICT*, *10*(3).

Mtebe, J. S., & Raisamo, R. (2014). Challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania. *International Review of Research in Open and Distributed Learning*, *15*(1), 249–271. https://doi.org/10.19173/irrodl.v15i1.1687

Mtebe, J. S., & Raphael, C. (2018). Key factors in learners' satisfaction with the e-learning system at the University of Dar es Salaam, Tanzania. *Australasian Journal of Educational Technology*, *34*(4). https://doi.org/10.14742/ajet.2993

Mwita, K. (2020). Effects of the coronavirus pandemic (COVID-19) on selected human resource management practices in Tanzania. *East African Journal of Social and Applied Sciences*, *2*(2), 252-260.

Nedumaran, G., & Rani, C. (2021). A study on the impact of E-HRM activities on the company's growth. *ZENITH International Journal of Multidisciplinary Research*, *11*, 18-28.

Ngulugulu, M. M., Rwela, E. G., & Mkwizu, N. Y. (2023). Adoption of human resource information systems in the public sector in Tanzania. *East African Journal of Information Technology*, *6*(1), 66–76.

Ngwa, P. (2023). E-Governance and Cameroon Universities' Management. *International Journal of Scientific Advances*, *4*(2), 194–203. https://doi.org/10.51542/ijscia.v4i2.10

NJEJE, D. A. (2018). *EFFECTS OF HUMAN RESOURCE INFORMATION SYSTEMS ON THE PERFORMANCE OF SACCOS IN KENYA: A SURVEY OF SELECTED SACCOS, KABARAK UNIVERSITY*.

Njoku, E., Ruël, H., Rowlands, H., Evans, L., & Murdoch, M. (2019). An analysis of the contribution of e-HRM to sustaining business performance. In *HRM 4.0 For Human-Centred Organisations* (pp. 21–39). Emerald Publishing Limited.

Ntorukiri, T. B., Kirugua, J. M., & Kirimi, F. (2022). Policy and infrastructure challenges influencing ICT implementation in universities: a literature review. *Discover Education*, *1*(1), 19. https://doi.org/10.1007/s44217-022-00019-6

Obeidat, S. M. (2016). The link between e-HRM use and HRM effectiveness: an empirical study. *Personnel Review*, *45*(6), 1281-1301. https://doi.org/10.1108/PR-04-2015-0111

Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in human behaviour*, *61*, 404–414. https://doi.org/10.1016/j.chb.2016.03.030

Paul, K. J., Musa, M., & Nansubuga, A. K. (2015). Facilitating conditions for E-learning adoption—Case of Ugandan universities. *Journal of Communication Computer*, *12*(5), 244–249. https://doi.org/10.17265/1548-7709/2015.05.004

Percy, T., & Van Belle, J.-P. (2012). Exploring the barriers and enablers to the use of open educational resources by university academics in Africa. IFIP International Conference on Open Source Systems,

Rahman, M., Mordi, C., & Nwagbara, U. (2018). Factors influencing E-HRM implementation in government organisations: Case studies from Bangladesh. *Journal of Enterprise Information Management*, *31*(2), 247–275. https://doi.org/10.1108/JEIM-05-2017-0066

Rana, S., & Kaur, D. (2024). Exploring the challenges and facilitators in the adoption of e-HRM practices in Indian higher education institutions: a qualitative exploration. *International Journal of Organisational Analysis*, *32*(8), 1419–1439. https://doi.org/10.1108/IJOA-05-2023-3745

Rawashdeh, A. M., Elayan, M. B., Alhyasat, W., & Shamout, M. D. (2021). Electronic human resources management perceived usefulness, perceived ease of use, and continuance usage intention: The mediating role of user satisfaction in the Jordanian hotel sector. *International Journal for Quality Research*, *15*(2), 679. https://doi.org/10.24874/IJQR15.02-20

Raza, S. A., Shah, N., & Ali, M. (2019). Acceptance of mobile banking in Islamic banks: evidence from the modified UTAUT model. *Journal of Islamic Marketing*, *10*(1), 357–376. https://doi.org/10.1108/JIMA-04-2017-0038

Rohayati, T. (2024). Integrating Human Resources Management and Digital Competencies: A Strategic Approach in Higher Education. *Al-Ishlah: Jurnal Pendidikan*, *16*(2), 1118-1127. https://doi.org/10.35445/alishlah.v16I2.5286

Sabas, J., & Kiwango, T. (2021). The Assessment of Facilitating Conditions Influencing the Adoption of Students' Information Systems in Higher Learning Institutions. *The Accountancy Business Review*, *13*(1). https://doi.org/10.59645/abr.v13i1.2

Sani, A., Husen, S., Wahidah, R. N., & Mustajab, D. (2024). Evolution of HRM strategies in the digital age: A comprehensive review. *Amkop Management Accounting Review*, *4*(1), 42–58.

Sarayreh, B., Mardawi, A., & Aldmour, R. (2012). Comparative study: The Nonaka model of knowledge management. *International Journal of Engineering Advanced Technology*, *1*(6), 45–48.

Shah, N., Michael, F., & Chalu, H. (2020). Conceptualising challenges to electronic human resource management (e-HRM) adoption: A case of Small and Medium Enterprises (SMEs) in Tanzania. *Asian Journal of Business Management*, *8*(4).

Soliman, M. S. M., Karia, N., Moeinzadeh, S., Islam, M. S., & Mahmud, I. (2019). Modelling intention to use ERP systems among higher education institutions in Egypt: UTAUT perspective. *International Journal of Supply Chain Management*, *8*(2), 429–440.

Stone, D. L., & Dulebohn, J. H. J. H. R. M. R. (2013). Emerging issues in theory and research on electronic human resource management (eHRM). In (Vol. 23, pp. 1-5): Elsevier.

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society: Series B*, *36*(2), 111–133. https://doi.org/10.1111/j.2517-6161.1974.tb00994

Tabachnick, B. G., & Fidell, L. S. (2013). Using multivariate statistics (6. Baskı). *MA: Pearson*.

Tariq, H., Mumtaz, S. N., Malokani, D. K. A. K., Shaikh, D. H., Hassan, N., & Malokani, M. (2025). Impact of Digital HRM on Academicians' Performance in Higher Educational Institutions of Sindh: Exploring the Mediating Role of Organisational Empowerment and Moderating Role of Digital Innovation. *Metallurgical Materials Engineering*, *31*(1), 277–287. https://doi.org/10.63278/10.63278/mme.v31.1

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers Education*, *57*(4), 2432–2440. https://doi.org/10.1016/j.compedu.2011.06.008 Get rights and content

Theres, C., & Strohmeier, S. (2023). Met the expectations? A meta-analysis of the performance consequences of digital HRM. *The International Journal of Human Resource Management*, *34*(20), 3857-3892. https://doi.org/10.1080/09585192.2022.2161324

Tuli, F. A., Varghese, A., Ande, J., & Business. (2018). Data-driven decision making: A framework for integrating workforce analytics and predictive HR metrics in digitalised environments. *Global Disclosure of Economics Business*, *7*(2), 109–122.

Van Raaij, E. M., & Schepers, J. J. (2008). The acceptance and use of a virtual learning environment in China. *Computers Education*, *50*(3), 838-852. https://doi.org/10.1016/j.compedu.2006.09.001

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., Chan, F. K., Hu, P. J. H., & Brown, S. A. (2011). Extending the two-stage information systems continuance model: Incorporating UTAUT predictors and the role of context. *Information systems journal*, *21*(6), 527–555. https://doi.org/10.1111/j.1365-2575.2011.00373

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 157-178. https://doi.org/10.2307/41410412

Venkatesh, V., Thong, J. Y., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17*(5), 328-376.

Williams, M., Rana, N., Dwivedi, Y., & Lal, B. (2011). Is UTAUT really used or just cited for the sake of it? A systematic review of citations of UTAUT's originating article.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *Journal of Enterprise Information Management*, *28*(3), 443–488. https://doi.org/10.1108/JEIM-09-2014-0088

Wyatt, W. (2002). e-HR: Getting Results along the Journey. *Survey report*.

Zutshi, A., & Sohal, A. S. (2004). Adoption and maintenance of environmental management systems: critical success factors. *Management of Environmental Quality: An International Journal*, *15*(4), 399-419. https://doi.org/10.1108/14777830410540144

Exploring the Role of Work Engagement in Enhancing Service Quality Through Succession Planning in Tanzania's Rural Health Facilities

Protasia Prosper[1], Chacha Matoka[1] and Charles Cleophace Ngirwa[2]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania
[2]Department of Human Resource Management, Institute of Social Work Tanzania
Author corresponding email: Protasiaprosper17.pp@gmail.com
DOI: https://doi.org/10.61538/pajbm.v9i2.1891

Abstract
Rural public health facilities in Tanzania struggle to deliver quality services due to limited human resource development and weak succession planning. This study investigates the mediating role of work engagement in the relationship between succession planning and employee service quality in rural health facilities in Mtwara Region. Grounded in Social Exchange Theory, the Job Demand-Resource model, and the SERVQUAL framework, a quantitative cross-sectional design was used. Data were collected from 285 healthcare workers through self-administered questionnaires using a multi-stage sampling technique. Analysis was conducted using IBM SPSS 25 and Partial Least Squares Structural Equation Modeling (PLS-SEM). Results revealed that succession planning had no significant direct effect on service quality ($\beta = 0.061$, $t = 1.480$, $p = 0.139$) but significantly predicted work engagement ($\beta = 0.523$, $t = 9.927$, $p = 0.000$). Work engagement positively influenced service quality ($\beta = 0.814$, $t = 39.330$, $p = 0.000$). Mediation analysis confirmed full mediation ($\beta = 0.425$, $t = 11.820$, $p < 0.001$), indicating that succession planning enhances service quality indirectly via engagement. These findings highlight the need to integrate engagement strategies such as mentorship and support with succession planning to improve service delivery in resource-constrained settings.

Keywords: *Succession planning, work engagement, Quality Service Delivery, Healthcare.*

INTRODUCTION

Rural public health facilities are essential for delivering essential healthcare to underserved populations in low- and middle-income countries, including Tanzania. These facilities are key to achieving global health goals such as Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs) (Dowou et al., 2023; Jones et al., 2022). In Tanzania, they serve as frontline providers for remote communities and are central to national

strategies such as the Health Sector Strategic Plan (HSSP) and Tanzania Development Vision 2025 (Ministry of Health, 2021). However, these facilities face persistent human resource challenges, including inadequate succession planning practices such as a lack of career guidance, limited mentoring, unclear promotion pathways, and unfilled internal vacancies, which contribute to workforce instability and compromised service quality (Mwamkuu et al., 2024; Rothwell, 2016).

Addressing these issues requires innovative human resource management (HRM) strategies that build internal leadership pipelines while fostering employee engagement and improving performance (Abdullahi et al., 2022b; Schmidt et al., 2021). In rural healthcare settings, where high staff turnover and skills shortages are common, succession planning plays a vital role in reducing service disruptions by preparing employees for key positions in advance (Dzombak et al., 2022; Pathman et al., 2019). However, the success of such initiatives also relies on psychological drivers particularly work engagement, a motivational state marked by vigor, dedication, and absorption (Abdullahi et al., 2022a). Engaged employees are typically more motivated, aligned with their roles, and committed to delivering quality care (Prakash & Nandini, 2024; Wee & Lai, 2022). Thus, work engagement may serve as a critical mechanism through which succession planning enhances service outcomes (Arif et al., 2023; Abdullahi et al., 2022a).

Despite these insights, limited research has examined how succession planning and work engagement jointly influence employee service quality in Tanzania's rural health sector. Existing studies primarily focused on other sectors, such as family-owned SMEs, NGOs, education, and manufacturing sectors (Magasi, 2021; Tarimo et al., 2024; Sikawa, 2020; Kiwia et al., 2020). While research in other countries has explored succession planning and work engagement (Abdullahi et al., 2022a; Arif et al., 2023; Schaufeli et al., 2021; Schmidt et al., 2021), their findings may not fully apply to Tanzania's rural healthcare sector due to contextual differences. This study addresses this gap by examining the effect of succession planning on service quality through the mediating role of work engagement in rural public health facilities in Tanzania. The findings aim to contribute to theory and practice by informing how strategic HRM can enhance service delivery in resource-constrained environments, offering practical insights for health managers and policymakers.

Theoretical Literature Review

This study adopts an integrated theoretical framework comprising Social Exchange Theory (SET), the Job Demands-Resources (JD-R) Model, and the

SERVQUAL Model to examine the relationships among succession planning, work engagement, and service quality in rural healthcare. SET, developed by Homans (1958), posits that human interactions, including those within organizations, are governed by reciprocal exchanges where individuals seek mutual benefit. In this context, when employers invest in succession planning strategies such as leadership development, promotion opportunities, and career mentoring, employees perceive this as organizational support (Ali & Mehreen, 2019). This perceived support encourages employees to reciprocate by committing, engaging, and performing service (Abdullahi et al., 2022b; Lewis, 2025). In rural and resource-constrained settings, where such opportunities are often lacking, weakened perceptions of support may reduce engagement and negatively impact service delivery (Cropanzano & Mitchell, 2005; Twineamatsiko et al., 2023).

The Job Demands-Resources (JD-R) theory by Demerouti et al. (2001) provides a comprehensive framework for understanding the interplay between job demands and job resources in influencing employee well-being, motivation, and performance. In the context of this study, succession planning functions as a key job resource that satisfies employees' needs such as career guidance, internal promotions, leadership mentoring, and structured talent development, thereby promoting higher levels of work engagement (Albrecht et al., 2020). The availability of such resources enhances motivation and resilience, enabling healthcare workers to perform better, particularly in rural settings where external motivators may be limited (Knani & Fournier, 2023).

The SERVQUAL model, developed by Parasuraman et al. (1988), identifies five dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles. Although traditionally used to assess patient perceptions, recent studies have adapted SERVQUAL to capture healthcare workers' views on the quality of care they deliver (Uwimana et al., 2021). In this study, the model is used to assess how succession planning practices, such as leadership development, career mentoring, and clear promotion paths, affect service quality from providers' perspectives (Košir et al., 2021; Nafei, 2015). Despite growing use of the model, limited research in Tanzania applies SERVQUAL from the employee's viewpoint in rural facilities, and even fewer examine work engagement as a mediating factor. This study addresses these gaps by adapting SERVQUAL to understand how succession planning and work engagement jointly shape service quality outcomes in rural healthcare.

Empirical Literature Review and Hypothesis Development

Prior research on succession planning and service quality presents mixed findings. Jiang and Luo (2022), studying China's banking sector using SEM with 400 employees, found no significant direct effect of succession planning on employee performance. They emphasized that career growth opportunities are essential to complement succession strategies. In contrast, Rothwell (2016) found that healthcare institutions in North America and Europe that prioritized leadership development and mentorship experienced better service outcomes. Similarly, Jones et al. (2022) examined 400 healthcare professionals in Sub-Saharan Africa and reported that structured succession planning enhanced service delivery when paired with leadership development initiatives. However, challenges like resource constraints and unstructured leadership pathways hindered implementation, particularly in rural areas. This was further supported by Nguyen et al. (2022), who identified obstacles, including unclear succession policies and limited resources, in Southeast Asian organizations. Comparable issues were found by Mabhanda and Masukume (2025) in Zimbabwe's public healthcare facilities, where poor implementation contributed to high staff turnover and lower service quality.

Studies have also linked succession planning with employee work engagement. Schaufeli and De Witte (2023), in a longitudinal study of Dutch hospitals, reported that engaged employees deliver higher quality care. Sonnentag et al. (2021) observed similar results in the hospitality industry, where work engagement significantly improved customer service. Lerotholi and Bezuidenhout (2023), focusing on South African public hospitals, found that succession planning promoted engagement through clearer career paths and professional development. These findings align with the Job Demands–Resources model, which frames career growth and mentoring as critical job resources that boost engagement.

Further studies have examined the mediating role of work engagement in the relationship between succession planning and performance outcomes. Arif et al. (2023), studying academic staff in Pakistan, found a significant indirect effect of succession planning on performance through engagement. Likewise, Abdullahi et al. (2022a) confirmed a partial mediation effect in Malaysian universities using PLS-SEM. Cannon and Rucker, (2020), in a public sector study, showed that succession planning indirectly improved organizational performance by enhancing engagement. Schmidt et al., (2021), using PLS-SEM with 450 teachers, found that leadership practices like mentoring improved engagement, which in turn enhanced performance. These findings suggest that while succession planning may not always directly influence service quality, its positive impact on engagement can lead to stronger

performance outcomes. This supports the need to view engagement as a mediating mechanism between succession efforts and service delivery in healthcare settings. Based on the reviewed literature, the following hypotheses are proposed:

H1: Succession planning has a positive and significant effect on service delivery in Tanzania's rural public health facilities.
H2: Work engagement has a positive and significant effect on service delivery in Tanzania's rural public health facilities.
H3: Succession planning has a positive and significant effect on work engagement in Tanzania's rural public health facilities.
H4: Work engagement mediates the relationship between succession planning and service delivery in Tanzania's rural public health facilities.

Conceptual Framework

The conceptual framework (Figure 1) outlines the proposed relationships, indicating that succession planning influences quality service delivery both directly and indirectly through the mediating role of work engagement.

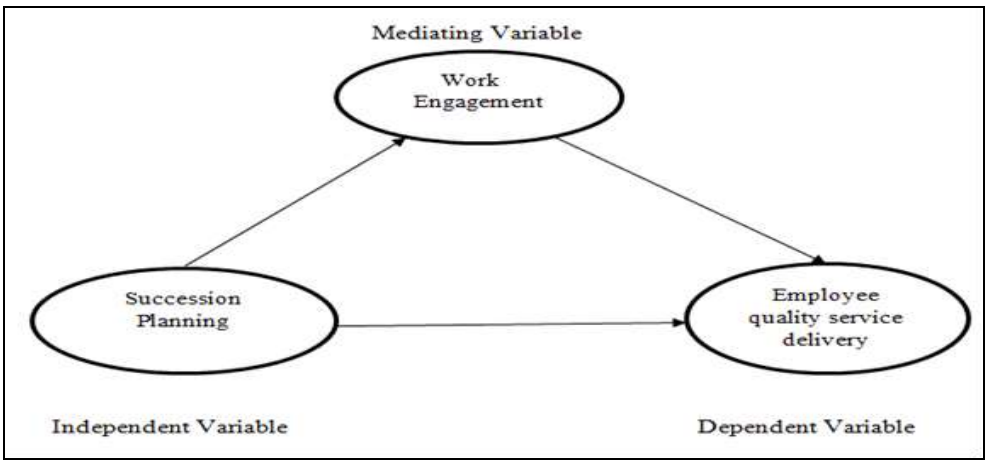

Figure 1: Conceptual Model

RESEARCH METHODOLOGY

Research Approach

This study adopted a positivist paradigm, which emphasizes objectivity, empirical observation, and quantitative methods to establish relationships between variables (Saunders et al., 2019). A quantitative research approach was used to assess the relationship between succession planning, work engagement, and employee quality service delivery (Creswell & Creswell, 2018).

Research Design

An explanatory research design was employed to examine cause-and-effect relationships among the study variables. A cross-sectional survey design was chosen to collect data at a single point in time (Bryman, 2018), enabling the analysis of current patterns and relationships within the study context.

Study Area and Population

The study was conducted in rural public health facilities in the Mtwara region, Tanzania, which have been reported to face persistent challenges in healthcare service quality (Gage et al., 2020). The target population consisted of 992 healthcare professionals, including medical doctors, nurses, clinical officers, health attendants, laboratory technicians, and pharmacists working in these facilities (RMO – Mtwara, 2023/2024).

Sampling Procedure and Sample Size

A multi-stage sampling technique was employed to select the study participants. In the first stage, five rural districts, including Mtwara, Tandahimba, Newala, Masasi, and Nanyumbu, were selected due to their relevance in representing rural healthcare settings in the Mtwara region. In the second stage, Yamane's formula (1967) with a 10% margin of error was applied to determine a sample of 63 rural health facilities from a total of 170 facilities, as listed in the Tanzania Health Facility Registry (HFR, 2023/2024). Finally, in the third stage, a total of 285 healthcare workers were selected using simple random sampling to ensure representation across different facility types and fairness to reduce selection bias among respondents.

Data Collection Methods

Data were collected using a structured, self-administered questionnaire with closed-ended questions to measure the main constructs: succession planning, work engagement, and quality service delivery. The questionnaire was pre-tested to ensure clarity and relevance before final administration.

Data Analysis Techniques

Data were analysed using IBM SPSS version 25 for descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM) for hypothesis testing. PLS-SEM was chosen due to its suitability for small to medium sample sizes and its ability to assess complex models with latent constructs (Hair et al., 2021). Both measurement and structural models were evaluated to test the reliability, validity, and hypothesized relationships among variables.

Ethical Considerations

Ethical clearance was obtained from the relevant institutional review board prior to data collection. All participants were informed of the study's purpose, assured of confidentiality, and provided informed consent voluntarily before participating.

STUDY FINDINGS

A total of 281 questionnaires were returned, yielding an 84% response rate. Data were cleaned, coded, and analysed using SPSS version 25, with missing values addressed through regression imputation and case-wise deletion (Hair et al., 2017).

Demographic Characteristics of the Respondents

The study included 281 respondents, as summarized in Table 1, which provides an overview of the sample population.

Table 1: Respondents' Demographic Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Age Group (Years)	18-24	14	5.0
	25-34	172	61.2
	35-44	64	22.8
	45-54	19	6.8
	55+	12	4.3
Gender Distribution	Male	153	54.4
	Female	128	45.6
Marital Status	Single	87	31.0
	Married	162	57.7
	Divorced	9	3.2
	Widowed	7	2.5
	Living with partner	16	5.7
Education Level	Certificate	93	33.1
	Diploma	162	57.7
	Bachelor's degree	21	7.5
	Master's degree	4	1.4
	Others	1	0.4
Job Experience (Years)	< 2	79	28.1
	3 to 10	165	58.7
	11 to 20	30	10.7
	21 to 30	2	0.7
	Over 31	5	1.8
Job Title	Medical Officer	25	8.9
	Clinical Officer	62	22.1
	Nurse	109	38.8
	Health Attendant	54	19.2
	Pharmacist	11	3.9
	Lab Technician	20	7.1

Source: Field data, 2025

Respondents consisted of healthcare professionals from rural public health facilities in Mtwara, such as nurses (38.8%), clinical officers (22.1%), and health attendants (19.2%), key frontline roles directly linked to service delivery. Most were aged 25–34 (61.2%), mid-career (3–10 years of experience, 58.7%), and held diplomas (57.7%), suggesting a workforce in need of career development and succession support. The near-equal gender distribution (54.4% male, 45.6% female) reflects a balanced perspective across staff. These characteristics are relevant as they influence how staff experience succession planning, respond to engagement efforts, and contribute to service quality. This demographic profile underscores the importance of structured HR practices that support early- and mid-career employees to foster engagement and enhance rural service delivery.

Assessment of the Measurement Model

The measurement model in PLS-SEM in Figure 2 defines how latent constructs are measured through observed indicators. This study focused on three constructs: succession planning (independent), work engagement (mediating), and employee quality service delivery (dependent), modeled reflectively. Reflective models assume high correlation among indicators, as they represent the same underlying construct, for example, work engagement measured by vigor, dedication, and absorption.

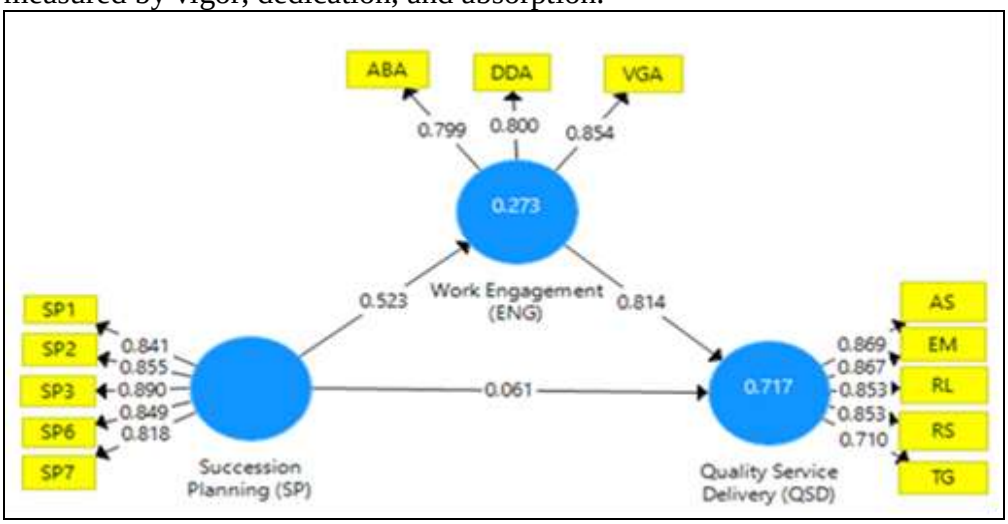

Figure 2: PLS-SEM, Measurement Model

Construct Reliability and Convergent Validity

Construct reliability and convergent validity were assessed using standard criteria: Cronbach's Alpha and Composite Reliability values exceeding 0.70 indicated acceptable reliability, while an Average Variance Extracted (AVE) value above 0.50 confirmed convergent validity (Hair et al., 2021).

Table 2: Construct Reliability and Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
QSD	0.888	0.895	0.918	0.693
SP	0.905	0.914	0.929	0.724
ENG	0.788	0.915	0.858	0.669

Source: Field Data, (2025)

The measurement model demonstrated strong reliability and validity across all constructs. QSD, SP, and ENG all exceeded recommended thresholds, with Cronbach's Alpha values above 0.78, Composite Reliability above 0.85, and AVE above 0.66, confirming their suitability for further analysis (Hair et al., 2021).

Discriminant Validity Assessment Using Fornell-Larcker Criterion

The Fornell-Larcker Criterion was used to assess discriminant validity, ensuring that the constructs are distinct from one another (Fornell & Larcker, 1988).

Table 3: Discriminant Validity - Fornell-Larcker Criterion

Constructs	QSD	SP	ENG
QSD	0.833		
SP	0.486	0.851	
ENG	0.845	0.523	0.818

Source: Field Data (2025)

As shown in Table 3, each construct's square root of AVE (diagonal) is greater than its correlations with other constructs, confirming discriminant validity. For example, QSD ($\sqrt{AVE} = 0.833$) exceeds its correlations with SP (0.486) and ENG (0.845); SP (0.851) is greater than its correlation with ENG (0.523); and ENG (0.818) also meets the criterion. These results indicate that all constructs are sufficiently distinct.

Discriminant Validity Assessment Using HTMT Ratio

The Heterotrait-Monotrait (HTMT) Ratio was used to assess discriminant validity, following Henseler et al. (2015). An HTMT value below 0.90 is generally acceptable, with more conservative thresholds set at 0.85 (Hair et al., 2021).

Table 4: Discriminant Validity – HMT Ratio

Constructs	QSD	SP	ENG
QSD			
SP	0.530		
ENG	0.851	0.571	

Source: Field Data (2025)

As shown in Table 4, all HTMT values were below the 0.90 threshold, indicating that the constructs are sufficiently distinct and supporting the discriminant validity of the measurement model. The HTMT values for SP and QSD were 0.530; for ENG and QSD, 0.851; and for ENG and SP, 0.571. These results confirm that the constructs meet the discriminant validity criteria.

Assessment of the Structural Model

The structural model was assessed by examining the path coefficients, the coefficient of determination (R^2) values, and predictive relevance (Q^2) to evaluate the strength and significance of the relationships between constructs. All hypothesized relationships were tested using bootstrapping as indicated in figure 3 to ensure robustness and reliability of the results (Hair et al., 2021).

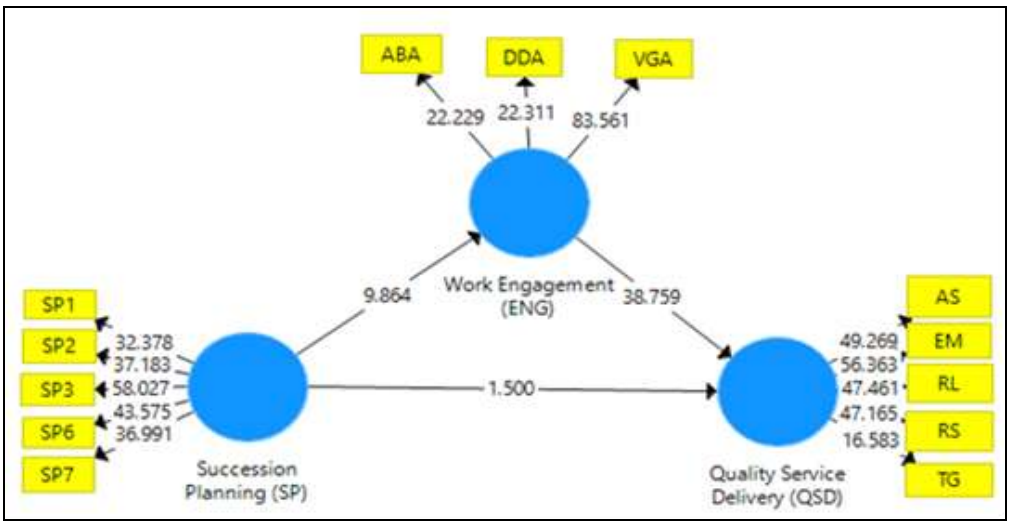

Figure 3: PLS-SEM Structural Model

Evaluation of Coefficient of Determination (R^2)

The R^2 value, or coefficient of determination, reflects how much variance in an endogenous variable is accounted for by the predictor variables. According to Hair et al. (2019), R^2 values of 0.75, 0.50, and 0.25 represent high, moderate, and low levels of explanatory power, respectively.

Table 5: Coefficient of Determination (R^2)

Constructs	R Square	R Square Adjusted
QSD	0.717	0.715
ENG	0.273	0.271

Source: Field Data (2025)

As shown in Table 5, the model explains 71.7% of the variance in quality service delivery and 27.3% of the variance in work engagement. According to Hair et al. (2019), the R^2 value for QSD indicates substantial explanatory power, while the R^2 for ENG reflects a weak to moderate level of explanation.

Evaluation of the Effect Sizes (f^2)

Effect sizes (f^2) were evaluated using the thresholds proposed by Cohen, (1988), where values of 0.02, 0.15, and 0.35 indicate small, moderate, and large effects, respectively.

Table6: Effect Sizes (f^2)

Constructs	QSD	SP	ENG
QSD			
SP	0.010		0.376
ENG	1.703		-

Source: Field Data, (2025)

As presented in Table 6, ENG has a large effect on QSD, with an f^2 value of 1.703. However, SP has a small effect on QSD ($f^2 = 0.010$) and a moderate effect on ENG ($f^2 = 0.376$). These results highlight the varying strengths of the relationships between the constructs in the model.

Evaluation of Predictive Relevance (Q^2)

Predictive relevance (Q^2) in PLS-SEM assesses the model's ability to predict the variance in endogenous constructs using the blindfolding procedure in SmartPLS. A Q^2 value greater than zero indicates predictive relevance, while values above 0.35 are considered large (Hair et al., 2021).

Table 7: Predictive Relevance (Q^2)

Constructs	SSO	SSE	Q^2 (=1-SSE/SSO)
ENG	843	528.875	0.373
QSD	1,405.00	562.598	0.6
SP	1,405.00	1,405.00	-

Source: Field Data, (2025)

As presented in Table 7, ENG ($Q^2 = 0.373$) and QSD ($Q^2 = 0.600$) demonstrate strong predictive relevance, suggesting that the model has substantial predictive capability for these key constructs. SP, being an exogenous variable, does not have a Q^2 value.

Evaluation of the Model Fit

The model fit assessment was conducted using PLS-SEM measures, including the SRMR (Standardized Root Mean Square Residual) and the d_ULS (distance-based discrepancy).

Table 8: Model Fit

Model	Saturated Model	Estimated Model
SRMR	0.121	0.121
d_ULS	1.325	1.325

Source: Field Data (2025)

The model fit indices for both the saturated and estimated models are presented in Table 8. The SRMR value of 0.121 for both models indicates an acceptable fit, as values below 0.10 typically represent a good fit. The d_ULS (distance-based discrepancy) value of 1.325 suggests minimal discrepancy between the models, further supporting the model's adequacy (Ringle et al., 2020).

Hypotheses Testing for Direct Relationship

Path coefficients (β) indicate the strength and direction of the relationships between variables, with values closer to 1.0 representing stronger effects. A path is statistically significant if the t-value exceeds 1.96 and the p-value is below 0.05 (Hair et al., 2017; 2019). Hypotheses were tested using a bootstrapping procedure, a common resampling technique in PLS-SEM.

Table 9: Hypothesized Direct Relationship

Hypothesis	Path	Original Sample (β)	T Statistics	P Values	Results
H1	SP -> QSD	0.061	1.480	0.139	Non-significant
H2	SP ->ENG	0.523	9.927	0.000	Significant
H3	ENG ->QSD	0.814	39.330	0.000	Significant

Source: Field Data, (2025)

The results indicate that succession planning (SP) had no significant direct effect on quality service delivery (QSD) (H1: $\beta = 0.061$, $t = 1.480$, $p = 0.139$). However, it significantly influenced work engagement (ENG) (H2: $\beta = 0.523$, $t = 9.927$, $p < 0.001$), which in turn had a strong and significant positive effect on quality service delivery (QSD) (H3: $\beta = 0.814$, $t = 39.330$, $p < 0.001$).

Mediation Analysis

The mediation analysis results for the path succession planning, work engagement and quality service delivery are presented in Table 10.

Table 10: Mediation Analysis Results

Hypothesis	Path	Original Sample (O)	T Statistics	P Values	Result
H4	SP -> ENG -> QSD	0.425	11.820	0.000	Significant

Source: Field Data, (2025)

The mediation analysis shows that work engagement significantly mediates the relationship between succession planning and quality service delivery ($\beta = 0.425$, $t = 11.820$, $p < 0.001$), supporting Hypothesis 4. This indicates that succession planning influences service delivery indirectly through its positive effect on employee engagement.

DISCUSSION

The analysis showed that succession planning has no significant direct effect on quality service delivery. This suggests that implementing succession plans alone may not be sufficient to enhance frontline service performance, particularly in rural healthcare settings. Previous studies of Jiang and Luo (2022), Nguyen et al. (2022), and Mabhanda and Masukume (2025) have similarly reported that the effectiveness of succession planning often depends on additional factors like mentorship, leadership support, and career development opportunities. According to SET, employees are more likely to reciprocate when they perceive tangible organizational support (Blau, 1964). In resource-constrained environments, succession planning may only translate into better service delivery when combined with strategies that actively engage and support employees. Therefore, the lack of a direct effect highlights the importance of integrating succession planning with broader employee engagement and development efforts to drive meaningful improvements in healthcare service delivery.

The findings revealed that succession planning has a significant positive influence on work engagement. This suggests that when employees are offered structured opportunities for career advancement, mentorship, and leadership development, they become more motivated and committed to their roles. This aligns with the JD-R theory, which identifies career development as a vital job resource that supports employee engagement (Bakker & Demerouti, 2007). Supporting studies by Lerotholi & Bezuidenhout (2023) and Jones et al. (2021) emphasize that elements such as coaching, mentoring, and career mapping help employees envision long-term prospects, thereby enhancing their level of engagement. These findings highlight the need for structured succession strategies within rural healthcare settings to promote engagement and improve overall service outcomes.

Furthermore, the analysis confirmed that work engagement is positively associated with quality service delivery. Engaged employees tend to exhibit greater vigor, dedication, and absorption in their work, which contributes to improved service standards. This finding is consistent with findings by Abdullahi et al. (2022a), Alharbi and Aloyuni (2023), Arif et al. (2023), and Sonnentag et al. (2021), who report that engaged staff are more effective in

their service roles. Schaufeli and De Witte, (2023) similarly observed that healthcare workers with high engagement levels demonstrate stronger patient-centered care and deliver better outcomes. This relationship is also supported by the JD-R theory, which posits that job resources, such as career development and supportive leadership, foster work engagement, ultimately enhancing job performance. These results highlight the importance of cultivating an engaging work environment to promote better service delivery, especially in resource-constrained rural health settings.

The study also established that work engagement fully mediates the relationship between succession planning and quality service delivery. This finding supports the SET (Blau, 1964), which posits that employees reciprocate organizational investments such as leadership development and mentorship with greater engagement and improved performance (Abdullahi et al., 2022a). It is also consistent with Cannon and Rucker's (2020) assertion that mediation can be significant even in the absence of a direct effect, provided the mediator plays a meaningful psychological role. Similarly, Arif et al. (2023) provide evidence that succession planning enhances service outcomes indirectly by fostering higher levels of employee engagement. These findings underscore the importance of succession planning strategies that not only identify and develop future leaders but also cultivate employee engagement to achieve sustainable improvements in service delivery, particularly within resource-constrained rural healthcare systems.

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

This study aimed to explore the role of work engagement in enhancing service delivery through succession planning and employee service. The findings revealed that while succession planning alone did not directly enhance service quality, it significantly influenced work engagement through structured career development initiatives such as leadership mentoring, promotion pathways, and internal talent development. Employees who perceived clear succession planning opportunities reported higher levels of vigour, dedication, and absorption in their roles. This heightened engagement, in turn, positively impacted their ability to deliver quality healthcare. The mediation analysis confirmed that work engagement serves as a key intermediary, indicating that succession planning improves service delivery primarily by fostering greater employee engagement.

To enhance service quality in rural public health facilities, policymakers and administrators should adopt structured succession planning programs aimed at building leadership pipelines, supporting career advancement, and

providing clear promotion pathways. Simultaneously, implementing work engagement strategies such as employee recognition, mentorship, and resource support can boost motivation and performance. Continuous monitoring and evaluation should guide these efforts, helping identify and address challenges like resource shortages or weak leadership structures. Moreover, cultivating supportive leadership through trust-building, open communication, and fair access to professional development will help sustain an engaged and high-performing healthcare workforce, even in resource-constrained settings.

This study has several limitations. It was confined to rural public health facilities in Mtwara, Tanzania, which may limit the generalizability of the findings to other regions or urban settings. The use of a cross-sectional design prevents causal conclusions, while reliance on self-reported data may introduce social desirability bias. Additionally, the study primarily focused on succession planning and work engagement, potentially overlooking other influential factors, such as leadership style or organizational culture. Future studies should adopt longitudinal and mixed-method approaches, expand geographic coverage, and include a broader range of variables to strengthen the findings.

REFERENCES

Abdullahi, M. A., Raman, M. S., & Solarin, I. T. (2022a). The mediating role of employee engagement on succession planning and employee performance: Evidence from Malaysian private universities. Journal of Applied Research in Higher Education, 13(2), 423–436.

Abdullahi, I. I., Yusuf, M. H., & Rashid, M. (2022). The mediating role of work engagement in the relationship between human resource management practices and employee performance. *Journal of Human Resources and Sustainability Development*, 10(2), 123–138.

Ali, Z., Mahmood, B., & Mehreen, A. (2019). Linking succession planning to employee performance: The mediating roles of career development and performance appraisal. Australian Journal of Career Development, 28(2), 112–121.

Albrecht, S. L., Marty, A., & Tuckey, M. R. (2020). How career development resources stimulate work engagement: A JD-R theory perspective. *Journal of Career Development*, 47(4), 407–421.

Arif, S., Khan, M. I., Abbas, F., & Javaid, T. (2023). Impact of succession planning on employee performance: Mediating role of employee engagement and job demands. *Sustainable Trends and Business Research*, 1(2), 88–100.

Blau, P. M. (1964). *Exchange and power in social life*. Wiley.

Bryman, A. (2018). *Social research methods* (5th ed.). Oxford University Press.

Chin, W. W. (2010). How to write up and report PLS analyses. In Handbook of partial least squares: Concepts, methods and applications (pp. 655–690). Springer.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: A qualitative, quantitative, and mixed method approach* (5th ed.). Sage Publications.

Dowou, R. K., Amu, H., Saah, F. I., Adeagbo, O., & Bain, L. E. (2023). Increased investment in Universal Health Coverage in Sub-Saharan Africa is crucial to attain the Sustainable Development Goal 3 targets on maternal and child health. *Archives of Public Health*, 81(34)

Dzombak, R., Meacham, K., & Singh, V. (2022). Succession planning in rural healthcare: A systematic review. *Journal of Rural Health*, 38(2), 245-257.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage Publications.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed). Sage Publications.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Homans, G. C. (1958). Social behavior as an exchange. *American Journal of Sociology*, 63(6), 597–606.

Jones, A., Smith, B., & Taylor, C. (2022). Human resource management in public health: A review of practices in sub-Saharan Africa. *Journal of Public Health Management, 30*(2), 45–60.

Knani, M., & Fournier, P.-S. (2023). Succession planning and turnover intentions: The mediating role of work engagement. *Journal of Business and Psychology*, 38(2), 321–335.

Kiwia, R. H., Bengesi, K. M. K., & Ndyetabula, D. W. (2020). Succession planning and performance of family-owned small and medium

enterprises in Arusha City, Tanzania. *Journal of Family Business Management,* 10(3), 213–228.

Kwon, K., & Kim, T. (2021). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, 31(2), Article 100708.

Košir, S., Lakshminarayanan, R., & Said, D. S. (2021). Some Aspects of the Relationship between Talent Management and Service Quality Components in Egyptian Law Firms. *International Journal of Management, Knowledge and Learning*, 10(1), 177–193.

Lewis, A. (2025). *Perceptions of Succession Planning Practices and Their Influence on Work Engagement in K–12* School Districts (Doctoral dissertation, The George Washington University).

Mabhanda, W., & Masukume, H. (2025). Impact of succession planning practices on employee relations among health professionals in one government hospital in Zimbabwe. *Annals of Management and Organization Research*, 6(3), 221–236.

Magasi, C. (2021). Management succession planning and family-owned manufacturing businesses survival: The moderating role of firm's background variables. *International Journal of Research in Business and Social Science*, 10(8), 12–24.

Ministry of Health, Tanzania. (2021). *Annual health sector performance report.* Government of Tanzania. Retrieved from https://www.moh.go.tz/storage/app/uploads/public/674/eb7/b97/674eb7b978fb5670908624.

Mwamkuu, P. M., Namusonge, E., & Nyile, E. K. (2024). Succession planning practices and service delivery in the health sector of Taita Taveta County Government. *African Journal of Emerging Issues*, 6(6), 39–61.

Nafei, W. A. (2015). Talent management and health service quality from the employee perspective: A study on teaching hospitals in Egypt. *American International Journal of Social Science, 4(1)*, 91–110.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.

Prakash, N., & Nandini, A. S. (2023). 'Workforce sustainability and quality of service in accredited hospitals in India: Mediating role of job engagement', *Problems and Perspectives in Management*, 22(1), 25–33.

Pathman, D. E., Konrad, T. R., & Agnew, C. R. (2019). Predictors of physician retention in rural and underserved areas: A 10-year review. *Health Affairs,* 38(5), 808–815.

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2020). Editor's comments: A critical look at the use of PLS-SEM in MIS Quarterly. MIS Quarterly, 44(1), iii–xvii.

Rothwell, W. J. (2016). *Effective succession planning: Ensuring leadership continuity and building talent from within* (5th ed.). AMACOM.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

Schmidt, J. A., Li, Y., & Zhang, W. (2021). Succession planning in rural schools: Effects on teacher engagement and student outcomes. *Educational Administration Quarterly*, 57(3), 423-450.

Sikawa, G. Y. (2020). Influence of Strategic Talent Management Practices on Teacher Retention in Rural Public Secondary Schools in Mkuranga District, Tanzania (Doctoral dissertation).

Tarimo, E. A., Mzava, H. Y., & Kyando, E. A. (2024). Effect of succession planning practices on NGOs performance in Tanzania. *European Journal of Management Issues*, 32(3), 166–173.

Twineamatsiko, A., Mugenyi, N., Kuteesa, Y. N., Kananura, R. M., & Atuyambe, L. (2023). Factors associated with retention of health workers in remote public health centers in Northern Uganda: A cross-sectional study. *Human Resources for Health*, 21(1), 83, 1–9.

Wee, K. Z., & Lai, A. Y. (2022). Work engagement and patient quality of care: A meta-analysis and systematic review. *Medical Care Research and Review*, 79(3), 345–358.

The Causal Linkage between Agriculture, Industry, and Service Sectors in Sub-Saharan Africa: Application of Panel CS-ARDL

Nelson Ndifwa[1], Felician Mutasa[2] and Kuldeep Kumar Saxena[3]
[1] Department of Official Statistics, Eastern Africa Statistical Training Centre
[2]Department of Economics and Business Studies, Mwenge Catholic University
[3] Department of Mathematics and Statistics, CCS Haryana Agricultural University
Author corresponding email: kasisindifwa@gmail.com
DOI: https://doi.org/10.61538/pajbm.v9i2.1894

Abstract
This study examines the relationships among agriculture, service, and industry sectors in Sub-Saharan Africa (SSA) using panel data from 49 countries, drawn from the UNECA database for the period 1980–2023. The CS-ARDL model was employed to assess both short- and long-run linkages. The findings revealed that all sectors experience significant short-run shocks, with negative effects from contemporaneous and early lagged values. In contrast, the significant error correction terms indicate a strong adjustment toward the long-run equilibrium. Agriculture benefits positively and significantly from services and industry in the long run, whereas the long-run effects on these sectors are largely insignificant. Lagged effects reveal delayed intersectoral spillovers, highlighting the potential for sectoral complementarities. At the same time, weak long-run integration underscores the need for policies to strengthen intersectoral linkages and support sustainable structural transformation. The study recommends that policies should focus on strengthening linkages between agriculture, services, and industry, while promoting sectoral diversification and agricultural productivity through technology, infrastructure, and human capital development. Furthermore, short-run shock mitigation measures such as safety nets and market stabilisation are essential to maintain stability and support sustainable long-term growth.

Keywords: *Intersectoral Linkages, Sub-Saharan Africa, Panel CS-ARDL*

INTRODUCTION

The relationship between the agricultural sector and industrial growth has long been a central theme in development literature. Integrating agricultural and industrial processes enhances productivity by strengthening value chains and fostering backward and forward linkages (Ye, 2023). In many developing countries, however, incentives and public investment remain biased toward manufacturing, effectively placing a disproportionate burden on agriculture to support industrial expansion (Anderson & Ponnusamy, 2023).

Hirschman's theory of unbalanced growth, as applied in studies of Nigeria and other countries, describes how agriculture serves as a source of raw materials for industry, while the industrial sector benefits from backward linkages by supplying inputs and technologies (Osuagwu, 2020). Conventional studies on agriculture–industry linkages usually consider agricultural performance as externally determined and industrial performance as internally driven, suggesting a unidirectional transfer of resources toward industry and urban areas. The observed trend was primarily due to constrained market and trading opportunities in low-income agrarian economies, coupled with their predominant focus on subsistence-oriented food production (Barrett et al., 2022).

Aboobaker (2024) explores how income growth and changing consumption patterns influence sectoral linkages. The study suggests that as income rises, the demand for food increases at a slower rate compared to non-food goods and services, leading to a shift in intersectoral linkages. Instead of merely being a resource supplier, agriculture, through technological modernisation, can enhance productivity in land, labour, and capital. This shift allows the sector to stimulate industrial and service activities by creating demand for intermediate inputs and, in open economies, by generating foreign exchange through exports to finance critical industrial imports (Barrett et al., 2022). Consequently, agriculture should be seen as both a driver and a beneficiary of industrial growth, providing dynamic demand and supply-side linkages that can accelerate overall economic transformation (Barrett et al., 2022).

This interdependence aligns with Hirschman's theory of unbalanced growth, which emphasises the importance of sectoral linkages in stimulating economic development. According to Hirschman (1958), sectors with the strongest linkages, measured by their direct and indirect purchases and sales, are best positioned to spur production and employment growth. Agriculture and industry exemplify this mutual dependence: Agriculture supplies food and raw materials to industry, while industry provides inputs such as fertilisers, pesticides, and machinery to agriculture (Gollin, 2023). These relationships can be understood as backward linkages, in which a sector relies on other sectors for inputs, and forward linkages, in which it distributes its outputs to the broader economy (Gollin, 2023).

The importance of agriculture in Africa has been underscored by policy commitments, such as the African Union's Maputo Declaration of 2003, which established the Comprehensive Africa Agriculture Development Programme (CAADP) to target a 6% annual growth in agricultural output and enhance food security (Africa Agriculture Status Report 2023). This

agenda was reinforced by the Malabo Declaration of 2014, which committed to eliminating hunger by 2025, and by the 2030 Agenda for Sustainable Development, which emphasises ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture (Sakho-Jimbira & Hathie, 2020).

Although agriculture's contribution to GDP has declined over time, it remains a key economic activity in Sub-Saharan Africa (SSA). It is essential for poverty reduction, food security, employment, and economic growth, particularly in rural areas (WB, 2023). The decline in agriculture's GDP share reflects the development of other sectors rather than poor performance, signalling early stages of structural transformation (WB, 2023). Nevertheless, agriculture, contributing about 23% to SSA's GDP, has not yet reached its full potential, and food insecurity has been on the rise since 2014 (Rege & Sones, 2022). Notably, in 2023, Sierra Leone and Niger recorded the highest agricultural contributions to GDP in SSA at 64.4% and 47.8%, respectively (WB, 2023).

Meanwhile, the service sector has become the fastest-growing sector globally, driving economic growth and boosting the performance of other sectors such as manufacturing (Roza et al., 2023). In SSA, services now account for the largest share of GDP, supported by industries such as banking, telecommunications, tourism, and retail. The expansion of mobile technology has revolutionised financial services, providing access to banking for previously unbanked populations. At the same time, tourism - although disrupted by the COVID-19 pandemic- remains a significant revenue source for several countries (WB, 2024). By 2023, the service sector accounted for 44.4% of SSA's GDP, surpassing both agriculture and industry. São Tomé and Príncipe and Cabo Verde led with figures of 79.0% and 70.6%, respectively (WB, 2024).

The industrial sector has shown uneven growth across SSA. While countries such as Ethiopia and Kenya have made significant investments in manufacturing and infrastructure, boosting output and job creation, other countries continue to face challenges linked to infrastructure gaps and political instability (WB, 2024). The sector, which includes mining, manufacturing, and construction, contributed 27.4% to SSA's GDP in 2023, higher than agriculture's share. Gabon recorded the most significant industrial contribution at 52.9%, followed by Equatorial Guinea at 51.2% (WB, 2024).

Figure 1 illustrates the contribution of agriculture, industry, and services to SSA's GDP from 2013 to 2023 (UNECA, 2024). The trends show

fluctuations across all three sectors, with services consistently dominating GDP shares, followed by industry and then agriculture. Agriculture's contribution rose slightly from 15.1% in 2013 to 17.2% in 2023, while industry's share fell marginally from 28.2% to 27.4%. Services, in contrast, declined from 51.1% to 44.4% over the same period (WB, 2024). The contraction in services' share reflects factors such as economic diversification, structural change, global conditions, technological shifts, and external shocks. These sectoral shifts indicate that SSA is gradually transforming from agriculture to industry and, eventually, to services, reflecting development trajectories similar to those observed in Asia's emerging economies.

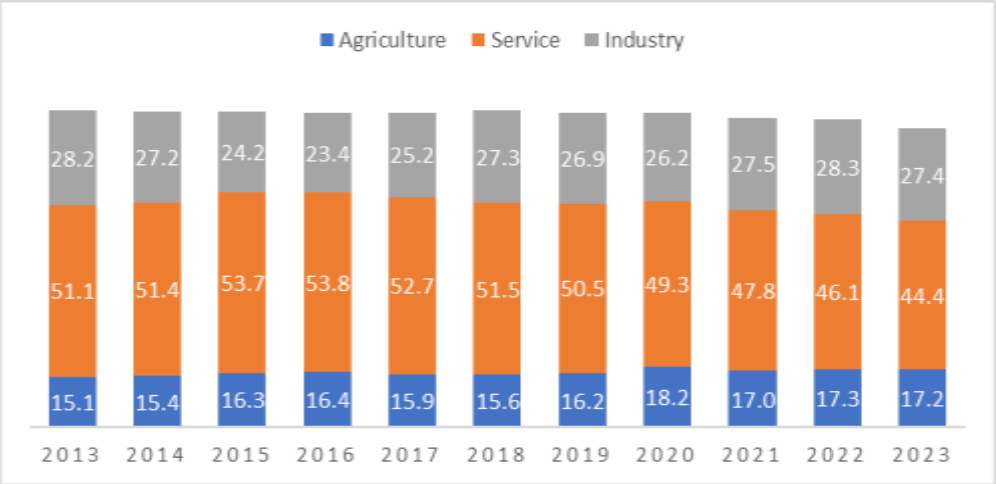

Figure 1: Percentage contribution to GDP of three major sectors in SSA countries
Source: UNECA database(2024)

The Intersectoral Linkage Theory, proposed by Hirschman (1958), posits that the strength of linkages among productive sectors propels economic development. According to the theory, a backward linkage arises when a sector stimulates upstream industries through demand for inputs, such as agricultural needs for fertilisers, machinery, and transport services. At the same time, a forward linkage occurs when the outputs of one sector serve as essential inputs for other industries, for example, agricultural raw materials used in manufacturing and agro-processing. These interactions generate multiplier effects that spread growth throughout the economy, suggesting that structural transformation depends on the degree to which sectors are integrated and mutually reinforcing.

Empirical studies have built upon Hirschman's theoretical foundation by analysing sectoral linkages across various economies. Roza et al. (2023),

employing input–output analysis in Southeast Aceh Regency, Indonesia, identified agriculture, mining, and manufacturing as sectors with strong backward linkages, while trade and services displayed robust forward linkages. In Nigeria, Osuagwu (2020) and Kelikume and Nwani (2020) applied Granger causality and vector autoregressive models, revealing bidirectional relationships between agriculture and manufacturing, highlighting mutual interdependence. Similarly, Degu (2019) found long-run equilibrium and causality among agriculture, industry, and services in Ethiopia, suggesting that intersectoral integration contributes to sustained growth.

Contrasting results emerge from other contexts. Asim and Akbar (2019) and Varkey and Panda (2018) reported mixed intersectoral effects, noting that industrial growth sometimes exerted negative pressure on agriculture, while service sector performance showed variable impacts across regions. Gollin (2023) emphasised agricultural productivity as a catalyst for structural transformation in Africa. In contrast, Anderson and Ponnusamy (2023) analysed more than 130 open economies and found that shifts away from agriculture depend on trade structures and endowments rather than policy differences. Yei (2023), examining China, demonstrated that rural industrial integration enhances agricultural total factor productivity through technological progress and efficiency improvements, further supporting the intersectoral linkage hypothesis.

Despite extensive research on structural transformation, existing studies in SSA reveal both theoretical and methodological limitations. Theoretically, Hirschman's (1958) Intersectoral Linkage Theory emphasises the interdependence between agriculture and industry but largely overlooks the growing influence of the service sector and technological innovation in shaping modern economic structures. In SSA, transformation patterns increasingly exhibit a services-led trajectory, reflecting shifts driven by digitalisation, finance, and information technology dynamics that the original framework fails to capture. Methodologically, previous empirical studies have often relied on static or time-series approaches that inadequately address key econometric issues such as cross-sectional dependence, heterogeneity, and endogeneity across countries.

To address these gaps, this study applies a panel analysis of 49 SSA countries using the Cross-Sectionally Augmented ARDL (CS-ARDL) model developed by Chudik and Pesaran (2015). This approach distinguishes between short- and long-run sectoral linkages while accommodating varying levels of variable stationarity and cointegration. Integrating the service sector

into the theoretical framework and employing a more robust econometric method, the study seeks to provide deeper insights into the causal interrelationships among agriculture, industry, and services in SSA, thereby extending both the theoretical and empirical understanding of structural transformation.

METHODOLOGY

Research Philosophy

Research philosophy refers to the underlying framework that guides how research is conceptualised and conducted, particularly in terms of assumptions about the nature of reality and the nature of knowledge (Collis & Hussey, 2014). This study adopted a post-positivist research philosophy, which is based on the assumption that truth is objective and can be understood through observable and measurable facts independent of the researcher's personal beliefs or interpretations.

The approach was considered appropriate for this study because the analysis relied on panel data obtained from the United Nations Economic Commission for Africa (UNECA) database. The use of panel data, which comprises multiple observations over time across different countries, requires objective, quantitative methods for analysing trends, relationships, and causal effects. It aligns with the post-positivist emphasis on empirical observation, statistical measurement, and hypothesis testing.

Moreover, the study employed a quantitative research design, using structured data collection methods and statistical techniques, such as panel regression analysis, to establish relationships between variables. These methods reflect the post-positivist belief in the scientific method as the basis for knowledge generation. As Žukauskas et al. (2018) note, post-positivism views the researcher as a neutral analyst who works independently of the data and whose role is to uncover facts through systematic analysis.

Research Design

This study adopted a quantitative panel research design to examine the dynamic interrelationships among the agriculture, industry, and service sectors in 49 Sub-Saharan African (SSA) countries covering the period 1980–2023. The design was suitable for capturing both cross-country variation and temporal dynamics, enabling a comprehensive understanding of structural transformation patterns across the region.

Sub-Saharan Africa is well-suited for studying intersectoral linkages among agriculture, industry, and services because it remains heavily dependent on

agriculture while undergoing a gradual structural transformation. Agriculture employs over half of the labour force, yet weak linkages with industry and services constrain value addition and balanced growth (World Bank, 2024; Sakho-Jimbira & Hathie, 2020).

The study employed a Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model developed by Chudik and Pesaran (2015). This approach was particularly appropriate for macro-panel data, as it accounts for cross-sectional dependence, heterogeneity, and potential endogeneity among variables, common issues in multi-country analyses. The CS-ARDL framework further allows for the distinction between short-run and long-run linkages, providing insights into both immediate sectoral responses and long-term structural adjustments.

Data for the analysis were obtained from reputable secondary sources, primarily the United Nations Economic Commission for Africa (UNECA) database (https://ecastas.uneca.org/data/). The key variables included value-added contributions of agriculture, industry, and services to GDP.

The analysis followed a systematic sequence, starting with descriptive statistics and panel diagnostic tests, which included checks for stationarity, cointegration, and cross-sectional dependence, before estimating the CS-ARDL model. This design ensured methodological rigour and enhanced the robustness and validity of the study's findings, enabling meaningful policy implications on the role of intersectoral linkages in driving structural transformation across SSA.

Data Validity and Reliability

To ensure validity, the study used data from the United Nations Economic Commission for Africa (UNECA), a reputable and authoritative source that provides standardised, internationally comparable macroeconomic and sectoral indicators. The source ensured that measures of agriculture, industry, and service-sector value-added are consistent across countries and over time. The use of official statistics enhanced content validity, as the variables accurately reflected the constructs of interest in economic structural transformation.

Reliability was ensured through consistent data collection, measurement, and reporting methods across countries and time periods. The panel dataset spans 49 SSA countries, providing a sufficient sample to minimise measurement errors and improve the stability of empirical estimates. Further, the use of the Cross-Sectionally Augmented ARDL (CS-ARDL) framework allowed the

study to control for cross-sectional dependence, heterogeneity, and endogeneity, reducing potential biases and improving the reproducibility of results. Moreover, all variables were checked for stationarity using the second-generation unit root, ensuring that the data series used in the model produced robust and reliable estimates.

Furthermore, combining high-quality data sources with rigorous econometric techniques, this study ensured that both the validity and reliability of the findings are maintained, supporting sound conclusions regarding intersectoral linkages in SSA.

Variable Selection

The study focused on three key sectors, namely, agriculture, industry, and services, as the primary drivers of economic structural transformation in Sub-Saharan Africa (SSA). The selection of these variables was grounded in Intersectoral Linkage Theory (Hirschman, 1958), which emphasised the importance of forward and backward linkages among sectors in fostering economic growth. Focusing on these three sectors, the study provided a comprehensive and theory-driven framework to analyse the dynamic interactions among agriculture, industry, and services, and their collective role in SSA's economic transformation.

Table 1: Definition of the variables

Variable Name	Unit	Definition
Dependent Variable		
Independent Variables		
Agriculture Share of GDP at Current Price	%	Refers to the percentage contribution of the agriculture sector (crops, livestock, forestry, and fishing) to the total GDP measured at constant prices (real terms)
Service Share to GDP at Current Price	%	The percentage contribution of the services sector (Wholesale and retail trade, Transport, storage, and communications, Accommodation and food services, Information and communication (ICT), Financial and insurance activities, real estate, professional, scientific, and technical services, public administration and defence, education, health, and social work, arts, recreation, and other service activities) to total GDP at constant prices.
Industry Share to GDP at Current Price	%	The percentage contribution of the Industrial sector (Mining and quarrying, Manufacturing, Electricity, gas, steam, and air conditioning supply, Water supply, sewerage, waste management, and construction) to total GDP at constant prices

Source: UNECA database (2024)

Panel Data Quality Tests

To account for interdependencies among the 49 Sub-Saharan African countries, the study first tested for cross-sectional dependence using Pesaran's CD test (2021) and Frees' test (1995), both of which confirmed significant reliance. In response, a second-generation panel unit root test was employed, specifically the CIPS (Cross-sectionally Augmented Im-Pesaran-Shin) test developed by Pesaran et al. (2013), which accounts for cross-sectional correlations. Optimal lag lengths were determined using information criteria to ensure accurate dynamic modelling. These procedures provided a robust and reliable assessment of stationarity, forming a solid foundation for analysing both short- and long-run intersectoral linkages among agriculture, industry, and services.

Theoretical Model Specification

The study conceptualised the interrelationships among agriculture, industry, and services within the framework of intersectoral linkage theory (Hirschman, 1958). The model assumes that the growth of each sector is influenced by both its own dynamics and the interactions with the other two sectors, capturing forward and backward linkages.

$$AS_{it} = f(SS_{it}, IS_{it}) \dots \dots \dots \dots \quad (1)$$

$$SS_{it} = f(AS_{it}, IS_{it}) \dots \dots \dots \dots \quad (2)$$

$$IS_{it} = f(AS_{it}, SS_{it}) \dots \dots \dots \dots \quad (3)$$

Where:
AS_{it} = Agriculture share of GDP in country i at time t
IS_{it} = Industry share of GDP in country i at time t
SS_{it} = Service share of GDP in country i at time t

Model Specification

To examine the short- and long-run relationships among the agriculture, service, and industry sectors in Sub-Saharan Africa, the study specified a dynamic panel model in which the dependent variable is the log of one sector and the independent variables are the logs of the other sectors. Given the presence of cross-sectional dependence, heterogeneity across countries, and potential endogeneity of lagged variables of one sector, the model was estimated using the Cross-Sectionally Augmented ARDL (CS-ARDL) approach proposed by Chudik and Pesaran (2015).

The CS-ARDL model can be expressed as follows:

$$\Delta Iny_{it} = \alpha_i + \sum_{i=1}^{p} \varphi_{it} \Delta Iny_{i,t-k} + \sum_{k=0}^{q} \beta_{1,ik} \Delta Inx_{1_{i,t-k}} + \sum_{k=0}^{q} \beta_{2,ik} \Delta Inx_{2_{i,t-k}} + \emptyset_i \left(Iny_{i,t-1} - \theta_{1,i} Inx_{1_{i,t-1}} - \theta_{2,i} Inx_{2_{i,t-1}} \right) + \varepsilon_{it} \quad (4)$$

Where:
$i = 1,2,3, \ldots\ldots, N$ indexes countries and $t = 1,2,3, \ldots\ldots, T$ indexes times,
Δ denotes first differences,
α_i is the country-specific fixed effect
φ_{it} captures the short-run dynamics of the dependent variable
$\beta_{j,ik}$ are the short-run effects of independent variables at lag k
The term in parentheses is the Error Correction Term (ECT) with $\emptyset_i$ measuring the speed of adjustment toward the long-run equilibrium
$\theta_{j,i}$ represent the long-run coefficients of independent variables (sector contributions)
e_{it} is the idiosyncratic error term.
This specification allowed for capturing both short-run dynamics and long-run relationships, while controlling for cross-sectional dependence via country averages of the variables.

Ethical Consideration

Research ethics and standards were constantly observed while undertaking the study. Research ethics are necessary measures to ensure that issues of anonymity, informed consent, avoidance of deception and harm, and confidentiality are observed as much as possible. Since this study used time-series secondary data from the Economic Commission of Africa Database (https://ecastas.uneca.org/data/), the researcher adhered to ethical considerations for research involving secondary data by providing a link to the data source for reference.

RESULTS AND DISCUSSION

Summary Statistics

Table 1 presents the summary statistics of the study variables used in the regression estimations. Although agriculture has historically played a vital role in the economies of Sub-Saharan African countries, the findings in Table 1 indicate that the service sector contributes the most to economic output, followed by the industry sector, with the agricultural sector lagging. On average, the agricultural sector's value is approximately USD 24.91 million per country, ranging from a maximum of USD 80.51 million to a minimum of USD 0.89 million (Table 1). These figures highlight the relatively modest scale of agricultural output compared to services and industry, despite

agriculture being a key source of livelihoods for the majority of SSA's population (WB, 2024). Moreover, the findings reveal that the values of the service, agriculture, and industry sectors are all positively skewed, suggesting that in most SSA countries, sectoral contributions lie below the computed averages for these variables.

Table 2: The Descriptive Statistics of the Study Variables

Variable	Obs.*	Mean	Std. dev.	Min	Max	Skewness
Agriculture (AS)	2,115	24.65	15.85	0.89	80.51	0.65
Service (SS)	2,112	49.31	12.90	6.44	87.09	0.24
Industry (IS)	2,115	25.73	12.67	0.27	83.80	1.23

Source: UNECA database (2024)
[*The difference in the number of observations is due to data gaps in some panels]

Optimal Lag Selection Results

Table 2 presents the results of optimal lag selection, based on the three modified information criteria: MAIC, MBIC, and MQIC. The findings indicate that all three criteria consistently identified lag three as the optimal lag length for the estimation analysis. The result suggests that incorporating three lag periods adequately captured the dynamic relationships among the study variables, while balancing model fit and complexity. The agreement across the three criteria enhances the robustness of the lag selection, providing greater confidence in the subsequent panel data estimations. This approach aligns with standard econometric practice in dynamic panel data analysis, as recommended (Chudik & Pesaran, 2015). Empirical applications in agricultural and sectoral studies have similarly used multi-lag specifications to capture delayed effects and dynamic spillovers (Degu, 2019; Kelikume & Nwani, 2020; Asim & Akbar, 2019), reinforcing the appropriateness of the selected lag length for robust inference.

Table 3: Selection Order Criteria Results

Lag	CD	J	J p-value	MBIC	MAIC	MQIC
1	0.9996507	41.79731	0.034461	727.7138	-161.5691	-67.23799
2	0.9996401	21.20276	0.269307	747.3285	-114.3748	-51.48744
3	0.9996636	9.65458	0.379165	611.4021	-8.34542	-26.69052
4	0.9996383					

Source: UNECA database (2024)

Panel Cross-sectional Dependence Test of the Study Variables

Table 3 presents the results of panel cross-sectional dependence tests for the study variables: Agriculture, Service, and Industry sectors. The analysis estimates Cross-sectional Dependence (CD) to determine whether 49 SSA countries are interdependent, a crucial step in selecting the appropriate

estimation model for the data. Two different methods were employed to test for cross-sectional dependence: Pesaran's CD test and Frees' test.

The findings in Table 3 provide evidence of correlation among the agriculture, service, and industry sectors in SSA countries. Both methods used to test for panel cross-sectional dependence are statistically significant at the 1% level, indicating that shocks in one sector are likely to affect the others. This outcome aligns with theoretical expectations of strong intersectoral linkages in developing economies, where agriculture, industry, and services are mutually dependent for inputs, labor, and market demand (Anderson & Ponnusamy, 2023).

Empirical studies similarly report significant cross-sectoral interactions: for example, Degu (2019) finds short-run crowding-out and delayed complementarities between agriculture and non-agricultural sectors in Ethiopia, while Bashir et al. (2019) and Quddus (2021) observe interdependencies among agriculture, industry, and services in Indonesia and Bangladesh, respectively. The results underscore the importance of accounting for cross-sectional dependence in panel estimations to obtain consistent and efficient parameter estimates (Pesaran, 2021; Chudik & Pesaran, 2015).

Table 4: Panel Cross-sectional Dependence Test of the Study Variables

Test	Statistic	Probability
Pesaran CD	21.873	0.0000
Frees	6.287	0.0000
	alpha = 0.10: 0.1841	
	alpha = 0.05: 0.2431	
	alpha = 0.01: 0.3603	

Source: UNECA database (2024)

Panel Unit Root Test of the Study Variables

Table 4 presents the results of the panel unit root tests for the study variables: Agriculture, Service, and Industry sectors. (The study employed second-generation panel unit root tests, specifically the Cross-sectionally Augmented Im, Pesaran, and Shin (CIPS) test, to determine the order of integration for these variables across 49 SSA countries. These tests are crucial in the presence of cross-sectional dependence, as they enhance the reliability of stationarity assessments and guide the selection of appropriate estimation models in panel data analysis.

The results in Table 4 indicate that agriculture is non-stationary at the level, whereas the service and industry sectors are stationary. However, agriculture

becomes stationary after first differencing. The panel unit root test results suggest that all variables were integrated of order one (I (1).

The findings mirror earlier studies showing that agriculture in developing economies is more volatile due to structural and climatic factors (Degu, 2019; Kelikume & Nwani, 2020; Asim & Akbar, 2019; Gollin, 2023). In contrast, industrial and service sectors show greater stability, consistent with Anderson and Ponnusamy (2023), while Ye et al. (2023) noted that technological integration in China helped reduce agricultural volatility

Table 5: CIPS Panel Unit Root Test of the Study Variables

	Level			First Difference		
Variable	**Test Statistic**	**P-Value**	**Lag**	**Test Statistic**	**P-Value**	**Lag**
InAS	-0.3997	0.3447	3	-25.9001	0.0000	3
InSS	-3.1651	0.0008	3	-	-	-
InIS	-2.5881	0.0048	3	-	-	-

Source: UNECA database (2024)

Panel CS-ARDL Estimation of Three Models for 49 SSA countries

The Panel CS-ARDL estimation was applied to examine the dynamic relationship between the agriculture sector (AS), the service sector (SS), and the industrial sector (IS) across 49 Sub-Saharan African countries.

Table 5 shows the short- and long-run interactions among agriculture, industry, and service sectors. In agriculture, the first- and second-order lags are negative and significant. At the same time, short-run effects from services and industry are also negative, indicating immediate suppression of agricultural output, consistent with Degu (2019) and Varkey and Panda (2018). Positive and significant lagged effects of services (first and third lags) suggest delayed benefits, supporting the findings of Kelikume and Nwani (2020) and Asim and Akbar (2019). The significant ECT (1.603) indicates a strong adjustment toward the long-run equilibrium, in line with Uddin (2015).

For services, all three lags are negative and statistically significant, indicating persistent internal shocks. Agriculture and industry negatively affect services in the short run, consistent with Bashir et al. (2019) and Quddus (2021). Lagged effects are mixed, with the first and third lags of agriculture and industry being positive, highlighting delayed complementarities. The ECT (–1.815) shows rapid convergence, consistent with Roza et al. (2023).

In the industry, contemporaneous effects of agriculture and services are negative, while lagged effects reveal positive spillovers (first and third lags of

agriculture; first lag of services), suggesting delayed benefits. Insignificant service lags indicate minimal internal persistence. The ECT (–1.205) confirms stable long-run adjustment, aligning with Osuagwu (2020), Gollin (2023), and the structural transformation framework of Anderson and Ponnusamy (2023) and Aboobaker (2024).

Table 6: Panel CS-ARDL Estimation Results for Three Models

Model 1: Agriculture		**Model 2: Service**		**Model 3: Industry**	
	Coefficient		**Coefficient**		**Coefficient**
Short Run Est.		**Short Run Est.**		**Short Run Est.**	
Mean Group:		Mean Group:		Mean Group:	
LD. InAS	-0.283**	LD. InSS	-0.376**	LD. InIS	-0.056
L2D.InAS	-0.302**	L2D.InSS	-0.351**	L2D.InIS	-0.174
L3D.InAS	-0.018	L3D.InSS	-0.088*	L3D.InIS	0.025
InSS	-1.363**	InAS	-0.506**	InSS	-1.401**
InIS	-0.773**	InIS	-0.480**	InAS	-0.973**
L.InSS	1.095**	L.InAS	0.297**	L.InAS	0.696**
L2. InSS	0.319	L2. InAS	0.015	L2. InAS	-0.056
L3. InSS	0.494**	L3. InAS	0.205**	L3. InAS	0.320*
L.InIS	0.606**	L.InIS	0.275**	L.InSS	1.512**
L2. InIS	0.130	L2. InIS	-0.022	L2. InSS	-0.192
L3. InIS	0.308**	L3. InIS	0.188**	L3. InSS	0.207
Adjust. Term		**Adjust. Term**		**Adjust. Term**	
Mean Group:		Mean Group:		Mean Group:	
lr_InAS	-1.603**	lr_InSS	-1.815**	lr_InIS	-1.205**
Long Run Est.		**Long Run Est.**		**Long Run Est.**	
Mean Group:		Mean Group:		Mean Group:	
lr_InIS	0.229*	lr_InAS	0.025	lr_InAS	0.123
lr_InSS	0.611*	lr_InIS	-0.002	lr_InSS	0.108

Source: UNECA database (2024)
[* and ** indicate that coefficients are significant at 5% and 1% respectively].

In the long run, agriculture benefits significantly from both the service and industry sectors. Its effects on services are positive but insignificant, while the impact of industry on services is negative and insignificant. Similarly, agriculture and services have positive but statistically insignificant effects on

industry. These results indicate strong short-run interdependencies but weak long-run integration in Sub-Saharan Africa (SSA), with agriculture showing relatively stronger linkages than other sectors.

The negative contemporaneous effects across all sectors reflect short-run disequilibria due to shocks such as climate variability, commodity price fluctuations, and supply chain disruptions. Nevertheless, significant negative ECTs across models demonstrate robust adjustment mechanisms that restore equilibrium, highlighting SSA's sectoral resilience. Positive and significant lagged effects reveal delayed complementarities, with agricultural growth stimulating industry through agro-processing and raw materials, and service-sector expansion enhancing productivity through logistics, finance, and communication (Kelikume & Nwani, 2020; Degu, 2019; Asim & Akbar, 2019).

Evidence from other regions supports these dynamics: backward and forward linkages in Southeast Aceh (Roza et al., 2023), bidirectional agriculture–industry relationships in Nigeria (Osuagwu, 2020; Kelikume & Nwani, 2020), and rural industrial integration in China, boosting agricultural productivity (Ye et al., 2023). Contrasting findings highlight context-specific effects of industrial expansion on agriculture (Asim & Akbar, 2019; Varkey & Panda, 2018), with productivity and structural shifts shaped by factor endowments, trade patterns, and technology (Gollin, 2023; Anderson & Ponnusamy, 2023). These results underscore the central role of intersectoral linkages in driving structural transformation and sustainable growth in SSA.

CONCLUSION AND RECOMMENDATIONS

This study concludes that all sectors face significant short-run shocks, yet robust error correction terms confirm strong adjustment toward the long-run equilibrium. Agriculture benefits positively and significantly from services and industry in the long run, whereas the long-run effects on these sectors remain weak and insignificant, highlighting limited structural integration. Strengthening intersectoral linkages, promoting diversification, and improving infrastructure and technology are therefore essential to support sustainable structural transformation in the region.

Based on these findings, the study recommends that strengthening intersectoral linkages among agriculture, industry, and services, particularly through agro-processing initiatives, is essential for sustainable structural transformation in Sub-Saharan Africa. Enhancing agricultural productivity through modern technology, irrigation, and digital supply platforms can boost efficiency. Meanwhile, diversifying production toward high-value, export-

oriented crops, along with supportive service activities, can create lasting sectoral linkages.

Policymakers should provide targeted investment incentives, subsidies, and tax breaks to promote agro-industrial development. Improving infrastructure, such as roads, storage, and electricity, will facilitate the movement of goods and services and enhance market access. Regulatory frameworks should balance industrial growth with agricultural sustainability by setting quality standards and ensuring input availability.

This study extends Hirschman's Intersectoral Linkage Theory by integrating the service sector and demonstrating multidirectional sectoral interactions in Sub-Saharan Africa. Using CS-ARDL panel analysis, it captures short- and long-run dynamics while addressing cross-sectional dependence and heterogeneity. The findings provide a replicable framework for future research, emphasising technological innovation and service sector integration as drivers of structural transformation.

REFERENCES

Aboobaker, A. (2024). Hierarchical consumption preferences, redistribution, and structural transformation. *Industrial and Corporate Change*, *33*(2), 490–506.

Africa Food Systems Forum. (2023). Africa Agriculture Status Report 2023. https://agra.org/africa-agriculture-status-report

Anderson, K., & Ponnusamy, S. (2023). Structural transformation away from agriculture in growing open economies. *Agricultural Economics*, *54*(1), 62–76.

Asim, H., & Akbar, M. (2019). Sectoral growth linkages of the agricultural sector: Implications for food security in Pakistan. *Agricultural Economics – Czech, 65*(6), 278–288.

Bashir, A., Suhel, A., Atiyatna, D., Hamidi, I., & Adnan, N. (2019). The causality between agriculture, industry, and economic growth: Evidence from Indonesia. *Etikonomi: Jurnal Ekonomi, 18*(2), 155–168.

Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food value chain revolutions in low- and middle-income countries. *Journal of Economic Literature, 60(4),* 1316–1377.

Chudik, A., & Pesaran, M. H. (2015). Common correlated effects estimation of heterogeneous dynamic panel data models with weakly exogenous regressors. *Journal of Econometrics, 188*(2), 393–420.

Collis, J., & Hussey, R. (2014). Business research (4th ed.). Palgrave Macmillan.

Degu, A. A. (2019). The causal linkage between agriculture, industry, and service sectors in the Ethiopian economy. *American Journal of Theoretical and Applied Business, 5*(3), 59–76.

Frees, E. W. (1995). Assessing cross-sectional correlation in panel data. *Journal of Econometrics, 69*(2), 393–414.

Gollin, D. (2023). Agricultural productivity and structural transformation: Evidence and questions for African development. *Oxford Development Studies, 51*(4), 375–396.

Hirschman, A. O. (1958). *The strategy of economic development.* Yale University Press.

Kelikume, I., & Nwani, S. (2020). Agricultural sector linkage with other sectors of the economy: Evidence from Nigeria. *South Asian Journal of Social Studies and Economics, 7*(1), 1–23.

Osuagwu, E. S. (2020). Empirical evidence of a long-run relationship between agriculture and manufacturing industry output in Nigeria. *SAGE Open, 10*(1), 1-12.

Pesaran, M. H (2021). General diagnostic tests for cross-sectional dependence in panels. *Empirical Economics 60(1),* 13–50

Pesaran, M. H., Smith, L. V., & Yamagata, T. (2013). Panel unit root tests in the presence of a multifactor error structure. *Journal of Econometrics, 175(2),* 94-115

Quddus, A. (2021). Interdependence of industries and key economic sectors based on linkage indices, with an emphasis on agriculture. *The Bangladesh Journal of Agricultural Economics, 42*(2), 1–27.

Rege, J. E. O., & Sones, K. (2022). *The agriculture sector in Sub-Saharan Africa and the promise of biotechnology* (Policy Brief No. 2). Southern Voice.

Roza, D. F., Lubis, S. N., Sihombing, L., & Kesuma, S. I. (2023, November). The forward and backward linkages of economic sectors and the determination of leading sectors in Southeast Aceh Regency. In *International Conference on Sciences Development and Technology 3(1),* 174–179.

Sakho-Jimbira, S., & Hathie, I. (2020). *The future of agriculture in Sub-Saharan Africa* (Policy Brief No. 2). Southern Voice. https://www.southernvoice.org/publications/the-future-of-agriculture-in-sub-saharan-africa/

Uddin, M. M. M. (2015). Causal relationship between agriculture, industry, and services sector for GDP growth in Bangladesh: An econometric investigation. *Journal of Poverty, Investment and Development, 8(1),* 124-129

United Nations Economic Commission for Africa. (2024). *UNECA database.* https://www.uneca.org/data

Varkey, R., & Panda, P. (2018). Inter-sectoral growth linkages and their implications for agriculture: Evidence from Indian states. *Millennial Asia, 9(3),* 262–277.

World Bank. (2023). *Global economic prospects.* https://www.worldbank.org/en/publication/global-economic-prospects

World Bank. (2024). *World development indicators database*. https://databank.worldbank.org/source/world-development-indicators

Ye, F., Qin, S., Nisar, N., Zhang, Q., Tong, T., & Wang, L. (2023). Does rural industrial integration improve agricultural productivity? Implications for sustainable food production. *Frontiers in Sustainable Food Systems, 7(1),* 1-14.

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and paradigm of scientific research. I*ntechOpen*. https://doi.org/10.5772/intechopen.70628

.

.

Influence of Brand Awareness, Attitude and Reputation on Performance of Telecommunication Companies in Tanzania: The Moderating Role of Customer Satisfaction

Hussein Athumani Mwaifyusi[1] and Mato James Magobe[2]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania, Tanzania
Department of Accounting and Finance, The Open University of Tanzania, Tanzania
Author corresponding email: husseinmway@gmail.com
DOI: https://doi.org/10.61538/pajbm.v9i2.1895

Abstract
Brand performance is vital in competitive, dynamic, developing markets, yet many companies, especially in the telecommunications sector, struggle to convert brand investments into measurable results due to a limited understanding of how brand assets and customer satisfaction interact. This study therefore examines the direct effects of brand awareness, brand attitude, and brand reputation on brand performance, and the moderating role of customer satisfaction. Using stratified and systematic random sampling, data were collected from 314 respondents across Tanzanian telecommunications companies. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed to analyse the data. The results show that both brand awareness, attitude, and reputation have a positive and significant influence on brand performance. Furthermore, customer satisfaction positively moderates the relationship between brand awareness and performance, while no significant moderating effects are found for brand attitude or reputation. These findings highlight the strategic value of brand-specific resources and the conditional role of customer satisfaction in driving brand performance. Theoretical and managerial implications underscore the importance of aligning branding strategies with customer experience initiatives in dynamic, emerging-market environments.

Keywords: *Brand Awareness, Brand Attitude, Brand Reputation, Brand Performance and Telecommunication Companies*

INTRODUCTION

Brand performance is among the essential factors influencing business growth (Zhang. However, managing brand performance globally poses several challenges for organisations (Gonzalez-Rodriguez et al., 2021), these include change in customer preferences and behaviours, resource constraints and increasing competition across the globe (Wulandari *et al*, 2025). In the Tanzanian telecommunications sector, these challenges are even more

pronounced due to market saturation and the similarity of service offerings among major operators such as Vodacom, Airtel, Yas, and Halotel. Despite heavy investments in branding strategies, many of these firms still struggle to translate brand-related initiatives into improved brand performance (Amani, 2022). According to Cahyani and Sutedjo (2022) brand performance plays a vital role in establishing a unique identity, differentiating from competitors, and create loyal customers who automatically become interested in whatever the company has to offer. Strong brand performance contributes to increased market share, customer trust, and long-term business success (Eshragh *et al.*, 2020). This indicates that highly performing brand is important intangible asset because it builds credibility and trust which facilitate competitive advantage (Baek *et al.*, 2025).

Rahman *et al.*, (2019) reveals that brand performance not only help companies to create competitive advantage but it play essential role to help management to sustain the competitive advantage. Thus, brand performance complies with the Valuable, Rare, Inimitable, and Non-Substitutable (VRIN) criteria stipulated by the Resource-Based View (RBV) theory (Islam *et al.*, 2021). More specifically, brand-related assets such as brand awareness, brand attitude, brand reputation, and other proprietary assets may create and sustain competitive advantage because these brand-specific assets act as both ex ante limits and ex post limits to competition (Islam *et al.*, 2021). This indicates that brand assets (awareness, brand attitude, brand reputation) affect brand performance both individually and collectively (Rahman *et al.*, 2019).

Previous studies suggest that customer satisfaction is a crucial aspect of brand performance (Shi *et al.*, 2022; Eshragh *et al.*, 2020; Alwan & Alshurideh, 2022). For example the study by Kucharska (2019); Qalati *et al.*, (2019); Cahyani and Sutedjo (2022); Natalia *et al.*, (2021) insisted that high level of customer satisfaction may facilitates repeat purchases, customer loyalty, positive word-of-mouth referrals, enhancing brand image and reputation, improving customer retention rates and customer lifetime value which help to increase brand performance. Several studies such as Shi *et al.*, (2022); Alwan and Alshurideh (2022) suggest that the influence of brand awareness, attitude and reputation could either be moderated or mediated by customer satisfaction. Therefore, this study aims to build on the RBV theory and applies Expectation Disconfirmation Theory (EDT) to explain customer satisfaction, which moderates the influence of brand awareness, attitude, and reputation on brand performance. The use of customer satisfaction as a moderator enhances the RBV theory's ability to predict brand performance.

Despite these insights, the current literature reveals, several research gaps remain that need to be addressed to enhance both theoretical understanding and practical application. First, while the RBV theory provides a useful lens to understand brand assets, there is limited research integrating RBV with EDT to account for the dynamic influence of customer satisfaction on brand performance. Second, most prior studies are grounded in developed economies such as the United Kingdom, the USA and Poland (Foroudi, 2019; Kucharska, 2019; Koh *et al.*, 2009), with limited empirical evidence from developing countries like Tanzania, where consumer dynamics, competitive environments, and brand strategies differ significantly. Third, much of the existing literature has examined the direct relationship between brand awareness, attitude and reputation on brand performance (Cahyani & Sutedjo, 2022; Paul & Bhakar, 2018); Mmasi and Mwaifyusi, 2021), but has not examined the conditional effects of customer satisfaction as a moderator, particularly in the telecommunication sector. Previous studies are dominant in the restaurant, retail and hotel industry (Hultman *et al.*, 2021; Chen & Chang, 2011; Foroudi, 2019).

On the other hand, there is disagreement among scholars on the influence of brand awareness on brand performance. Some scholars have found a positive relationship between brand awareness and brand performance (Widodo & Rakhmawati, 2021; Razak et al., 2020; Cahyani and Sutedjo, 2022), unlike the study by Hultman et al. (2021); Chen and Chang. Likewise, there is no consensus regarding the influence of brand attitude on brand performance. Scholars such as Paul and Bhakar (2018); found negative relationship, while Foroudi (2019); Liu *et al.*, (2020); Mmasi and Mwaifyusi (2021) found positive relationship. Similarly, there is disagreement among scholars on the influence of brand reputation on brand performance. For example Patker and Mateen (2016) found negative relationship, while Kucharska (2019); Gonzalez-Rodriguez *et al.*, (2021); Ledikwe and Roberts-Lombard (2019), found positive relationship. Therefore, this study seeks to bridge these gaps by examining the influence of brand awareness, attitude, and reputation on brand performance in the telecommunications sector, with customer satisfaction as a moderating factor. The need to study customer satisfaction, brand awareness, attitude, reputation and performance in the telecommunication industry is important because the industry played a significant role towards the social and economic development in Tanzania (Gupta, 2019). Also, the telecommunication industry is among the major contributors to the government revenue in Tanzania (TCRA, 2021).

This paper makes several contributions to the literature. First, it extends the RBV by empirically validating brand awareness, brand attitude, and brand

reputation as strategic intangible resources that significantly influence brand performance in the Tanzanian telecommunication sector. Moreover, by integrating EDT, the study enhances the RBV by incorporating customer satisfaction as a moderating factor, providing a more comprehensive understanding of how internal brand assets interact with consumer experiences to drive performance, as proposed by (2022) and Alwan and Alshurideh (2022). This theoretical contribution is especially relevant in developing economies, where such integrative models remain underexplored. Second, the study offers practical implications for managers in the telecommunications industry by identifying brand awareness as the most influential factor in performance, especially when customer satisfaction is high. Managers should invest in awareness-building and integrate customer satisfaction into brand strategies to improve performance. They should also maintain favourable brand attitudes and a strong reputation to strengthen brand performance.

The rest of the paper is organised as follows. The next part presents the literature review and hypothesis development. This is followed by the methodology, including sample and data collection, measurement techniques, and data analysis. The following part reports and discusses the findings. Finally, the paper presents the implications, limitations, and suggestions for future research.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical Review

This study is primarily grounded in RBV theory, which plays a key role in strategic management and marketing literature by explaining how firms achieve and sustain competitive advantage (Rahman *et al.*, 2019). Originally developed by Wernfelt and refined by Barney (1986), the RBV theory views a firm as a collection of strategic resources and capabilities (Koh *et al.*, 2009). These resources, both tangible and intangible, must meet four conditions to provide sustained competitive advantage: they must be valuable, rare, inimitable, and non-substitutable (Barney, 1986). Intangible assets such as brand awareness, brand attitude, and brand reputation are especially important in service-oriented and highly competitive industries, as they significantly influence customer perception, loyalty, and ultimately brand performance (Rahman *et al.*, 2019).

In this study, brand performance is considered as an outcome of effectively managing these intangible brand assets. The RBV theory suggests that firms which develop and maintain strong brand awareness, attitude, and reputation are better positioned to differentiate themselves, build trust, and attract and

retain customers (Rahman *et al.,* 2019). These brand-specific resources act not only as ex-ante barriers to entry but also as ex-post defences against competitive pressures. This makes them strategic assets that align well with the RBV theory, particularly when firms aim to optimize internal capabilities for external market gains.

However, while RBV offers a strong foundation for understanding how internal resources, it does not sufficiently account for how consumers evaluate and react to these brand attributes (Koh *et al.,* 2009). This limitation is addressed by integrating the EDT, which adds a valuable consumer-centric perspective to the framework. Originally proposed by Oliver (1980), EDT states that customer satisfaction depends on the difference between pre-consumption expectations and post-consumption experiences. When perceived performance exceeds expectations (positive disconfirmation), satisfaction increases; when it falls short (negative disconfirmation), dissatisfaction occurs (Matonya, 2018; Uzir *et al.,* 2021).

Integrating EDT with RBV provides a more holistic view of brand performance by recognising that strategic resources alone are not enough; how customers perceive and react to those resources also matters. In this context, customer satisfaction acts as a dynamic capability, strengthening or weakening the impact of brand resources on performance outcomes. Although critics argue that EDT relies heavily on subjective expectations, which vary across individuals (Uzir *et al.,* 2021), it remains widely accepted in marketing research due to its strong ability to explain post-purchase behaviour (Matonya, 2018).

Development of Hypotheses

Brand Awareness and Brand Performance

Brand awareness refers to the extent to which consumers recall or recognise a brand and associate it with a particular product or service (Cahyani & Sutedjo, 2022). Empirical evidence reveals a mixed relationship between brand awareness and brand performance. For instance, while most studies (Widodo & Rakhmawati, 2021; Razak *et al.,* 2020; Anees-ur-Rehman *et al.,* 2017; Cahyani & Sutedjo, 2022) find a positive and significant relationship between brand awareness and performance, others (Hultman *et al.,* 2021; Chen & Chang, 2011) report an insignificant effect. These differences may stem from the context, sector, or methodological approaches used in the respective studies. Nonetheless, the majority of findings support the notion that higher brand awareness enhances a brand's visibility and customer trust, thereby strengthening its performance. Consistent with the RBV, brand

awareness is considered a valuable intangible asset that enhances brand performance. Therefore, the following hypothesis is proposed:

H_1: *Brand awareness is positively related to brand performance of the telecommunication companies.*

Brand Attitude and Brand Performance

Brand attitude reflects consumers' overall evaluations and emotional responses toward a brand, which influence their purchasing decisions (Qalati *et al.*, 2019). Prior studies report conflicting findings regarding its influence on performance. For example, while Paul & Bhakar (2018) and Yang and Wang (2010) report negative and insignificant relationships, others like Foroudi (2019), Liu et al. (2020), and Mmasi and Mwaifyusi (2021) find a significant positive influence of brand attitude on performance. Positive brand attitudes often foster consumer loyalty, advocacy, and repeated purchases, which ultimately improve brand performance (Foroudi, 2019). Guided by the RBV, brand attitude serves as a crucial resource that enables firms to gain a sustained competitive advantage and increase the performance of the company. Based on this theoretical and empirical support, the study proposes that:

H_2: *Brand attitude is positively related to brand performance of the telecommunication companies.*

Brand Reputation and Brand Performance

Brand reputation encompasses stakeholders' perceptions of a brand's credibility, reliability, and trustworthiness over time (Kucharska, 2019). Similar to awareness and attitude, empirical evidence on the relationship between reputation and performance varies. Studies such as Ledikwe and Roberts-Lombard (2019); (2021); Kucharska (2019) find a positive and significant association between reputation and brand performance, whereas others like Patker and Mateen (2016); Koh et al. report insignificant effects. Despite these inconsistencies, reputation remains a core strategic resource under the RBV, which contributes to increase brand performance of the companies. Hence, this study hypothesises that:

H_3: *Brand reputation is positively related to brand performance of the telecommunication companies.*

Moderating Role of Customer Satisfaction

Customer satisfaction increasingly receives recognition as a key construct that strengthens the link between brand attributes and brand performance (Shi

et al., 2022; Alwan and Alshurideh, 2022). While prior literature extensively focuses on the direct relationships between brand awareness, attitude, reputation, and performance, very few studies explore the moderating role of customer satisfaction (Paul & Bhakar, 2018; Yang & Wang, 2010; Foroudi, 2019; Liu *et al.*, 2020; Mmasi & Mwaifyusi, 2021). Customer satisfaction enhances the effectiveness of branding elements by reinforcing positive consumer experiences and fostering loyalty. It acts as a strategic resource by encouraging advocacy and repeat purchases, thus increasing overall brand value (Shi *et al.*, 2022). Moreover, as a moderating variable, customer satisfaction captures the strength of brand relationships, which influence how brand awareness, attitude, and reputation translate into actual performance outcomes (Shi *et al.*, 2022). High satisfaction levels amplify the positive effects of brand attributes by fostering loyalty and repeat purchases, while low satisfaction weakens these effects. Thus, customer satisfaction functions as an intangible yet powerful mediator of brand value creation, bridging perceptual brand constructs with tangible organisational performance (Alwan & Alshurideh, 2022). By integrating customer satisfaction as a moderator, this study extends RBV and offers a more comprehensive understanding of how brand attributes translate into performance outcomes. Therefore, the study proposes the following hypotheses:

H_{4a}: *Customer satisfaction positively moderates the relationship between brand awareness and brand performance*.
H_{4b}: *Customer satisfaction positively moderates the relationship between brand attitude and brand performance*.
H_{4c}: *Customer satisfaction positively moderates the relationship between brand reputation and brand performance*.

Conceptual Framework

Based on a synthesis of the converging literature, a conceptual model guides the empirical study. The conceptual framework reflects all the hypotheses tested in this study. It is constructed based on the RBV theory and EDT. The framework proposes that brand performance is influenced by brand awareness, attitude, and brand reputation, and that customer satisfaction moderates these relationships. These assumptions are illustrated in Figure 1.

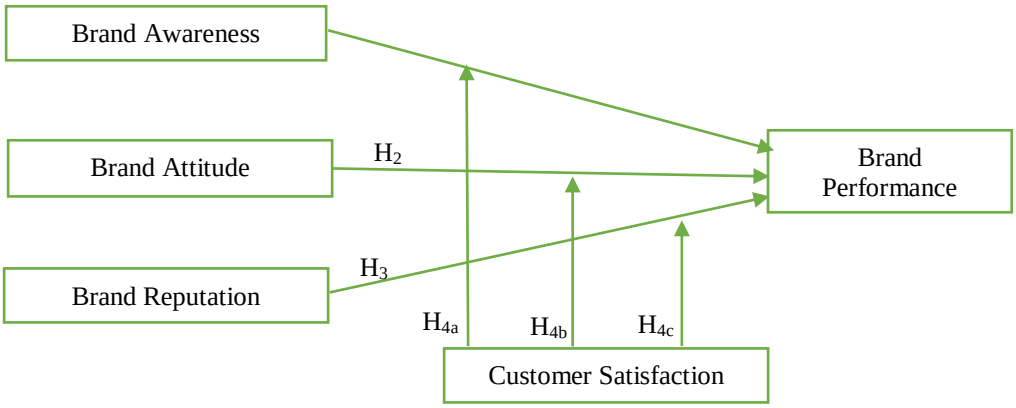

Figure 1: Conceptual Framework

METHODOLOGY

Sample and Data Collection

This study adopted a probability sampling approach consistent with the positivist paradigm. The target population comprised 1,832 employees working in four major telecommunication companies in Dar es Salaam: Vodacom, Airtel, Yas, and Viettel Tanzania Limited (Halotel), which collectively hold 97% of the telecom market share in Tanzania (TCRA, 2021). Dar es Salaam was selected because it is the commercial and communication hub where intense competition among major telecommunication companies best reflects the brand performance challenges under study (Amani, 2022). The selection focused on employees in marketing and customer service departments from the four companies, as they are deemed best positioned to assess branding practices and customer satisfaction (Arasa & Gathinji, 2014). Employees were chosen because they have insider knowledge of brand issues and can reliably assess how branding efforts translate into performance. This approach aligns with prior research that relies on employees' perspectives to evaluate internal brand-related constructs and performance (Matonya, 2018; Foroudi, 2019).

A stratified random sampling technique was used to categorise employees by company, followed by systematic random sampling within each stratum to ensure proportional representation. Hair *et al.* (2010) indicated that appropriate sample sizes for Structural Equation Modelling (SEM) typically range between 200 and 400, cautioning that samples exceeding this range may lead to model over-sensitivity. Based on recommendations from prior studies, a sample size of 300 was considered optimal for this study (Kass & Tinsley, 1979; Field, 2009; Hair *et al.*, 2011). To account for potential non-response and in line with prior survey-based studies in brand management,

which reported an average response rate of 80%, implying a 20% non-response rate (Hultman *et al.*, 2021; Razak *et al.*, 2020; Cahyani & Sutedjo, 2022), the sample size was adjusted upward to 375 by dividing 300 by 0.80. The adjusted sample was then distributed proportionally by company size relative to the total population (1,832). The calculated ratios were as follows: Vodacom (548/1,832 = 0.299), Airtel (490/1,832 = 0.267), Yas (450/1,832 = 0.246), and Halotel (344/1,832 = 0.188). Systematic sampling was implemented by selecting every 5th employee in each stratum. Table 1 presents the final sample distribution and sampling intervals.

Table 1: Sample Distribution by Stratum and Systematic Sampling Interval

Stratum	Stratum Population (N)	Ratio	Sample Size (n) = 375×Ratio	Sampling Interval (K) = (N/n)
Vodacom Tanzania Limited	548	0.299	112	548/112=5th
Airtel	490	0.267	100	490/100=5th
Yas	450	0.246	92	450/92=5th
Halotel	344	0.188	71	344/71=5th
Total	1,832	1	375	

Data were collected using a structured questionnaire distributed between August 31, 2023, and February 28, 2024, through a drop-and-collect method, known for its efficiency with larger samples (Kumar, 2018). Of the 382 questionnaires distributed, 351 were returned (91.9% response rate). After removing 37 incomplete and inconsistent responses, 314 questionnaires were retained, yielding a final usable response rate of 82.2%.

Measures

The constructs under investigation include brand awareness, brand attitude, brand reputation, customer satisfaction, and brand performance were operationalised using multi-item scales adapted from previously validated instruments in empirical literature. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), a widely accepted scale for capturing attitudes and perceptions in social science research (Foroudi, 2019; Mwaifyusi & Dau, 2022).

Brand awareness was measured using six items adapted from (2020), Foroudi (2019), and Mmasi and Mwaifyusi (2021). These items assessed respondents' recall, recognition, familiarity, and informational awareness of the company's brand. Brand attitude was assessed using six items drawn from Liu *et al.*, (2020); Foroudi (2019), assessing trust in the brand, emotional connection, and confidence in the company's offerings.

Brand reputation was measured using five items adapted from Foroudi (2019); Mmasi and Mwaifyusi (2021), focusing on customer perceptions of brand credibility, reliability, and responsiveness. Customer satisfaction was assessed using three items from Matonya (2018) that measured how well expectations were met or exceeded. Moreover, brand performance was measured through four items adapted from Mmasi and Mwaifyusi (2021); Koh *et al.,* (2009), assessing brand outcomes such as increased sales, customer retention, and positive customer advocacy. In total, the instrument comprised 24 items as detailed in Table 2.

Table 1: Measurement of the Constructs

Constructs	Code	Items
Brand awareness	AW1	Our customers can clearly recall some characteristics of this brand
	AW2	The company's brand is memorable to our customers.
	AW3	The company's brand is recognisable to our customers
	AW4	Our services and products are well known among customers.
	AW5	Our services and products are familiar to the customers.
	AW6	Our customers have enough information about the company's products and services.
Brand attitude	ATT1	Our customers feel confident in our service
	ATT2	We are honest and sincere in addressing customers' concerns.
	ATT3	We do not disappoint our customers
	ATT4	We make our customers happy.
	ATT5	Our customers like the company's products and services
	ATT6	Our customers feel good to use our services and products.
Brand reputation	REP1	Our customer depends on this brand
	REP2	We are trusted by our customers
	REP3	Our customers are delighted with this company
	REP4	We fulfill the needs of our customers
	REP5	We respond constructively to our customers
Customer satisfaction	SAT1	In my opinion, customers expect quality service from this brand
	SAT2	Based on my experience, we meet customer expectations
	SAT3	From my observation, customer experience with this brand often exceeds what they initially expected
Brand performance	PER1	Our sales volume increases over the past three years
	PER2	The number of new customers increase over the past three years
	PER3	Our customers say positive things about this brand
	PER4	Our customers repeatedly purchase this brand

Common Method Variance

Following the guidance of Podsakoff *et al.,* (2024), Common Method Variance (CMV) was assessed through a combination of procedural and statistical approaches. Under the procedural remedy, respondents were

assured of anonymity and informed that their participation was voluntary, thereby reducing evaluation apprehension and response bias. For the statistical test, Harman's single-factor analysis was conducted, and the results showed that the five most significant factors explained 25.7% of the total variance, well below the 50% threshold recommended by Podsakoff *et al.* (2023). This indicates that common method bias was not a serious concern in the study.

Data Analysis Techniques

This study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate the model and test the proposed hypotheses. PLS-SEM is well-suited for structural models that involve numerous constructs or complex relationships (Hair *et al.*, 2019; Hair *et al.*, 2021). It is particularly appropriate for exploratory research that includes theoretical frameworks featuring constructs with moderating roles (Uzir *et al.*, 2021). Prior research has applied PLS-SEM to examine brand performance in various contexts (Foroudi *et al.*, 2021; Liu *et al.*, 2020; Gonzalez-Rodriguez *et al.*, 2021). SmartPLS version 4 was employed to assess the model using the two-stage approach proposed by Anderson and Gerbing (1988). In the first stage, the reliability and validity of the measurement model were evaluated. The second stage involved testing the hypothesised relationships through the bootstrapping procedure, as outlined by Anderson and Gerbing (1988).

RESULTS OF ANALYSIS

Measurement Model Assessment

Following the approach of Fornell and Larcker (1981), assessing the reliability and validity of the measurement model is a necessary step before testing the hypothesised relationships. The reliability of the measurement scales was assessed through indicator loadings, internal consistency reliability using Cronbach's alpha, Composite reliability (rho_A), and rho_C. As presented in Table 3, all indicator loadings exceeded the recommended threshold of 0.70 (Hair *et al.*, 2019; Mazengo & Mwaifyusi, 2021), ranging from 0.748 to 0.905. This indicates strong individual item reliability. Furthermore, Cronbach's alpha values ranged from 0.753 to 0.944, composite reliability (rho_A) ranged from 0.754 to 0.949, and rho_C values ranged from 0.844 to 0.955, all well above the minimum acceptable level of 0.70. These results demonstrate strong internal consistency reliability across all constructs.

Both convergent and discriminant validity were examined to evaluate the construct validity of the measurement model. Convergent validity was assessed using Average Variance Extracted (AVE). As shown in Table 3, all

AVE values exceeded the threshold of 0.50, with values ranging from 0.574 to 0.781. This confirms that a substantial amount of variance in the observed indicators is explained by their respective latent constructs, thus supporting convergent validity (Fornell & Larcker, 1981).

Table 3: Assessment of Reliability and Convergent Validity

Item	Loadings	Cronbach's alpha	rho_A	rho_C	AVE
Brand awareness					
AW1	0.854	0.932	0.934	0.946	0.746
AW2	0.873				
AW3	0.898				
AW4	0.831				
AW5	0.871				
AW6	0.853				
Brand attitude					
ATT1	0.899	0.944	0.949	0.955	0.781
ATT2	0.889				
ATT3	0.892				
ATT4	0.833				
ATT5	0.887				
ATT6	0.901				
Brand reputation					
REP1	0.766	0.909	0.910	0.933	0.736
REP2	0.905				
REP3	0.863				
REP4	0.877				
REP5	0.873				
Customer satisfaction					
SAT1	0.895	0.857	0.862	0.913	0.777
SAT2	0.890				
SAT3	0.859				
Brand performance					
PER1	0.749	0.753	0.754	0.844	0.574
PER2	0.756				
PER3	0.748				
PER4	0.777				

AVE: Average Variance Extracted

Discriminant validity was evaluated using both the Fornell-Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. According to the Fornell-Larcker criterion, discriminant validity is established when the square root of

each construct's AVE is greater than the corresponding inter-construct correlations. As reported in Table 4, all constructs met this criterion. Moreover, HTMT values (shown in parentheses in Table 4) were below the recommended cut-off value of 0.85 (Henseler *et al.,* 2015), further confirming discriminant validity among the constructs. Therefore, the measurement model demonstrated acceptable levels of reliability, convergent validity, and discriminant validity, indicating that the model fits the data well and is suitable for structural model testing.

Table 4: Assessment of Discriminant Validity

	ATT	AW	PER	REP	SAT
ATT	0.884[a]				
AW	0.663 (0.707) [b]	0.864[a]			
PER	0.546 (0.643) [b]	0.580 (0.690) [b]	0.758[a]		
REP	0.455 (0.489) [b]	0.471 (0.512) [b]	0.510 (0.615)	0.858[a]	
SAT	-0.405 (0.445) [b]	-0.456 (0.510) [b]	-0.370 (0.459) [b]	-0.291 (0.325) [b]	0.881[a]

aFornell-Larcker (AVE).
bHTMT ratio.
AVE: Average Variance Extracted; HTMT: Heterotrait-Monotrait.

Results of Hypotheses Testing

The results of hypothesis testing are presented in Table 5 and Figure 2. This entailed examining the hypothesised path relationships, the magnitude of effect sizes (f^2), *p*-values and *t*-statistics, Variance Inflation Factor (VIF) and coefficients of determination of the endogenous latent constructs (R^2). (Hair *et al.,* 2019). VIF values were used to assess multicollinearity, and all values fell below the recommended threshold of 5, indicating no multicollinearity issues among the predictor constructs. The coefficient of determination (R^2) for brand performance was 0.459, showing that approximately 45.9% of the variance in brand performance was jointly explained by brand awareness, brand attitude, brand reputation, and the respective interaction effects.

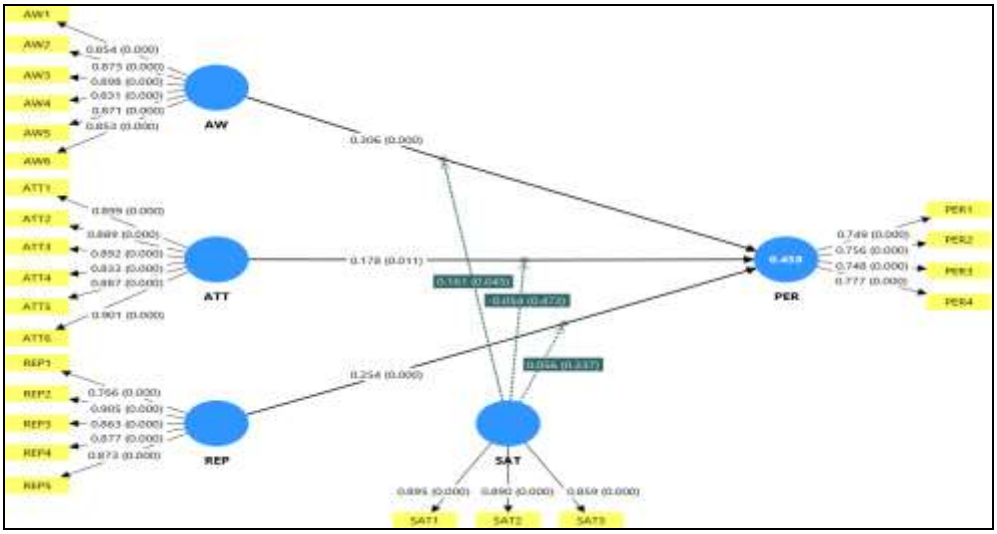

Figure 2: Structural Model

The results of the structural model evaluation are summarised in Table 5. As hypothesised, brand awareness exhibited a statistically significant and positive effect on brand performance (β = 0.306, t = 4.159, p = 0.000), thereby supporting H_1. The effect size was moderate (f^2 = 0.083), indicating a meaningful contribution to the variance explained in brand performance. Similarly, brand attitude was positively and significantly related to brand performance (β = 0.178, t = 2.552, p = 0.011), supporting H_2, though the effect size was relatively small (f^2 = 0.030). In line with H_3, brand reputation also demonstrated a significant and positive influence on brand performance (β = 0.254, t = 4.260, p = 0.000), with a moderate effect size (f^2 = 0.086), suggesting its substantial role in shaping brand outcomes.

Table 5: Results from Hypothesis Test

Hypothesises	Path	Path coefficient	*t*-value	*p* values	Effect size *(f2)*	Remarks
H_1	AW -> PER	0.306	4.159	0.000	0.083	Accepted
H_2	ATT -> PER	0.178	2.552	0.011	0.030	Accepted
H_3	REP -> PER	0.254	4.260	0.000	0.086	Accepted
H_{4a}	SAT x AW -> PER	0.161	2.023	0.043	0.021	Accepted
H_{4b}	SAT x ATT -> PER	-0.054	0.718	0.473	0.003	Rejected
H_{4c}	SAT x REP -> PER	0.056	0.961	0.337	0.004	Rejected

Note:
AW: Brand awareness; ATT: Brand attitude; REP: Brand reputation; SAT: Customer satisfaction; PER: Brand performance.

To test the moderating role of customer satisfaction, three interaction terms were included in the model, as presented in Table 5. The results revealed that customer satisfaction significantly moderated the relationship between brand awareness and brand performance (β = 0.161, t = 2.023, p = 0.043), supporting H_{4a}. However, customer satisfaction did not significantly moderate the relationship between brand attitude and brand performance (β = -0.054, t = 0.718, p = 0.473), nor between brand reputation and brand performance (β = 0.056, t = 0.961, p = 0.337), leading to the rejection of H_{4b} and H_{4c}, respectively. The effect sizes for the rejected moderation paths were negligible ($f^2 < 0.01$), suggesting minimal practical significance.

DISCUSSION OF FINDINGS

In the increasingly competitive and dynamic landscape of the Tanzanian telecommunication industry, understanding how brand-specific resources translate into superior brand performance has become crucial (Matonya 2018). While prior literature underscores the significance of brand attributes such as awareness, attitude, and reputation, empirical evidence remains inconclusive, especially in developing country contexts (Mmasi and Mwaifyusi, 2021). This study contributes to this growing area by examining not only the direct effects of these brand elements on brand performance but also how customer satisfaction moderates these relationships, drawing from the RBV and EDT.

In the context of the Tanzanian telecommunication industry, the results are consistent with RBV theory. The study shows a positive and significant relationship between brand awareness and brand performance (H_1). This supports the view that brand awareness functions as a valuable and rare intangible resource that enhances customer recall, visibility, and performance (Liu *et al.*, 2020). This result aligns with findings by Widodo and Rakhmawati (2021); Razak *et al.*, (2020); Anees-ur-Rehman *et al.*, (2017); Cahyani and Sutedjo (2022), who report a positive and significant effect of awareness on performance. In contrast, studies by Hultman *et al.*, (2021); Chen and Chang (2011) find this relationship to be statistically insignificant. This discrepancy may stem from contextual differences. In emerging markets like Tanzania, where brand differentiation and loyalty are still evolving within the telecommunication sector, brand awareness contributes to increased brand performance.

The study also confirms that brand attitude significantly influences brand performance (H_2). This finding supports earlier research by Foroudi (2019); Liu *et al.*, (2020); Mmasi and Mwaifyusi (2021), who find that favourable brand attitudes drive customer loyalty and positively influence brand

performance. These results, however, contradict the findings of Paul & Bhakar (2018); Yang and Wang, (2010), who report a negative relationship. In this study, positive brand attitudes contribute to enhanced brand performance among telecommunication companies.

Moreover, the study provides strong support for a significant positive relationship between brand reputation and brand performance (H_3). This outcome is consistent with the work of Ledikwe and Roberts-Lombard (2019); Gonzalez-Rodriguez *et al.,* (2021); Kucharska (2019), who argue that a trustworthy and reputable brand enhances credibility and stakeholder loyalty. However, it contrasts with the findings of Patker and Mateen (2016); Koh *et al.* (2009), who report either negative or insignificant effects. These contrasting results may arise from differences in context or methodological design. In this study, brand reputation plays a crucial role in strengthening brand performance among Tanzanian telecommunication companies.

Importantly, this study extends prior work by examining the moderating effect of customer satisfaction on the relationships between brand attributes and performance. Results show that customer satisfaction positively moderates the relationship between brand awareness and brand performance (H_{4a}). This finding suggests that the positive effect of brand awareness on brand performance becomes stronger when customers are satisfied. In other words, while brand awareness alone enhances brand performance by increasing visibility, recall, and customer familiarity, its impact is significantly amplified when customers are also satisfied with the services they receive (Shi *et al.*, 2022). In the Tanzanian context, telecommunication companies that not only maintain high levels of brand awareness but also ensure customer satisfaction are more likely to experience improved brand performance. Satisfied customers are more inclined to engage positively with well-known brands, recommend them to others, and remain loyal, thereby contributing to increased brand performance (Alwan & Alshurideh, 2022).

On the other hand, customer satisfaction does not significantly moderate the relationship between brand attitude and performance (H_{4b}), nor between brand reputation and performance (H_{4c}). This inconsistency may lie in the inherent nature of brand attitude and brand reputation, which are often regarded as relatively stable, deeply ingrained constructs. Once consumers form strong evaluative or affective associations with a brand, these perceptions tend to persist over time and are less susceptible to short-term fluctuations in satisfaction levels (Liu *et al.*, 2020; Kucharska, 2019). In this study, the influence of brand attitude and brand reputation on brand

performance among Tanzanian telecommunication companies works independently of customer satisfaction.

IMPLICATIONS OF THE STUDY

Theoretical Implications

This study makes several notable theoretical implications. First, it advances RBV theory by empirically validating brand awareness, attitude, and reputation as intangible assets that satisfy the VRIN criteria and significantly influence performance in Tanzania telecommunication companies. The inclusion of these brand elements as internal capabilities provides further evidence of their strategic value in driving competitive advantage. Second, by integrating EDT into the RBV, the study offers a more holistic view of brand performance by considering how customer satisfaction, a post-consumption evaluation, moderates resource-performance relationships. This integrative framework addresses a theoretical gap in existing branding literature, which often isolates internal resources from customer evaluations. Moreover, this study adds to the limited body of knowledge in Sub-Saharan Africa, particularly in Tanzania, where empirical work on strategic branding remains scarce. It reinforces the importance of examining branding concepts within developing countries to ensure the broader applicability of existing theories.

Managerial Implications

From a managerial perspective, the findings offer practical guidance for branding and marketing strategists operating in the Tanzanian telecommunication sector. First, managers should prioritise investments in brand awareness initiatives, such as advertising, sponsorships, and digital presence, as awareness shows the strongest effect on performance and is further amplified by customer satisfaction. Second, developing favourable brand attitudes through consistent brand messaging, customer engagement, and emotional branding can directly enhance brand performance. Although satisfaction does not moderate attitude, its direct effect implies it is a core driver of performance. Third, brand reputation should be carefully managed through transparency, corporate social responsibility, and service quality. While reputation contributes significantly to performance, its interaction with satisfaction is not statistically significant, suggesting that reputation operates independently and should be safeguarded as a long-term strategic asset.

Moreover, telecommunication companies are encouraged to continuously monitor and improve customer satisfaction, especially in relation to awareness-building efforts. Given that satisfaction enhances the conversion of awareness into performance, customer experience management should be integrated into marketing and brand strategies. By understanding which brand

attributes are most sensitive to satisfaction levels, managers can better allocate resources and optimise performance outcomes.

LIMITATIONS AND FUTURE RESEARCH

Despite its contributions, this study is not without limitations, which offer avenues for future research. First, the study uses a cross-sectional design, which limits the ability to draw causal inferences. Future research should adopt longitudinal designs to assess changes in brand performance over time and to better understand the temporal dynamics between brand attributes and customer satisfaction. Second, the research is confined to the telecommunication industry in Dar es Salaam, which, although representative, may limit generalisability to other sectors or regions in Tanzania. Future studies could extend the scope to include comparative analyses across industries or between urban and rural contexts to enhance external validity. Moreover, while this study focuses on customer satisfaction as a moderator, future studies may explore alternative moderating or mediating variables, such as brand trust, customer loyalty, or perceptions of service quality, to uncover more complex interaction effects. Further examination of cultural and socio-economic factors also reveals unique patterns in branding effectiveness in emerging markets.

REFERENCES

Alwan, M., & Alshurideh, M. T. (2022). The effect of digital marketing on purchase intention: Moderating effect of brand equity. *International Journal of Data and Network Science*, *6*(3), 837–848.

Amani, D. (2022). Circumventing customers' switching behaviour in the telecommunication industry in Tanzania: Insights from Sternberg's Triangular Theory of Love. C*ogent Social Sciences,* 8(1), 204–20.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, 103(3), 411–423.

Anees-ur-Rehman, M., Saraniemi, S., Ulkuniemi, P., and Hurmelinna-laukkanen, P. (2017). The strategic hybrid orientation and brand performance of B2B SMEs. *Journal of Small Business and Enterprise Development*, *24*(3), 585–606.

Arasa, R., and Gathinji, L. (2014). The relationship between competitive strategies and firm performance: A case of mobile telecommunication companies in Kenya. *International Journal of Economics, Commerce and Management*, *2*(9), 1–15.

Awang, Z. (2011). *A Handbook on SEM: Structural Equation Modeling 2nd Ed*., Kelantan: Universiti Teknologi MARA.

Baek, J., Seo, H., & Song, T. H. (2025). Measuring the Effect of a Brand

Communication Strategy through Consumer-Generated Content: A Case Study of Telecommunication Services. Asia Marketing Journal, 27(1), 61-71.

Barney, J. (1986). Organisational culture: can it be a source of sustained competitive advantage? *Academy of Management Review*, *11*(3), 656–665.

Cahyani, I., and Sutedjo, B. (2022). Effect of brand image, brand awareness, and brand trust on customer brand loyalty. *International Journal of Network Science*, *5*(1), 146–152.

Chen, F., & Chang, Y. (2011). Impact of Brand Awareness, Perceived Quality and Customer Loyalty on Brand Profitability and Purchase Intention : A Resellers ' View. *Interdisciplinary Journal of Contemporary Research in Business*, *8*(3), 833–839.

Dasanayaka, S. W., Al Serhan, O., Glambosky, M., & Gleason, K. (2020). The business-to-business relationship: examining Sri Lankan telecommunication operators and vendors. *Journal of Business and Industrial Marketing*, *35*(6), 1069–1087.

Eshragh, S., Delafrooz, N., Shahroodi, K., & Rahmati, Y. (2020). Analysis of Factors Affecting Brand Performance in Petrochemical Industry Using Dimethyl Method. *Decisions and Operations Research*, *6*(4), 592–604.

Field, A. (2009). *Second Edition of the Discovering Statistics Using SPSS 5th Edition*.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (3), 382-388.

Foroudi, P. (2019). Influence of brand Signature, Brand Awareness, Brand Attitude, Brand Reputation on Hotel Industry's Brand Performance. *International Journal of Hospitality Management*, 76 (5), 271-285.

Foroudi, P., Palazzo, M., & Sultana, A. (2021). Linking brand attitude to word-of-mouth and revisit intentions in the restaurant sector. *British Food Journal*, *123*(13), 221–240.

Gonzalez-Rodriguez, R., Diaz-Fernandez, C., Shi, F., & Okumusde, F. (2021). Exploring the links among corporate social responsibility, reputation, and performance from a multi-dimensional perspective. *International Journal of Hospitality Management*, 99(1),10–39.

Gupta, V. (2019). A Case Study on Tanzania's Economic Development. *Journal of the International Academy for Case Studies*, *26*(1), 1–16.

Hair, J. F., Ringle, C. M., and Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.

Hair, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*,

31(1), 2-24.

Hair, J., Black, W., Babin, B., and Anderson, R. (2010). *Multivariate Data Analysis, 7th ed*., Upper Saddle River, NJ: Prentice-Hall.

Hassan, M., Zahid, S., Nemati, A. R., Yongfeng, C., & Javed, W. (2021). Impact of WOM, Advertising Effectiveness, and Brand Image on Brand Trust: Evidence from the Telecommunication Sector in Pakistan. *Journal of Marketing Strategies*, *3*(3), 111–131.

Henseler J., Ringle, M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, 43, 115–135.

Hultman, M., Papadopoulou, C., Oghazi, P., & Opoku, R. (2021). Branding the hotel industry: The effect of step-up Vs step-down brand. *Journal of Business Research*, 124, 560–570.

Islam, T., Islam, R., Pitafi, A. H., Xiaobei, L., Rehmani, M., Irfan, M., & Mubarak, M. S. (2021). The impact of CSR on customer loyalty: The mediating role of corporate reputation, customer satisfaction, and trust. *Sustainable Production and Consumption*, 25, 123-135.

Kass, R., and Tinsley, H. (1979). Factor analysis. *OnlinJournal of Leisure Researche Learning Journal*, *11*(5), 120–138.

Koh, Y., Lee, S., and Boo, S. (2009). Impact of brand recognition and brand reputation on firm performance: U.S.-based multinational restaurant companies' perspective. *International Journal of Hospitality Management*, *28*(4), 620–630.

Kucharska, W. (2019). Personal branding-A new competency in the era of the network economy. Corporate brand performance implications. *In Corporate social responsibility in the manufacturing and services sectors* (pp. 19-34). Springer, Berlin, Heidelberg.

Ledikwe, A., & Roberts-Lombard, M. (2019). Exploring the Determinants of Brand Performance in an Emerging African Economy. *African Journal of Economic 10*(1), 85–101.

Liu, K. N., Hu, C., Lin, M. C., Tsai, T. I., & Xiao, Q. (2020). Brand knowledge and non-financial brand performance in the green restaurants: Mediating effect of brand attitude. *International Journal of Hospitality Management*, *89*(10), 25–36.

Matonya, J. (2018). *The Effect of Brand Experience on Loyalty in Mobile Money Services: Mediating Role of Word-of-Mouth and Customer Satisfaction* (Doctoral dissertation, The Open University of Tanzania).

Mazengo, S. D., & Mwaifyusi, H. A. (2021). The Effect of Liquidity, Profitability and Company Size on Dividend Payout: Evidence from Financial Institutions Listed in Dar Es Salaam Stock Exchange. *Business Education Journal*, 1(2),1-12.

Mmasi, A., & Mwaifyusi, H. (2021). Determinants of Brand Performance:

Empirical Evidence from Tanzanian Brewing Companies. *Business Education Journal*, *10*(3), 1–16.

Mwaifyusi, H., and Dau, R. (2022). Effects of Innovation on Business Performance: Empirical Evidence from Manufacturing Firms in Tanzania. *African Journal of Accounting and Social Science Studies*, 4(2), 1-15.

Natalia, D., Elgeka, H. W. S., & Tjahjoanggoro, A. J. (2021). Consumer-Brand Identification and Brand Loyalty: Analysis on Customer Satisfaction and Brand Trust as Mediators. *Psikostudia : Jurnal Psikologi*, *10*(3), 283-293.

Ngo, L., & O'Cass, A. (2011). The relationship between business orientations and brand performance. *Asia Pacific Journal of Marketing and Logistics*, *23*(5), 684–713.

Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, *17*(4), 460–469.

Patker, T., & Mateen, S. (2016). The Impact of Brand Loyalty on Product Performance. *International Journal of Economics and Management Engineering*, *10*(6), 1871–1875.

Paul, J., & Bhakar, S. (2018). Does celebrity image congruence influence brand attitude and purchase intention? *Journal of Promotion Management*, *24*(2), 153–177.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioural research: a critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879-903.

Podsakoff, P. M., Podsakoff, N. P., Williams, L. J., Huang, C., and Yang, J. (2024). Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix. Annual *Review of Organizational Psychology and Organizational Behavior*, 11(1), 17-61.

Qalati, S. A., Wenyuan, L., Kwabena, G., Erusalkina, D., and Pervaiz, S. (2019). Influence of Brand Equity on Brand Trust: Mediation of Brand Reputation and Moderation of Social Media. *European Journal of Business and Management*, *6*(9), 304–317.

Rahman, M., Rodríguez-Serrano, M. A., and Lambkin, M. (2019). Brand equity and firm performance: the complementary role of corporate social responsibility. *Journal of Brand Management*, *26*(6), 691–704.

Razak, M., Hidayat, M., Launtu, A., Kusuma Putra, A. H., and Bahasoan, S. (2020). Antecedents and consequence of brand management: empirical study of Apple's brand product. *Journal of Asia Business Studies*, *14*(3), 307–322.

Shi, H., Liu, Y., Kumail, T., and Pan, L. (2022). Tourism destination brand

equity, brand authenticity and revisit intention: the mediating role of tourist satisfaction and the moderating role of destination familiarity. *Tourism Review*, 77(3), 751–779.

Shin, D., and Elliott, K. M. (2001). Measuring customers' overall satisfaction: A multi-attributes assessment. *Services Marketing Quarterly*, 22(1), 3-19.

Sultan, T., Junaid, M., Hasni, S., and Raza, A. (2020). Brand Equity and Its Impact on Customer Purchase Intention: Empirical Evidence of the Telecommunication Sector of Sargodha. *Journal of Business & Economics*, *12*(2), 99–110.

TCRA. (2021). *Quarterly Communications Statistics*. Tanzania Communication Regulatory Authority, Tanzania.

Uzir, M. H., Hamid, A. B., Jerin, I., Latiff, A. S. A., and Thurasamy, R. (2021). Customer satisfaction and brand loyalty to electronic home appliances in Bangladesh: the contingent role of brand trust. *Business & Economics*, 1(6), 1-35.

Vencataya, L., Pudaruth, S., Juwaheer, R. T., Dirpal, G., and Sumodhee, N. M. Z. (2019). Assessing the impact of service quality dimensions on customer satisfaction in commercial banks of Mauritius. *Studies in Business and Economics*, 14(1), 259-270.

Wenerfelt, B. (1984). A resource based view on the firm. *Strategic Management Journal*, *5*(2), 171–180.

Widodo, T., and Rakhmawati, D. (2021). Peran Brand Trust dan Brand Reputation dalam Menguatkan Pengaruh Brand Awareness terhadap Brand Performance Kasus pada Langit Musik. *Jurnal Manajemen Dan Organisasi (JMO)*, *12*(3), 189–201.

Wulandari, M., Helmi, S., Kartika, T., and Supardin, L. (2025). The Relationship between Brand Association, Brand Awareness and Brand Image in Improving Perceived Quality in the Telecommunications Company Industry. Pakistan Journal of Life & Social Sciences, 23(1), 43-58.

Yang, D., and Wang, X. (2010). The effects of 2-tier store brands' perceived quality, perceived value, brand knowledge, and attitude on store loyalty. *Frontiers of Business Research in China*, 4(1), 1–28.

Zhang, Z., Ye, N., and Thomson, M. (2025). BMW is powerful, beemer is not: nickname branding impairs brand performance. *Journal of Marketing*, 89(1), 135-152.

.

Exploring learning strategies among accounting students undertaking an online program

Asha Baleche Katamba
Department of Accounting and Finance, the Open University of Tanzania,
Author corresponding Email: asha.katamba@out.ac.tz
DOI: https://doi.org/10.61538/pajbm.v9i2.1896

Abstract
The shift toward online education has transformed the learning landscape for many groups of learners, including accounting students. However, many still struggle to adopt effective strategies suitable for virtual environments. Unlike traditional classrooms, online learning emphasises strong self-regulation, digital literacy, and independent study habits, skills that not all students possess equally. This study explores the learning strategies used by accounting students enrolled in online Bachelor of Business Administration programs. Using a quantitative survey, data were collected from 86 students and analyzed through descriptive statistics, correlation, and regression techniques. The findings reveal that cognitive strategies, resource management, and time management all play a key role in boosting comprehension and academic performance. Of these, resource management had the most significant impact, highlighting the value of collaborative tools and instructor support in fostering self-directed learning. These findings highlight the importance of self-discipline and intrinsic motivation in navigating the flexible structure of online education. The study also provides practical insights for educators to enhance instructional design and student support, ultimately improving the online learning experience for accounting students.

Keywords: *Accounting education, learning strategies, cognitive learning, resource management, time management, online studies*

INTRODUCTION

With the rapid advancement of technology and the increasing demand for flexible education, online learning has become a prominent mode of education worldwide (Mahai, 2022; Sukon, 2021; Rahim et al., 2020; Mwale, 2019). This shift has opened up unique opportunities for learners across geographical, economic, and social boundaries, making education more inclusive and accessible than ever before (SADC & UNESCO, 2020). Despite its growing popularity, online learning continues to face challenges related to digital infrastructure, instructional knowledge, and emerging technologies (Mahai et al., 2022). Addressing these challenges requires a

refined understanding of local contexts and innovative pedagogical approaches. This includes choosing learning strategies that are relevant for students in a particular specialization rather than in a combined program.

In Tanzania, the Open University of Tanzania (OUT) offers higher education through Open and Distance Learning (ODL). Cumulatively from 1994 to 2023/24, the OUT has admitted a total of 221,046 students; among them, 92,035, 48,807, and 80,204 were enrolled in Undergraduate, Postgraduate, and Non-degree programs, respectively (OUT, 2024). Of the total enrolled students in undergraduate programs, 15,722 (17.2%) are from the Faculty of Business Management, and specifically, 2,140 (13.6%) are enrolled to pursue the Bachelor of Business Studies (BBA) in Accounting (OUT, 2024). In the past five years, from the 2019/2020 to the 2023/2024 academic year, the enrollment trend of students specialising in accounting was 100, 200, 283, 389, and 314. (OUT, 2024). This enrollment pattern highlights the growing demand for business-related qualifications, particularly in accounting, reflecting both national workforce needs and the increasing recognition of financial literacy as key to economic growth.

The field of accounting, which has traditionally relied on rigorous and structured learning, has also adopted online education (Tettamanzi et al., 2023; Tabatabaeian et al., 2021; Malinic et al., 2025). Unlike traditional classroom settings, online learning presents unique challenges and opportunities for students. Among these challenges is the limited interaction between students and instructors, which can hinder the development of practical accounting skills that typically benefit from guided, hands-on learning and immediate feedback (Tettamanzi et al., 2023). To address these challenges, studies suggest the need for greater self-discipline, effective time management, and the ability to navigate various technological tools and platforms (Malinic et al., 2025). Consequently, students must develop and adopt specific learning strategies to succeed in this digital learning landscape (Puteh et al., 2022; Wilson et al., 2021; Jeng, 2023). To further this discussion, we employ a survey tool with students at the Open University of Tanzania studying accounting courses as part of their speciality. Accounting students represent a critical and timely focus for educational research due to the evolving nature of the online learning environment and the unique demands of the accounting discipline (Tabatabaeian et al., 2021; Malinic et al., 2025). By targeting accounting students studying at OUT first, the study provides a focused lens through which to explore these student dynamics, which are scarce in the literature. Second, exploring this group of students offers insights into how learners in developing contexts navigate digital

education, adding depth and diversity to the global discourse on the effectiveness of online learning.

The study is relevant to Tanzania following the recent implementation of a new competence-based curriculum, in which business studies is among the core specialisations (URT, 2025). A competence-based curriculum places high demands on learners to engage in independent self-study and conduct independent internet searches (Slimi, 2023). Nowadays, businesses operate in highly unified global markets, catering to the needs of professionals who are equipped with knowledge of international financial regulations, taxation systems, cross-border transactions, emerging technologies, and data analytics (Thottoli et al., 2022; Widuri et al., 2019; Kotb et al., 2012; Lal & Bharadwaj, 2016). Accounting serves as the language of business, enabling organisations to communicate financial performance, ensure compliance, and make informed decisions (Jeng, 2023). Therefore, understanding the most effective learning strategies for students pursuing the accounting field will expose them to a balanced learning approach while maintaining a degree of flexibility, avoiding traditional learning behaviours such as memorising, highlighting, emphasising, and rereading, which are considered ineffective (Rovers et al., 2018; Puteh et al., 2022). Three learning strategies are examined in this study, namely, cognitive, resource-based, and time management. The findings of this study will provide insights that can help educators design more effective instructional materials, develop targeted support services, and create a more conducive online learning environment. To steer the investigation, the following three key research questions were established:

i) Does cognitive strategy influence students' performance?
ii) Does resource management influence students' performance
iii) Does time management influence students' performance?

LITERATURE REVIEW

Hofstede's cultural dimensions theory (HCDT)

Geert Hofstede propounded Hofstede's cultural dimension theory (HCDT) in 1984. The theory explains how societal and organisational values are influenced by culture. It identifies six key dimensions that describe national cultures and how these cultural traits affect society in terms of behaviour, responsibility, attitude, and learning. The theory states that there are six cultural dimensions in a society: (1) high power distance vs low power distance, (2) individualism vs collectivism, (3) masculinity vs femininity, (4) uncertainty avoidance, (5) long-term vs short-term orientation, and (6) indulgence vs restraints. In this paper, the focus will be on the first three traits that are considered more reflective of the discussion in this study.

Power distance refers to the relationship between individuals with high authority and those with low authority. Tanzania, as a country, is categorised as having a high power distance (Mshana et al., 2022), similar to other emerging countries such as Malaysia and Mexico. In these countries, the top authority must be highly respected because of the significant power it holds. There are minimal interactions between the person with authority and the lower person (or subordinates in the organisation). As a result, it creates a big communication gap (Hofstede, 1984). Students in high-power-distance countries tend to respect authority and teachers who lead the learning process (Gillies, 2016). In this case, learning may be passive, characterised by less critical questioning and overreliance on teachers to guide the learning process and to develop materials. On the contrary, in low power distance cultures, students tend to ask numerous questions, challenge teachers and materials, and create their own materials tailored to their learning subjects (Jeng, 2023). In this case, learning becomes more student-centred, which encourages critical thinking, collaboration, and peer learning.

Individualism vs. collectivism describes how a society prioritises individual achievements over group achievements (Hofstede, 1984). People in individualistic countries (such as the US and the UK) perceive themselves as independent and self-reliant. Personal achievements and individual rights are emphasized over group achievements (Zeng et al., 2025). On the contrary, collectivist societies believe in group achievements, creating a sense of belonging to a family, community, or organisation. Studies have found that in individualistic cultures, learners tend to prefer self-learning due to the cultural emphasis on independence, self-sufficiency, and personal responsibility, which promotes a focus on individual goals and accomplishments (Jeng, 2023). Meanwhile, collectivist societies view learning as a collaborative process embedded in discussions and listening to peers and friends. As such, learning is often perceived as a collective effort in which students learn from peers through discussion and listening, fostering a sense of shared responsibility and mutual support (Kole, 2025; Gillies, 2016). Additionally, a collaborative strategy emphasises peer learning and group outcomes, where students work together, share ideas, and build mutual understanding, fostering stronger relationships and a support system within the learning context.

Masculinity vs. Femininity reflects the distribution of emotional roles between genders (Hofstede, 1984). Masculine cultures value competitiveness and achievement, while feminine cultures emphasise relationship, cooperation, and quality of life. Tanzania is categorized as a feminist country as its community focuses less on competition, achievements, and material

gains. When applied to learning environments, the cultural trait of femininity encourages students to work together in class rather than compete in individual learning (Kole, 2025). Achievement is often measured by group harmony and shared improvement while maintaining gender roles and empathy (Zeng et al., 2025).

The discussion in HCDT offers a perspective framework for guiding this study. Specifically, it fosters understanding of how cultural values shape educational dynamics. By focusing on the dimensions of power distance, individualism versus collectivism, and masculinity versus femininity, the study can critically examine how cultural norms influence student-teacher relationships, learning behaviors, and classroom interactions. The emphasis on power distance is especially relevant in the Tanzanian context, where classified policies, structures, and respect for authority impact pedagogical approaches and student engagement. Therefore, Hofstede's theory provides a culturally grounded lens through which the study can interpret educational practices, reveal fundamental cultural inspirations, and propose strategies for improving learning outcomes in the Tanzanian context.

Learning strategies

Learning strategies can be defined as behaviours and practices that a learner chooses to adopt during the learning process (Deak & Santoso, 2021). The selection of a learning strategy should yield positive outcomes for the learner; otherwise, it will be regarded as ineffective (Wilson et al., 2021). Ineffective learning strategies can be time-consuming and may lead to a lack of self-directed learning and a decline in motivation among learners. In contrast, effective learning strategies should be tailored to build critical thinking, confidence, and motivation in learners while fostering continuous learning behaviour (Wilson et al., 2021; Molina et al., 2021). Accordingly, learners and instructors must understand the learning objectives and learning outcomes of a subject to engage appropriate resources to achieve the intended goals.

A learning strategy can be adopted based on a student's age or the purpose of learning. Young adults (i.e., undergraduate students) in their early careers adopted learning strategies such as note-taking, rehearsal, and organisation (Tran et al., 2019). Although these learning strategies are argued to be ineffective (Blasiman et al., 2017; Rovers et al., 2018), they are helpful at a particular stage when learning objectives assess lower levels of knowledge in Bloom's taxonomy (Mahdi et al., 2020). Meanwhile, students in upper levels adopted critical thinking, hypercritical analysis, interpretation, and case study analysis (Nurhilza, 2018; Mahdi et al., 2020). These learning approaches

were appropriate given the nature of the assignment, which required applying knowledge.

The literature on learning strategies has been widely explored in other fields, such as clinical medicine (Delgado, 2018; Lindblom et al., 2019; Chan et al., 2021). In clinical medicine, deep learning and kinesthetic learning are characterised as learning approaches among students (Zain et al., 2019). Arguably, kinesthetic learning, which requires physical movements in the lab for practical understanding, may not be an appropriate approach for learners in the accounting field (Marian et al., 2021). Instead, deep learning and surface learning can be combined as learning styles for students in an undergraduate accounting program (Marian et al., 2021; Shaffie et al., 2020). Deep learning is embedded in a cognitive learning approach, which requires critical thinking to digest concepts learnt in class (Shaffie et al., 2020). As a result, it can enable accounting students to map theories with practical applications, such as preparing bank reconciliations, invoices, or financial statements. In engineering systems, students identified time management as a crucial factor in achieving high grades (Galaviz et al., 2025). Time management is regarded as a self-regulation strategy that enables students to increase their academic achievement by balancing their time to complete multiple tasks, such as practical work, demonstrations, and case study analysis (Galaviz et al., 2025).

Studies have examined three learning strategies suitable for mature learners, namely cognitive, metacognitive, and self-regulatory (Kassim et al., 2023). Cognitive learning is a psychological technique that aims to enhance thinking, comprehension, and problem-solving skills. Standard cognitive strategies are approaches that enhance learners' ability to understand how to manage the learning process. Meanwhile, self-regulatory strategies empower learners to take charge of their own learning process (Puteh et al., 2022). Instead of relying solely on teachers or external guidance, learners actively plan, monitor, and reflect on their progress to achieve personal goals. The three learning strategies were tested among postgraduates, providing a balanced coverage of learning strategy types. Relevant results revealed that all three learning strategies were used interchangeably by postgraduate students and were related to one another, suggesting that they are more suitable for mature adults with varied family and work responsibilities (Kassim et al., 2023).

Other studies, conducted with a smaller sample of 68 postgraduate students, revealed that cognitive, self-regulatory, and resource management strategies were the most valued learning strategies among postgraduate students (Puteh

et al., 2022). Ultimately, all the learning strategies were positively correlated with one another. The considerations in research were adhered to, including obtaining informed consent from participants, maintaining confidentiality of information, and ensuring he need for further studies in different disciplines and modes of study. This study, therefore, extends the discussion of learning strategies by focusing on a specific group of learners, accounting students, and by including a new variable, time management, which has not been considered in previous studies.

Time management is the process of completing an assigned activity from start to finish within a stipulated time period, yielding positive results (Wilson et al., 2021). It involves planning, organising, assigning priorities, and evaluating goals to align with planned activities. Studies in time management have considered four main dimensions: setting goals, using tools to manage time, organisational preferences, and perception of control over time (Galaviz et al., 2025). Like any other limited resource, time can be more or less effectively managed (Britton & Tesser, 1991). Studies have found that individuals who manage their time more effectively exhibit greater awareness in their daily routines; as a result, they become more successful in their work, life, and academic pursuits (Reveron, 2015; Flores, 2018; Galaviz et al., 2025). Specifically, students who planned their time effectively showed greater improvements in grades and overall performance (Galaviz et al., 2025). It was suggested that students be equipped with time management skills immediately upon reporting to college in their first year of studies (Galaviz et al., 2025).

The literature on time management has recently gained popularity in various fields, including management, psychology, and education (e.g., Molina et al., 2021; Gozalo et al., 2022; Reyes et al., 2022; Reyes & Garcia, 2022; Wilson et al., 2021; Galaviz et al., 2025). However, the literature presents subjective evidence for the usefulness of time-management practices on students' learning. Time management is argued to be linked with self-regulated learning (Molina et al., 2022), which encompasses planning, monitoring, and self-discipline (Flores, 2018). Students who are equipped with relevant time management skills can effectively plan their daily activities, including when to wake up, eat, revise for a test, meditate, exercise, socialise, and rest. As a result, they can improve in academic performance, engagement, and overall student well-being (Wilson et al., 2021).

In the scholarly literature, researchers generally agree that intellectual achievement requires time, tolerance, ambition, and self-regulation (Wilson et al., 2021). That can partially justify strict timetables that display a calendar

for a semester or a full academic year in many universities. The almanack requires students to plan and manage their time by adjusting their individual timetables within the University timetable, thereby developing time-management skills (Galaviz et al., 2025). This suggests that time management practices play an important role in educational achievement, and that students should treat time as a limited resource. Studies measured time management using various indicators, including self-monitoring, self-judgement, and alertness (Flores, 2018). At the same time, others have considered different measurements to include selecting goals and subgoals, ranking the goals, producing tasks and subtasks, arranging the tasks, listing the tasks on a "to-do" list, preparing the tasks, and finally applying the tasks to yield the desired outcome (Britton & Tesser, 1991). Students who observed this taxonomy of time management were found to yield higher academic performance scores (Galaviz et al., 2025).

Empirical studies are lacking on the integration of time management as a learning strategy in practical courses such as accounting (Tettamanzi et al., 2023; Malinic et al., 2025; Asuquo et al., 2020). Effective time management is a crucial factor that can significantly influence cognitive learning among students (Wilson et al., 2021). Time management strategies such as creating a structured study schedule, setting specific goals, and prioritising tasks help students allocate sufficient time to thoroughly understand complex accounting concepts and modern technologies (Asuquo et al., 2020). This disciplined approach reduces cognitive overload, allowing for better retention and application of knowledge (Puteh et al., 2022). Moreover, consistent study habits fostered through time management can enhance students' ability to engage in deeper cognitive processes, such as collaborative learning and problem-solving, which are essential in the field of accounting (Edmund & Tiggeman, 2009). By managing their time efficiently, students can also reduce stress and anxiety, leading to a more focused and productive learning experience (Kassim et al., 2023).

Given the current state of the literature in this area, this study is limited to three learning strategies that foster critical thinking. First, the study considered the cognitive development learning approach. This approach has been linked to the development of critical thinking, elaboration, and the organisation of study materials in ways that enable learners to build self-confidence and foster continuous learning behaviours (Puteh et al., 2022). Second, the study combined two other learning strategies, namely resource management and time management. While resource management focuses on the learner's environment (Rahmat, 2019), time management fosters planning and organising time as a scarce resource in the learning environment (Galaviz

et al., 2025). The following section discusses the conceptual framework that integrates the three learning strategies.

Conceptual Framework

This study conceptualises three learning approaches, cognitive learning, resource management, and time management, as one component in fostering learning in ODL mode. The conceptual framework (Figure 1) encompasses two constructs adopted from Wenden and Rubin (1987), namely cognitive and resource management. The third construct, time management, was adopted from Britton and Tesser (1991), which has three dimensions: short-range planning, time attitude, and long-range planning. Meanwhile, the study's dependent variable is the student's performance. Student performance in online learning is influenced by a combination of variables, including personal, technological, pedagogical, and environmental factors (Kole, 2025). However, this study focuses on personal factors which reflect learners' internal capabilities, behaviours, and circumstances (Kassim et al., 2023; Shaffie et al., 2020). Learners' internal capabilities include self-discipline, digital literacy, academic self-efficacy, participation in discussion, and the motivation for continuous learning (Puteh et al., 2022). By linking these items of the dependent variable, the study will be more focused on personal attributes that enhance students' performance. Figure 1 below shows the conceptual framework of the study.

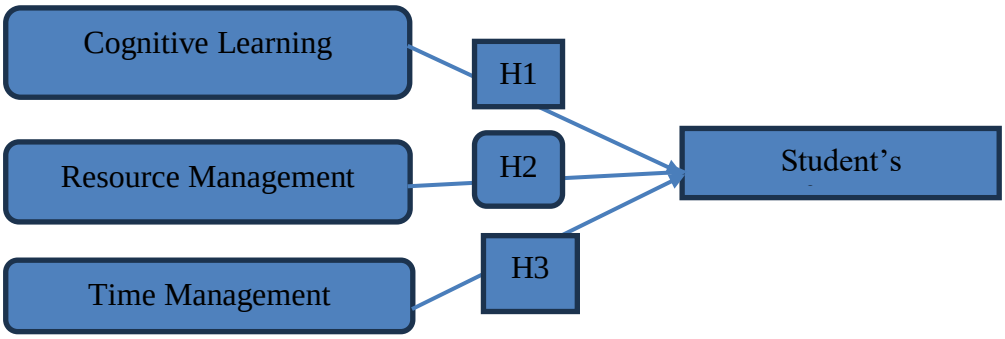

Figure 1- Conceptual Framework

RESEARCH METHODS

A positivist research paradigm was adopted, which necessitates a quantitative research approach in the collection, analysis, and presentation of the findings (Hair et al., 2019). Accordingly, a survey was prepared and posted to students' WhatsApp groups, which is a standard method of communication among students in OUT. The survey criteria required students studying the Bachelor of Business Administration (BBA) who specialised in accounting. This group of students is expected to either be working or employed in the

industry as accountancy graduates in various private and government departments. The respondents were studying in a blended mode, combining online and face-to-face components. A simple random sampling technique was employed to ask students to complete the questionnaire. This technique was considered ideal because it allowed many students to participate in the survey with minimal bias (Field, 2013; Kumar et al., 2019). Another set of questionnaires was sent to the directors of the regional centres, asking them to have their students complete the survey tool when they appeared for their examinations. This procedure helps minimise any potential contextual gap arising from students being concentrated in one regional centre. Several reminders followed over the next week, with the online link being resent to the students' WhatsApp groups. Ethical considerations in research were adhered to, including obtaining informed consent from participants and the organisation (OUT); maintaining confidentiality of information, and ensuring data integrity (Kumar et al., 2019). Observing ethical issues enabled the study to avoid harming the respondents and the institution (Saunders et al., 2019).

The questionnaire items were adapted from two authors. The first set of questionnaires measured cognitive learning strategies (CLS) and the Resource Management Learning Strategy (RMLS), which were adapted from Wenden and Rubin (1987). Specifically, the Wenden and Rubin (1987) questionnaire was adopted for three reasons. First, it provides a balanced coverage of learning strategy types relevant to various academic disciplines. Second, the questionnaire items are exhaustive in their coverage of cognitive, meta-cognitive, and resource-based learning, which are crucial for diverse groups of learners (Puteh et al., 2022; Kassim et al., 2023). Third, the questionnaire was validated using instruments that enhance its applicability in different contexts. The CLS questionnaire comprised four dimensions: rehearsal, organisation, elaboration, and critical thinking. Meanwhile, the RMLS questionnaire comprised three dimensions: environmental management, effort management, and help-seeking. The items of the CLS and RMLS questionnaires were measured on a 5-point Likert scale, where one denoted "strongly disagree" and five denoted "strongly agree".

The second part of the questionnaire was the Time Management Questionnaire (TMQ), adapted from Britton and Tesser (1991) and comprising three dimensions: short-range planning, time attitude, and long-range planning. The measurement scale was an interval scale stated in a 5-point Likert scale where 1denoted 'never', two denoted 'rarely', three denoted 'sometimes', four denoted 'often', and five denoted 'always'. Data collection commenced during the examination period, from June 2 to July 15, 2025. During this period, students visit their regional centres to take their

examinations; therefore, it becomes easier for them to access the information, especially those who are not active WhatsApp users. After 1.5 months, 97 responses were received. The responses were sorted out, and only students who specialised in accounting were retained, resulting in 86 usable questionnaires.

The data were analysed using descriptive statistics, specifically mean scores, correlations, and regression. According to Sekaran and Bougie (2019), the mean is the most common measure of central tendency, providing a straightforward and easier interpretation for different users of the reports. Therefore, the mean values were used to interpret the scores and to make sense of the results. The threshold for interpretation of the mean values was adopted from Sekaran and Bougie (2019). It is suggested that mean scores ranging between 1.0 and 2.4 are regarded as low; mean scores ranging between 2.5 and 3.4 are considered moderate, and mean scores ranging between 3.5 and 5.0 are regarded as high (Sekaran & Bougie, 2019; Malhotra, 2019). Additionally, a Pearson correlation analysis was conducted to examine the relationship among the learning strategies constructs and determine whether they are related. The following benchmarks were used to interpret Pearson values (r): (1) when r = 0.00-0.40, it implies a low relationship (2) when r = 0.50-0.70, implies a moderate relationship, and while (3) r = 0.80-1.00 it implies a high relationship (Cohen, 1998; Sekaran & Bougie, 2019). Additionally, a reliability test was conducted after merging the indicators of each construct. It is suggested that Alpha values of 0.7 or higher indicate reliable data (Hair et al., 2019). Finally, a regression analysis was conducted to identify the most significant factors among the learning strategies. The variables of learning strategies were merged to form three constructs: cognitive strategy, resource management, and time management, which were regressed against the dependent variable —students' performance. Parametric assumptions were tested to verify the validity of the regression results—specifically, sample size adequacy, data normality, and a test for multicollinearity. The following subsection presents the findings of the study.

FINDINGS

Profile of respondents

The respondents of this study were students pursuing a Bachelor of Business Studies in Accounting. The questionnaire consisted of five items measuring personal profile, including gender, age, regional centre, employment history, and year of study, as shown in Table 1 below.

Table 1- Summary of the Respondents' Profile

Item	N=86	%
Gender		
Females	25	29%
Males	41	71%
Age		
18-24 years	3	3.5%
25-34 years	27	31.4%
35-44 years	32	37.2%
45-54 years	17	19.8%
55 and above	7	8.1%
Regional Center (Zone)		
Dar es Salaam Zone	34	39.5%
Mbeya Zone	11	12.8%
Lake Zone	21	24.4%
Arusha Zone	9	10.4%
Zanzibar Zone	11	12.9%
Years in employment/self-employed		
None	05	5.8%
1-5 years	10	11.6%
5-10 years	36	41.9%
10-15 years	22	25.6%
15 years and above	13	15.1%
Year of studies		
1st Year	31	36%
2nd Year	22	25.6%
3rd Year	17	19.8%
4th Year	13	15.1%
5th Year and above	03	3.5%
Total	**86**	**100%**

The majority of respondents were male students (71%), while female students accounted for 29%, suggesting that most male students are likely to enrol in accounting programs. The majority of respondents were aged 35-44 years (37.2%), followed by those aged 45-54 years, suggesting they were mature students. There were 34 students (39.5%) from the Dar es Salaam zone, followed by 24 students (29.1%) from the Lake zone. The remaining zones had almost an equal number of students represented. Regarding employment history, the majority of respondents (41.9%) had 5-10 years of work experience, while 25.6% had 10-15 years of work experience. Only five respondents (5.8%) were not employed. Finally, the majority of respondents were 1st-year students (36%), followed by 2nd-year students (25%), and 3rd-year students (19.8%). There were 15.1% and 3.5% of students in their fourth and fifth years, respectively. Overall, the demographic results suggest that accounting programs attract mostly male, mature, and career-oriented students, which is consistent with the National Board of Accountants and Auditors (NBAA) in Tanzania. The NBAA reported that there are more male

accountants than females in the accounting profession (NBAA, 2023). These insights are valued for program developers, instructors, and policymakers aiming to tailor accounting educational policies to meet the needs of this unique profile of learners in the ODL.

Learning strategies

Cognitive Learning Strategies (CLS)

The first learning strategy was cognitive (CLS), comprising four dimensions: rehearsal, organisation, elaboration, and critical thinking. The mean results are presented in Tables 2-5 below.

Table 2-Cognitive Learning Strategy-Rehearsal (CLSR)-4 items

	N	Min	Max	Mean	Value
CLSR1-When I study for the classes, I practice saying the material to myself over and over.	86	4	5	4.41	High
CLSR2-When studying for the courses, I read my class notes and the course readings over and over again.	86	4	5	4.54	High
CLSR3-I memorises keywords to remind me of important concepts in this class.	86	4	5	4.65	High
CLSR4-I make lists of important items for the courses and memorize the lists.	86	4	5	4.31	High
Overall Mean Value for Cognitive Component (Rehearsal)	86			**4.48**	**High**
Valid N (listwise)	86				

The first cognitive strategy component is rehearsal. Table 2 depicts the mean findings for the rehearsal component, which was measured by four (4) items, which scored "high" with an overall mean value of 4.3. Item 1, which is "when I study for the classes, I practice saying the material to myself over and over", scored 4.41. Item 2, namely "when studying for the courses, I read my class notes and the course readings over and over again", scored a mean value of 4.54. Meanwhile, item 3, which was related to memorising key words of important concepts, scored 4.65, the highest among the four indicators. Regarding item 4, which pertained to listing important course items and memorising them, it also scored a high mean value of 4.31. The overall mean value of 4.48 for the rehearsal component under cognitive strategy indicates that respondents agreed that the rehearsal component under cognitive strategy plays an important role in their learning strategy as accounting students studying in online classes. This is because, as an adult working student in the BBA-Accounting program, they are expected to discuss concepts and memorise complex accounting and business terminology (Puteh et al., 2022). It will enhance their understanding of what

they have learnt in class by reinforcing their knowledge of the subject matter and facilitating a meaningful discussion with their peers.

Table 3-Cognitive Learning Strategy-Organisation (CLSO) - 4 items

	N	Min	Max	Mean	Value
CLSO1-When I study the readings for the courses in the program, I outline the material to help me organize my thoughts.	86	3	5	3.41	Moderate
CLSO2-When I study for the courses, I go through the readings and my class notes and try to find the most important ideas.	86	4	5	4.25	High
CLSO3-I make simple charts, diagrams, or tables to help me organize course materials in this program	86	4	5	4.66	High
CLSO4-When I study for the courses, I go over my class notes and outline important concepts.	86	4	5	4.11	High
Overall Mean Value for Cognitive Component (organisation)	**86**			**4.12**	**High**
Valid N (listwise)	86				

The second cognitive strategy was organisation, comprising four items. Table 3 above depicts the results for each item as answered by the respondents. The first item was related to reading for the course in the program and outlining materials to help organise thoughts, which scored a moderate mean value of 3.41. Item 2, which was related to "reading class notes and trying to find the most important ideas", scored a high mean value of 4.25. Item 3, which was related to creating simple charts, diagrams, and tables to help organise materials, scored a mean of 4.66, the highest among the four items in the construct. Meanwhile, item 4, which was related to 'studying for the course by revising notes and making an outline of important concepts', also scored a high mean value of 4.11.

The overall mean value of 4.12 for the organisation component indicated that the respondents agreed that organising and planning their study is one of the cognitive strategies that helps them excel in their studies. With this practice in mind, enable students to be more organised and have a more structured study plan (Kassim et al., 2023). As a result, it helps them stay motivated to proceed with their learning in ODL mode.

Table 4-Cognitive Strategy-Elaboration (CSE) (6 items)

	N	Min	Max	Mean	Value
CSE 1-When I study for the course, I find that respondents agree on different sources, such as lectures, readings, and discussions.	86	As adult working students	5	4.63	High
CSE 2-I try to relate ideas in one subject to those in other courses whenever possible	86	3	5	3.67	Moderate
CSE 3-When reading for the courses, I try to relate the material to what I already know.	86	3	5	3.44	Moderate
CSE 4-When I study for the courses in this program, I write summaries of the main ideas from the readings and my class notes.	86	4	5	4.15	High
CSE 5-I try to understand the material in the classes by making connections between the readings and the concepts from the lectures.	86	4	5	4.37	High
CSE 6-I try to apply ideas from course readings in other class activities, such as lectures and discussions	86	4	5	4.21	High
Overall Mean Value for Cognitive Component (Elaboration)				**4.08**	**High**
Valid N (listwise)	86				

The third cognitive strategy, elaboration, consisted of 6 items, as shown in Table 4. The highest mean score is depicted in the first item named CSE1, which scored a high mean value of 4.63; corresponding to "when I study for attempts to explore ideas of my own related to the formation from different sources, such as lectures, readings, and discussions". The second-highest-scoring item in the elaboration component was CSE5, which related to understanding the material in the notes by making connections between readings and concepts from the lecturer, scoring a mean of 4.37. The remaining items, namely CSE6 and CSE4, had mean values of 4.21 and 4.15, respectively, which were considered high. Meanwhile, the last two items, CSE2 and CSE3, scored mean values of 3.67 (high) and 3.44 (moderate), respectively. The overall score for the six items of elaboration-cognitive strategy revealed a mean score of 4.08, which is considered high. The overall mean value of 4.08 for the elaboration component under the cognitive strategy indicated that respondents agreed that the elaboration component is important for accounting students studying in ODL. As adult working students with family responsibilities (for the majority of them), accounting students are expected to discuss what they have learnt in Zoom class. From course materials, thus, the ability to elaborate on and relate concepts and practices is considered a helpful strategy in their learning process (Shaffie et al., 2020). This will further deepen their knowledge of their various courses.

Table 5-Cognitive Strategy-Critical thinking (CSCT)-5 items

	N	Min	Max	Mean	Value
CSCT1-I often find myself questioning things I hear or read in the courses to decide if I find them convincing.	86	4	5	4.09	High
CSCT2-When a theory, interpretation, or conclusion is presented in classes or in the readings, I try to decide if there is good supporting evidence.	86	4	5	4.54	High
CSCT3-I treat the course materials as a starting point and try to develop my own ideas about them. I treat the course materials as a starting point and try to develop my own ideas about them.	86	4	5	4.24	High
CSCT4-I attempts to explore my own ideas related to the concepts I am learning in the courses.	86	4	5	4.45	High
CSCT5-Whenever I read or hear an assertion or conclusion in the classes, I think about possible alternatives.	86	4	5	4.36	High
Overall Mean Value for Cognitive Component (Critical thinking)	86			**4.34**	**High**
Valid N (listwise)	86				

The data in Table 5 above indicate the cognitive strategy, critical thinking (CSCT). The construct had five items. All five items had loadings with high mean values of above 4.0. This is to say that undergraduate students undertaking an accounting specialisation "highly" agree that they often question what they hear or read in courses, interpreting conclusions they draw from theories they hear in classes or in the readings by finding supporting evidence, treating course materials as the starting point in developing their own ideas. Similarly, they 'highly' agree that they play around with ideas of their own while learning in their courses, and also when they read or hear an assertion or conclusion in their classes, they think about possible alternatives. The overall mean value of 4.34 for the critical thinking component demonstrates that going the extra mile by linking what accounting students learnt in class with the working experiences they have accumulated (Rahim et al, 2020; Molina et al., 2021). This implies that understanding and applying concepts is critical for accounting students to think outside the box, hence enabling participants to maximise their learning experience.

Resource Management Learning Strategies (RMLS)

The second construct of learning strategy was RMLS, which was measured by 3 (three) dimensions, namely environmental management, effort management, and help seeking. The results for the three dimensions are presented in Tables 5, 6, and 7 below.

Table 6- Environmental Management Component (EMC)-everyday

	N	Min	Max	Mean	Value
EMC1-I usually study in a place where I can concentrate on my course	86	4	5	4.36	High
EMC2-I make good use of my study time for the courses in this program	86	4	5	3.62	High
EMC3-I have a regular place set aside for studying	86	4	5	4.31	High
EMC4-I make sure that I keep up with the weekly readings and assignments for the courses.	86	4	5	3.22	Moderate
EMC5-I attend the classes regularly in this program.	86	4	5	3.10	Moderate
Overall Mean Value for Resource Management (Environment component)	**86**			**3.72**	**High**
Valid N (listwise)	86				

The data in Table 6 above show the mean score for environmental management, the first dimension of the resource management strategy. The highest mean score of 4.36 refers to the statement "I usually study in a place where I can concentrate on my course". Meanwhile, the lowest mean score is 3.10 (moderate), which occurred for the statement, "EMC5-I attend the classes regularly in this program". Other items, EMC2, EMC3, and EMC4, scored a mean of 3.62, 4.31, and 3.22, respectively, resulting in an overall mean of 3.72 for resource management, which is high. The plausible explanation for these results suggests that most accounting students considered the time, place, and space of the learning environment important to their learning (Wilson et al., 2021). It becomes necessary to equip students with the ability to manage digital resources relevant to the academic journey.

Table 7-Effort Management Component (EFMC)-4 items

	N	Min	Max	Mean	Value
EFMC1-I have a regular place set aside for studying	86	4	5	4.15	High
EFMS2-I work hard to do well in the classes in this program, even if I do not like what we are doing.	86	4	5	4.35	High
EFMS3-When the course is challenging, I either give up or only study the easy parts.	86	4	5	4.31	High
EFMS4-Even when course materials are dull and uninteresting, I manage to keep working until I finish.	86	4	5	4.43	High
Overall Mean Value for Resource Management- (Efforts Management Component)	**86**			**4.31**	**High**
Valid N (listwise)	86				

The data in Table 7 above indicate items for the resource management component, specifically effort management. The construct had four items, whereby all the items had loadings of 4.0; which can be interpreted that accounting students highly agree having a regular place set aside for studying, highly agree to work hard even if the courses are challenging, and also are ready to strive to do well in class even if the materials are not interesting to them. They continue to work hard to complete their studies, irrespective of the odds and challenges they encounter along the way. The overall mean value was 4.31, which is considered 'high' for this dimension. A reasonable explanation for this component suggests that accounting students are ready to strive by putting more effort into their studies to achieve their goals, which is consistent with suggestions by Wilson et al. (2021), even in the face of various challenges related to the learning environment, technological issues, content, and instructors.

Table 8- Help Seeking Component (HSC)-2 Items

	N	Min	Max	Mean	Value
HSC1-When I cannot understand the material in a course, I ask another student from my class for help.	86	4	5	4.34	High
HSC2-I try to identify students from my classes whom I can ask for help if necessary.	86	4	5	4.37	High
Overall Mean Value for Resource Management (Help Seeking Component)	**86**			**4.36**	**High**
Valid N (listwise)	86				

The data in Table 8 above present the findings of help-seeking behaviour (HSC), the last dimension of the resource management component. The construct was measured with two items whose loadings were above 0.43, resulting in an overall mean score of 4.36, which is regarded as a 'high' mean value. The interpretation is that accounting students strongly agree that seeking help from their colleagues when they cannot understand the course materials is necessary. A high overall mean score for this dimension suggests that accounting students highly value learning from others to make their learning journey easier.

Time Management Strategies (TMS)

The third learning strategy was TMS, which was measured by three dimensions: short-range planning, time attitude, and long-range planning. The descriptive results are presented in Tables 9, 10, and 11 below.

Table 9-Short Range Planning (SRP)-7 Items

	N	Min	Max	Mean	Value
SRP1-I make a list of the things that I have to do each day	86	3	5	3.58	High
SRP2-I make a schedule of the activities that I have to do on work days	86	3	5	3.66	High
SRP3-I plan the day before I start	86	4	5	4.45	High
SRP4-I write a set of goals for myself for each day	86	4	5	4.14	High
SRP5-I have a clear idea of what I want to accomplish during the next week	86	3	5	3.25	Moderate
SRP6-I spend time each day planning	86	3	5	3.11	Moderate
SRP7-I set and honour priorities	86	3	5	3.02	Moderate
Overall Mean Value for Time Management strategy (Short Range Planning component)	**86**			**3.60**	**Moderate**
Valid N (listwise)	86				

Data in Table 9 above indicate items for short-range planning (SRP), the first dimension of the time management component. Seven (7) items measure the short-range planning dimension. For item SRP1, the mean score was 3.58 (indicating a high level of agreement). The response sample sizes, ranging from 30 to 460, include a list of tasks they perform each day, which are ranked by importance. For the following items, SRP2, the respondents collectively agreed that creating a schedule of activities to be done on workdays is very important. Meanwhile, for items SRP3 and SRP4, the scored mean determines whether the data meet the assumptions of a normal distribution. Participants highly agree that planning the day before and writing a set of goals (to-do list) for each day is necessary.

Meanwhile, for the remaining three items, SRP5, SRP6, and SRP7 scored moderate mean values of 3.25, 3.11, and 3.02, respectively. The plausible interpretation is to determine whether the data meet the assumptions of normality. A day with a clear idea of what to do involves spending time each day planning, setting, and honoring priorities. The overall average mean score for short-range planning was high (3.60); this suggests that, for accounting students, the element of short-term planning for their studies and work-life balance enhances their learning journey.

Table 10-Time Attitudes (TA)-6 Items

	N	Min	Max	Mean	Value
TA1-I believe there is room for improvement in the way I manage my time	86	4	5	4.45	High
TA2-I find myself doing things which interfere with my college work simply because I hate to say no to people	86	3	5	3.46	Moderate
TA3-I feel I am in charge of& time, by and large	86	4	5	4.05	High
a statistical measure of the normal distribution of data, yielded alpha values above 0.05	86	3	5	3.24	Moderate
Every day, constructive use of time	86	4	5	4.21	High
A reliability test was conducted to measure the internal consistency of the items, ensuring	86	4	5	4.10	High
Overall Mean Value for Time Management strategy (Time Attitude Component)	**86**			**3.92**	**High**
Valid N (listwise)	86				

Data in Table 10 above indicate items for time attitude (TA), the second dimension of the time management component. Six (6) items measure the time attitude dimension, abbreviated as TA, TA2, TA3, TA4, TA5, and TA6. Four items scored 'high' mean values of above 4.0. These include TA1 (mean score =4.35); TA3 (mean score=4.05), TA5 (mean=4.21) and TA6 (mean=4.10). These scores indicate that the respondents strongly believe there is room for improvement, feeling that they generally own their time, make constructive use of it, and work until the last minute to complete major assignments. These findings highlight the importance of deadlines for submitting assignments, which also serves as a motivating factor for increasing efforts to complete a task. Meanwhile, two items had moderate mean values: TA2 and TA4, at 3.46 and 3.24, respectively. The two items suggest that, in some situations, respondents find themselves doing things that interfere with their college work simply because they cannot say no to others. At other times, they spend more time on personal grooming than on college work. The overall mean value for the item of time attitude is 3.92, indicating a high mean, suggesting that accounting students can change their attitude based on the situation and the nature of the study environment in ODL.

Table 11-Long Range Planning (LRP)-5 Items

	N	Min	Max	Mean	Value
LRP1-I have a set of goals for the entire quarter	86	3	5	3.64	High
LRP2-I keep my desk clear of everything other than what I am currently working on	86	2	5	3.43	Moderate
LRP3-I review my class notes well in advance for all my courses to avoid doing things in a hurry	86	3	5	3.52	High
LRP4-When I have several things to do, I think it is best to do a small quantity of work on each one	86	2	5	3.52	High
LRP5-I review my class notes even when the exam is not imminent.	86	2	5	3.11	Moderate
Overall Mean Value for Time Management Component (Long Range Planning)	**86**			**3.44**	**Moderate**
Valid N (listwise)	86				

The data in Table 11 above indicate that items for long-range planning (LRP), the third and final dimension, are discreetly valued by the respondents in this category of accounting students as a learning tool to facilitate their long-term planning. The highest mean score was recorded for item LRP1, at 3.64. I have a set of goals for the entire quarter. Meanwhile, two items scored similar values of 3.52 each, namely LRP3 and LRP4, indicating that respondents strongly believe in reviewing class notes well in advance to avoid doing things in a hurry. Similarly, the respondents highly believe that "when there are several things to do, it is best to do a little bit of work on each one". Meanwhile, the respondents believe that 'keeping desk clear of everything' (mean = 3.43) and reviewing class notes even when the exam is not imminent (mean = 3.11) are moderately important. The overall mean value for the long-range planning dimension is 3.44, which is moderate in the mean value criteria. These results suggest that respondents in this accounting student category discreetly value long-term planning as a learning tool to facilitate their study journey in blended and online learning environments.

Relationship between the three learning strategies

To determine the relationship between the three learning strategies, Pearson product-moment correlation (r) was conducted on all three dependent variables. In SPSS, the items within each dimension were combined to form a single construct for Pearson correlation. Table 12 below presents the Pearson correlation results. Data in Table 12 depicts the strongest correlation was between CLS and TMS (r=.847; p=.000) which was significant at .000. The second stronger relationship was between RMS and TMS (r=.825; p=.000)

and the least correlation was between CLS and RMS (r=.819; p=.000). According to Pearson values for interpretation, r≥.80 implies a strong relationship (Sekaran & Bougie, 2019). It can be concluded that the three learning strategies are highly correlated, suggesting that accounting students in this category apply them concurrently to enhance their learning in the ODL environment.

Table 12- Pearson Correlations (r) for combined items

		CLS	RMS	TMS
CLS	Pearson (r)	1	.819**	.847**
	Sig. (2-tailed)		.000	.000
	N	86	86	86
RMS	Pearson (r)	.819**	1	.825**
	Sig. (2-tailed)	.000		.000
	N	86	86	86
TMS	Pearson (r)	.847**	.825**	1
	Sig. (2-tailed)	.000	.000	
	N	86	86	86

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

Multiple Regression Analysis (MRA)

Parametric assumptions were checked before running regression analysis. First, we confirmed the adequacy of the sample size based on the survey response rate. It is suggested that a minimum sample size sufficient for multiple regression depends on the number of variables and the complexity of the model (Wolf et al., 2013). A Monte Carlo simulation suggests that sample sizes between 30 and 460 are adequate for both first-order and second-order regression (Structural Equation Modelling) (Wolf et al., 2013). Nonetheless, this study considered the suggested sample size from O'Brien and Scott (2012) in estimating a minimum sample size for regression. They suggest it be calculated based on the formula 50 + 8m, where m is the number of independent variables, which in this study is three (3). Therefore, the minimum required sample size for this study should be 74 (i.e., 50 + 8 × 3); thus, concluding that the 86 questionnaire responses are adequate for regression analysis.

Second, Skewness and Kurtosis tests were performed to assess whether the data met the assumptions of normality. As a rule of thumb, Skewness and Kurtosis tests should be close to plus/minus 2 and 4 (Pallant, 2020; Field, 2013). The results showed that the minimum skewness value was -2.132, and the maximum was -2.933. The Kurtosis values were 1.228 and 2.401 for the minimum and maximum values, respectively. It can be concluded that the data are slightly left-skewed but approximately normally distributed and

within the acceptable threshold (Pallant, 2020). Table 13 below shows these findings.

Table 13- Skewness and Kurtosis values for normality test

Variables	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Cognitive learning	86	-2.933	0.397	2.161	0.869
Resources management	86	-2.132	0.412	2.401	0.869
Time management	86	-2.896	0.637	1.228	0.769
Student performance	86	-2.348	0.397	1.244	0.469

Additionally, a Shapiro-Wilk test ($p > .05$) (Shapiro & Wilk, 1965; Razali & Wah, 2011) confirmed that the data were approximately normally distributed for all variables. The Shapiro-Wilk Test, a statistical measure of the normality of the data distribution, yielded alpha values above 0.05, resulting in the acceptance of the null hypothesis regarding the normality of the population sample (Razali & Wah, 2011). This affirmed that the data met the assumption of normality, allowing for further parametric analysis. Table 14 below shows the SPSS output.

Table 14- Normality Tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Cognitive learning	.161	86	.211	.758	86	.303
Resource management	.293	86	.176	.827	86	.214
Time management	.182	86	.112	.455	86	.245
Student performance	.394	86	.156	.673	86	.133

a. Lilliefors Significance Correction

Fourth, a multi-collinearity test was performed to ensure the absence of extreme values. Accordingly, tolerance levels and Value Inflation Factors (VIFs) were tested to detect the presence of extreme values. It is recommended that VIF should be close to 1 and less than 10 to avoid multicollinearity (Pallant, 2020). It was revealed that Tolerance values ranged from 0.745 to 0.860, while VIF values ranged from 1.215 to 1.342, indicating that multicollinearity was not a concern. Table 15 below shows the output results of SPSS.

Table 15 - Multicollinearity test

Variables	Collinearity Statistics	
	Tolerance	VIF
Cognitive learning	.745	1.342
Resource management	.823	1.215
Time management	.860	1.163
Student performance	.795	1.258

Source: Field data (2024)

Reliability Test

Finally, a reliability test was conducted to measure the internal consistency of the items, ensuring they measure the same thing (Saunders, 2019). It was revealed that Cronbach's alphas (Table 16) are above .70, suggesting good internal consistency and reliability of the data, which permit further parametric analysis.

Table 16-Reliability test

Predictor	Cronbach's Alpha	N of Items
Cognitive learning	.812	4
Resource management	.871	3
Time management	.750	3
Students' performance	.893	3

Multiple Linear Regression Results

To address the research objective and the underlying hypotheses, a multiple regression analysis was employed. This permitted the prediction of the influence of combined constructs on the theoretical framework. The regression results produced two tables, namely (1) the model summary and (2) the beta coefficients. In this case, Tables 17 and 18 are relevant in explaining the regression outcomes.

Table 17- Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.614[a]	.533	.502	.32214	1.631

a. Predictors: (Constant), Cognitive Learning, resource management, Time management
b. Dependent Variable: Students' Performance

Table 17 above shows an initial summary of the regression model with three predictors (cognitive learning, resource management, and time management) against one DV (student performance). The overall regression value (R) is .614, and the R2 value is .533, adjusted to .502. It means that the predictors explain 53.3% of their relevance on the dependent variable (students' performance), adjusted to 50.2%%. According to Field (2013), R^2 values

between 50% and 70% imply a moderate effect. Hence, we can conclude that the three predictors have an "average" prediction on the student's performance in this sample of respondents. The effect of each variable on the dependent variable is explained in the following table.

Table 18-Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	β		
1	(Constant)	5.651	.487		1.106	.000
	Cog Learning	.316	.074	.234	2.131	.000
	Resourc Magt	.421	.078	.363	2.562	.000
	TimeManagement	.216	.056	.203	1.450	.000

a. Dependent Variable: Students' Performance

Table 18 above presents the regression equation as a concise summary of the unstandardized beta coefficients, which reflect the final regression output. The regression above can be summarised in an equation $\hat{Y} = \alpha + \beta_1 X_{CL} + \beta_2 X_{RM} + \beta_3 X_{TM} + \acute{\varepsilon}$

Where:
$\hat{Y}$ = Students' performance
β = Partial regression coefficients
CL =Cognitive learning
RM = Resource management
TM = Time Management
$\acute{\varepsilon}$ = Error term.
α = Constant

The regression equation indicates that all three predictors are positively related to the dependent variable, and this relationship is statistically significant. If ceteris paribus, when cognitive learning increases by 1, Students' performance (DV) increases by .316. Similarly, a one-unit increase in the other remaining predictors increases the DV, as reflected in Table 18 above. The final regression results are presented as Y = 5.651 + 0.316CL + 0.421RM + 0.216TM + ε. A discussion of each variable follows in the next section.

Table 19- Summary of findings

Learning strategy	Dimension	Mean	Overall
Cognitive learning (CLS)	Rehearsal	4.48	4.25-high
	Organisation	4.12	
	Elaboration	4.08	
	Critical thinking	4.34	
Resource Management (RMS)	Environment	3.72	4.12-high
	Efforts management	4.31	
	Help seeking	4.34	
Time management (TMS)	Short-range plan	3.60	3.65 high
	Time attitude	3.92	
	Long-range plan	3.44	
Pearson Correlation (r)			
Correlation between CLS & RMS		r=.819	p-value=.000
Correlation between RMS & TMS		r=.825	p-value=.000
Correction between TMS &CLS		r=.847	p-value=.000
Regression (R)			
Cognitive learning strategy		β =.316	Accepted
Resource management		β =.421	Accepted
Time management		β =.216	Accepted

DISCUSSION AND CONCLUSION

Cognitive learning strategies and students' performance

To address the first research question, we consider the descriptive statistics, summarised in Table 12 above, and the regression analysis. The first component of the learning strategy was the cognitive strategy (CLS). The findings revealed that the highest mean score was on the rehearsal dimension, at 4.48. These findings are contrary to those reported by Puteh et al. (2022) and Kassim et al. (2023), who found high mean scores for cognitive strategies, suggesting that undergraduate students' ability to manage resources in higher education is challenging, especially when balancing a new learning environment, self-discipline, and cultural expectations. It is argued that postgraduate learners are more mature, and their curriculum requires them to apply knowledge by relating theory to practice, adapting and applying what they have learned across courses with minimal notes (Sheikhbardsiri et al., 2020). Meanwhile, most undergraduate students tend to learn slowly by revising notes as they become familiar with learning strategies in higher education (Díaz et al., 2019; Tran et al., 2019). Additionally, the majority of respondents in this study were first-year students who were nearing the completion of their first year of studies. Henceforth, rehearsal becomes one tool to familiarize oneself with concepts in the new courses and new learning environment. Other learning strategies in the cognitive domain, namely organisation, elaboration, and critical

thinking, scored equally high mean values, suggesting that they are valued by accounting students in this domain. These findings suggest that accounting instructors in higher education should design courses that incorporate a balanced content of Bloom's taxonomy, beginning with small concepts that require rehearsal and progressing to higher levels, including critical thinking.

To confirm the descriptive findings, the regression results, which combined all dimensions, showed a positive sign between cognitive strategy and students' performance. The regression analysis yielded a coefficient (β) value of 0.316 and a t-value of 2.131, which was significant at $p < 0.000$. This result suggests that an increase in cognitive learning among accounting students in online learning may likely result in a 31.6% increase in student performance. In other words, the more students improve their cognitive learning, the more likely they are to increase their performance level. This finding suggests that cognitive learning is one of several factors influencing performance; it is impactful but not dominant for this category of learners. Therefore, interventions should be holistic, combining cognitive strategies with other supports, such as time management and access to resources. Comparative studies in online learning have demonstrated that cognitive learning is essential for enabling learners to complete their learning activities successfully (Puteh et al., 2022). Similarly, the study by Rahmat (2018) revealed that the use of cognitive strategies helps reduce learning difficulties, and Lokman et al. (2021) showed that cognitive learning strategies foster motivation for continuous learning behaviour. These findings suggest the importance of curriculum design authorities in integrating cognitive learning strategies into course materials, such as concept mapping, self-questioning, and summarisation, to enhance students' ability to process and retain information.

Resource management and students' performance

The second learning strategy is resource management, which encompasses environmental, effort management and help-seeking. The Help Seeking dimension was found to have the highest overall mean value of 4.36. These findings suggest that accounting students collectively agree to ask their colleagues for assistance if they do not understand some material in the course of study. These findings are consistent with those of Puteh et al. (2022), who found that help-seeking had the highest mean score among the resource management components. It can be concluded that both undergraduate students pursuing accounting courses and postgraduate students utilise help-seeking as a management tool in their learning to improve their comprehension. This is understandable as a characteristic of learners in the ODL, as they have minimal interactions with course

instructors due to the absence of face-to-face sessions (Mahai, 2020, 2022). Nonetheless, the findings of this study are consistent with those of Diaz et al. (2019), who found that undergraduate students' ability to manage resources in higher education is challenging, especially when balancing a new learning environment, self-discipline, and cultural expectations. This entails balancing the concepts learnt in class with group discussions with peers, especially with more experienced colleagues, to strengthen their understanding and academic success. These strategies not only support academic success but also build a sense of flexibility among ODL learners.

In addressing the second hypothesis, which tested the relationship between resource management and students' performance, the regression results revealed a positive correlation between the two variables. Specifically, the regression formed an unstandardized coefficient (β) value of .421 and a t-value of 2.562, which is much higher than the 1.96 critical region thresholds for a 95% confidence level, producing a p-value of .000. Resource Management has the highest standardized coefficient (β = .421), indicating it has the most significant relative impact. This finding is essential as it highlights the critical role of resources necessary for learning, including technology, mobile phones, various Applications, shareware, and a student's ability to utilise digital platforms for self-learning (Mahai, 2020). Comparable findings were reported by Hederich-Martinez et al. (2020), who suggested that mature learners are effective at resource management, primarily due to their capacity to seek support and influence through collaboration and discussion (Díaz et al., 2019). Recognising that resource management is not just logistical but also cognitive and strategic, students who can organise, access, and apply resources effectively are more likely to succeed in their academic journey.

Time management and students' performance

The findings highlight that short-range planning, time management and long-range planning are vital and well-recognised strategies among accounting students for managing their time effectively. Students demonstrate a strong commitment to short-term planning tasks, such as daily lists and goal setting, which are essential for academic success and personal organisation. It was also revealed that accounting students' moderately value long-range planning, particularly in goal setting and developing proactive study habits. At the same time, organisational behaviours like workspace management and non-exam note review were less emphasised. The data support the conclusion that effective time management contributes significantly to students' learning journeys, enabling them to navigate the complexities of academic life with greater confidence and control (Garcia et al., 2008; Galvis et al., 2025).

However, the moderate scores on deeper planning behaviors in long-range time management suggest an opportunity for further studies on the construct. Moreover, the positive correlations among time management, cognitive learning and resource management suggest that students who excel in one area tend to apply similar techniques and awareness across other dimensions. This insight is especially relevant in blended and online learning environments, where self-regulation and strategic planning are critical to academic success (Sizoo et al., 2003). To further enhance student outcomes, educators and institutions may consider reinforcing long-term planning habits through structured goal-setting exercises, time management workshops, and digital planning tools tailored for distance learning.

Additionally, the regression results revealed a significant positive relationship between time management and students' performance. However, the size of the effect was the smallest compared to the previous two constructs. The coefficient value ($\beta = 0.216$) and a t-test of 1.450, which was significant at $p < 0.000$. This finding showed a positive beta coefficient, indicating that effective time management could partly explain improvements in students' performance in online mode. Time management, categorised into short-range, attitude, and long-range planning, can be a tool to improve students' performance. This is the first time the variable of time management is integrated into learning strategies and tested in adult learning with a special category of learners (accounting students). Galaviz et al. (2025) and Wilson et al. (2021) reported similar results on a positive relationship between time management and students' academic performance.

Conclusion, Implications, and Suggestions for Future Research

The findings from this study affirm that learning strategies are vital in specialised programs, particularly in accounting. Accounting students should be given more exposure to practical learning strategies, as Tanzania is transitioning towards a competence-based curriculum. The findings of this study demonstrate that accounting students' use of cognitive, resource-based, and time-management strategies is significant and that these strategies are interrelated. The findings suggest that curriculum design authorities should integrate cognitive learning strategies into course materials, such as concept mapping, self-questioning, and summarisation, to enhance students' ability to process and retain information. Similarly, based on resource-based management, the findings highlight the importance of instructors encouraging self-directed learning by promoting tools such as task managers and collaborative platforms (e.g., Zoom, Moodle, Google Workspace, and Microsoft Teams). These strategies will foster a culture of digital collaboration, resource sharing, and meaningful discussions. Furthermore, the

findings on the time management dimension suggest that instructors and university management should instill time management skills in students and foster a culture of time management throughout their early career. Although the time management construct showed the smallest effect size among the three predictors, its significance suggests that even modest improvements in time use can yield measurable performance gains. Therefore, instilling a culture of time consciousness in learners early in the academic journey can empower students to flourish, particularly in self-directed online environments.

This study is limited to 86 participants, whose characteristics are specified in the profile section. The study acknowledges this as a limitation that could limit the generalizability of the findings. Future scholars are encouraged to build upon this study by conducting more evidence-based studies with larger sample sizes, thereby enhancing the reliability of the research findings. Similarly, as the literature review shows, various learning strategies can be adopted depending on the learners' group and the intended learning outcomes. Therefore, future studies should explore this area by incorporating additional variables into the conceptual model. This will broaden the understanding of various learning strategies in the specified field. Additionally, future studies can explore the application of more advanced techniques, such as structural equation modelling (SEM). Indeed, the time management questionnaire and the learning strategy questionnaire by Wenden and Rubin (1987) have multi-dimensional indicators that SEM can handle well, enabling the simultaneous examination of many constructs. The use of SEM will therefore enhance understanding of each construct and provide more robust generalisation, while testing the interaction effects of respondents' characteristics to further the discussion in this area.

REFERENCES

Asuquo, A.I., Dan, O. N, & Effiong, G.T. (2020). Impact of Information Technology on the Accounting line of work, International Journal of Recent Technology and Engineering, 9 (2), 297–302.

Britton B. K. & Tesser A. (1991). Effects of Time-Management Practices on College Grades, Journal of Educational Psychology, 83, (3), 405-410

Cohen, J. (1998). Applied Multiple Regression/Correlation Analysis for Behavioural Sciences, 3rd Edition. Menwah, NJ: Lawrence Erlbaum Associates.

Díaz, M. A., Alcas Zapata, N., Alarcón Díaz, H. H., Arroyo, N. J. A., & Fuentes, R. A. (2019). Use of Learning Strategies in the University. A Case Study. Journal of Educational Psychology-Repository Representation, 7(1), 23–32.

Edmond T & Tiggeman T (2009). Accounting Experiences in Collaborative Learning, American Journal of Business Education, Vol 2 (7), 97-100

Field, A. (2013), Discovering Statistics Using IBM SPSS Statistics. London: Sage Publications.

Flores, M. A. (2018). Linking Teaching and Research in Initial Teacher Education: Knowledge Mobilisation and Research-Informed Practice. Journal of Education for Teaching, 44, 621-636

Galaviz, G.O., Zazueta, L. A., Campas, C.Y.Q., Lirios, C.G., & Ruiz, G.B. (2025). Impact of Time Management on Academic Performance, Journal of Information Systems Engineering and Management 2025, 10(21), 46-65

García R., R., Pérez-G., J. C., Talaya, M., & Martínez, M. (2008). Time Management in University Students with Different Levels of Academic Performance Revista de Educación, 346, 75–96.

García-Vélez, R., Moreno, B. V., Ruiz-Ichazu, A., Rivera, D. M., & Rosero-Pérez, E. (2021). Automating the Generation of Study Teams through Genetic Algorithms Based on Learning Styles in Higher Education. In Advances in Intelligent Systems and Computing: https://doi.org/10.1007/978-3-030-51328-3_38

Gillies, R. M. (2016). Cooperative Learning: Review of Research and Practice. Australian Journal of Teacher Education, Vol 41(3). http://dx.doi.org/10.14221/ajte.2016v41n3.3

Goosen, R. and Steenkamp. G. (2023). Activating accounting students' decision-making skills through a reflective self-assessment workshop on learning styles, International Journal of Management Education, 21 (3), 1–12.

Gozalo D., M., León del Barco, B., & Romero M., M. (2022). Good practices of university students that predict their academic performance. 25(1) p 171–195.

Hair, J.F., Black, W.C., Babin, B.J., and Anderson, R. E. (2019). Multivariate Data Analysis (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall Pearson Education.

Hederich-Martínez, C., Camargo-Uribe, A., & López-Vargas, O. (2020). Motivation and use of learning strategies in students, men, and women with different levels of schooling. Journal of Psychological and Educational Research, 26(1), 121–146.

Hofstede, G. (1984). Culture's Consequences: International Differences in Work-Related Values, Beverly Hills, CA: SAGE Publications

Hwang, A., & Francesco, A. M. (2009). The Influence of Individualism-Collectivism and Power Distance on Use of Feedback Channels and Consequences for Learning June 2010Academy of Management Learning and Education 9(2):243-257

Idris, N., Isa, M. H., Zakaria, N. N. N., Taib, M. N. A., Ismail, S., & Rahmat, N. H. (2022). An Investigation of the Use of Cognitive and Metacognitive Strategies in Foreign Language Learning. International Journal of Academic Research in Business and Social Sciences, 12(2).

Jeng A (2023). Individualism and collectivism's impact on students' academic helping interactions: an integrative review, Social Psychology of Education 27(5):2771-2807

Kassim, A., Puteh, F., Chandran, S. D. S., Katamba, S., Magobe, M., Rahmat, N. H., & Vadeveloo, T. (2023). Exploring the Relationship between Learning Approaches among Postgraduate Students. International Journal of Academic Research in Business and Social Sciences, 13(6), 1520 – 1542.

Kotb, A., Roberts, C., and Sian S. (2012). E-business audit: Advisory jurisdiction or occupational invasion? *Critical Perspectives on Accounting* 23 (1), 468–482.

Kole, J. K. T. (2025). Applying Hofstede's Cultural Dimensions in Education: Insights, Critiques, and Implications for Diverse Classrooms. Open Journal of Social Sciences, 13, 94–110.

Kumar, M., Salim, A. T., & Ramayah, T. (2013). Business Research Methods. Kuala Lumpur, Malaysia: Oxford University Press.

Kumar M (2019). Research Methodology: A Step-by-Step Guide for Beginners, 5th Edition, Amazon, UK.

Lal, P. S., & Bharadwaj, S. (2016). Understanding the impact of cloud-based services adoption on organisational flexibility. *Journal of Enterprise Information Management*, 29 (1), 566 – 588.

Lokman, A., Hassan, F., Ustadi, Y. A., Rahman, F. A. A., Zain, Z. M., & Rahmat, N. H. (2021). Investigating Motivation for Learning via Vroom's Theory. International Journal of Academic Research in Business Studies and Social Sciences, 11(12), 504–530.

Mahai, L. S. (2022). Overcoming the Odds: Online Learning Experiences from Open University of Tanzania's Regional Centre Rural-based Students, University of Dar es Salaam Library Journal, 17(1) (2022), 114–128.

Mahai, L.S. (2020). Reflections on the learner support services for rural-based distance learners at the Open University of Tanzania. Papers in Education and Development, 38(2), 345–371.

Mahdi, O. R.; Islam, A. Nassar, I.A.; and Almuslamani, A. I (2020) Mahdi, The Role of Using Case Studies Method in Improving Students' Critical Thinking Skills in Higher Education, International Journal of Higher Education, 9 (2), 297-308

Malhotra. N. K (2019), "Marketing Research: An Applied Orientation, Global Edition, Pearson.

Malinic D. Todorovic M., & Cegar B. (2025). Critical success factors of online accounting education, *Journal of Accounting Literature, 2,* 1–16.

Molina T. L. C., Barrera L. F., Sotelo C. M. A., Ramos E. D. Y., & Pérez R. R. (2021). Orientation to the future, learning strategies, self-regulation and academic performance in Mexican university students. Education and Science, 10(55), 39–54.

Mshana G., Malibwa D., Aloyce D. & Kapiga S (2022). Masculinity, power and structural constraints: Men's conceptualisation of emotional abuse in Mwanza, Tanzania, Journal of Social Sciences and Medicine, 292 (1), 11–30.

Mwale, C. G. (2019). Resilience in Teacher Education and Professional Development Through

NBAA (2023). Miscellaneous information for the national board of accountants and auditors regarding the list of active members, audit firms and other information by NBAA in Tanzania, www.nbaa.gov.tz/news/pdf. [Accessed on 02/10/2025.

Nurhilza, A. (2018). Students' critical thinking skills in group discussions: A case study of fifth-grade students in Sukma Bangsa Bireuen Elementary School, Sukma Journal Pendidikan, 2 (1), 67–92.

OUT (2024) OUT-Facts and Figures 2023/2024. The Directorate of Quality Assurance and Control, The Open University of Tanzania.

Pallant, J. (2020). SPSS Survival Manual: A Step-by-Step Guide to Data Analysis Using IBM SPSS. 7th Edition, McGraw-Hill Open University Press.

Puteh, F., Kassim, A., Devi, S., & Katamba, A. (2022). Postgraduate Use of Learning Strategies: Are the Strategies Related to One Another? International Journal of Academic Research in Business and Social Sciences, 12(10).

Rahim, E. E. A., Daud, N., Kadir, S. A. A., & Jamil, N. W. (2020). Students' perceptions of Open and Distance Learning (ODL) for theoretical and lab-related subjects. 2020 IEEE Conference on E Learning, e-Management and e-Services (IC3e), 29–32.

Rahmat, N. H. (2018). Educational Psychology: A Tool for Language Research. International Journal of Social Sciences, 4(2), 655-668.

Razali, M. M., and Wah. Y. B. (2011), Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling Tests, Journal of Statistics Modelling Analysis. 2 (1), 21–33.

Reverón S, N. (2015). Time management. Report of the final degree project. Unpublished thesis at the Faculty of Economics, Business and Tourism. University of Laguna.

Reyes G., N., Meneses B., A. L., & Díaz-M., A. (2022). Planning and management of academic time for university 15(1), 57–72.

Reyes-Lara, I., & García-Ros, R. (2022). Relationship between time management and academic performance in university students. Journal of Educational Research, 40(1), 169–183.

SADC & UNESCO (2020). Baseline Situational Analysis on Open Distance Learning (ODL) in Southern African Development Community (SADC) Member States. SADC. Gaberone.

Saunders, M, Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students, 9th ed., Harlow: Pearson Education.

Sekaran, U., and Bougie, R. (2019). Research Method for Business. London, UK: John Wiley and Sons Ltd.

Shaffie N; Zin R.M. and Ismail S (2020) Accounting Students' Preferences Towards Learning Strategies in Universiti Malaysia Terengganu, Universiti Malaysia Terengganu; Journal of Undergraduate Research, 2 (4),75–88.

Shapiro, S. S., and Wilk. M. B. (1965). Analysis of Variance Test for Normality (Complete Samples) *Biometrica*, 52 (3), 591-611

Sheikhbardsiri, H., Sheikhasadi, H., Mahani, S. A., & Mohamadi, M. M. D. (2020). Emotional intelligence and learning strategies of postgraduate students at

Kerman University of Medical Sciences in the southeast of Iran. Journal of Education and Health Promotion, 9(1), 66.

Sizoo, S., Molhatro, N. K., & Bearson, J. M. (2003). Preparing students for a distance learning environment: A comparison of learning strategies of in-class and distance learners. Educational Technology Systems, 31(3), 261–273.

Slimi Z (2023). The Impact of Artificial Intelligence on Higher Education: An Empirical Study, European Journal of Educational Sciences, 10 (1), 17–33.

Sukon, K. S. (2021). "A Practical (Blended) Teaching and 'Blearning' Model." Ubiquitous Learning: An International Journal 14 (2): 73-84.

Tabatabaeian. M. S. Mashayekh S., and Koushkaki A. R. (2021). Online Accounting Education: Opportunities and Innovations, Iranian Journal of Accounting, Auditing & Finance, 1, 1–21.

Tettamanzi. P. Minutiello. V., and Murgolo. M (2023), Accounting education and digitalisation: A new perspective after the pandemic, The International Journal of Management Education, 21 (3), 1–18.

Thottoli, M.M., Ahmed, E.R. & Thomas, K.V. (2022). "Emerging technology and auditing practice: analysis for future directions", European Journal of Management Studies, 27 (1), 99–119.

Tran, V. D., Nguyen, T. M. L., Van De, N., Soryaly, C., & Doan, M. N. (2019). Does Cooperative Learning May Enhance the Use of Students' Learning Strategies? International Journal of Higher Education, 8(4), 79–88.

Tran, V. D., Nguyen, T. M. L., Van De, N., Soryaly, C., & Doan, M. N. (2019). Does Cooperative Learning Enhance the Use of Students' Learning Strategies? International Journal of Higher Education, 8(4), 79–88.

URT (2025) United Republic of Tanzania, Ministry of Education, Science and Technology Education Sector Development Plan 2025/26- https://www.moe.go.tz/sites/default/files/ESDP%202025-26%20hadi%202029-30%20Final-%2026%20February%202025.pdf Accessed on 30/08/2025

Wenden, A., & Rubin, J. (1987). Learner Strategies in Language Learning. New Jersey: Prentice Hall.

Widuri, R., Handoko, B.L. & Prabowo, I.C. (2019). "*Adoption of information technology in public accounting firms*", Proceedings of the 2019 4th International Conference on Big Data and Computing, 198–202.

Wilson, R., Joiner, K., & Abbasi, A. (2021). Improving students' performance with time management skills, Journal of University Teaching & Learning Practice, 18(4), 1–20.

Zheng, F., Zhao, C, Fakhra Y., & Sokolova, M (2025). Hofstede's cultural dimensions and proactive behavior as the antecedents of entrepreneurial innovativeness, Acta Psychologica, 256, 1–12.

Mediating Role of Intended Performance in the Influence of Electronic Human Resource Management on Supporting Staff Job Performance in Tanzanian Public Universities

Alex Silas Seni1[1], Bukaza Chachage[1], and Saganga Kapaya[2]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania,
Department of Accounting and Finance, The Open University of Tanzania,
Author corresponding email: alex.seni@out.ac.tz
DOI: https://doi.org/10.61538/pajbm.v9i2.1897

Abstract
Universities are increasingly adopting Electronic Human Resource Management (e-HRM) to enhance efficiency and staff performance; however, its effectiveness in African higher education institutions remains uninvestigated. This study investigates the mediating role of Intended Performance in the relationship between e-HRM constructs, Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions and Supporting Staff Job Performance in Tanzanian public universities. Drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT), a survey of 362 Supporting Staff from three universities was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). Results indicate that Intended Performance fully mediates the effects of Performance Expectancy ($\beta = 0.102$, $p = 0.008$), Effort Expectancy ($\beta = 0.443$, $p < 0.001$), and Facilitating Conditions ($\beta = 0.116$, $p = 0.002$) on Supporting Staff Performance. At the same time, the mediation of Social Influence was not significant ($\beta = –0.058$, $p = 0.211$). The findings advance UTAUT by emphasising intention as a central mechanism through which e-HRM adoption drives Supporting Staff Job Performance. Practically, the study emphasises the need for user-centred system design, targeted training, and reliable institutional support to strengthen staff intentions and optimise performance outcomes in resource-constrained university settings.

Keywords: *e-HRM, UTAUT, Intended Performance, Supporting Staff, Public Universities, Tanzania*

INTRODUCTION

In the digital era, the integration of Information and Communication Technologies (ICTs) into Human Resource Management (HRM) practices has fundamentally transformed how organisations manage their workforce (Bondarouk et al., 2017; Bondarouk & Ruël, 2013; Marler & Parry, 2016). Electronic Human Resource Management (e-HRM) refers to the adoption of

web-based technologies for delivering HR services and processes, including recruitment, training, performance appraisal, and employee communication (Strohmeier, 2007). In higher education institutions, particularly public universities, e-HRM offers opportunities to enhance efficiency, transparency, and informed decision-making by enabling faster information flow and reducing administrative burdens (Parry & Tyson, 2011).

Tanzanian public universities operate in a context of growing student enrollment, constrained resources, and increasing demands for accountability from stakeholders (URT, 2020). These challenges necessitate innovative HRM approaches to improve the Performance of supporting staff, who are critical to maintaining institutional operations. The effectiveness of e-HRM implementation is influenced by factors such as performance expectancy (belief that the system will enhance job performance), effort expectancy (perceived ease of use), social influence (peer and management support), and facilitating conditions (availability of resources and infrastructure) (Alalwan et al., 2017; Venkatesh et al., 2003). Intended job performance, reflecting staff willingness and commitment to perform tasks effectively, often serves as a bridge between perceived e-HRM benefits and actual job outcomes (Davis, 1989; Venkatesh et al., 2012a). Understanding this mediating role is crucial to ensure that e-HRM investments translate into measurable improvements in supporting staff performance.

Despite substantial investments in ICT infrastructure, Tanzanian public universities continue to report persistent administrative inefficiencies and suboptimal Performance by supporting staff (Mtebe & Raisamo, 2014). Although e-HRM systems have been introduced, empirical evidence on their effectiveness in improving job performance in this context remains limited. Studies indicate that e-HRM adoption can streamline HR processes and boost employee productivity (Bondarouk & Ruël, 2013; Marler & Parry, 2016). However, in many African countries, including Tanzania, the adoption of systems is often constrained by insufficient technical skills, poor connectivity, resistance to change, and limited institutional support (Mtebe et al., 2014). Furthermore, even where e-HRM systems exist, their impact on staff performance may be indirect, mediated by factors such as intended job performance (Alalwan et al., 2017; Strohmeier, 2007).

The literature gap lies in understanding how and why e-HRM influences the Performance of supporting Staff in Tanzanian public universities. Specifically, the roles of performance expectancy, effort expectancy, social influence, and facilitating conditions have not been sufficiently explored, and the mediating effect of intended performance remains empirically under-

examined in this context. Addressing this gap is vital for designing evidence-based e-HRM strategies that optimise the performance of supporting staff and enhance institutional efficiency.

REVIEW OF LITERATURE

Unified Theory of Acceptance and Use of Technology (UTAUT)

The study investigated the influence of e-HRM on staff job performance in public universities, using the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003). UTAUT was chosen over UTAUT2 because it is more applicable in organisational settings where technology use is mandatory, as is the case with e-HRM in public universities, while UTAUT2 is better suited for voluntary consumer adoption (Venkatesh et al., 2012b; Williams et al., 2011). The model highlights four constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions that shape behavioural intention and system use. In this context, performance expectancy captures perceived usefulness, effort expectancy reflects ease of use, social influence relates to peer and organisational pressures, and facilitating conditions denote technical and organisational support. Although UTAUT has been critiqued for its complexity and limited attention to individual differences (Dwivedi et al., 2019a; Van Raaij & Schepers, 2008), it provides a suitable framework for assessing how e-HRM acceptance influences job performance, offering a comprehensive understanding of technology adoption in public universities.

Electronic Human Resource Management

E-HRM adoption has been linked to enhanced HR service delivery, improved decision-making, and measurable gains in employee performance (Bondarouk & Ruël, 2009). Studies show that e-HRM can shift HR from an administrative to a strategic role, thereby improving institutional agility (Strohmeier & Kabst, 2014). In African contexts, research is limited; however, emerging evidence suggests that effective e-HRM implementation is contingent upon the context-specific adaptation of systems to local infrastructural and cultural realities (Njoku et al., 2019). This indicates that while e-HRM holds significant promise for public universities, its benefits are not automatically realised without addressing systemic adoption barriers.

Intended Performance mediates the relationship between Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Supporting Staff Job Performance.

According to Kumar et al. (2023) and Obeidat (2016), performance expectancy, especially when intention to use the system is firm, positively influences both behavioural intention to adopt e-HRM and actual job

performance. Similar patterns are observed in higher education, where readiness to adopt new learning management systems is shaped by perceived usefulness. Effort expectancy also enhances behavioural intentions, but its direct effect on job performance is weaker and often mediated by user intention, suggesting that ease of use alone does not guarantee improved outcomes unless employees are willing to engage with the system. Social influence significantly shapes behavioural intentions and indirectly affects job performance, as seen in industries such as banking, where adoption is influenced by peer pressure and resistance to change. Facilitating conditions directly support e-HRM adoption and usage by providing resources and organisational support, which in turn enhance staff performance.

Hypothesis 1: *Intended Performance mediates the relationship between Performance Expectancy and Supporting Staff Job Performance among selected Tanzanian public universities*

Hypothesis 2: *Intended Performance mediates the relationship between Effort Expectancy and Supporting Staff Job Performance among selected Tanzanian public universities*

*Hyp**othesis 3:** Intended Performance mediates the relationship between social influence and Supporting Staff Job Performance among selected Tanzanian public universities*

Hypothesis 4: *Intended Performance mediates the relationship between Facilitating Conditions and Supporting Staff Job Performance among selected Tanzanian public universities*

Research Conceptual Framework

Based on the relevant literature on the relationship between e-HRM acceptance and staff job performance, this study modifies the original UTAUT model to better reflect the higher education context (Curtis et al., 2010; Duyck et al., 2008; Venkatesh et al., 2011; Williams et al., 2011). The adjusted framework examines the mediating role of intended job performance in the relationship between e-HRM acceptance and supporting staff performance in selected public universities. In this model, supporting staff job performance serves as the dependent variable, while intended job performance functions as a mediator linking the independent variables performance expectancy, effort expectancy, social characteristics, and facilitating conditions to performance outcomes. Drawing on the hypothetical statements and to provide a clearer understanding of the proposed relationships, the research model is presented in Figure 1.

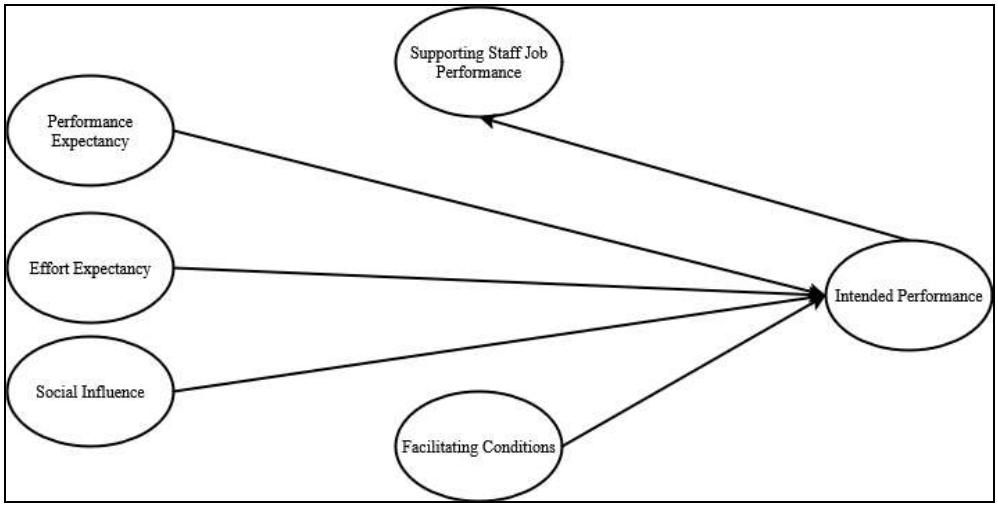

Figure 1. Research Conceptual Framework

METHODOLOGY

Design and Methodology

A deductive approach was adopted, as it enables examination of relationships among e-HRM constructs, performance expectancy, effort expectancy, social influence, facilitating conditions, and supporting staff job performance. The study employed a quantitative design, which facilitates the use of numerical data to describe, explain, and test hypotheses (Creswell & John, 2018; Creswell & Creswell, 2017). Specifically, the researchers measured and analysed the impact of e-HRM performance expectancy, effort expectancy, social influence, and facilitating conditions on supporting staff job performance. Data were collected using a structured survey, designed to assess the influence of electronic human resource management on staff performance in selected Tanzanian public universities. The survey comprised two sections: the first captured employee demographic information, including gender, age, education level, work experience, and marital status, while the second focused on the four key constructs, which were mediated by intended Performance under investigation.

Sample and Data Collection

The study was conducted in three Tanzanian public universities University of Dar es Salaam (UDSM), The Open University of Tanzania (OUT), and The Nelson Mandela African Institution of Science and Technology (NM–AIST) chosen for their distinct profiles regarding e-HRM adoption. From a target population of 1,849 supporting staff, a sample of 362 respondents was calculated using Taro Yamane's formula, with proportional simple random sampling ensuring adequate representation from each institution (279 from

UDSM, 53 from OUT, and 30 from NM–AIST). Data were collected using self-administered structured questionnaires, which are both cost-effective and reliable for large-scale surveys. The instrument included demographic questions and 22 items measuring performance expectancy (3 items), effort expectancy (3 items), social influence (3 items), facilitating conditions (3 items), intended Performance (4 items), and supporting staff job performance (6 items), all rated on a five-point Likert scale and adapted from established studies (Lin, 2019; Venkatesh et al., 2003). Quantitative statistical analyses were employed to examine relationships among these constructs and assess their impact on supporting staff's job performance across the selected universities.

Data Analysis

This study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine the complex relationships among Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Intended Performance (as a mediator), and Supporting Staff Job Performance. PLS-SEM, a robust second-generation multivariate technique, is well-suited for predictive research, particularly in contexts involving non-normal data and relatively small sample sizes (Hair et al., 2019b). The analysis was conducted using SmartPLS 4.1.0.6, a widely recognised software for PLS-SEM that offers advanced mediation and moderation analysis within a user-friendly interface (Hair et al., 2019b). In addition to structural modelling, descriptive statistics were applied to summarise the data and explore, thereby assessing the conditional variations in mediating effects. Consistent with recent literature, this study underscores the growing adoption of PLS-SEM and SmartPLS in social sciences and management research for effectively modelling intricate causal relationships (Hair et al., 2019b).

RESULTS

Participants Profile

The demographic profile of the respondents indicates a well-educated and experienced workforce. Most participants held a Bachelor's degree (38.1%), followed by Diploma (23.2%) and Master's degree (18.2%), with a small proportion having O-levels (5.5%) or a PhD (0.6%). In terms of work experience, over half of the respondents (53%) had ten or more years of experience, while 20.4% had 7–9 years, 14.1% had 4–6 years, and 12.4% had 0–3 years. The gender distribution was slightly skewed toward males (55.5%) compared to females (44.5%). Age-wise, the majority of respondents were between 31 and 40 years (44.2%), followed by 41–50 years (28.5%), 51–60 years (15.2%), and 20–30 years (12.2%). These characteristics suggest that the sample represents a diverse range of educational backgrounds, work

experience, and age groups, providing a robust basis for examining e-HRM and its impact on staff job performance.

Table 6. Participants Profile

Variable	Characteristic	Frequency	Percent
Educational level	O-level (Form 4)	20	5.5
	Certificate	52	14.4
	Diploma	84	23.2
	Bachelor Degree	138	38.1
	Master's Degree	66	18.2
	PhD	2	0.6
Working experience (*in years*)			
	0-3	45	12.4
	4-6	51	14.1
	7-9	74	20.4
	10 and above	192	53
Gender			
	Male	201	55.5
	Female	161	44.5
Age (*in years*)			
	20-30	44	12.2
	31-40	160	44.2
	41-50	103	28.5
	51-60	55	15.2

Measurement Model Assessment

Item Loadings, Variance Inflation Factor (VIF), Cronbach's Alpha (CA), Composite Reliability (CR) and Average Variance Extracted (AVE)

The measurement model assesses the relationship between indicators and their underlying latent constructs (Hair et al., 2013). This involves examining individual item reliability, internal consistency, and convergent and discriminant validity. Item reliability was assessed through the outer loadings of the indicators for each construct (Bagozzi & Yi, 1988), where values of 0.70 or above indicate stronger reliability. Internal consistency was measured using the composite reliability coefficient, with a threshold of 0.70 as recommended by C. Fornell and D. F. J. J. o. m. r. Larcker (1981). Convergent validity was tested using the Average Variance Extracted (AVE), in line with Chin's criterion that each construct should achieve a minimum value of 0.50. A summary of these assessments is presented in Figure 2 and Table 1.

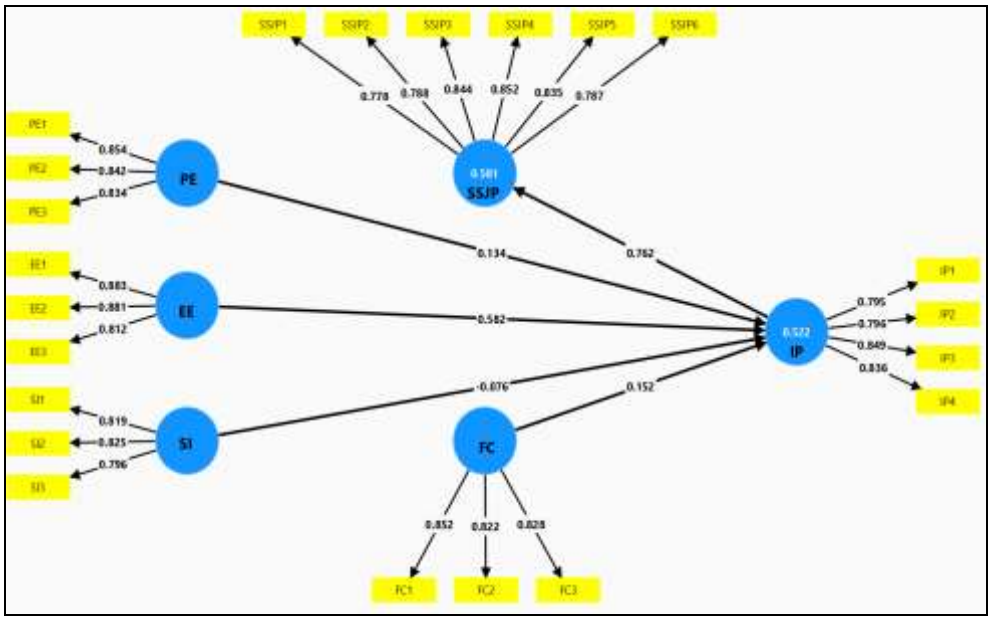

Figure 2. Measurement Model

Table 7. Item Loadings, Variance Inflation Factor (VIF), Cronbach's Alpha (CA), Composite Reliability (CR) and Average Variance Extracted (AVE)

Constructs	Item Loading	VIF	CR_A	CA	AVE
Performance Expectancy					
PE1	0.854	1.878			
PE2	0.842	1.823	0.801	0.798	0.711
PE3	0.834	1.533			
Effort Expectancy					
EE1	0.883	2.04			
EE2	0.881	2.14	0.829	0.822	0.738
EE3	0.812	1.612			
Social Influence					
SI1	0.819	1.429			
SI2	0.825	1.517	0.751	0.746	0.662
SI3	0.796	1.529			
Facilitating Conditions					
FC1	0.852	1.678			
FC2	0.822	1.585	0.784	0.782	0.696
FC3	0.828	1.615			
Intended Performance					
IP1	0.795	1.764			
IP2	0.796	1.796	0.847	0.838	0.672

Constructs	Item Loading	VIF	CR_A	CA	AVE
1P3	0.849	1.99			
IP4	0.836	1.832			
Supporting Staff Job Performance					
SSJP1	0.778	1.862			
SSJP2	0.788	1.929			
SSJP3	0.844	2.435			
SSJP4	0.852	2.423	0.902	0.898	0.664
SSJP5	0.835	2.337			
SSJP6	0.787	1.985			

In Table 2, the measurement model was assessed for indicator reliability, internal consistency, convergent validity, and multicollinearity. Indicator reliability was supported, as all standardised loadings ranged from 0.778 to 0.883, exceeding the recommended threshold of 0.70 (Hair et al., 2021), indicating that the observed variables adequately reflect their latent constructs. Internal consistency was satisfactory, with Cronbach's alpha values between 0.746 and 0.898 and composite reliability (CR) values from 0.751 to 0.902, surpassing the 0.70 benchmark suggested by Nunnally and Bernstein (1994) and Hair et al. (2019b). Convergent validity was achieved, with AVE values ranging from 0.662 to 0.738, demonstrating that constructs explain substantial variance in their indicators (C. Fornell & D. F. J. J. o. m. r. Larcker, 1981). Multicollinearity was not a concern, as VIF values ranged from 1.429 to 2.435, below the conservative cutoff of 3.3 (Diamantopoulos et al., 2012; Diamantopoulos & Siguaw, 2006; Kock, 2015). Overall, the results indicate robust reliability and convergent validity of the measurement model.

Also in Table 3, Discriminant validity was evaluated using the C. Fornell and D. F. Larcker (1981) criterion, which requires that the square root of the average variance extracted (AVE) for each construct exceed its correlations with other constructs. As shown in Table 2, the diagonal values representing the square roots of AVEs (EE = 0.859, FC = 0.834, IP = 0.819, PE = 0.843, SI = 0.813, SSJP = 0.815) are consistently higher than the corresponding inter-construct correlations. For example, the correlation between IP and SSJP (0.762) is lower than their respective AVEs (0.819 and 0.815), indicating sufficient discriminant validity. Similar results are evident across all constructs, confirming that each captures a distinct dimension of the conceptual framework. These findings align with recommendations by Hair et al. (2019a) and Henseler et al. (2015), who emphasise the necessity of

discriminant validity for ensuring the robustness of measurement models in SEM research. Thus, the results demonstrate that the constructs are empirically distinct and suitable for structural analysis.

Table 8. Discriminant Validity: Fornell & Larcker Criterion

Constructs	EE	FC	IP	PE	SI	SSJP
EE	***0.859***	_				
FC	0.489	***0.834***	_			
IP	0.704	0.455	***0.819***	_		
PE	0.694	0.444	0.568	***0.843***	_	
SI	0.605	0.553	0.426	0.493	***0.813***	_
SSJP	0.801	0.468	0.762	0.651	0.531	***0.815***

Note: EE = Effort Expectancy, FC = Facilitating Conditions, PE = Performance Expectancy, SI = Social Influence, IP = Intended Performance, SSJP = Supporting Staff Job Performance

Explanatory Power (R^2 Predict, f^2 Predict and Q^2 Predict)

The explanatory power of the model was assessed using R^2, f^2, and Q^2 values. The results show that the predictors accounted for 52.2% of the variance in intention to use e-HRM (IP; R^2 = 0.522) and 58.1% of the variance in supporting staff job performance (SSJP; R^2 = 0.581), which indicates moderate to substantial explanatory power (Hair et al., 2019b). Effect-size analysis revealed that effort expectancy (EE) had the strongest contribution to IP (f^2 = 0.298), representing a medium-to-large effect, while performance expectancy (PE) and facilitating conditions (FC) had small effects (f^2 = 0.019 and 0.031, respectively). Social influence (SI) exerted a negligible effect on IP (f^2 = 0.007). Importantly, intention had a very large effect on SSJP (f^2 = 1.385), confirming its central role as a predictor. Predictive relevance was further supported by Q^2 values for both IP (0.509) and SSJP (0.581), which exceeded zero, indicating strong cross-validated predictive ability (Stone, 1974; Geisser, 1975).

Table 9. Explanatory Power (R^2 Predict, f^2 Predict and Q^2 Predict)

Predictor (s)	Outcome (s)	R – Square (R^2 Predict)	f – Square (f^2 Predict)	Q – Square (Q^2 Predict)
PE			0.019	
EE			0.298	
SI	IP	0.522	0.007	0.509
FC			0.031	
IP	SSJP	0.581	1.385	0.581

Note: EE = Effort Expectancy, FC = Facilitating Conditions, PE = Performance Expectancy, SI = Social Influence, IP = Intended Performance, SSJP = Supporting Staff Job Performance

Structural Model

At this stage, PLS-SEM tests the research hypotheses by evaluating the significance of the path coefficients between latent constructs within the model. The significance of these path coefficients was determined using a bootstrapping procedure with 10,000 resamples, based on data from 362 cases, to assess the significance levels of the hypothesised direct relationships (Hair et al., 2019b). The results of the main direct effect model are presented in Table 2 and Figure 3.

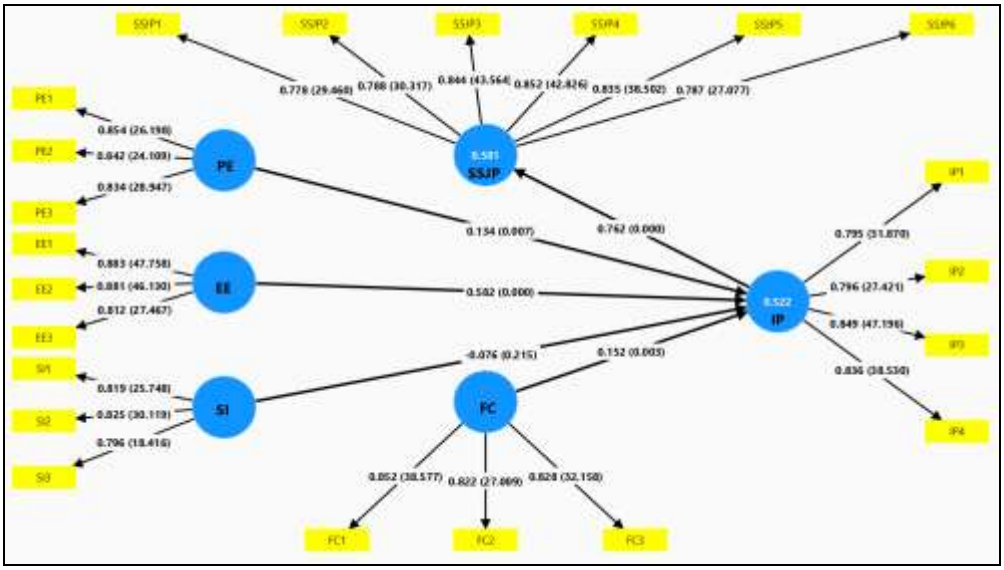

Figure 3. Structural Model (PLSc)
Significant at p<0.050 (Two-tailed Test)

Main Mediation Effect of the Hypotheses

The mediation analysis results demonstrate that intention to perform (IP) fully mediates most of the hypothesised relationships between UTAUT constructs and supporting staff job performance (SSJP). Specifically, performance expectancy (PE) exhibited a significant indirect effect on SSJP via IP ($\beta = 0.102$, $p = 0.008$), indicating that supporting staff expectations of enhanced job performance influence outcomes only when translated into intention. Similarly, effort expectancy (EE) showed the strongest full mediation effect ($\beta = 0.443$, $p < 0.001$), suggesting that ease of system use enhances staff performance exclusively through employees' intention to engage with e-HRM systems. Facilitating conditions (FC) also displayed a significant full mediation effect ($\beta = 0.116$, $p = 0.002$), underscoring the importance of intention as the sole pathway through which supportive infrastructure contributes to Performance. By contrast, social influence (SI) revealed a non-significant indirect effect ($\beta = -0.058$, $p = 0.211$), indicating

no mediation through IP. These findings confirm that intention is a critical mechanism linking technological and organisational factors to job performance (Hayes, 2015; Hayes, 2018; Zhao et al., 2010).

Table 10. Hypotheses Mediation Analysis Results

	Indirect Effect						
Hypotheses	**Coefficient**	**SE**	**T-Value**	**P-Value**	**Percentile Bootstrap 95% Confidence Interval**		**Results**
					Lower	**Upper**	
H1:PE -> IP -> SSJP	0.102	0.038	2.655	0.008	0.044	0.239	Supported
H2:EE -> IP -> SSJP	0.443	0.053	8.299	0.000	0.461	0.703	Supported
H3:SI -> IP -> SSJP	-0.058	0.046	1.251	0.211	-0.195	0.045	Not Supported
H4:FC -> IP -> SSJP	0.116	0.038	3.04	0.002	0.055	0.254	Supported

Note: PE = Performance Expectancy, EE = Effort Expectancy, SI = Social influences, FC = Facilitating Conditions, IP = Intended Performance, SSJP = Supporting Staff Job Performance

Types of Mediation of the Results

Since the model only tested indirect effects and did not include direct paths, the interpretation of the mediation results is based solely on the significance of the indirect effects. Accordingly, the significant indirect effects observed for performance expectancy (H1), effort expectancy (H2), and facilitating conditions (H4) indicate full mediation, meaning that Intended Performance (IP) fully transmits the effect of these constructs on supporting staff job performance (SSJP) (Baron et al., 1986; Hayes, 2018). In contrast, the non-significant indirect effect for social influence (H3) suggests no mediation, indicating that IP does not serve as a pathway linking social influence to job performance. These results highlight the critical role of intention as the sole mechanism through which PE, EE, and FC influence staff performance, while SI appears to operate independently without mediation.

Table 11. Summary of Mediation Types Analysis Results

Hypotheses	**Indirect Effect**	**Mediation Type**	**Interpretation**
H5(a):PE -> IP -> SSJP	Significant	Full Mediation	IP fully mediates the effect of PE on SSJP
H5(b): EE -> IP -> SSJP	Significant	Full Mediation	IP fully mediates the effect of EE on SSJP
H5(c): SI -> IP -> SSJP	Not Significant	No Mediation	IP does not mediate the SI–SSJP relationship
H5(d): FC -> IP -> SSJP	Significant	Full Mediation	IP fully mediates the effect of FC on SSJP

Note: PE = Performance Expectancy, EE = Effort Expectancy, SI = Social influences, FC = Facilitating Conditions, IP = Intended Performance, SSJP = Supporting Staff Job Performance

DISCUSSION OF FINDINGS

The results of the mediation analysis indicate that Intended Performance (IP) plays a critical role in translating UTAUT constructs into actual Supporting Staff Job Performance (SSJP) among Tanzanian public university staff. Specifically, Performance Expectancy (PE), Effort Expectancy (EE), and Facilitating Conditions (FC) were found to have significant indirect effects on SSJP through IP. In contrast, Social Influence (SI) did not demonstrate a significant mediated effect. These findings highlight the centrality of intention as a mechanism through which technology-related expectations and environmental conditions influence job performance.

The significant full mediation of IP in the relationships between PE, EE, and FC with SSJP supports the notion that employees' perceptions about the usefulness of e-HRM systems (PE) and the ease of using such systems (EE) enhance job performance primarily by shaping their intentions to perform effectively (Davis, 1989; Venkatesh et al., 2003). This finding aligns with prior research suggesting that performance expectancy and effort expectancy are robust predictors of behavioural intention, which in turn predicts actual technology-mediated performance outcomes (Alalwan et al., 2017; Dwivedi et al., 2019a). Similarly, the full mediation observed for Facilitating Conditions indicates that access to appropriate organisational and technical resources indirectly improves staff performance by fostering stronger intentions to utilise the systems effectively, consistent with earlier studies emphasising the role of infrastructure and support in e-HRM implementation (Bondarouk & Ruël, 2013; Marler & Parry, 2016).

On the other hand, Social Influence did not significantly mediate the relationship between IP and SSJP. This suggests that, in the context of Tanzanian public universities, perceived social pressure or encouragement from colleagues and supervisors has a limited influence on staff performance in terms of intention. This outcome may reflect the more individualistic nature of performance behaviours in administrative roles, where system use is driven more by perceived usefulness and ease of use than by social factors (Venkatesh et al., 2012a). Previous studies have similarly found that the impact of social influence on behavioural intention can be context-dependent and less pronounced in voluntary or non-collaborative work settings (Oliveira et al., 2016; Williams et al., 2015).

In brief, the findings highlight the pivotal mediating role of intention in the relationship between technology acceptance constructs and actual job performance. By demonstrating full mediation of PE, EE, and FC, the study provides empirical evidence that interventions aimed at enhancing staff performance should focus on strengthening both the perceived usefulness and

ease of use of e-HRM systems, as well as on providing adequate organisational support to facilitate effective use. These insights are crucial for policymakers and HR managers aiming to optimise the benefits of e-HRM systems in public sector institutions.

IMPLICATIONS OF THE STUDY

The findings of this research carry significant theoretical and practical implications. Theoretically, this study contributes to the existing literature on the influence of e-HRM acceptance on supporting staff job performance by providing empirical evidence of the relationships among e-HRM system components (performance expectancy, effort expectancy, social influence, and facilitating conditions). For management and practitioners focused on job performance, adopting and implementing the proposed model offers a valuable framework for better understanding which e-HRM practices warrant greater attention to enhance staff job performance effectively.

Theoretical Implications

This study contributes to the theoretical understanding of e-HRM adoption and employee performance by demonstrating that Intended Performance (IP) fully mediates the relationships between Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Conditions (FC), and Supporting Staff Job Performance (SSJP), thereby extending the UTAUT framework (Venkatesh et al., 2003) to the context of Tanzanian public universities and highlighting the centrality of intention as a mechanism for translating system-related perceptions into actual Performance. The findings further indicate that Social Influence (SI) may not always have a significant mediating role, suggesting that the impact of social pressures on job performance is context-dependent, particularly in administrative or less collaborative environments, and refining existing technology adoption theories by emphasizing the conditions under which UTAUT constructs affect actual performance outcomes (Alalwan et al., 2017; Dwivedi et al., 2019b). Moreover, by providing empirical evidence on the mediating role of intention, an area often underexplored in developing countries, the study advances theoretical models linking technology acceptance to job performance, offering a more nuanced understanding of the mechanisms driving performance improvements in public sector organisations.

Practical Implications

From a practical perspective, the findings offer important guidance for HR managers and policymakers in Tanzanian public universities. The full mediation of Intended Performance (IP) suggests that efforts to enhance staff performance should focus on increasing the perceived usefulness (PE) and

ease of use (EE) of e-HRM systems, while ensuring adequate organisational and technical resources (FC). Implementing training programs, user-friendly interfaces, and reliable technical support can strengthen staff intentions to use these systems effectively, thereby improving job performance. Additionally, the non-significant role of Social Influence (SI) suggests that interventions should emphasise individual-level enablers and system-related support, rather than relying on peer or managerial pressure. This enables HR practitioners to design implementation strategies that optimise staff motivation, system usability, and overall institutional efficiency.

LIMITATIONS AND DIRECTIONS FOR FUTURE STUDY

Despite the valuable insights provided by this study, several limitations should be acknowledged. First, the research was conducted at three Tanzanian public universities, which may limit the generalizability of the findings to other higher education institutions or private-sector contexts. Second, the study relied on cross-sectional survey data, which constrains the ability to infer causal relationships between UTAUT constructs, Intended Performance, and Supporting Staff Job Performance. Third, the analysis focused solely on Intended Performance as a mediator, leaving unexplored other potential mediating or moderating factors such as organisational culture, leadership support, or employee engagement that might influence the e-HRM performance link. Additionally, the non-significant role of Social Influence may be context-specific, and its effect could differ in collaborative or culturally diverse settings.

Future research could address these limitations by adopting longitudinal or experimental designs to establish causality more robustly and by expanding the study to include private universities or organisations in other countries for broader applicability. Further studies may also explore additional mediators or moderators, such as knowledge sharing, digital literacy, or organisational support, to provide a more comprehensive understanding of how e-HRM adoption translates into staff performance. Finally, investigating the contextual factors that influence social influence could clarify when and how social pressures impact performance outcomes, thereby enriching both theory and practice in technology-enabled human resource management.

REFERENCES

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. J. I. J. o. i. m. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *37*(3), 99–110.

Bagozzi, R. P., & Yi, Y. J. J. o. t. a. o. m. s. (1988). On the evaluation of structural equation models. *16*, 74–94.

Baron, R. M., Kenny, D. A. J. J. o. p., & psychology, s. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *51*(6), 1173.

Bondarouk, T., Parry, E., & Furtmueller, E. J. T. I. J. o. h. r. m. (2017). Electronic HRM: four decades of research on adoption and consequences. *28*(1), 98–131.

Bondarouk, T., & Ruël, H. J. T. I. J. o. H. R. M. (2013). The strategic value of e-HRM: results from an exploratory study in a governmental organisation. *24*(2), 391–414.

Bondarouk, T. V., & Ruël, H. J. J. T. i. j. o. h. r. m. (2009). Electronic Human Resource Management: challenges in the digital era. *20*(3), 505–514.

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In *Modern Methods for Business Research* (pp. 295–336). Psychology Press.

Creswell, J., & John, W. (2018). Creswell, Research Design. *Qualitative, Quantitative, Mixed Methods Approaches*.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.

Curtis, N., Jones, M. E., Lappin, A., O'Higgins, P., Evans, S. E., & Fagan, M. J. (2010). Comparison between in vivo and theoretical bite performance: using multi-body modelling to predict muscle and bite forces in a reptile skull. *Journal of Biomechanics*, *43*(14), 2804–2809. https://doi.org/10.1016/j.jbiomech.2010.05.037

Davis, F. D. J. M. q. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. 319–340.

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. J. J. o. t. A. o. M. S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *40*, 434–449.

Diamantopoulos, A., & Siguaw, J. A. J. B. J. O. m. (2006). Formative versus reflective indicators in organisational measure development: A comparison and empirical illustration. *17*(4), 263–282.

Duyck, P., Pynoo, B., Devolder, P., Voet, T., Adang, L., & Vercruysse, J. J. M. o. i. i. m. (2008). User acceptance of a picture archiving and communication system. *47*(02), 149–156.

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. J. I. s. f. (2019a). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *21*(3), 719–734.

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. J. I. s. f. (2019b). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *21*, 719–734.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800

Fornell, C., & Larcker, D. F. J. J. o. m. r. (1981). Evaluating structural equation models with unobservable variables and measurement error. *18*(1), 39–50.

Hair, J. F., Astrachan, C. B., Moisescu, O. I., Radomir, L., Sarstedt, M., Vaithilingam, S., & Ringle, C. M. (2021). Executing and interpreting applications of PLS-SEM: Updates for family business researchers. *Journal of Family Business Strategy*, *12*(3), 100392. https://doi.org/10.1016/j.jfbs.2020.100392

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modelling: Rigorous applications, better results and higher acceptance. *Long range planning*, *46*(1-2), 1-12. https://doi.org/10.1016/j.lrp.2012.09.011

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019a). When to use and how to report the results of PLS-SEM. *European business review*, *31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. J. E. b. r. (2019b). When to use and how to report the results of PLS-SEM. *31*(1), 2-24.

Hayes, A. F. (2015). Introduction to mediation, moderation, and conditional process analysis. In: The Guilford Press.

Hayes, A. F. J. C. m. (2018). Partial, conditional, and moderated mediation: Quantification, inference, and interpretation. *85*(1), 4–40.

Henseler, J., Ringle, C. M., & Sarstedt, M. J. J. o. t. a. o. m. s. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *43*, 115–135.

Kock, N. J. I. J. o. e.-C. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *11*(4), 1–10.

Kumar, A., Arora, A., Sharma, P., Bansal, N., Anikhindi, S. A., Khare, S.,…Sachdeva, M. J. C. (2023). Public knowledge, awareness, and vaccination rates for hepatitis B in India: a cross-sectional survey. *15*(8).

Lin, C. (2019). Applying the UTAUT model to understand factors affecting the use of e-books in Fujian, China. In.

Marler, J. H., & Parry, E. J. T. I. J. o. H. R. M. (2016). Human resource management, strategic involvement and e-HRM technology. *27*(19), 2233–2253.

Mtebe, J. S., & Raisamo, R. (2014). Challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania. *International Review of Research in Open and Distributed Learning*, *15*(1), 249–271. https://doi.org/10.19173/irrodl.v15i1.1687

Mtebe, J. S., Raisamo, R. J. I. R. o. r. i. o., & learning, d. (2014). Challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania. *15*(1), 249–271.

Njoku, E., Ruël, H., Rowlands, H., Evans, L., & Murdoch, M. (2019). An analysis of the contribution of e-HRM to sustaining business performance. In *HRM 4.0 For Human-Centred Organisations* (pp. 21–39). Emerald Publishing Limited.

Obeidat, S. M. (2016). The link between e-HRM use and HRM effectiveness: an empirical study. *Personnel Review*, *45*(6), 1281-1301. https://doi.org/10.1108/PR-04-2015-0111

Oliveira, T., Thomas, M., Baptista, G., & Campos, F. J. C. I. H. B. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *61*, 404–414.

Parry, E., & Tyson, S. J. H. R. m. j. (2011). Desired goals and actual outcomes of e-HRM. *21*(3), 335–354.

Strohmeier, S., & Kabst, R. J. E. R. (2014). Configurations of e-HRM–an empirical exploration. *36*(4), 333–353.

Strohmeier, S. J. H. R. m. r. (2007). Research in e-HRM: Review and implications. *17*(1), 19–37.

Van Raaij, E. M., & Schepers, J. J. (2008). The acceptance and use of a virtual learning environment in China. *Computers Education*, *50*(3), 838-852. https://doi.org/10.1016/j.compedu.2006.09.001

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., Chan, F. K., Hu, P. J. H., & Brown, S. A. (2011). Extending the two-stage information systems continuance model: Incorporating UTAUT predictors and the role of context. *Information systems journal*, *21*(6), 527–555. https://doi.org/10.1111/j.1365-2575.2011.00373

Venkatesh, V., Thong, J. Y., & Xu, X. (2012a). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 157-178. https://doi.org/10.2307/41410412

Venkatesh, V., Thong, J. Y., & Xu, X. J. M. q. (2012b). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. 157-178.

Williams, M., Rana, N., Dwivedi, Y., & Lal, B. (2011). Is UTAUT really used or just cited for the sake of it? A systematic review of citations of UTAUT's originating article.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. J. J. o. e. i. m. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *28*(3), 443–488.

Zhao, X., Lynch Jr, J. G., & Chen, Q. J. J. o. c. r. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *37*(2), 197–206.

Borrower Characteristics and the Level of Non-Performing Loans among Saving and Credit Cooperative Societies in Tanzania: Moderating Effects of the Educational Level of Loan Committee Members

Michael Josephat Mwacha
Department of Accounting and Finance, The Open University of Tanzania
Author corresponding Email: mijomwa@gmail.com
DOI: https://doi.org/10.61538/pajbm.v9i2.1898

Abstract
This study investigates how borrower characteristics influence non-performing loans (NPLs) among 45 SACCOs in Ubungo Municipality from 2017 to 2024. Specifically, the study analyzed the influence of borrowers' income level, borrowers' loan purpose, and borrowers' credit history on NPLs, while also examined the moderating effect of loan committee members' educational level, covering financial statements and regulatory supervision reports. Descriptive statistics (mean, standard deviation, skewness, and kurtosis) and inferential statistics (Pearson correlation and regression analysis using pooled OLS) were computed using SPSS Version 23, supported by robustness checks. A two-way fixed-effects panel model shows that higher borrower income, productive-purpose loans, and stronger credit histories reduce NPLs, while higher loan-committee education further strengthens these relationships. Policy recommendations include stricter borrower profiling, committee qualification standards, and alignment of repayment schedules with income cycles.

Keywords: *Non-performing loans; borrower characteristics; loan-committee education; SACCO*

INTRODUCTION

Globally, banks, microfinance institutions, and Savings and Credit Cooperative Societies (SACCOs) are affected by the serious problem of non-performing loans (NPLs) (IMF, 2019). Excessive NPL levels jeopardise economic growth, restrict loan availability, and weaken financial stability (Metto, 2020). The International Monetary Fund (IMF) claims that the 2008 global financial crisis caused a sharp rise in NPLs in numerous nations, which prompted authorities to improve credit risk management procedures. However, borrower-level determinants in SACCOs remain under-documented (Mutai, 2018; Musau et al., 2018). Regulatory frameworks such as the Basel Accords (BA) have been implemented in developed economies

to reduce non-performing loans and manage credit risk (BCBS, 2017). However, because of low governance, subpar credit evaluation, and unstable economies, financial institutions, SACCOs in particular, continue to face significant default rates in many developing nations, especially those in Africa (Towo, 2023).Non-performing loans in Tanzania averaged 7.89% from 2010 to 2018, with a maximum of 11.52% in 2017 while the world's average based in 129 countries during the same period is 6.78%, which is relatively lower than that of Tanzania (BoT, 2018; NBS, 2024). Non-performing loans is, therefore, one of the major causes of financial losses experienced by financial institutions in Tanzania (Mwakabalula & Mwamkonko, 2024).

According to Kroszner (2015), non-performing loans are those loans that are no longer being serviced by a borrower. The SACCOs Act (2008) defines non-performing loans as those loans in the portfolio that are more than 90 days overdue on interest or principal repayments and are disclosed in the supplemental financial statement information.

Many SACCOS in Africa, such as Ghana, Kenya and Tanzania, experienced problems with non-performing loans (Mmari & Thinyane, 2019). For example, a study in Ghana by Yeboah and Oduro (2018) indicates that loan default was a major concern in credit unions. In Tanzania, the Ministry of Agriculture, Food, Security, and Co-operatives report indicates that out of 5424 registered SACCOS, only 1,346 (25%) were active (Ndiege et al., 2016). Furthermore, the Tanzania Cooperative Development Commission (TCDC, 2023) report indicates that the Tanzanian shilling is 1,299. 66 billion were issued as loans, and 490.33 billion (37%) was still outstanding.

In Tanzania, to maintain their financial viability, SACCOs are subject to regulations from the Tanzania Cooperative Development Commission (TCDC, 2019) and the Bank of Tanzania (BoT) (2019) that aim to curb NPLs. Notwithstanding these regulatory initiatives, NPLs continue to pose a serious issue (Kalula & Kiriinya, 2018). According to studies, loan defaults in Tanzanian SACCOs are driven by several factors, including inadequate credit risk management (Magash et al., 2023), weak internal controls (Kadaga, 2020), and unstable economic conditions (Metto, 2020). Many SACCOs in Ubungo Municipality struggle to return their loans because of poor loan evaluation methods, a dearth of collateral, and a lack of follow-up with defaulters (TCDC, 2023). Developing successful methods to enhance the loan performance and financial sustainability of SACCOs requires an understanding of these aspects (Towo, 2023; Magali, 2023). Although BOT and TCDC established regulatory frameworks in 2018, many SACCOs,

especially those in Ubungo Municipality, continue to face substantial loan delinquencies (TCDC, 2023). Nationally, the ratio of non-performing loans to total gross loans in Tanzania decreased by 1.2 percentage points, from 15.73 per cent in 2022 to 14.53 per cent in 2024 (NBS, 2024). Despite this improvement, the NPL ratio has been higher in recent years than in preceding years, indicating ongoing challenges in loan performance (Ubungo Municipality report, 2024).

Few studies have examined the difficulties faced by SACCOs in Tanzania, especially in Ubungo, because most prior studies on NPLs have focused on commercial banks and other microfinance institutions (see, for example, Kalula & Kiriinya, 2018; Magali, 2023; Metto, 2020). Macroeconomic variables such as inflation and interest rates are the focus of many current studies, but little is known about how certain borrower characteristics affect non-performing loans in SACCOs (Mwenda et al., 2021). Improving the financial sustainability of SACCOs in Tanzania requires understanding the factors driving high levels of non-performing loans (Magash et al., 2023). This study offers insights into practical methods for reducing the level of non-performing loans and bolstering SACCO operations by analysing how borrower characteristics, using the Asymmetric Information Theory (AIT), influence NPLs (Mwakabula & Mwamkoko, 2024). By addressing these gaps, this study offers practical recommendations to improve SACCOs' credit risk management, strengthen internal policies, and ensure long-term financial stability (Msuya, 2023). The findings contribute not only to academic knowledge but also to policy formulation and financial sector improvements, benefiting SACCOs, regulators, and cooperative members in Tanzania.

Despite the various studies regarding economic and regulatory variables affecting NPLs, studies focusing on the joint impact of loan terms, and borrower behavior in Tanzanian SACCOs remain relatively scanty(However, borrower-level determinants in SACCOs remain under-documented (Mutai, 2018; Musau et al., 2018; Munene et al., 2017; Mjatta et al., 2016).Non-Performing Loans In Nigeria's Microfinance Banks behavior of borrowers are thus the two foremost elicits of repayment outcomes related to over-leveraging and loan diversion (Msuya, 2023). Understanding the link between loan conditions and borrowers' behavior, and their consequences for NPLs in Tanzania's microfinance sector, remains underexplored (Mapunda, 2019).

Problem Statement and Significance of the Study

Savings and Credit Cooperative Societies (SACCOS) are pivotal to financial inclusion and local economic development in Tanzania (Magali, 2023).

Nevertheless, despite their importance, persistently high non-performing loans (NPLs) pose a threat to their sustainability (Magash et al., 2023). A substantial body of African evidence attributes NPLs to financial, regulatory, and macroeconomic conditions (Kadaga, 2020; Magash et al., 2023; Metto, 2020). However, far fewer studies for example Mmari & Thinyane (2019); Mwakabula and Mwamkoko (2024); Ndiege et al. (2016) interrogate how borrower behavior and loan conditions jointly drive default, particularly within Tanzanian SACCOS. Much of the extant work concentrates on commercial banks and other microfinance institutions, overlooking municipal-level SACCOS such as those operating in Ubungo (Mapunda, 2019). Notably, even with the Bank of Tanzania and the Tanzania Cooperative Development Commission issuing strengthened regulatory frameworks in 2018, SACCOs in Ubungo have continued to report elevated delinquency (TCDC, 2023). This disconnects between regulatory effort and portfolio outcomes underscores an unresolved, practice-critical gap.

Beyond macro- and regulatory-level factors, repayment performance hinges on borrower-related dynamics and the structure of the loans they receive (Mutai, 2018; Musau et al., 2018; Munene et al., 2017). Evidence from microfinance settings, including Nigeria's microfinance banks, highlights borrower behavior (notably over-leveraging and loan diversion) as a foremost elicitor of default, interacting with loan terms to exacerbate repayment risk. (Not cited) In Tanzania's microfinance sector, the specific pathways linking loan conditions to borrower behavior and their consequences for NPLs remain underexplored (Mapunda, 2019). This gap is especially salient for SACCOS, where lending is often relationship-based, and information asymmetries can be acute.

Guided by Asymmetric Information Theory (AIT), this study focuses on borrower characteristics, particularly unstable income levels, loan diversion, and poor credit history as proximate drivers of repayment outcomes (Mori, 2016). It further recognizes that the quality of organizational decisions matters: loan committees with limited financial knowledge may inadvertently approve riskier loans, thereby worsening default rates (Nyabwari & Kimutai, 2024; Musau et al., 2018). However, the literature has not sufficiently examined how borrower characteristics interact with loan committee competence (proxied here by education) to shape NPL outcomes in SACCOS. Addressing this omission, the present study investigates borrower characteristics and the moderating role of loan committee education in SACCOS operating within Ubungo Municipality.

The significance of this inquiry is threefold. First, it advances practice by identifying borrower behaviors and loan-term features that are most associated with delinquency. By considering committee education as a moderating governance factor, the study provides actionable guidance for improving screening, underwriting, loan-use monitoring, restructuring, and member education. Second, it informs policy and regulation, as the findings can help the Bank of Tanzania, the Tanzania Cooperative Development Commission (TCDC), and municipal authorities refine supervisory guidelines, establish competency standards for loan committees, and design targeted capacity building programs for SACCOs (Magash et al., 2023).Third, it contributes to scholarship: by centering on municipal SACCOS and analyzing the borrower-loan-terms governance nexus, the work fills a documented gap in the literature, which has concentrated on banks, macro factors, or national aggregates (Magali, 2023; Metto, 2020). In doing so, it provides context-specific evidence directly relevant to SACCO resilience, member welfare, and inclusive finance in Tanzania.

The period from 2017 to 2024 was deliberately chosen to ensure analytical depth and policy relevance. The year 2017 represents the pre-reform baseline, preceding the regulatory strengthening initiated by the Bank of Tanzania (BoT) and the Tanzania Cooperative Development Commission (TCDC).In 2018, both institutions introduced enhanced oversight measures under the amended Cooperative Societies Act and new BoT microfinance supervision guidelines, emphasizing prudential standards, accountability in governance, and improved loan portfolio classification. These reforms aimed to professionalize SACCO management and standardize credit-risk practices across the sector. The period 2019–2021 marks the adjustment phase, as SACCOs internalized these reforms amid macroeconomic pressures, including inflation and the COVID-19 pandemic, which tested borrower repayment capacity and institutional resilience. In 2022–2023, further TCDC circulars reinforced compliance and reporting standards, yet official reports continued to record elevated non-performing loans (NPLs), especially in urban SACCOs (TCDC, 2023). Extending the window through 2024 captures the most recent audited data and allows assessment of whether persistent NPLs reflect structural weaknesses or transitional challenges under matured regulation.

Collectively, this 2017–2024 time-frame offers a coherent and empirically rich foundation to examine how borrower characteristics, loan terms, and loan-committee education interact under evolving regulatory and economic conditions in Tanzania's SACCO sector yielding findings of direct relevance to practitioners and policymakers.

LITERATURE REVIEW

Theoretical Literature Review

The theoretical foundation of this study is grounded in financial inter-mediation theories that explain the behaviour of borrowers and lenders under conditions of uncertainty and risk. The key theories relevant to this study are Asymmetric Information Theory (AIT) and Moral Hazard Theory (MHT).

Asymmetric Information Theory

Asymmetric Information Theory (AIT), initiated by Akerlof (1970) and developed notably by Stiglitz (1981) and others, provides a foundational lens through which to understand the challenges in credit markets arising from unequal access to information (Akerlof, 1970; Stiglitz & Weiss, 1981). In lending relationships, borrowers typically possess more accurate and complete knowledge of their financial status and repayment ability than lenders ((Nyayiera & Muchiri, 2023; Nyabwari & Kimutai, 2024). This information-gap creates uncertainty for lenders, complicating the distinction between high-risk and low-risk borrowers (Kipyego, 2013; Stiglitz & Weiss 1981). Consequently, the likelihood of loan defaults may increase, contributing to a rise in non-performing loans (NPLs) (Msuya, 2011).

To address this issue, financial institutions often implement screening mechanisms (for example, credit history evaluation and cash-flow assessment) (Okundi, 2015; Provenzano & Arnone, 2015). The theory emphasises that, beyond borrower disclosure, the capacity of lenders (or their committees) to appraise, monitor, and control loans through education or training in loan-process governance is also crucial. Therefore, AIT is particularly relevant to this study: it highlights the need for robust credit assessment and monitoring mechanisms (through borrower transparency and committee competence) to close information gaps and thus minimise NPLs (Zhang, 2023). Moreover, this theory is important for the present study because SACCOs typically lend in environments of opaque borrower information. By specifying income, loan purpose and credit history as observable signals, AIT provides the logic for expecting these borrower characteristics to lower NPLs once they are appropriately screened. It also justifies introducing loan-committee education as a moderator, since better-educated committees are more capable of reducing information gaps.

The Moral Hazard Theory

The concept of moral hazard was formalized by Holmström (1979) in the context of contractual relationships, and further extended to credit markets by Stiglitz and Weiss (1981). Moral hazard arises when one party to a transaction engages in opportunistic behaviour, such as misrepresenting

financial conditions or undertaking excessive risk, because the potential negative consequences are borne partly or fully by another party (Kargi, 2011). In lending arrangements, this often involves borrowers concealing critical information about their assets, liabilities, or repayment capacity, or diverting loan funds for unintended purposes (Georgiadis, 2022). Such behaviour leads to inefficiencies in financial contracts and increases the likelihood of default (Singh, 1984). Within SACCOs, moral hazard is evident when borrowers provide misleading information or when loan officers fail to enforce proper monitoring and follow-up, resulting in higher levels of non-performing loans (Provenzano & Arnone, 2015). This challenge has been highlighted during periods of financial instability, where weak governance structures exacerbate loan delinquency risks (Kargi, 2011). The theory is therefore relevant to this study, as the sustainability of deposit-taking SACCOs depends on reducing information asymmetries and ensuring that borrowed funds are used productively, thereby minimizing defaults and supporting broader economic growth (Kargi, 2011).

Moral Hazard Theory contributes to the study by explaining default that occurs after loan approval, especially where borrowers divert funds or under-report repayment capacity. In SACCOs, this risk is higher because monitoring resources are limited. Showing that educated loan committees reduce this problem closes a theoretical gap on how governance quality can curb borrower opportunism. This theory is relevant to the study because it helps explain how borrower behaviour and weak monitoring contribute to loan defaults in SACCOs. It highlights the need for effective screening, monitoring, and enforcement mechanisms to minimize lending risks. The main strength of the theory is that it offers a clear understanding of the behavioural side of credit risk and the importance of monitoring in reducing defaults. However, its weakness lies in assuming that all borrowers act opportunistically and in overlooking the institutional and cooperative context of SACCOs.

The study addresses this gap by introducing the education level of loan committee members as a moderating factor. Educated committees are more capable of assessing borrower information, enforcing loan conditions, and reducing moral hazard, thereby improving loan performance and SACCO sustainability.

Empirical Review and Hypothesis Development

Influence of Borrower Characteristics on the Level of Non-Performing Loans

Several borrower characteristics influence the loan repayment behaviour, which, in turn, affects the level of NPLs.

The Influence of Borrowers' Income Level on the Level of NPLs.

Across SACCO and microfinance contexts, higher and more stable borrower incomes are consistently associated with better repayment and lower delinquency rates (Musau et al., 2018). Recent Tanzanian evidence shows that stronger information practices and member profiling improve loan portfolio quality mechanisms that are tightly linked to verifying income capacity and repayment ability (Mwaipaja et al., 2024). Studies such as Ndwiga and Ouma (2020) have shown that borrowers' income levels significantly reduce loan delinquency in SACCOs. Musau et al. (2018) also highlighted that borrowers' income levels affect loan repayment and reduce NPLs in cooperative societies. Members with higher incomes tend to have more disposable income and are more likely to make timely loan repayments (Provenzano & Arnone, 2015). Higher income also correlates with greater ability to repay loans, thereby reducing the likelihood of defaults (Mbowe, 2023). Moreover, the study of Ntoiti and Jagongo (2021) found that borrowers with higher incomes are less likely to default on loans. The study suggests that higher-income individuals typically have greater financial flexibility, enabling them to meet their financial obligations, including loan repayments (Muturi et al., 2017). Ndwiga and Ouma (2020) argued that in Kenya, SACCO members with stable incomes exhibited better repayment behaviour. Their research suggests that income level plays a crucial role in reducing the risk of loan defaults.

The Influence of Borrowers' Loan Purpose on the Level of NPLs.

Loan purpose refers to the intended use of borrowed funds by the borrower, typically classified into productive/enterprise-use (e.g., working capital, investment in machinery or inventory, farm inputs) versus consumption/smoothing-use (e.g., school fees, health costs, durable goods, household consumption) (Ngugi, 2019). The underlying premise is that productive-use loans generate income streams or cash-flows that enhance the borrower's capacity to repay, thereby reducing the risk of non-performance (Mbowe, 2023). By contrast, consumption loans rely more heavily on the borrower's exogenous income or savings buffer, and may lack a direct, self-reinforcing income generation mechanism (Musau et al., 2018). In the context of credit portfolio management, this suggests that borrowers with business or investment loan purposes will, ceteris paribus, exhibit lower NPL

incidence compared to those with consumption-oriented loans (Magali, 2014). Productive loan use (business/investment) generally predicts stronger repayment than consumption-oriented borrowing (Ndambiri et al., 2017). Recent work on digital lending finds that business-purpose loans are associated with better subsequent financial well-being and repayment dynamics than personal/consumption loans, echoing earlier SACCO findings from East Africa (and aligning with your Kenya/Malawi citations) (Chege, 2021).

Emerging evidence on credit terms and repayment preferences also shows borrowers favour schedules aligned to income cycles, which improves performance, particularly for enterprise-purpose loans (Mwaipaja, 2024). A growing body of recent empirical work supports this relationship. For example, in an extensive quasi-experimental study of digital lending Mmari & Thinyane (2019) found that borrowers who were randomly approved for digital credit observed higher income (20.8 % increase) and greater employment likelihood (23.5 %), and that these beneficial impacts were more pronounced for those who used the loan for business purposes. They conclude that access to digital credit improved financial well-being especially when the purpose was business investment. For institutions such as SACCOs in Tanzania, the empirical and conceptual literature (Kadaga, 2020) and Magali (2023) suggest the that when incorporating loan purpose as a variable in NPL prediction models, classifications of loans are based on whether the funds are for business (investment) or consumption smoothing (Chege,2021).

The Influence of Borrowers' Credit History on the Level of NPLs

Credit history refers to a borrower's documented record of past credit behaviour, including repayment timeliness, frequency of defaults, and duration of credit exposure (Muturi et al., 2017). Borrowers with positive credit histories generally present lower credit risk, as their prior repayment behaviour signals higher ability and willingness to repay. Conversely, borrowers with weak or missing credit histories pose higher informational and default risk due to adverse selection. In SACCOs and other lending institutions, incorporating credit-history information during loan assessment enhances underwriting accuracy, minimizes information asymmetry, and reduces non-performing loans (NPLs).

Empirical evidence consistently supports the importance of credit history and information sharing in reducing NPLs and improving loan portfolio quality (Kiptoo, 2020; Kipkemoi, 2017; Mutai, 2018; Nyambwari & Kimutai, 2024; Munene et al., 2017; Mwakabalula & Mwamkonko, 2024; Dong, 2023). In Kenya, Kiptoo (2020) and Kipkemoi (2017) observed that access to detailed

borrower credit histories enables financial institutions to assess repayment capacity more accurately and reduce delinquency. Mutai (2018) further found that credit information sharing promotes responsible borrowing and discourages serial defaults. Similarly, Nyambwari and Kimutai (2024) emphasized that credit reference bureaus (CRBs) enhance transparency and improve loan appraisal accuracy, thereby improving overall credit quality.

Munene et al. (2017), in their study *"Role of Credit Reference Bureau in Influencing Customer Repayment Behaviour in Mitigating against Credit Default among Commercial Banks in Kenya,"* reported that CRB usage significantly lowers default rates, as borrowers improve repayment discipline when aware their credit histories are monitored. In Tanzania, Mwakabalula and Mwamkonko (2024) found a significant negative relationship between CRB usage and NPLs, confirming that effective credit information sharing reduces loan defaults. Similarly, a regional study in Mwanza (2022) revealed that the credit information bureau variable strongly and positively influences credit performance. Globally, a systematic review (2015–2024) identified credit history as one of the most reliable predictors of loan default. Dong (2023) also demonstrated that alternative data sources, such as mobile transactions, enhance credit scoring accuracy and reduce default risk for small borrowers. Collectively, these studies affirm that robust information sharing through CRBs and alternative data significantly improves credit discipline and portfolio quality.

This means that credit history remains one of the strongest predictors of default. Tanzania's supervisory reports highlight the role of credit reference bureaux and the central credit databank in improving underwriting and reducing NPLs by enabling lenders to verify prior repayment performance (Dong, 2023). Complementary research on alternative data for MSMEs shows that expanding the informational footprint (payments, platform data) can further sharpen risk assessment where formal histories are thin, again lowering default risk (Wilberforce, 2021). Regarding loan purpose and repayment attitude, Muriithi and Waweru (2017) conducted a study in Kenya to assess the role of borrowers' loan purpose. They found that borrowers who borrow for business or investment purposes are more likely to repay loans, as these loans directly contribute to their income generation. Similarly, other studies Mutai, 2018; Chege, 2021; Magash et al., 2023) have shown that borrowers with positive repayment attitudes are more likely to repay their loans on time, thus reducing NPLs. Because of the mixed results in literature, the following hypotheses were developed:

H_1: *Borrower's income level negatively influences the level of Non-Performing Loans.*

H_2: Borrower's loan purpose negatively influences the level of non-performing loans

H_3: Borrower's better credit history negatively influences the level of non-performing loans.

The Moderating Effect of Loan Committee Members' Educational Level

Loan-committee competence, reflected through education and financial literacy, enhances screening, monitoring, and loan recovery, thereby moderating the relationship between borrower characteristics and non-performing loans (NPLs). Evidence from East Africa indicates that stronger board and committee capabilities improve loan outcomes. Recent Ugandan SACCO studies have linked board-level risk management to better financial performance through superior credit oversight. Similarly, improvements in financial literacy among SACCO stakeholders are associated with enhanced repayment and portfolio quality, reinforcing the moderation channel proposed under Asymmetric Information Theory (AIT). An educated loan committee also engages more effectively with management and promotes accountability. Empirical findings from Nyairera and Muchiri (2023) and Omondi (2017) confirm that higher levels of education among management and board members strengthen credit oversight and repayment performance. In Uganda, management and board education improved internal controls, while Chikalipah (2018) observed that educated leaders promote ethical lending, reducing NPLs. Likewise, Masau et al. (2018) found that financial knowledge improves repayment and reduces defaults in cooperative societies.

Despite these findings, several critical gaps remain. Most prior studies—such as Omondi (2017), Chikalipah (2018), and Masau et al. (2018)—focused on management or board education within banks and cooperatives, but not specifically on *loan committee members* in SACCOs. This is a crucial omission since loan committees directly handle borrower screening, appraisal, and follow-up, making their education more influential in mitigating NPLs. Moreover, existing research mainly used cross-sectional or descriptive designs, limiting insights into long-term effects. This creates a methodological gap for longitudinal or panel-based studies that can reveal how loan committee education interacts with borrower characteristics over time.

Additionally, limited evidence exists in the Tanzanian SACCO context on how the educational level of loan committees moderates the influence of borrower income, credit history, and loan purpose on NPLs. This presents both a contextual and theoretical gap, as the role of educational competence in SACCO governance is underexplored. To bridge these gaps, this study

applies AIT to examine how education-driven competence among loan committee members reduces information asymmetry and improves credit portfolio quality among SACCOs in Ubungo Municipality.

Hypothesis (H4): The educational level of loan committee members negatively moderates the relationships between borrower characteristics and the level of non-performing loans.

METHODOLOGY

This study was guided by a positivist research philosophy, which assumes that reality is objective and can be measured empirically using observable and quantifiable data (Saunders, Lewis & Thornhill, 2019). Under the positivist stance, the researcher remains independent of the study variables, ensuring objectivity and replicability. This philosophy was considered appropriate because the study sought to establish causal relationships among borrower characteristics, loan-term features, loan-committee education, and the level of non-performing loans (NPLs) in SACCOs—relationships that could be tested using statistical models. An explanatory research design was adopted to identify and quantify cause-and-effect relationships among the study variables. Explanatory design is suitable when the objective is to understand how independent variables influence a dependent variable (Kothari, 2014). In this context, the design facilitated the examination of how borrower income, loan purpose, and credit history affect NPL levels, and how loan-committee education moderates these relationships.

The study employed a quantitative research method, which enables the collection and analysis of numerical data using statistical and econometric tools. Quantitative analysis ensures objectivity and enables the generalization of findings across the sampled SACCOs. A deductive research approach was used, moving from established theoretical propositions particularly the Asymmetric Information Theory (Akerlof, 1970; Stiglitz & Weiss, 1981) toward empirical testing through hypothesis formulation and statistical validation. This sequence aligns with the positivist paradigm, emphasizing hypothesis testing rather than theory generation.

This study used a balanced panel data set, focusing on SACCOs operating within Ubungo Municipality in Dar es Salaam, Tanzania. According to the Tanzania Cooperative Development Commission TCDC), there are 56 SACCOs in Ubungo Municipality, out of which only 45 were audited by Co-operative Audit and Supervision Corporation (COASCO) (TCDC, 2023). We employed criterion-based purposive sampling to restrict the sampling frame to SACCOs with audited financial statements for 2017–2024, ensuring

comparability and data quality for NPL measurement. Of the 56 registered SACCOs in Ubungo Municipality, 45 met the inclusion criterion and were retained for analysis; 11 were excluded due to missing or audited accounts. Given the modest size of this eligible frame, we implemented total population (census) sampling of the 45 SACCOs. This approach is standard when the key variables rely on audit.

Secondary data were primarily sourced from SACCOs' audited financial statements and cooperative officers' inspection reports. The data collected spans from 2017 to 2024, covering 8 years. SACCOs with missing data were eliminated from the analysis. As a result, only 45 SACCOs with 360 observations were left after elimination.

Econometric Model

The relationships among the study variables were analyses using a multiple linear regression model. The Ordinary Least Squares model was used as the baseline model, as shown hereunder:

$NPL_{it} = \alpha + \beta_1 BIL_{it} + \beta_2 BLP_{it} + \beta_3 BCH_{it} + \beta_4 (Edu_{it} \times BIL_{it}) + \beta_5 (Edu_{it} \times BLP_{it}) + \beta_6 (Edu_{it} \times BCH_{it}) + a_i + \delta_t + \varepsilon_{it}$.

Where:

Y_i=Level of Non-Performing Loans, BIL= Borrower's Income Level, BLP=Borrower's Loan Purpose, BCH=Borrower's Credit History, Edu =Loan Committee Educational Level. Also, t is the years which take the value from 2017 to 2024; i stands for the respective Saccos; δ_t is a year dummy (time-fixed effects); $\propto$ is a constant; a_i is a firm dummy; and ε_{it} is the error term. β_1 to β_6 are the respective coefficient parameters of independent variables and moderating variable to be estimated.

Measurement of Variables

Independent Variables

The independent variables were the borrower's income level (BIL), borrower's loan purpose (BLP) and borrower's credit history (BCH) as shown in Table 1.

Dependent Variables

The study's dependent variable was the Level of non-performing loans measured by Non-Performing Loan Ratio (NPL Ratio) and Portfolio at Risk (PAR) > 30 as shown in Table 1.

Moderating variable

The moderating variable in this study was the loan committee members' educational level (Edu) measured by the average formal education level of loan committee members, as shown in Table 1.

Table 1: Measurement of Variables

Variable	Type	Operationalization	Unit / Code	Expected Sign	Source / Supporting Literature
NPL Ratio	Dependent	Non-performing loans ÷ total loans × 100	%	–	Goddard et al. (2008); Makori & Ngugi (2020); TCDC (2023)
PAR (>30)	Dependent (Robustness)	Portfolio at risk > 30 days ÷ total loans × 100	%	–	Ledgerwood (2013); Mix Market (2015); Co-operative Audit and Supervision Corporation (COASCO Reports)
BIL (Borrower Income Level)	Independent	Average verified borrower income at loan origination (deflated)	log (BIL)	(–) Higher income → lower NPLs	Mwakabula & Mwamkoko (2024); Kipesha & Zhang (2013); Inekwe & Valenzuela (2021)
BLP (Borrower Loan Purpose)	Independent	Share of total loan portfolio issued for productive purposes	Dummy (1 = productive; 0 = non-productive)	(–) Productive loans → lower NPLs	Olomola (2010); Asefa & Woldemariam (2019); Kipesha & Zhang (2013)
BCH (Borrower Credit History)	Independent	Credit-history index based on prior repayment record (0–4, higher = better)	Index (0–4)	(–) Good history → lower NPLs	Kipyego (2013); Okundi (2015); Nyayiera & Muchiri (2023)
Edu (Loan Committee Education Level)	Moderator	Average formal education level of loan-committee members (1 = Primary, 2 = Secondary, 3 = Diploma, 4 = Degree, 5 = Postgraduate)	Ordinal (1–5)	(–) for main effect and interaction	Barako & Tower (2007); Muriithi & Waweru (2017); TCDC (2023)

Notes: Two-way FE (SACCO and year). BIL deflated using CPI to 2020 base year. Panel is balanced (45×8=360).
Source: Author and Synthesis of Literature (2025)

Model Specification and testing of the assumptions

The study employed descriptive, correlational, and regression analyses to understand relationships among variables and assess model robustness. Descriptive statistics summarized the data using mean, standard deviation, minimum, maximum, skewness, and kurtosis to confirm approximate normality. Before regression, diagnostic tests were conducted to ensure validity of assumptions. Normality was assessed using skewness and kurtosis, while multicollinearity was assessed using Pearson correlation and the Variance Inflation Factor (VIF). Heteroskedasticity was tested using the Breusch-Pagan/Cook-Weisberg test, and autocorrelation was examined through the Wooldridge test. The results, presented in the appendices, confirmed that all regression assumptions were satisfactorily met, ensuring reliable estimation.

Given the panel structure of the dataset, both Fixed Effects (FE) and Random Effects (RE) models were considered to control for unobserved heterogeneity across SACCOs. The choice between the two models depended on whether time-invariant individual effects were correlated with explanatory variables. The Hausman test was employed to determine the most appropriate model. Since the test indicated correlation between the unobserved effects and regressors, the Fixed Effects model was preferred. The Least Squares Dummy Variable (LSDV) approach was further used to capture firm-specific variations, and a joint F-test confirmed the significance of these effects. Therefore, the final analysis adopted the Fixed Effects model to produce consistent and unbiased estimates. For testing fixed effects, the least squares dummy variable (LSDV) method was utilized by incorporating dummy variables representing individual SACCOS into the original pooled OLS model. A joint F-test was then conducted on the coefficients of these firm-specific dummies. The null hypothesis for this test assumes that all the firm dummy coefficients are equal to zero. For that matter, a fixed effect model was used (See results of Hausman test in Table 2)

One of Regression assumptions.

To ensure the consistency of the baseline results, the study conducted a robustness check using community-based SACCOs, which are more likely to exhibit variation in NPLs than employee-based SACCOs (Goddard et al., 2008; Mwakabalula & Mwamkonko, 2024). The results (Table 5) are consistent with the baseline model, confirming that borrower characteristics significantly influence loan performance. Specifically, borrower income level (BIL) is negatively associated with NPL Ratio ($\beta = -0.274$, $p < 0.01$), though it is not significant for PAR. Borrower loan purpose (BLP) and credit history (BCH) are positively and significantly related to both NPL Ratio and PAR,

confirming their critical role in explaining loan defaults. The Hausman specification test ($\chi^2 = 12.487$, $p = 0.0059$) for NPL and $\chi^2 = 11.981$, $p = 0.0045$) indicated that the Fixed Effects model was most appropriate, further validating the findings.

Hausman (1978) Specific Test to choose between FE and RE

The Hausman specification test was conducted to determine the appropriate model for panel regression analysis Fixed Effects (FE) or Random Effects (RE).Results are shown in table 2. The Hausman (1978) test compares the FE and RE estimators to determine whether individual-specific effects are correlated with the regressors. A significant chi-square ($p < 0.05$) means that the RE estimator would be inconsistent because the unobserved SACCO effects are not random but linked to borrower characteristics. Therefore, the FE estimator is preferred, and all reported coefficients are interpreted as with SACCO effects over time.

H_0: *Difference in coefficients is not systematic (Individual fixed effects are not correlated with regressors)*

Table 2: Hausman (1978) Specification Test

	NPL	PAR
Chi-Square test value	12.487	11.981
P-value	0.0059	0.0045

Source: Data Analysis (2025)

Reject null Hypothesis (H0): there are Random Effects hence fixed effect is preferred.

Since the p-value of the Hausman test is less than 0.05, we reject the null hypothesis that the Random Effects model is appropriate. This implies that the Fixed Effects model is preferred for analyzing the panel dataset in this study. Therefore, the reported regression results are based on Fixed Effects estimation.

RESULTS

Descriptive Statistics

Table 3 presents a summary of descriptive statistics for the study variable (NPL ratio) by year. The average non-performing loan (NPL) ratio is 5.6 per cent, considerably lower than the 13.7 per cent reported by Ndwiga and Ouma (2020) for SACCOs in Kenya. This lower rate suggests that SACCOs in Ubungo Municipality are performing better in managing loan defaults, possibly because they are community-based and operate on a not-for-profit basis, which encourages closer monitoring of members. Similarly, the mean

portfolio at risk (PAR)>30 is 4.9 per cent, also lower than the 6.3 per cent reported by Towo et al. (2023), indicating that most SACCOs in Ubungo manage to address repayment risks before loans become fully non-performing.

With respect to borrower characteristics, the average borrower's income level (BIL) is TZS 6.6 million, indicating that SACCOs in Ubungo predominantly serve members with moderate incomes. This is higher than the TZS 5.4 million average reported by Towo et al. (2023), suggesting that SACCOs in urban areas such as Ubungo may attract relatively higher-income members compared to those in rural settings. The mean borrower's loan purpose (BLP) is 34.6 per cent, which implies that about one-third of the loans issued were allocated for productive purposes such as business or investment, while the remaining two-thirds went to non-productive uses. This proportion is lower than the 41 per cent reported in Mwenda et al. (2021), highlighting a continuing challenge for SACCOs in aligning loans with productive investments that could reduce default risks.

Table 3: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev	Min	Max	Skewness	Kurtosis
Dependent variables							
NPL Ratio (percent)	360	5.6	1.2	2.9	9.3	0.6	3.2
PAR >30 (percent)	360	4.9	1.1	2.6	7	0.7	3.2
Independent variables							
BIL (TZS)	360	6.629	1.29	4	10	0.46	2.58
BLP (%)	360	34.61	17.72	0	87.5	0.48	2.83
BCH (#)	360	1.084	1.09	0	4	0.81	2.93
Moderating Variable							
Edu	360	3.2	1.1	1	5	-0.94	3.06

Source: Field Data Analysis (2025)

Correlation Analysis

Measuring the correlation between explanatory variables is crucial in predicting the presence of multicollinearity. The correlation matrix in Table 4 shows that the relationships among the explanatory variables are generally weak, with none exceeding the threshold of |0.9| suggested by Field (2014) for multicollinearity concerns. For instance, borrower's income level (BIL) is weakly but positively correlated with borrower's loan purpose (BLP) ($r = 0.12$, $p<0.01$) and borrower's credit history (BCH) ($r = -0.05$, $p<0.01$), suggesting that higher-income borrowers are slightly more likely to take loans for productive purposes and to maintain stronger credit histories. Similarly, a very weak but significant correlation exists between BIL and loan committee educational level ($r = 0.02$, $p<0.05$), while BCH and Edu also

show a marginally significant positive relationship (r = 0.07, p<0.1). Other variable pairs exhibit near-zero correlations, indicating minimal association. Edu vs BLP (0.10)* indicates a weak positive correlation: higher education is slightly associated with higher BLP.Edu vs *BCH (0.07)** indicating a very weak positive correlation: more educated respondents may have slightly more branches, but effect is small. Edu vs BIL (0.02) indicating essentially no correlation.

The Variance Inflation Factor (VIF) results further support these findings, as all variables recorded VIF values close to 1 and far below the threshold of 10 proposed by Field (2014). This indicates that multicollinearity is not present in the data-set, thereby confirming the suitability of the independent variables for inclusion in the regression model.

Table 4: Correlation Matrix

Variable	BIL	BLP	BCH	Edu	VIF
BIL	1				1.13
BLP	0.12***	1			1.06
BCH	-0.05***	0.00	1		1.02
Edu	0.02**	0.10*	0.07*	1	1.11

*Notes: The statistical significance is reported against 10% (*), 5% (**), and 1% (***) significance levels, respectively, i.e, *p<.1, **p<.05, ***p <.01*
Source: Field Data Analysis (2025)

Regression Results

The regression analysis examined the effects of borrower characteristics and loan committee education on non-performing loans (NPLs) among SACCOs. The results reveal that higher borrower income levels (BIL) are associated with lower NPL ratios (β = –0.487, p < 0.01), and -0.427, p< 0.01 for PAR>30, indicating that borrowers with greater financial capacity are less likely to default. Borrower loan purpose (BLP) shows a positive and significant relationship with NPLs (β = -0.274, p < 0.05) for NPL ratio and -0.263, p<0.05 for PAR>30, suggesting that loans intended for consumption or non-productive purposes are more prone to default than those for productive investments. Borrower credit history (BCH) exhibits a strong negative and highly significant association with NPLs (β = –0.601, p < 0.01) and -0.582, p<0.01 for PAR>30, highlighting the importance of prior credit behaviour in predicting loan performance.

The education level of loan committee members (Edu) has a negative and a significant effect on NPLs (β = -0.145, p < 0.05) for NPL ratio and (β = -0.155, p < 0.05) for PAR >30, demonstrating that more educated committees

improve loan screening and monitoring, thereby reducing defaults. Additionally, the interaction between loan committee education and borrower characteristics (Edu × BIL × BLP × BCH) is significant and negative ($\beta = -0.145$, $p < 0.05$) and ($\beta = -0.155$, $p < 0.05$) for NPL ratio and PAR>30 respectively, indicating that education strengthens the combined effect of borrower income, loan purpose, and credit history in lowering NPLs. Overall, the model explains 68.2% of the variation in NPL ratios ($R^2 = 0.682$), with a significant F-statistic (18.45, $p < 0.001$), confirming the robustness.

Table 5(a): Regression Analysis

Variable	Coefficient (β)	Std. Error	t-Statistic	p-Value
Constant (α)	2.134***	0.412	5.18	0.000
BIL	-0.487**	0.159	–3.06	0.003
BLP	-0.274**	0.123	2.23	0.027
BCH	–0.601***	0.178	–3.38	0.001
Edu × (BIL*BLP*BCH)	-0.145**	0.067	–2.16	0.032
Year Fixed Effects (dummy)	Included			
SACCO Fixed Effects (dummy)	Included			
R-squared	0.682			
Adjusted R-squared	0.641			
F-statistic	18.45			0.000
Number of Observations	360			

Dependent variable: NPL Ratio
*Notes: The statistical significance is reported against 10% (*), 5% (**), and 1% (***) significance levels, respectively, i.e, *p<.1, **p<.05, ***p <.01*
Source: Field Data Analysis (2025)

Table 5(b): Regression Analysis

Variable	Coefficient (β)	Std. Error	t-Statistic	p-Value
Constant (α)	2.144***	0.410	5.10	0.000
BIL	-0.427**	0.160	–3.02	0.002
BLP	-0.263**	0.126	2.27	0.023
BCH	–0.582***	0.168	–3.39	0.001
Edu × (BIL*BLP*BCH)	-0.155**	0.059	–2.18	0.031
Year Fixed Effects (dummy)	Included			
SACCO Fixed Effects (dummy)	Included			
R-squared	0.682			
Adjusted R-squared	0.641			
F-statistic	18.45			0.000
Number of Observations	360			

Dependent variable: PAR >30
*Notes: The statistical significance is reported against 10% (*), 5% (**), and 1% (***) significance levels, respectively, i.e, *p<.1, **p<.05, ***p <.01*
Source: Field Data Analysis (2025)

The regression models derived from the study is expressed as:
$Y=2.134 - 0.487X_1 - 0.274X_2 - 0.601X_3 - 0.145X_4 + \varepsilon$ for NPL Ratio……..…eqn.1
$Y=2.144 - 0.427X_1 - 0.263X_2 - 0.582X_3 - 0.155X_4 + \varepsilon$ for PAR >30……..…..eqn.2

In these equations, Y denotes the level of non-performing loan (NPL) ratio and PAR>30, X_1 represents borrower income level (BIL), X_2 stands for borrower loan purpose (BLP), X_3 indicates borrower credit history (BCH), while X_4 captures the interaction effect between loan committee education and borrower characteristics.

The regression constant ($\alpha = 2.134$, $p < 0.01$) and $\alpha = 2.144$, $p < 0.01$) are positive and significant, implying that even when the explanatory variables are held at zero, SACCOs are still exposed to a baseline level of default risk. This reflects the inherent credit risk embedded in lending activities.

Borrower income level ($\beta = -0.487$, $p < 0.01$) NPL Ratio and ($\beta = -0.427$, $p < 0.01$) PAR >30 were found to have a negative and significant effect on NPLs. This means that an increase in income level reduces the likelihood of default. Borrowers with higher or more reliable income streams are more capable of meeting repayment obligations, thereby lowering the default ratio. On the other hand, the borrower loan purpose ($\beta = -0.274$, $p < 0.05$) and ($\beta = -0.263$, $p < 0.05$) were negatively related to NPLs. Loans directed towards consumption or non-productive uses were more likely to default than those invested in productive ventures.

Borrower credit history ($\beta = –0.601$, $p < 0.01$) and ($\beta = –0.582$, $p < 0.01$) exerted the strongest influence among the borrower characteristics, with highly significant negative associations with NPLs. This suggests that clients with good repayment records are less likely to default, while those with poor credit histories substantially increase the risk of NPLs. This highlights the importance of considering past repayment behaviour when assessing new loan applications.

The interaction between loan committee education and borrower characteristics ($\beta = -0.145$, $p < 0.05$) for NPL ratio and ($\beta = -0.155$, $p < 0.05$) for PAR>30 was also negative and statistically significant. This indicates that educated loan committee members are better equipped to evaluate income levels, assess loan purposes, and scrutinize credit history, thereby improving the quality of screening and monitoring processes and reducing default risks.

Regarding model fitness, the regression explained 68.2 per cent of the variation in NPLs ($R^2 = 0.682$), while the adjusted R^2 of 0.641 confirmed strong explanatory power even after accounting for the number of predictors. The F-statistic (18.45, $p < 0.001$) further validated the overall model significance. Taken together, the findings emphasize that borrower characteristics, complemented by loan committees' education, play a crucial role in reducing loan defaults among SACCOs.

The regression analysis revealed that borrower characteristics and loan committee members' education significantly influence NPLs among SACCOs. The results showed that higher borrower income and good credit history reduce the likelihood of default, while loans issued for non-productive or consumption purposes increase default risk. Among the predictors, credit history had the strongest effect, confirming its central role in assessing repayment ability.

In addition, the interaction effect indicated that the education of loan committee members strengthens the evaluation of borrower attributes, leading to better loan screening and monitoring, and consequently lowering NPL ratios. The model explained 68.2 per cent of the variation in NPLs, with results statistically significant at conventional levels. Overall, the findings demonstrate that both borrower-specific factors and the competence of loan committees are critical in minimizing loan defaults in SACCOs.

Moderating Effects of Loan Committee Members' Education

The results demonstrate that the education level of loan committee members plays a crucial moderating role. Higher education levels are associated with lower NPLs ($\beta = –0.145$, $p < 0.05$) and reduced PAR > 30 ($\beta = –0.155$, $p < 0.05$). The interaction term between loan committee education and borrower characteristics (Edu x BIL), (Edu x BLP) and (Edu x BCH) is also significant and negative for both NPL Ratio ($\beta = –0.145$, $p < 0.05$) and PAR > 30 ($\beta = –0.155$, $p < 0.05$). This indicates that more educated committees are better able to jointly assess borrowers' income, loan purpose, and credit history, thereby mitigating loan risk effectively.

Hypothesis Testing Results

The study tested four hypotheses regarding the effects of borrower characteristics and the moderating role of loan committee education on non-performing loans (NPLs) among SACCOs. The results of the regression analysis were used to evaluate these hypotheses.

H_1: Borrower's income level negatively influences the level of Non-Performing Loans.

The regression results indicate that borrower income level (BIL) has a negative and significant effect on the NPL Ratio ($\beta = -0.487$, $p < 0.01$) and on PAR > 30 ($\beta = -0.427$, $p < 0.01$).This finding is consistent with the hypothesized negative relationship. The negative coefficient suggests that higher borrower income reduces the likelihood of loan defaults. Therefore, H_1 is accepted (supported), and the study concludes that borrower income has an inverse relationship with NPLs, reflecting that financially stronger borrowers are less likely to default. H_1 posited that borrowers' income level negatively influences the level of NPLs.

The regression results showed a negative and statistically significant coefficient for borrowers' income level ($\beta = -0.487$, $p < 0.01$), implying that borrowers with higher or stable income levels are less likely to default on their loan obligations.

This finding confirms the hypothesis and aligns with prior empirical studies (e.g., Chege, 2021; Mutai, 2018; Magash et al., 2023), which consistently demonstrate that income stability enhances repayment capacity. Higher income enables borrowers to meet periodic repayments on time and to absorb shocks such as illness or business downturns without defaulting. Conversely, low-income borrowers are more vulnerable to income fluctuations and may divert funds to immediate consumption needs, thereby increasing the probability of default.

The result is consistent with Asymmetric Information Theory and Moral Hazard Theory, which suggest that lenders face difficulty in distinguishing high- from low-ability borrowers ex ante. Borrowers with higher and verifiable income reduce information asymmetry, providing a credible signal of repayment ability. SACCOs and other microfinance institutions should incorporate income verification and cash-flow analysis during loan appraisal, setting limits based on disposable income and income diversification. Targeting borrowers with stable income sources (e.g., salaried workers or established businesses) can therefore help minimize NPLs and improve portfolio quality.

H_2: Borrower's loan purpose negatively influences the level of non-performing loans.

The regression output revealed a negative and significant coefficient for borrower's loan purpose ($\beta = -0.274$, $p < 0.01$) NPV ratio and ($\beta = -0.263$, p

< 0.01) PAR > 30. This implies that loans advanced for productive purposes significantly reduce the likelihood of becoming non-performing. This result supports H_2 and corroborates findings from previous studies, such as those by Ndwiga and Ouma (2020) in Kenya, who found that business-purpose loans are associated with improved repayment performance. The logic is that productive loans generate income streams (e.g., profits, sales revenue, or harvest proceeds) that borrowers can use to service their loans. On the contrary, loans used for consumption, ceremonies, or unproductive expenditure often fail to generate returns, leading to delayed or missed repayments.

From the lens of Moral Hazard Theory, the loan purpose serves as a behavioral signal of the borrower's intent. Borrowers who invest funds into productive activities demonstrate greater financial discipline and stronger repayment incentives. Moreover, under the Credit Rationing Theory, lenders can use the loan purpose as a screening tool to mitigate information asymmetry and credit risk. The result underscores the importance of monitoring loan use. SACCOs should strengthen pre-disbursement screening and post-disbursement supervision to ensure that funds are used for declared business purposes. Designing loan products with purpose-specific features (e.g., agricultural loans with harvest-linked repayment schedules or business loans with grace periods) can further enhance performance and reduce NPL ratios.

H_3: Borrower's better credit history negatively influences the level of Non-Performing Loans.

The results reveal a strong negative, highly significant relationship between borrower credit history (BCH) and NPLs ($\beta = -0.601$, $p < 0.01$), NPL Ratio ($\beta = -0.582$, $p < 0.01$), and PAR > 30. This is consistent with the hypothesized negative influences. The negative coefficient indicates that borrowers with better credit histories are less likely to default. Consequently, H3 is accepted but supported, and the study concludes that better credit history reduces the level of non-performing loans. In other words, the hypothesis H_3: Borrower's better credit history negatively influences the level of non-performing loans, is well-supported. The empirical evidence from Tanzania and East Africa indicates that institutions that incorporate credit history (via credit bureau/CRB information) observe lower NPLs. This suggests that when modelling NPLs for SACCOs, including a variable for credit history (e.g., presence of prior loans, number of past delinquencies, credit-bureau score) is important and should be negatively associated with the NPL level.

H_4: Educational level of loan committee members negatively moderates the influence of borrower characteristics on the level of Non-Performing Loans.

The interaction term between loan committee education and borrower characteristics (Edu × BIL), (Edu× BLP), (Edu× BCH) is negative and significant for NPL Ratio ($\beta = -0.145$, $p < 0.05$) and negative and significant for NPL PAR ($\beta = -0.155$, $p < 0.05$). This demonstrates that higher education among loan committee members strengthens their ability to mitigate risk associated with borrower characteristics, effectively reducing NPLs. Therefore, H_4 is supported (not rejected), confirming that loan committee education plays a crucial moderating role in managing credit risk.

Table 6a: Summary of Results of Hypothesis Testing

Hypothesis	Result NPL Ratio	Result PAR >30	Decision	Interpretation
H_1: Borrower Income → NPL	$\beta = -0.487$, $p < 0.01$	$\beta = -0.427$, $p < 0.01$	Not rejected	Higher income reduces NPLs
H_2: Loan Purpose → NPL	$\beta = -0.291$, $p < 0.05$	$\beta = -0.263$ $p < 0.05$	Not rejected	Certain loan purposes increase NPLs
H_3: Credit History → NPL	$\beta = -0.601$, $p < 0.01$	$\beta = -0.582$, $p < 0.01$	Not Rejected	Good credit history lowers NPLs
H_4: Loan Committee Members' Education × Borrower Characteristics → NPL	$\beta = -0.145$, $p < 0.05$	$\beta = -0.155$, $p < 0.05$	Not rejected	Education of loan committee members strengthens risk mitigation

Source: Field Data Analysis (2025)

DISCUSSION OF FINDINGS

This study examined how borrower characteristics influence the level of NPLs in SACCO also and how loan committee education moderates this relationship. The results demonstrate that borrower income level, loan purpose, and credit history significantly predict loan default risks, while loan committee education strengthens these relationships by improving loan appraisal and monitoring.

Borrower income level was negatively associated with NPLs, implying that higher and more stable incomes improve repayment capacity. This finding is consistent with Khandker and Koolwal (2016) and Mutua (2017), who

observed that income stability enhances borrowers' ability to meet loan obligations. Loan purpose exhibited a positive relationship with NPLs, showing that consumption-based loans are more likely to default than productive loans. This supports the arguments of Miller and Martinez (2018) and Ngugi (2019), who highlighted the critical role of loan utilisation in repayment success. Borrower credit history also showed a strong and negative effect, confirming that prior repayment behaviour is a reliable predictor of loan performance. Kipkemoi (2017) and Kiptoo (2020) similarly emphasised the importance of credit history in reducing default risk and guiding credit assessment.

The education level of loan committee members was another significant determinant, with more educated committees linked to lower NPL ratios. This echoes Chikalipah (2018) and Aboagye and Otieku (2019), who found that financial literacy and management competence improve credit evaluation and recovery. Finally, the moderating effect of loan committee education was significant and negative, confirming that education enhances the effectiveness of borrower screening and loan monitoring. This supports Mwenda et al. (2021), who argued that institutional capacity plays a key role in improving loan portfolio quality. The model explained 68.2% of the variation in NPLs, aligning with Omondi (2017), who demonstrated the combined influence of borrower and institutional factors in predicting credit risk.

SUMMARY OF FINDINGS

Results from regression analysis indicated that borrowers' income level has a negative and statistically significant relationship with NPLs. This means that borrowers with higher or stable income are less likely to default because they possess greater repayment capacity and financial discipline. The finding supports the Asymmetric Information Theory, which posits that borrowers with verifiable income reduce uncertainty and moral hazard, thus lowering credit risk.

The study also established that the loan purpose significantly influences repayment performance. Borrowers who used loans for productive or investment activities, such as business expansion or agricultural investment, demonstrated better repayment behaviour than those who borrowed for consumption. This result aligns with the Moral Hazard Theory and earlier empirical studies (Ndwiga & Ouma, 2020; Magash et al., 2023), showing that productive-purpose loans generate income streams that facilitate repayment. The implication is that SACCOs must strengthen their monitoring mechanisms to ensure that loans are used for declared productive purposes.

Moreover, credit history emerged as a crucial determinant of loan performance. Borrowers with positive credit histories indicating prior successful repayments were significantly less likely to default compared to first-time or previously delinquent borrowers. This finding underscores the value of credit information-sharing systems, such as Credit Reference Bureaus (CRBs), which enhance transparency and improve credit risk assessment. Integrating SACCOs with national credit databases would therefore improve lending decisions and reduce the incidence of NPLs.

CONCLUSION

This study found that borrower income, loan purpose and credit history are significant determinants of NPLs among SACCOs in Ubungo Municipality. Higher income, productive-purpose loans and good credit histories are associated with lower NPL ratios. The study further established that education of loan committee members strengthens these relationships, confirming that internal governance capacity can mitigate information problems commonly experienced in SACCO lending. Moreover, the study concludes that borrower-specific characteristics are central to explaining variations in loan repayment performance within SACCOs. Strengthening borrower assessment through reliable income verification, monitoring loan utilization, and utilizing credit histories can substantially reduce NPL ratios and enhance portfolio quality. For effective credit management, SACCOs should adopt risk-based lending practices, strengthen post-disbursement follow-up, and ensure the use of credit information in decision-making.

Contributions of the Study

The following are the contributions of this Study

Theoretical Contribution

The findings extend Asymmetric Information Theory by showing that while borrowers often possess more information than lenders, institutional governance capacity, particularly through educated loan committees, can mitigate this imbalance. By reducing information asymmetry, SACCOs strengthen loan performance and sustainability. Moreover, this study supports moral hazard theory by showing that borrowers are more likely to default when loans are used for non-productive purposes or when they have poor repayment histories. These behaviors reflect opportunism that arises when monitoring is weak. At the same time, the findings demonstrate that well-educated loan committees can reduce moral hazard through better screening and monitoring, thereby lowering the risk of non-performing loans in SACCOs.

Policy Contribution

The results provide clear directions for SACCO oversight bodies such as the Tanzania Cooperative Development Commission (TCDC). Regulators should establish minimum education qualifications for loan committee members and require ongoing professional training. Standardised borrower profiling, covering income verification, documented loan purposes, and credit history checks, should also be mandated across SACCOs to improve credit risk management.

Practical Contribution

For SACCO managers, integrating borrower profiling into loan approval systems is critical. Automated or semi-automated credit scoring tools could strengthen appraisal accuracy. Loan committees should receive continuous training in financial analysis, credit management, and risk assessment. Furthermore, SACCOs should design loan products tailored to borrower income and purposes, supported by monitoring systems that detect early warning signals of potential defaults.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are provided: SACCOs should systematically assess borrowers' income, validate loan purposes, and verify credit histories during loan appraisal. Loan committee members should undergo continuous professional training in credit evaluation and risk management. Moreover, regulators should enforce minimum education or training requirements for committees. TCDC should develop national credit appraisal guidelines applicable across all SACCOs. Improved borrower screening and information transparency are therefore essential for promoting financial stability, sustainability, and member confidence within the cooperative financial sector.

Limitations of the Study

This study faced several limitations. First, purposive sampling of 45 audited SACCOs may have excluded weaker, unaudited societies, introducing selection bias. Second, SACCOs with incomplete financial data were excluded, potentially under-representing poorly performing institutions. Third, inconsistencies in reporting committee education may have reduced measurement precision. Fourth, the study focused on Ubungo Municipality, limiting generalizability to other regions. Finally, reliance on audited secondary data may be subject to under-reporting of NPLs, though overall reliability was ensured by the dataset’s scope and coverage.

Delimitations

The study was delimited to SACCOs in Ubungo Municipality due to their urban and peri-urban concentration. Only audited SACCOs were included to ensure reliable data. The focus was restricted to borrower-related characteristics, excluding macroeconomic and governance factors. The analysis covered 2017–2024, a period considered adequate for both short- and long-term patterns. Finally, the study used only quantitative methods, excluding qualitative insights from SACCO officials and borrowers.

Areas for Future Studies

Future studies should expand to other municipalities and regions to enhance generalizability. Institutional factors such as governance, management efficiency, and internal controls should be included alongside borrower characteristics. Mixed-method approaches incorporating interviews and surveys could capture qualitative insights. Researchers should also examine macroeconomic variables such as inflation, unemployment, and interest rates. Finally, longitudinal studies over longer time frames would provide deeper insights into the dynamic drivers of loan performance.

REFERENCES

Aboagye, A. Q., & Otieku, J. (2019). Financial literacy and management competence in cooperative credit risk reduction. *International Journal of Cooperative Studies, 8*(2), 45–56.

Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, *8*4(3), 488–500.https://doi.org/10.2307/1879431

Asefa, M., & Woldemariam, D. (2019). Loan purpose, credit appraisal methods, and loan repayment performance of MFIs in Ethiopia. *Unpublished MBA thesis*, Addis Ababa / Hawassa University. (Use this to back your “productive-purpose loans vs lower NPLs

Bank of Tanzania Financial Institutions Regulations (2019)

Bank of Tanzania Microfinance Regulations (2018)

Barako, D. G., & Tower, G. (2007). Corporate governance and bank performance: Does ownership matter? Evidence from the Kenyan banking sector. *Corporate Ownership & Control, 4*(2), 133–144.

Bengt Holmström (1979). *Moral Hazard and Observability. Bell Journal of Economics*, 10(1), 74–91. (A foundational paper on moral hazard in principal-agent settings.)

Björkegren, D., Blumenstock, J., Folajimi-Senjobi, O., Mauro, J., & Nair, S. R. (2022). *Instant Loans Can Lift Subjective Well-Being: A Randomized Evaluation of Digital Credit in Nigeria*

Breusch, T. S., & Pagan, A. R. (1979). *A simple test for heteroscedasticity and random coefficient variation.* Econometrica, 47(5), 1287–1294. https://doi.org/10.2307/1911963

Chege, M. L. (2021). Credit Management Practices and Loan Default in Agricultural Finance Corporation, Kenya.

Chege, S. W. (2021). *Determinants of Loan Default in Microfinance Institutions in Kenya.* Journal of Finance and Banking Research, 9(2), 55–6

COASCO / TCDC 2024 addendum (2024). SACCOS Annual Performance Report 2024. Dodoma

Cook, R. D., & Weisberg, S. (1983). *Diagnostics for heteroscedasticity in regression.* Biometrika, 70(1), 1–10. https://doi.org/10.1093/biomet/70.1.1

Co-operative Audit and Supervision Corporation (COASCO). (2024). Ripoti ya Hali ya Ukaguzi wa Vyama vya Ushirika 2023/2024. Dodoma: COASCO

Dong, Y. (2023). *Big tech credit score and default risk.*

Field, A. (2014). *Discover statistics using IBM SPSS Statistics.* London: Sage Publications.

Georgiadis, G. (2022). *Contracting with Moral Hazard: A Review of Theory & Empirics.* (Reviews the theoretical and empirical literature on moral hazard in contracts where actions are not fully observable.)

Goddard, J., McKillop, D., & Wilson, J. O. S. (2008). The diversification and financial perform**ance of US credit unions.** *Journal of Banking & Finance, 32*(9), 1836–1849.

Goddard, J., McKillop, D., & Wilson, J. O. S. (2008). What drives the performance of cooperative financial institutions? Evidence for U.S. credit unions. *Applied Financial Economics, 18*(11), 879–893.

Gujarati, D. (2006). *Basic econometrics* (4th ed.). New Delhi, India: Tata McGraw-Hill Education.

Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica.46* (6): 1251–1271.

Holmström, B. (1979). "Moral Hazard and Observability." *The Bell Journal of Economics*, 10(1), 74–91. doi:10.2307/3003320

Holmstrom, B., & Tirole, J. (2014). On the theory of contractual arrangements. The Review of Economic Studies, 67(1), 1–32. https://doi.org/10.1111/1467 937X.00124

Inekwe, J. N., & Valenzuela, M. R. (2020/2021). Credit risk and financial integration: An application of network analysis. *Journal of International Financial Markets, Institutions and Money, 72*, 101–123. (Used for borrower-level/ability-to-pay and macro-credit-risk controls).

Kadaga, G.L. (2020).Effects of Non- Performing Loans on Growth of SACCOs in Tanzania. A Dissertation Submitted In Partial Fulfilment of the Requirements for the Degree of Master of Business Administration (MBA) of the Open University of Tanzania.

Kargi, H. S. (2014). Credit Risk and the Performance of Nigeria Banks. Ahmadu Bello University, Nigeria, Retrieved from http://www.abu.edu.ng.

Khandker, S. R., & Koolwal, G. B. (2016). *Does microfinance still hold promise for reaching the poor? Microfinance and poverty reduction in Bangladesh.* World Bank Policy Research Working Paper No. 7253.

Kipesha, E. F., & Zhang, X. (2013). Sustainability, profitability and outreach trade-offs: Evidence from microfinance institutions in East Africa. *European Journal of Business and Management, 5*(8), 136–148. (Used to support income/productive-use angles in microfinance).

Kipkemoi, E. (2017). The Role of Credit History in Loan Default: Evidence from SACCOs in Kenya. *International Journal of Financial Analysis, 6*(5), 101–115.

Kiptoo, J. (2020). Credit information sharing and loan default among SACCOs in Kenya. *African Journal of Co-operative Development, 5*(1), 72–89.

Kroszner, P. (2015). Non-Performing Loans, Monetary Policy and Deflation: The Industrial Country Experience. Economic and Social Research Institute-Government of Japan

Ledgerwood, J. (2013). The new microfinance handbook: A financial market system perspective. Washington, DC: World Bank. (Portfolio-at-risk definition used for PAR>30).

Magali, J. (2023). Clients' Demographics and Strategies Influence on Loan Repayment during the Covid-19 Pandemic: Evidence from Tanzanian Savings and Credits Cooperative Societies (SACCOS). *Pan-African Journal of Business Management,* 6(1). https://doi.org/10.61538/pajbm.v6i1.1161

Magash, A., Kakoko, G., & Makasi, E. (2023). *Determinants of Non-Performing Loans in African Financial Institutions.* African Journal of Economic and Financial Studies, 11(3), 41–59

Magashi, C., Sam, A., Agbinya, J., & Mbelwa, J. (2023). Indicative Factors for SACCOs' Failure in Tanzania. *Engineering, Technology & Applied Science Research,* 13(4), 11177-11181. https://doi.org/10.48084/etasr.5989

Magashi, C.A. Sam, A., J. Agbinya, J. & Mbelwa, J. (2023).Indicative Factors for SACCOs Failure in Tanzania, *Eng. Technol. Appl. Sci. Res.*, vol. 13, no. 4, pp. 11177–11181,

Makori, P., & Ngugi, J. (2020). Effect of non-performing loans on the financial stability of deposit-taking SACCOs in Kenya. *Unpublished master's project*, Kenyatta University, Nairobi. (Closest public item I found is a 2021 paper on NPLs and SACCO stability in Kenya, so treat 2020 as institutional work.

Mapunda, L. (2019). Factors Affecting Loan Repayments Efficiency Among SACCOs Borrowers in Tanzania: A Case of Selected SACCOs in Kibaha Town Council, MSc Thesis, Mzumbe University, 2019

Mbowe, R. K. (2023). Influence of credit risk on SACCOS' performance on mainland Tanzania and implications for TEWW SACCOs Ltd. *Adult Education and Development Journal* (Tanzania Institute of Adult Education).

Metto, W. (2020). The Relationship between Member Financial Literacy and Loan Repayment in Savings and Credit Co-Operative Societies in Uasin-Gishu County, Kenya. *International Journal of Community and Cooperative Studies*, *8*(1), 9–22. https://doi.org/10.37745/ijccs.vol8.no1.p9-22.2020

Miller, C., & Martinez, A. (2018). Productive versus consumptive lending: Evidence from Latin American cooperatives. *Journal of Development Finance*, *9*(2), 89–104.

Mjatta, G., Akarro, & R.R.J, (2016). Traits Associated with the Success or Failure of Emerging SACCOS in Tanzania: A Case of Four Regions in Tanzania Mainland. *Global Journal of Commerce & Management Perspective*, vol. 5, no. 4, pp. 29–38, 2016.

Mmari, G. A. & Thinyane, L. C. (2019). Analysis of Factors Influencing Financial Performance of Savings and Credit Co-operative Societies in Lesotho: Evidence from Maseru. *International Journal of Financial Research. 10*(2):121-136

Mori, N. (2016). *Effects of clients' literacy on default and delinquency of loans among rural-based SACCOs in Tanzania.* Business Management Review, 19(2), 1–12.

Msuya, R. I., Kazuzuru, B., & Mataba, l. (2023). Impact of savings and credit co-operative societies 'services on house-hold livelihood outcomes in Mwanza and Tabora rural areas, Tanzania. *International Journal of Social Economics, 50*(3), 436–451. https://doi.org/10.1108/iJse-01-2021-0028

Munene, E. N., Ndambiri, J. M., & Wanjohi, S. M. (2017). Effect of Loan Portfolio Characteristics on the Level of Non-Performing Loans for Savings and Credit Co-operative Societies in Kirinyaga County Kenya. *International Journal of Finance and Banking Research, 3*(5), 58-69. doi: 10.11648/j.ijfbr.20170305.11

Muriithi, J., & Waweru, N. (2017). Effect of corporate governance / risk practices on performance of financial institutions in Kenya. (Often cited in SACCO/banking governance work; proxied from later Kenyan regulatory and SACCO studies).

Muriithi, J., & Waweru, N. (2017). Effect of corporate governance / risk practices on performance of financial institutions in Kenya.

Muriithi, N. and Waweru, C.(2017). Loan Monitoring and Non-Performing Loans in SACCOs in Kenya. *Journal of Financial Risk Management, 11*(2), 101-112.

Musau, M., Ngugi, T., & Omari, E. (2018). Financial Knowledge and Loan Repayment Behaviour in SACCOs in Kenya: The Role of Financial Literacy. *Journal of Cooperative and Financial Studies, 17(*2), 40-56.

Mutai, B. (2018). Loan Monitoring Mechanisms and Default Risks in SACCOs in Kenya. *International Journal of Economics and Finance, 10*(4), 22-34.

Mutai, J. K. (2018). Effect of Borrower Characteristics on Loan Repayment in Savings and Credit Cooperative Societies in Nakuru County, Kenya. *International Journal of Economics and Finance, 10*(4), 112–125.

Mutua, J. (2017). Household income and loan repayment in microfinance institutions in Kenya. *African Journal of Economic Policy, 24*(1), 56–72.

Muturi, P. M., Lewa, P. M., & Riro, G. K. (2017). Influence of loan characteristics on microcredit default in Kenya: A comparative analysis of microfinance institutions and financial intermediaries. *IOSR Journal of Business and Management, 19*(5), 39–59.

Mwaipaja, F. (2024). Influence of demographic factors on loan portfolio quality for SACCOs in Tanzania: The case of Hazina SACCOs. *East African Journal of Social & Economic Studies*,

Mwaipaja, F., & Magali, J. (2024). Influence of Demographic Factors on Loan Portfolio Quality in the Savings and Credit Cooperatives Societies in Tanzania. *East African Journal of Education and Social Sciences, 5*(3)

Mwakabalula, A., & Mwamkonko, M. (2024). Can Credit Reference Bureaus Mitigate Commercial Banks' Non-Performing Loans? Lessons from Tanzania. *African Journal of Economic Review, 12*(4), 55–72

Mwenda, B., Ndiege, B. O. & Pastory, D. (2021). Influence of firm-specific factors on performance of firms listed at the Dar es Salaam Stock Exchange, Tanzania. East African *Journal of Social and Applied Sciences, 3*(2): 1–15.

National Bureau of Statistics (2024). Status of in Tanzania Report *5*(3).

Ndambiri, J. M., Muchiri, E. N., & Wanjohi, S. M. (2017). Effect of loan portfolio characteristics on the level of non-performing loans for savings and credit co-operative societies in Kirinyaga County, Kenya. *International Journal of Finance and Banking Research, 3*(5), 58–69.

Ndiege, B. O., Mataba, L., Msonganzila, M. &Nzilano, L. K. (2016). The Link between Financial Performance and Loan Repayment Management in Tanzanian SACCOS. *African Journal of Business Management. 10*(4) 89-97

Ndwiga, G., & Ouma, S. (2020). The Role of Financial Literacy in Reducing Loan Delinquency in SACCOs in Kenya. *Journal of Finance and Accounting*, *16*(1), 77-89.

Ndwiga, S., & Ouma, B. (2020). *Influence of Borrowers' Loan Purpose on Loan Repayment in Commercial Banks in Kenya.* Journal of Business and Finance, 6(1), 24–38

Ngugi, P. K. (2019). Loan utilisation and repayment performance among micro and small enterprises in Kenya. *International Journal of Business and Social Science, 10*(5), 120–129.

Ntoiti, R., & Jagongo, A. (2021). Non-Performing Loans and Financial Stability of Deposit-Taking Saccos Regulated By SASRA. *International Journal of Finance and Accounting, 6(*2), 29–39.

Nyabwari, J. O., & Kimutai, C. (2024). Analysis of Credit Terms and Loans Performance among Deposit-Taking SACCOS in Nairobi City County, Kenya. *Journal of Finance and Accounting, 4*(1), 1-8.

Nyayiera, K., & Muchiri, R. (2023). *Effect of Loan Management Practices on Non-Performing Loans for Deposit Taking Savings and Credit Cooperative Societies in Kenya.* International Journal of Current Aspects in Finance, Banking and Accounting, 5(3), 14–28. https://doi.org/10.35942/4fjhrg83

Olomola, A. S. (2014). Loan demand and rationing among small-scale farmers in Nigeria. Ibadan: Nigerian Institute of Social and Economic Research.

Omondi, W. (2017). Loan Monitoring and Its Effect on Non-Performing Loans in SACCOs in Kenya. *Journal of Microfinance and Development, 8*(3), 123–134.

Pallant, J. (2020). *SPSS Survival Manual:* A step-by-step guide to data analysis using IBM SPSS

Richard, E. (2011). Factors that Cause Non-Performing Loans in Commercial Banks in Tanzania and Strategies to Resolve Them. *Journal of Management Policy and Practice*, vol. 12, no. 7, pp. 104–116

Singh, N. (1984). *Moral hazard: Economic meaning of the conditions. Journal of Economic Behavior & Organization*, 5(4), 365-382. (Early exploration of moral hazard in economic contracts.)

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics, 87*(3), 355–374. https://doi.org/10.2307/1882010

Stiglitz, J. E. (1975). The theory of "screening," education, and the distribution of income. *American Economic Review, 65*(3), 283–300. https://www.jstor.org/stable/1805590

Stiglitz, J. E. (1990). Peer monitoring and credit markets. The World Bank Economic Review,

Tanzania Cooperative Development Commission (TCDC) (2018) report.

Tanzania Cooperative Development Commission (TCDC) (2019) report.

Tanzania Cooperative Development Commission (TCDC) (2023) report.

TCDC (2018). Tanzania Cooperative Development Commission.

TCDC (2019). Tanzania Cooperative Development Commission.

TCDC (2023). Tanzania Cooperative Development Commission.

Towo, N. N. (2023). Financial Leverage and Financial Performance of Savings and Credit Co-operative Societiesin Tanzania. *International Journal of Rural Management*, *19*(2), 214-233. https://doi.org/10.1177/09730052221077846

Ubungo Municipality Report (2024). Saccos Status in Ubungo

Vol. 4, No. 3, pp. 351-366.

Wilberforce, B., Robert, M., & Atwiine, D. W. (2021). The Effects of Credit Terms on Loan Performance

Wooldridge, J. M. (2016). *Introductory Econometrics: A Modern Approach.* (M. C. Jack W. Calhoun, Laura Bofinger, Ed., Zentralblatt fur Chirurgie (Fourth Edi). South-Western Cengage Learning, 5191 Natorp Boulevard, Mason, OH 45040, USA.

Zhang, J. (2023). *A Literature Review on the Theory of Asymmetric Information. Journal of Economics & Economic Education Research*, 24(6), 1-2. (Provides an overview of the causes and consequences of information asymmetry, including adverse selection and moral hazard.)

APPENDICES

Appendix 1: Variance Inflation Factor

	VIF	1/VIF
BIL	1.13	0.885
BLP	1.06	0.943
BCH	1.02	0.980
Edu	1.11	0.901
Mean VIF	**1.08**	

Appendix 2: Breusch-Pagan/Cook-Weisberg Test for Heteroscedasticity

H_0: Constant variance (homoscedastic)

Breuch-Pagan Lagrange Multiplier (LM) test for Random Effects

H_0: No random effects (i.e Var(u) = 0

Appendix 3: LM-test for Random Effects

	NPL	PAR
Chi-Square test value	478.47	524.19
P-value	0.0000	0.0000

Reject null:there are Random Effects

Appendix 4: Least Square Dummy Variable (LSDV) Regression

	NPL	PAR
F(194,572)	7.35	9.42
Prob > F	0.0000	0.0000

Reject null:there are Fixed Effects

Influence of Financial Management Practices on Performance of Village Community Banks: Empirical Evidence from Arumeru District, Tanzania

Ukende Kingu[1], Joseph Magali[2] and Salvio Macha[1]
[1]Department of Accounting and Finance, The Open University of Tanzania
[2]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania
Author corresponding email: joseph.magali@out.ac.tz
DOI: https://doi.org/10.61538/pajbm.v9i2.1899

Abstract
This study examined the influence of financial management practices on the performance of Village Community Banks (VICOBA) in the Arumeru district. The specific objectives were to assess the influence of financial management practices, particularly cash management, accounting information, and internal control, on the financial performance of VICOBA. An explanatory research design was employed, and data were collected via structured questionnaires administered to 136 respondents from different VICOBA groups. A simple random sampling technique was used to determine the sample size. Descriptive statistics and regression analysis were performed in SPSS to analyse the data. The findings revealed that cash management practices, particularly internal control over accounting information, positively and significantly influenced VICOBA's financial performance. The study concludes that cash management, the accounting system, and internal control played a significant role in improving VICOBA's financial performance in Arumeru district, Tanzania. The study recommends that VICOBA leaders and members strengthen their cash management procedures, maintain proper financial records, and enforce internal control systems to improve efficiency. Policymakers and supporting agencies should provide capacity-building programs, training, and technological support to enhance VICOBA's effectiveness.

Keywords: *Financial management practices, performance of village community banks (VICOBA), Arumeru district, Tanzania*

INTRODUCTION

Village Community Banks (VICOBA) are community-based financial institutions that promote savings and access to credit for low-income individuals. Different scholars have defined VICOBA in various ways. Mgongolwa et al. (2023) define VICOBA as self-managed savings and loan groups that provide financial services to members, particularly in rural areas, operating on principles of mutual financial support and financial inclusion.

Shau (2022) describes VICOBA as informal microfinance institutions that facilitate access to small loans for income-generating activities, enhancing economic empowerment for marginalised communities. Rahma and Peter (2024) highlight VICOBA as a grassroots financial institution that focuses on financial literacy, community-based resource mobilisation, and loan disbursement to small-scale entrepreneurs.

Mang'ana et al. (2024) asserted that financial management practices involve planning, organising, controlling, and monitoring financial resources to achieve organisational goals effectively. They include budgeting, financial reporting, risk management, and investment decision-making. Similarly, Akbar et al. (2022) describe financial management practices as a systematic approach to managing financial activities, including capital budgeting, working capital management, and financial statement analysis, to enhance organisational sustainability. VICOBA and self-help financial groups have been instrumental in fostering financial inclusion and economic empowerment, particularly for individuals and small businesses that lack access to formal banking services (Kimiti, 2024). However, these groups face numerous challenges that hinder their financial performance across different regions (Luvingo, 2023).

In developed countries such as the USA, Europe, Canada, and Australia, VICOBA, termed as self-help financial groups, often struggle with regulatory compliance, access to sustainable funding, and digital transformation. Studies indicate that despite their strong financial ecosystems, self-help groups face difficulties in adapting to evolving financial technologies and stringent legal frameworks that limit their operational flexibility (Jupe et al., 2022). African self-help groups, particularly in microfinance settings, face sustainability challenges due to poor financial management, inadequate regulatory oversight, and limited access to external financing. Studies in Nigeria and Ghana indicate that the absence of standardised financial reporting, lack of risk management practices, and weak internal governance structures contribute to financial instability (Agbana et al., 2023; Atatsi et al., 2023). Furthermore, inefficiencies in credit risk management affect loan recoveries and overall financial performance (Otoo, 2024).

In Tanzania, VICOBA serve as a critical financial lifeline for many communities, yet they face significant financial management challenges. Issues such as poor record-keeping, lack of structured accounting systems, and weak internal controls have been documented as major setbacks (Mgongolwa et al., 2023; Luvingo, 2023). The absence of financial compliance mechanisms for VICOBA exacerbates financial risks, leading to

fund misappropriation and limited growth potential (Kihongo, 2005). Arumeru District, like other parts of Tanzania, experiences similar challenges in VICOBA operations. Poor cash management, misallocation of financial resources, and inadequate internal controls are prominent issues affecting the sustainability of these financial groups (Maina, 2023). Studies suggest that without structured financial management practices, many VICOBA in the district struggle to maintain long-term financial stability and support their members effectively (Kimiti, 2024).

The studies have examined the influence of cash management on VICOBA's financial performance, including those by Sewwandhi and Kuruppuarachchi (2021), who assessed the effects of financial reporting, working capital management, and investment decisions on SME performance in Sri Lanka using descriptive analysis and regression techniques. Their findings revealed that financial management practices positively impact SME performance. However, the study did not consider the role of internal control and accounting systems in business success. Rahma and Peter (2024) examined the effects of disciplined budgeting and working capital management on firm performance in Indonesia using correlation and regression analyses. They found that financial planning practices significantly enhance business performance. However, the study did not explore the impact of internal control and accounting systems.

Moreover, studies on the effect of accounting systems on VICOBA financial performance, such as Agbana et al. (2023), investigated the impact of credit risk management on the financial performance of microfinance institutions in Nigeria using content analysis. They found that credit appraisal, loan monitoring, and recovery procedures positively influence financial performance. However, the study did not assess the role of account-based systems in loan performance and focused solely on microfinance institutions rather than on VICOBA. Atatsi et al. (2023) examined the relationship between financial management practices and life satisfaction in Ghana using structural equation modelling. Their findings showed a positive link between financial management and financial satisfaction. However, the study overlooked the role of cash management, internal controls, and accounting systems in financial satisfaction.

Kamau (2021) and Mbogo et al. (2021) investigated the effect of financial management practices on SME financial performance in Kenya using descriptive and regression analysis. Their studies found that working capital management, investment decisions, and financial decisions positively impact

SME financial performance. However, they did not assess the role of internal control, compliance, and accounting systems. Luvingo (2023) investigated the influence of organisational resources on VICOBA performance using descriptive analysis. The study emphasised the role of financial, human, and physical resources in financial performance. However, it did not cover internal control, compliance, or accounting systems.

Despite extensive research on financial management practices in SMEs and microfinance institutions, limited studies focus on VICOBA. (For example, Naseer et al., 2021; Zada et al., 2021) Most empirical studies have emphasised the importance of accounting systems, cash management, and internal controls for financial performance. However, these studies neglect the unique financial structures and challenges of VICOBA. Additionally, theoretical perspectives such as the Pecking Order and Trade-Off theories provide valuable insights into financial decision-making but do not incorporate the role of internal control and compliance, which are critical to VICOBA's financial performance. Furthermore, the existing literature does not comprehensively examine the combined effects of cash management, accounting systems, and internal controls on VICOBA's financial sustainability. While research by Mgongolwa et al. (2023) and Luvingo (2023) acknowledges the importance of financial resource planning in VICOBA, neither fully addresses the roles of structured accounting systems and compliance mechanisms.

Existing studies on financial management practices in Tanzania have primarily focused on SMEs and MFIs, with limited emphasis on VICOBA (Mang'ana et al., 2023). While research highlights the importance of financial management in enhancing financial performance, it does not adequately address the unique financial structures and management challenges VICOBA faces. Additionally, weak regulatory frameworks and the absence of standardised accounting systems remain persistent issues, limiting VICOBA's ability to assess its financial status and make strategic decisions (Kimiti, 2024; Kilonzo & Dennis, 2015). Therefore, this study was conducted to answer the following research questions: How do cash management practices influence the financial performance of VICOBA in the Arumeru district? How does the accounting information system influence VICOBA's financial performance in the Arumeru district? How does internal control influence VICOBA's performance in the Arumeru district?

Theoretical Literature Review

The study used the Pecking Order Theory (POT), which was developed by Myers and Majluf (1984). The theory explains the preference order that firms

follow when financing their operations, given asymmetric information between internal stakeholders and external investors (Leary & Roberts, 2010). The Pecking Order Theory describes corporate financing behaviours in firms and their inclination towards internal over external financing (Ali et al., 2021). The Pecking Order Theory posits that firms hierarchically prioritise financing sources: first, internal funds (retained earnings); second, debt financing; and lastly, equity financing (Jansen et al., 2023). The rationale behind this preference is to minimise information asymmetry and adverse selection costs associated with external financing (Singh et al., 2025). When external financing is necessary, firms prefer debt over equity to avoid ownership dilution and mitigate market perceptions of overvaluation (Yulianto et al., 2021). The primary variables in the Pecking Order Theory include internal financing, debt, and equity financing (Djabang et al., 2025). Internal financing involves using retained earnings and savings before seeking external funds. Debt financing refers to borrowing through loans or buying bonds. Equity financing, which is the least preferred, involves issuing shares due to ownership dilution and signalling problems (Al-Tamimi, 2024). This study applied the Pecking Order Theory (POT) to examine how financial management practices affect VICOBA's financial performance.

Several recent studies have applied the Pecking Order Theory to analyse financial management in different contexts. Zada et al. (2021) examined financial management practices in SMEs, emphasising the role of internal financing over debt. Naseer and Siddiqui (2021) examined the impact of financial management practices on loan performance, confirming the importance of internal funds relative to external borrowing. Otoo (2024) analysed financial management practices in Ghanaian SMEs, aligning with POT's preference for internal financing. Rahma & Peter (2024) investigated budgeting and working capital management in Indonesia, reinforcing the importance of internal resources.

The Pecking Order Theory has several strengths. It explains firms' real-world financing behaviour, particularly in environments with information asymmetry (Myers, 1984). It is applicable across different financial entities, including microfinance institutions and VICOBA (Momand & Khel, 2025), due to its emphasis on internal resource utilisation. However, the theory also has weaknesses. It assumes that internal financing is always available (Hu & Li, 2022). This may not be the case for financially constrained VICOBA. It does not fully consider the role of financial management practices, such as cash management and internal controls, in enhancing financial stability (Akhtar, 2025).

From a theoretical perspective, the Pecking Order Theory suggests that firms prefer internal financing over external funding due to information asymmetry (Myers & Majluf, 1984). However, this theory does not fully account for how financial management practices, such as cash management and internal controls, impact VICOBA's financial performance (Turyahebwa et al., 2013). Despite its relevance, this theory does not comprehensively address the role of structured accounting systems and compliance mechanisms in mitigating financial mismanagement risks in VICOBA (Syrtseva & Cheban, 2021). The Pecking Order Theory explains financing preferences; it has been underutilised in examining how financial management practices affect the performance of informal institutions like VICOBA (Choi, 2023). This study addresses that gap by applying the theory to assess the impact of practices such as cash management, internal controls, and compliance on VICOBA sustainability.

Empirical literature review

The following sections present an empirical literature review of the roles of cash management, accounting information systems, and internal control in the financial performance of microfinance institutions (MFIs).

Influence of cash management on MFIs' financial performance

Studies on the influence of Cash Management on MFIs' financial performance have been done in various countries. For instance, Nso (2018) in Cameroon, where it was asserted that effective cash management improved MFI coordination, saved costs, and reduced losses and management and staff stress. Fadumo (2017) reported that in Somaliland, poor cash management led to the absence of influence. Yeko. (2019), contextualised accounts receivable and accounts payable and concluded that it influenced the MFI financial performance in Uganda. Remo (2019) indicated that cash management improved Ugandan Centenary Bank's financial performance, mainly when credit, liquidity, and accounts receivable management were managed effectively. Champaca (2024) revealed that cash management did not influence the performance of health firms in Indonesia. Mubweka (2024) established that cash management liquidity, deposit mobilisation, cash budget, and share capital positively and significantly determined the economic performance of Kenyan SACCOS. However, these studies did not assess the influence of accounting systems and internal controls on economic performance. Moreover, none of these studies were conducted in VICOBO, the community MFIs that operate with regulated financial management practices.

Influence of accounting information systems on MFIs' financial performance

Studies that examined the influence of accounting systems on financial performance, such as Tutegyereize (2019), found that accounting information systems provided insights into debt performance, capital structure, assets, and investment planning, thereby enhancing the financial performance of Promotion of Rural Initiatives and Development Enterprises (PRIDE). Mwenda et al. (2024) indicated that accounting system quality positively influenced the MFI financial performance of Kenyan MFIs. Soudani (2013) revealed that the use of accounting systems positively and significantly influenced the financial performance of the service firms in the United Arab Emirates. Al-Hattami (2025) found that the quality of accounting system information, service, and the digital accounting system application, as well as perceived usefulness, influenced financial performance indicators in Yemen. Nurida (2025) indicated that public sector accounting, accountability, and transparency positively and significantly influenced the performance of the Aceh Government organisation in Indonesia. Chiruza (2023) showed that data collection, storage, and retrieval had a positive and significant influence on MFIs' financial reporting in the Democratic Republic of Congo. The literature indicates that studies did not assess how cash management and internal control influence MFIs' financial performance. Moreover, the studies focus on MFIs that are not VICOBA, as well as non-MFIs such as service companies, service sectors, and public companies.

Influence of Internal control and MFIs' performance

Studies on the influence of internal control on financial performance, such as Ngari (2017), indicated that financial control practices, including internal checks, financial document authorisation, and financial payment approval, positively influenced economic performance in Kenya. Umaru (2023) revealed that the control atmosphere and risk management positively and significantly improved the performance of microfinance banks, explained by control activities, information, and communication in NigeriaUmaru (2023) revealed that the control atmosphere and risk management positively and significantly improved the performance of microfinance banks, explained by control activities, information, and communication in Nigeria. Nandaula (2022) showed that monitoring activities, the control environment, and communication had no significant influence on MFIs' performance in Uganda.

Tchuigoua et al. (2024) indicated that there is a significant, negative relationship between the quality of internal control and abnormal loan loss

provisions. They assessed how the quality of internal controls influenced earnings management using global MFI data. Sub-Saharan Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, and the Middle East and North Africa. Ibrahim et al. (2017) found that internal controls, particularly the control environment, risk assessment, control activities, information, communication, and monitoring, positively and significantly influenced the financial performance of health institutions in Ghana. Channar et al. (2015) found that internal controls, particularly the control environment, risk assessment, control activities, information and communication, and monitoring, influenced the performance of commercial banks in India, as measured by return on equity, return on assets, and the profit after tax index. The literature indicates that these studies did not assess the influence of cash management and the accounting system on the performance of the commercial banks in India. Most studies were done in organisations that are not MFIs. For MFIs, the studies were not conducted in VICOBA. Therefore, the literature indicates that studies assessing the influence of cash management, accounting systems, and internal controls on VICOBA's performance are missing.

METHODS

Research Design

Based on Saunders et al. (2019), this study adopted a positivist research philosophy to test hypotheses using empirical data. This approach ensures reliability and replicability, making it suitable for studies that seek to test predefined hypotheses and derive generalisable findings. The study employed a deductive research approach, which is well-suited for testing hypotheses derived from established theories and empirical studies (Okoye et al., 2024). The study also employed an explanatory design to test causal relationships, thereby ensuring the objectivity, replicability, and generalizability of findings on cash management, internal controls, and accounting systems, as recommended by Duckett (2021). A cross-sectional approach was employed to collect data at a single point in time, offering a cost-effective and efficient method for analysing causal relationships and testing hypotheses relevant to policy and practice (Bisung & Elliott, 2018).

Area of the Study

Arumeru District in Tanzania has been selected because not only did 32% of the VICOBA borrowers fail to repay their loans on time, but also there was a challenge of leaders' embezzlement of funds and favouritism in loan disbursement (Luvinga, 2025). VICOBA in the district also faced financial management challenges, including poor cash management, weak internal

controls, and inadequate accounting systems, which threaten its sustainability and performance (Mgongolwa et al., 2023). Inefficient cash management practices lead to liquidity issues that affect loan disbursements and repayments, ultimately reducing members' confidence in these financial groups (Luvingo, 2023). These issues affect loan operations and reduce member confidence.

Study Population, Sample Size, and Sampling Technique

The study targeted 220 VICOBA leaders in Arumeru District, Tanzania, based on official data indicating a high number of active groups. These leaders, involved in financial decision-making, provided insights into management practices across both urban and rural VICOBA, allowing for a comprehensive understanding of diverse economic challenges. The sample size was calculated using Yamane's formula, i.e., n $N/(1+e^2)$, where n is the sample size, N is the Population, and e is = sampling error, which is approximately 0.05 for social science. The computed sample size was 133. However, to overcome the non-response challenge, as recommended by Hasibuan et al. (2023), the sample size was increased to 10 respondents. Therefore, the total sample size was 143. However, only 136 questionnaires were returned, yielding a response rate of 95.1%. According to Lund (2023), this was highly acceptable.

As recommended by Noor et al. (2022), the study used simple random sampling to ensure equal selection and representativeness. Through this method, VICOBA leaders' chairpersons, secretaries, and treasurers, whose roles in financial decision-making provided the data for the study. Therefore, anyone who was in the office during the survey participated in the study. Simple random sampling minimises bias, is cost-effective, and supports the study's aim of assessing VICOBA's cash management, internal controls, and accounting systems.

Data Collection and Analysis

In this study, primary data were collected using a structured questionnaire, which is easy to administer and less expensive, thereby ensuring accurate and reliable data (Lund, 2023). Also, to ensure the collection of reliable and relevant data, this study utilised a well-structured. Closed-ended questions were developed, and a 5-point Likert scale assessed respondents' perceptions of the variables related to the specific objectives (Rahmah & Peter, 2024). The variables and indicators of the questionnaires were adopted from previous scholars as summarised in Table 2.

As per Sarstedt and Mooi (2018), data screening, missing-value checking, and outlier detection were performed before data analysis. Initially, screening and handling missing values were performed manually. The data were coded using the available questionnaire codes and entered into SPSS version 27 for analysis. The missing values and outliers were later identified by analysing the minimum, maximum, and mean values of the variables. The descriptive Table showed that there were no missing values and outliers. This technique was recommended by Zhou et al. (2022). The linearity plot (Figure 1) also shows that there are no outliers in the model.

Descriptive statistics were used to analyse respondents' demographic patterns, including sex, age, marital status, educational attainment, and work experience, as well as general information on educational practices in the study area. Quantitative data on study variables, including the account system, internal control, compliance, and cash management, were analysed using multiple linear regression to test relationships among variables. Interpretations of the findings were based on model summaries, ANOVA statistics, regression coefficient tables, and correlation coefficients. The multiple regression model below was used;

$Y = \beta o + \beta 1X1 + \beta 2X2 + \beta 3X3 + \varepsilon$

Whereby Y = Financial management practices

Bo=Constant

$\beta 1, \beta 2, \beta 3$ = Regression coefficients

X1=Account system, X2=Internal control X3=Cash management, ε =Error term

To ensure the validity of the regression analysis, several key assumptions must be met. Linearity assumes that the relationship between the independent and dependent variables is linear, which was assessed using scatter plots (Bansal & Singh, 2023). Normality requires that the error terms follow a normal distribution, which was checked using histograms (Field, 2017). Homoscedasticity assumes that the variance of the error terms remains constant across all levels of the independent variables, which was evaluated using scatter plots (Wooldridge, 2020). Multicollinearity was tested using the Variance Inflation Factor (VIF) and tolerance value. The value for accepting the data was less than 10 for VIF and greater than 0.1 for tolerance.

Data Validity, Reliability, and Research Ethics

In this study, validity was enhanced by ensuring that the variables were derived from prior studies and theory. Moreover, VICOBA, financial experts, and supervisors reviewed the questionnaire before data collection. The

researcher pre-tested the questionnaire with 15 VICOBA members who were not the study's respondents to assess the relevance of the questions, thereby validating and improving the questionnaire. The reliability of the research tool was assessed using Cronbach's alpha. For data acceptance, Cronbach's Alpha should be ≥ 0.70 (Emerson, 2024). Table 1 presents the results of the reliability test, with all variables having a Cronbach's Alpha of 0.7 or higher, indicating that the research tool was reliable.

The importance of research ethics was considered during this research, as recommended by Kaplan et al. (2023). The researcher obtained clearance letters from the Open University of Tanzania and Arumeru District prior to data collection. The researcher also ensured anonymity, confidentiality, and privacy of the research participants. Consent was sought before collecting data from respondents, and if a respondent was unwilling, the researcher discarded their data. The researcher also avoided data fabrication, falsification, and plagiarism.

Table 1: Reliability Statistics (Cronbach's Alpha)

Construct	Items	Cronbach's Alpha
Cash Management (CM)	2	0.781
Accounting Information (AI)	2	0.812
Internal Control (ICC)	2	0.768
Financial Performance (FP)	3	0.843

Source: Field Data (2025)

Variables and measurements

The variables and measurement levels for the study are outlined in Table 2. The Table shows the indicators for independent and dependent variables. The measuring scales are also presented in Table 2. The variables were measured using 5-Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2: Variables and measurements

Variables	Measurement Indicators	Source	Type of Scales
Cash Management (CM)	1. Cash Flow Adequacy 2. Cash Control 3. Cash Accountability 4. Cash Conversion Efficiency	Nso (2018); Champaca (2024); Mubweka (2024).	5-Point Likert scales
Accounting Information System (AIS)	1. Relevance 2. Reliability 3. Comparability 4. Timeliness 5. Consistency	Mwenda et al. (2024); Al-Hattami (2025); Nurida (2025).	5-Point Likert scales
Internal control (IC)	1. Risk management 2. Compliance 3. Operational efficiency 4. Financial integrity	Ibrahim et al. (2017); Nandaula (2022); Tchuigoua et al. (2024).	5-Point Likert scales
Organisational Performance (OP)	1. Profitability 2. Productivity 3. Market Share 4. Operational Efficiency 5. Employee Satisfaction	Channar et al. (2015); Remo (2019); Tutegyereize, (2019);	5-Point Likert scales

Source: Empirical Literature Review (2025)

RESULTS AND DISCUSSION

The subsequent sections present and discuss the study's findings.

Demographic Characteristics of Respondents

The findings show that the majority (29.4%) of respondents were aged 25–34, followed by 35–44 (25.7%). This indicates that VICOBA attracted mostly economically active age groups. More females (55.9%) than males (44.1%) participated, reflecting greater involvement of women in VICOBA activities. The relatively balanced gender distribution suggests that both men and women actively participate in VICOBA in Arumeru District. This balance is important for decision-making, leadership roles, and equitable access to financial services. Gender diversity may also influence financial practices, as previous studies suggest men and women may approach cash management and compliance differently. Luvinga (2025) found that the majority (90%) of VICOBA clients in the Arumeru district were aged 15-35 years.

Most respondents had attained at least a diploma (27.9%), indicating that VICOBA members have sufficient literacy to understand financial systems.

Respondents 'education levels ranged from primary education to postgraduate studies. A higher proportion of educated members suggests that VICOBA participants are capable of understanding and implementing financial management practices. Education enhances members' ability to maintain accounting records, comply with internal control measures, and participate in financial decision-making. Members with higher education are also more likely to adopt innovative financial strategies that improve financial performance. Luvinga (2025) indicated that the majority of VICOBA clients (45.6%) in the Arumeru district had primary and secondary education.

Membership duration ranged from less than 1 year to more than 6 years. The majority of respondents (36.8%) had been members for 4–6 years**,** while 32.4% had been members for 1-3 years. A significant proportion of members with 1-3 and 4–6 years of experience suggests a mix of new and moderately experienced participants. Longer membership is associated with better understanding of financial management practices, higher trust among members, and more consistent loan repayment behaviour. Luvinga (2025) revealed that 92.2% of the VICOBA clients in the Arumeru district had experience of one year or less.

Table 2: Demographic Information

Age Category	**Frequency**	**Percentage**
18–24	22	16.2
25–34	40	29.4
35–44	35	25.7
45–54	28	20.6
55 and above	11	8.1
Education Level		
Primary	28	20.6
Secondary	34	25.0
Diploma	38	27.9
Bachelor's Degree	27	19.9
Postgraduate	9	6.6
Membership Duration		
Less than 1 year	18	13.2
1–3 years	44	32.4
4–6 years	50	36.8
More than 6 years	24	17.6

Source: Field Data (2025)

Regression Assumptions Testing

The study used the PP-plot to test the regression assumptions of normality, linearity, and Homoscedasticity as recommended by Bansal and Singh (2023). Normality, linearity, and Homoscedasticity were tested using the plots (check Figure 1, Figure 2, and Figure 3 in the appendix): the plots show that the normality assumption has been met since Figure 2 is bell-shaped. Moreover, the linearity assumptions have been fulfilled because all the variables fall almost on a straight line. Furthermore, the homoscedasticity assumption is supported by the scatter plot (Figure 3), which shows no pattern. Multicollinearity was tested using VIF and tolerance values (Table 4 in the appendix). The Tolerance and VIF coefficients for cash management, accounting system, and internal control are all above 0.1 and below 5, respectively, as recommended by Sikakwe et al. (2024), indicating no multicollinearity in the regression model.

Results from the regression model

The regression model (Table 3) presents the findings on the influence of the financial management practices on VICOBA's financial performance. The findings (Table 3) indicate that $R^2 = 0.540$ means that the three independent variables (cash management, accounting information system, and internal control) explain 54% of the variance in financial performance. The ANOVA test for regression showed that F (41.872 $p < 0.001$. This result indicates that the overall regression model was statistically significant and that the independent variables jointly predicted VICOBA's financial performance. All predictors were statistically significant ($p < 0.05$) and positively influenced financial performance. Cash management had the most substantial effect ($\beta = 0.318$), followed by accounting information ($\beta = 0.276$) and internal control ($\beta = 0.271$).

Table 3: Ordinary Least Squares Regression results

Predictors	OLS regression findings
Constant	0.892(0.000) ***
Cash Management	0.318(0.000) ***
Accounting System	0.276(0.046) **
Internal control	0.271(0.002) ***
R^2	0.540
Adjusted R^2	0.529
F statistics	41.872 (0.000) ***

Source: Field Data (2025)

Note: **, *** Symbolise statistical significance at the 5% and 1% levels of confidence, respectively. Parentheses figures present the computed probability coefficients.

The influence of cash management on the financial performance of VICOBA

The regression results indicated that cash management had a positive and significant effect on financial performance ($\beta = 0.318$, $p < 0.001$). This means that effective cash flow management, timely handling of shortages, and liquidity planning significantly enhanced VICOBA's sustainability and operational efficiency. These findings are consistent with those of Rahma and Peter (2024), who emphasised that strong cash flow management improves liquidity and reduces financial risks, thereby strengthening financial performance. Similarly, Mang'ana et al. (2023) argue that small financial groups that prioritise effective cash management are better able to meet short-term obligations and ultimately sustain their operations. In this study, cash management emerged as the strongest predictor of financial performance among the three practices examined. This highlights its central role in ensuring that VICOBA maintains sufficient liquidity, avoids financial distress, and sustains its lending capacity. The findings are also consistent with Nso (2018), who indicated that cash management positively and significantly influenced the profitability of MFIs in Cameroon. The findings asserted that effective cash management improved MFI coordination, saved costs, and reduced losses and management and staff stress. Mubweka (2024) established that liquidity, deposit mobilisation, cash budget, and share capital positively and significantly determined the economic performance of Kenyan SACCOS. However, Fadumo (2017) revealed that cash management in MFIs in Somaliland was poor. Therefore, the findings indicated that cash management did not significantly influence MFI performance in Somalia. Similarly, Champaca (2024) revealed that cash management did not influence the performance of health firms in Indonesia.

The influence of the accounting information on the financial performance of SACCOS

The regression results showed that accounting information had a positive and significant effect ($\beta = 0.276$, $p < 0.001$). This implies that well-maintained accounting records and transparent reporting systems contribute to VICOBA's improved financial performance. This finding supports the work of Sooryasena and Palihena (2020) and Zada et al. (2021), who established that reliable accounting systems enhance transparency, accountability, and decision-making in community-based financial institutions. When VICOBA adopts effective accounting practices, it reduces the risk of mismanagement, builds trust among members, and, in turn, improves loan repayment rates and operational efficiency. Although its contribution was slightly lower than cash management, accounting information still played a significant role in

ensuring financial sustainability. This shows that VICOBA, which uses standardised accounting procedures, is better positioned to demonstrate financial accountability and attract greater member participation.

The findings align with Soudani (2013), who found that the use of accounting systems positively and significantly influenced the financial performance of service firms in the United Arab Emirates. The study concluded that e-accounting systems promoted reliable financial reporting and reliable feedback. Al-Hattami (2025) revealed that the quality of accounting system information, service, and the digital accounting system application, as well as perceived usefulness, influenced financial performance indicators in Yemen. However, Permatasari et al. (2025) reported that the accounting system did not affect the financial performance of Small and medium-sized enterprises in Indonesia.

The influence of the internal control on the performance of VICOBA in the Arumeru district

The regression results confirmed that internal control and compliance had a positive and significant influence ($\beta = 0.271$, $p < 0.001$). The findings suggest that VICOBAs that strictly enforce control mechanisms and regularly conduct compliance audits are more likely to reduce fraud, improve accountability, and strengthen overall performance. This aligns with Zada et al. (2021), who found that strong internal controls minimise financial mismanagement in small financial institutions. Similarly, Mang'ana et al. (2023) emphasised that compliance audits promote trust and ensure adherence to financial procedures, which enhances performance. Although its effect was weaker than that of cash management and accounting information, internal control and compliance still play a critical supporting role in building a transparent financial culture. It ensures that funds are safeguarded, loan repayments are monitored, and accountability mechanisms are upheld.

The findings align with Ngari (2017), who found that financial control practices, including internal checks, financial document authorisation, and financial payment approval, positively influenced economic performance. Umaru (2023) revealed that the control atmosphere and risk management positively and significantly improved the performance of microfinance banks, with the effects explained by control activities, information, and communication in Nigeria. Nandaula (2022) revealed that risk assessment positively and significantly affected MFIs' performance in Uganda. The findings showed that monitoring activities, the control environment, and communication had no significant influence on MFIs' performance in

Uganda. However, Abisola (2022) found that internal control did not affect the performance of commercial banks in Nigeria.

CONCLUSION

The study concludes that VICOBA's financial performance in Arumeru District is significantly determined by the effectiveness of its cash management, accounting information systems, and internal controls. Cash management was the most influential factor, underscoring the importance of monitoring liquidity and cash flow. Accounting systems played a vital role in ensuring transparency and accountability, while internal control and compliance safeguarded resources and promoted trust. Collectively, these practices accounted for more than half (54%) of the variation in financial performance, underscoring their importance in enhancing financial performance and, hence, the sustainability and efficiency of VICOBA.

Practical implications

The study recommends that VICOBA leaders and clients demonstrate effective cash management, comprehensive accounting information systems, and robust internal controls to enhance VICOBA's financial performance. The findings prompt VICOBA groups to implement organised financial management practices, including maintaining appropriate records, improving cash flow monitoring, and enforcing accountability. The municipal staff responsible for VICOBA should ensure regular monitoring.

Policy implications

The study emphasises that local authorities should design policies and training programmes that shape financial management practices among VICOBA clients. The study calls on policymakers to highlight and enforce VICOBA's economic practices. Policymakers should ensure that policies on cash management, accounting systems, and internal controls are amended promptly. The policymakers should regularly assess cash management, the accounting system, and internal controls to enhance VICOBA's financial performance.

Theoretical contribution

The study extends the application of the Pecking Order Theory to community-based MFIs. The study revealed that VICOBA can improve their financial performance by prioritising proper cash management. Effective cash management is essential to enhancing cash availability at VICOBA, which is necessary for loan provision and the payment of operational costs. An appropriate accounting system improves cash accountability and, hence,

the VICBA financial performance. The internal control ensured that all activities were under control, reducing operational risk and thus promoting economic performance. The literature review indicates that previous studies have focused on VICOBA's effects on loan repayment, challenges, and livelihood. Therefore, this study filled previous gaps by examining how the Perking Order Theory was applied to assess how cash management, the accounting system, and internal control promoted the financial performance of VICOBA, a community-based microfinance group. The literature review indicates that the Perking Order theory has been used in organisations with prescribed financial systems, such as the health sector, commercial banks, and other formal public and private organisations.

THE LIMITATIONS OF THE STUDY

Despite the valuable insights this research offers, several limitations must be acknowledged. The study may be limited by its geographic coverage, as it focuses on only one district. Moreover, the study covered only three variables, leaving many others unaddressed. The study is also limited to quantitative analysis. Future studies should expand the study to more districts in Tanzania and beyond, include additional variables, and adopt a mixed-methods approach. Comparative studies between VICOBA and other financial institutions may yield more valuable results.

REFERENCES

Abisola, A. (2022). The nexus between bank size and financial performance: Does internal control adequacy matter? *Journal of Accounting and Taxation*, *14*(1), 13–20.

Agbana, J., Bukoye, J. A., & Arinze-Emefo, I. C. (2023). Impact of credit risk management on the financial performance of microfinance institutions in Nigeria: *A Qualitative Review. Open Journal of Business and Management, 11*(5), 2051-2066.

Akankunda, B. (2014). *Financial management practices, competitive advantage, and loan performance of MFIS in Uganda*. A Master's Thesis, Makerere University Business School, Kampala, Uganda.

Akbar, A., Jiang, X., & Akbar, M. (2022). Do working capital management practices influence investment and financing patterns of firms? *Journal of Economic and Administrative Sciences*, *38*(1), 91–109.

Akhtar, T. (2025). Cash holdings in the MENA region: Evidence from the trade-off model, pecking order theory, and agency theory. *Future Business Journal*, *11*(1), 1–18.

Al-Hattami, H. M. (2025). The Impact of Digital Accounting Systems on Financial Performance in the Banking Sector: Advancements in the Digital Era. *International Journal of Intelligent Information Technologies, 21*(1), 1–19.

Ali, M. R., Ahmed, R. A., Tisha, R. T., & Islam, M. A. (2021). Does the financing behaviour of SME entrepreneurs of Bangladesh follow the capital structure theory? An investigation into Pecking Order Theory. *International Journal of Financial Engineering*, *8*(01), 2050037.

Al-Tamimi, N. A. A. H. (2024). The impact of capital structure on financial performance using the pecking order theory: an analytical study of a sample of agricultural companies listed on the Iraqi stock exchange for the period (2010-2022). *Al-Qadisiyah Journal for Administrative and Economic Sciences*, *26*(2), 94–107.

Atatsi, E. A., Azila-Gbettor, E. M., Akuma-Zanu, H., & Mensah, C. (2023). Financial management practices and life satisfaction: Mediating effect of financial satisfaction. *Cogent Education, 10*(2), 2251746.

Austin, P. C., White, I. R., Lee, D. S., & van Buuren, S. (2021). Missing data in clinical research: a tutorial on multiple imputation. *Canadian Journal of Cardiology*, *37*(9), 1322-1331

Bansal, S., & Singh, G. (2023). Multiple linear regression-based analysis of weather data: assumptions and limitations. In *International Conference on Advanced Communication and Intelligent Systems* (pp. 221–238). Cham: Springer Nature Switzerland.

Bisung, E., & Elliott, S. J. (2018). Improvement in access to safe water, household water insecurity, and time savings: A cross-sectional retrospective study in Kenya. *Social Science & Medicine*, *200*, 1–8.

Champaca, M. (2024). Measuring Fintechâ€™s Health: Cash management and risk on firm performance. *Jurnal Aplikasi Manajemen*, *22*(2), 575-585.

Channar, Z. A., Khan, M., & Shakri, I. H. (2015). Internal control effectiveness & its relationship with financial performance. *IBT Journal of Business Studies, 2*(2), 92–107.

Channar, Z. A., Khan, M., & Shakri, I. H. (2015). Internal control effectiveness & its relationship with financial performance. *IBT Journal of Business Studies, 2*(2), 92–107.

Chiruza, P. B. M. (2023). Effect of the accounting information system on the quality of financial reporting in selected microfinance institutions in the Democratic Republic of Congo. *Revue Internationale du Chercheur*, *4*(4), 866–890.

Choi, W. D. (2023). Do the firms utilise market timing? Capital structure of restaurant firms by pecking order and market timing theories. *Journal of Quality Assurance in Hospitality & Tourism*, *24*(1), 101–120.

Djabang, P., Shubita, M., & Konstantopoulou, A. (2025). Pecking-order theory's impact on the financing of small- and medium-sized enterprises (SMEs) in the UK. *International Journal of Organisational Analysis*. DOI: https://doi.org/10.1108/IJOA-09-2024-4788

Duckett, L. J. (2021). Quantitative research excellence: Study design and reliable and valid measurement of variables. *Journal of Human Lactation*, *37*(3), 456–463.

Emerson, R. W. (2024). Validity and Reliability. *Journal of Visual Impairment & Blindness*, *118*(4), 280–281.

Emerson, R. W. (2024). Validity and reliability. *Journal of Visual Impairment & Blindness*, *118*(4), 280-281

Fadumo, A. A. (2017). *Cash management and performance of microfinance institutions in Hargeisa, Somaliland* (Doctoral dissertation, Kampala International University).

Hasibuan, A. S., Dewi, R., & Damanik, H. (2023). Description of sleep quality in patients with chronic obstructive pulmonary disease at Imelda Pekerja Indonesia general hospital, Medan. *Jurnal Kesehatan, Rekam Medis dan Farmasi (JUK-Medifa)*, *1*(02), 83-90.

Hettihewa, S., & Wright, C. S. (2011). Microfinance Programs in Developed Countries: An Appraisal of the Australian, Canadian and US Experience. In *Oman 2011 International Business Conference: Business and Society in the Middle East: Opportunities and Challenges in the Third Millennium* (pp. 21–23).

Hu, M., & Li, X. (2022). The reasons that younger homeowners are less likely to become entrepreneurs: The role of capital constraints. *Journal of Regional Economics*, *1*(1), 68-82.

Ibrahim, S., Diibuzie, G., & Abubakari, M. (2017). The impact of internal control systems on financial performance: The case of health institutions in the Upper West Region of Ghana. *International Journal of Academic Research in Business and Social Sciences*, *7*(4), 684–696.

Jansen, K., Michiels, A., Voordeckers, W., & Steijvers, T. (2023). Financing decisions in private family firms: a family firm pecking order. *Small Business Economics*, *61*(2), 495-515.

Jupe, A., Kosta, E., & Bakiasi, A. (2022). The role of financial management practices in the financial performance of small and medium

enterprises in Albania. *Journal of Business and Economic Development, 7*(4), 117–122.

Kamau, M. N. (2021). *Determinant of financial performance of micro and small dairy sector enterprises in Kiambu County* (Doctoral dissertation, KCA University).

Kaplan, B. A., Gilroy, S. P., DeHart, W. B., Brown, J. M., & Koffarnus, M. N. (2023). Data handling: ethical principles, guidelines, and recommended practices. In *Research ethics in behaviour analysis* (pp. 191–214). Academic Press.

Kilonzo Jennifer, M., & Dennis, O. (2015). Financial management practices on the growth of small and medium enterprises: A case of manufacturing enterprises in Nairobi County, Kenya. *IOSR Journal of Business and Management*, *17*(8), 65–77.

Kimiti, A. (2024). The effects of VICOBA services on SME performance in Tanzania: The case of Kinondoni District. *The Accountancy and Business Review, 16*(5), 22-36

Leary, M. T., & Roberts, M. R. (2010). The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics*, *95*(3), 332–355.

Lund, B. (2023). The questionnaire method in systems research: An overview of sample sizes, response rates and statistical approaches utilised in studies. *VINE Journal of Information and Knowledge Management Systems*, *53*(1), 1–10.

Luvinga, K. C. (2025). Loans Disbursement and the Underlying Challenges among Women's Village Community Banks (VICOBA) in Meru District of Arusha, Tanzania. *Advances in Social Sciences Research Journal*, *12*(04), 270–279.

Luvinga, K. C. (2025). Loan disbursement and the underlying challenges among women's village community banks (VICOBA) in Meru District, Arusha, Tanzania. *Advances in Social Sciences Research Journal*, *12*(04), 270–279.

Luvingo, C. F. (2023). *The influence of organisational resources on the performance of village community banks in Iringa Municipality* (Doctoral dissertation, The Open University of Tanzania).

Maina, S. G. (2023). *The role of corporate communication in promoting a savings culture among the youth in Nairobi County: Stima Sacco Case Study* (Doctoral dissertation, University of Nairobi).

Mang'ana, K. M., Ndyetabula, D. W., & Hokororo, S. J. (2023). Financial management practices and performance of small and medium-sized agricultural enterprises in Tanzania. *Social Sciences & Humanities Open, 7*(1), 100494.

Mbogo, M., Jimmy, M., & Olando, C. (2021). Effect of budgeting practices on the financial performance of manufacturing small and medium enterprises in Nairobi County, Kenya. *Journal of Language, Technology & Entrepreneurship in Africa*, *12*(1), 84–110.

Mgongolwa, B. O., Wiketye, E., & Mpogole, H. (2023). Factors affecting fund management among village community banks (VICOBA): A case of registered VICOBA in Iringa Municipality. *International Journal of Finance and Accounting*, *2*(1), 62-77.

Momand, H., & Khel, F. A. (2025). The effects of current debt in capital structure on refinancing decisions of firms: evidence from PSE-100 non-financial firms. *Academia International Journal for Social Sciences*, *4*(2), 1817-1829.

Mubweka, M. N. (2024). *Cash management practices and financial performance of deposit-taking savings and credit cooperative societies in Kisumu County, Kenya* (Doctoral dissertation, Kenyatta University).

Mwenda, M. M., Ithai, J., & Waweru, G. (2024). System quality of accounting information systems and the financial performance of microfinance institutions in Meru County, Kenya. *Journal of African Interdisciplinary Studies*, *8*(8), 226–237.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221.

Umaru, K. A. (2023). *Internal Controls System, Managerial Ability and Performance of Microfinance Banks in Kwara State* (Master's thesis, Kwara State University).

Nandaula, M. L. (2022). *Internal Control Systems and Performance of Microfinance Institutions in Uganda: A Case Study of Kabale Municipality* (Doctoral dissertation, Kabale University).

Naseer, N., & Siddiqui, D. A. (2021). *The impact of financial management practices and competitive advantage on the loan performance: The Mediating Role of Intellectual Capital (Human, Relational and Social).* Available at SSRN 3943063.

Ngari, G. M. (2017). The effect of internal controls on the financial performance of microfinance institutions in Kenya. *International Academic Journal of Economics and Finance*, *2*(3), 112-140.

Nso, M. A. (2018). Cash management techniques and their relationship to the profitability of microfinance institutions. *International Journal of Economics, Commerce and Management*, *6*(5), 468-481.

Nurida, P. D. (2025). Implementation of Sharia economic legal principles to improve the accounting system of Sharia microfinance institutions in Aceh. *Al-Mubin: Islamic Scientific Journal*, *8*(1), 241-248

Okoye, K., & Hosseini, S. (2024). Understanding dependent and independent variables in research experiments and hypothesis testing. In R Programming*: Statistical Data Analysis in Research* (pp. 99–107). Singapore: Springer Nature Singapore.

Otoo, F. N. K. (2024). Assessing the influence of financial management practices on organisational performance of small-and medium-scale enterprises. *Vilakshan-XIMB Journal of Management*, *21*(2), 162–188.

Permatasari, D., Mohammed, N. F., Shafie, N. A., & Sánchez-del-Río-Vázquez, M. E. (2025). Technological, organisational, and environmental determinants of cloud accounting system usage in Indonesian SMEs. *Journal of Nusantara Studies (JONUS)*, *10*(2), 566–589.

Rahmah, R. A., & Peter, F. O. (2024). The impact of financial management practices on firm performance: A study of the manufacturing sector in Indonesia. *Involvement International Journal of Business*, *1*(1), 1–13.

Remo, A. (2019). Cash management and financial performance of commercial banks in Arua district, a case of Arua Hill Division Centenary Bank (Bachelor Thesis, Kampala International University).

Sarstedt, M., & Mooi, E. (2018). Regression analysis. In *A concise guide to market research: The process, data, and methods using IBM SPSS Statistics* (pp. 209–256). Berlin, Heidelberg: Springer Berlin Heidelberg.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students*, 8th Edition, England: Pearson Education Limited.

Sewwandhi, G. D. C. K., & Kuruppuarachchi, Y. D. R. (2021). Impact of microfinance on financial performance of SMEs: with Special Reference to Kurunegala District in Sri Lanka. *The Journal of ARSYM*, 2(1), 180–193.

Singh, K., Pillai, D., & Rastogi, S. (2025). Pecking order theory of capital structure: empirical evidence for listed SMEs in India. *Vision*, *29*(1), 35–47.

Sooriyakumaran, L., Thrikawala, S. S., & Pathirawasam, C. (2022). A study on the association of financial management practices and performance of small and medium enterprises (SMEs), background: A working paper. *International Journal of Research and Innovation in Social Science*, *6*(1), 166–179.

Soudani, S. N. (2013). The impact of implementing the e-accounting system on financial performance, with an emphasis on internal control systems. *Research Journal of Finance and Accounting*, *4*(11), 17–28.

Syrtseva, S., & Cheban, Y. (2021). Accounting compliance: An institutional approach to ensure the quality of accounting information of the enterprise. *Baltic Journal of Economic Studies*, *7*(2), 210–218.

Tchuigoua, H. T., Mufur, D. N., & Nya, M. T. (2024). Internal control quality and earnings management. Lessons from microfinance institutions. *International Journal of Banking, Accounting and Finance*, *14*(3), 347-369.

Turyahebwa, A., Sunday, A., & Ssekajugo, D. (2013). Financial management practices and business performance of small and medium enterprises in western Uganda. *African Journal of Business Management, 7*(38), 3875-3885

Tutegyereize, P. (2019). Accounting information systems and the financial performance of financial institutions in Uganda. A case study of Pride Micro Finance Kabalagala Branch in Kampala (Bachelor's Thesis, Kampala International University).

Wangai, P. M., & Mungai, J. N. (2019). Financial management practices and loan performance of microfinance institutions in Starehe Constituency, Nairobi County, Kenya. *International Academic Journal of Economics and Finance, 3*(3), 117–135.

Yeko, M. (2019). Cash flow management and financial performance of Tororo cement, eastern Uganda (Bachelor Thesis, Kampala International University).

Yulianto, A., Witiastuti, R. S., & Widiyanto. (2021). Debt versus equity: Open innovation to reduce asymmetric information. Journal of Open *Innovation: Technology, Market, and Complexity*, *7*(3), 181.

Zada, M., Yukun, C., & Zada, S. (2021). Effect of financial management practices on the development of small-to-medium-sized forest enterprises: Insights from Pakistan. *GeoJournal*, *86*(3), 1073-1088.

Zou, L., Wang, Z., Hu, J., & Dong, H. (2022). Partial-node-based state estimation for delayed complex networks under intermittent measurement outliers: A multiple-order-holder approach. *IEEE Transactions on Neural Networks and Learning Systems*, *34*(10), 7181–7195.

APPENDICES

Raw Data

Table 4: Regression Results

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	0.735	0.540	0.529	0.422

Table 4.17: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig. (p)
Regression	22.341	3	7.447	41.872	0.000
Residual	19.067	132	0.144		
Total	**41.408**	**135**			

Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.	Collinearity Statistics	
						Tolerance	VIF
Constant	0.892	0.212	—	4.21	0.000		
Cash Management (CM)	0.318	0.081	0.322	3.93	0.000	0.318	3.142
Accounting Information (AI)	0.276	0.073	0.298	3.78	0.000	0.406	2.461
Internal Control (ICC)	0.241	0.068	0.266	3.54	0.001	0.421	2.375

Source: Field Data (2025)

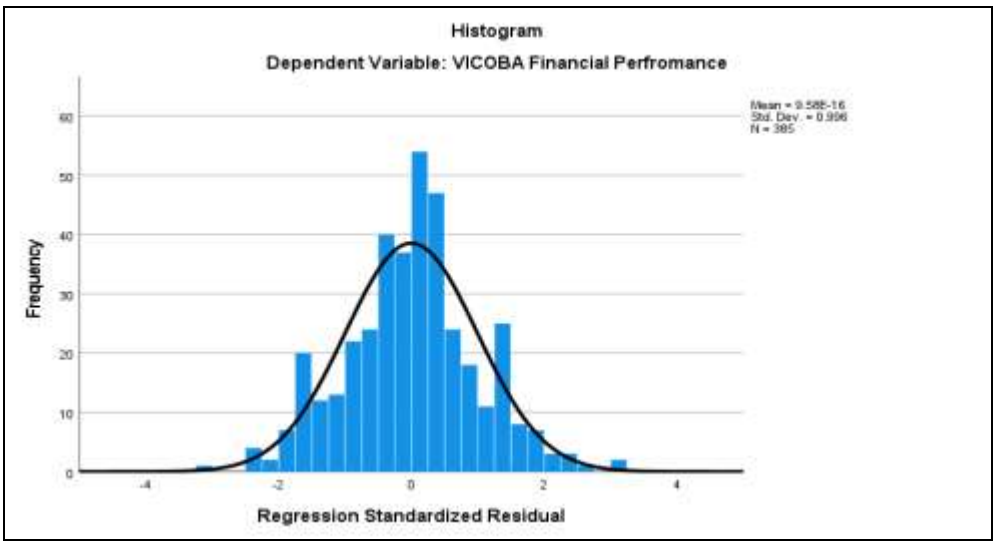

Figure 1: Normality Assumption

Source: Field Data (2025)

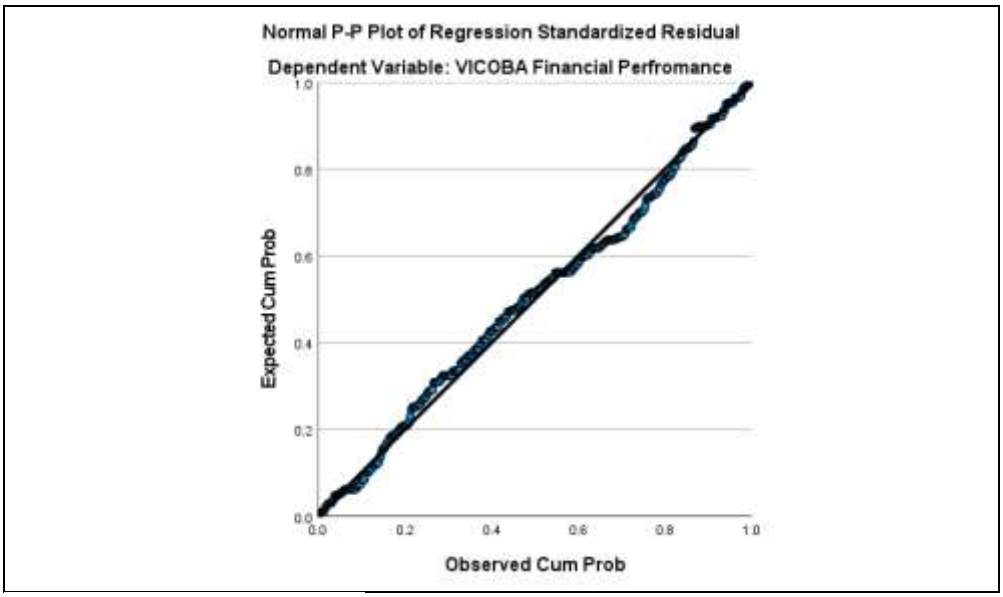

Figure 2: Linearity Assumption
Source: Filed Data (2025)

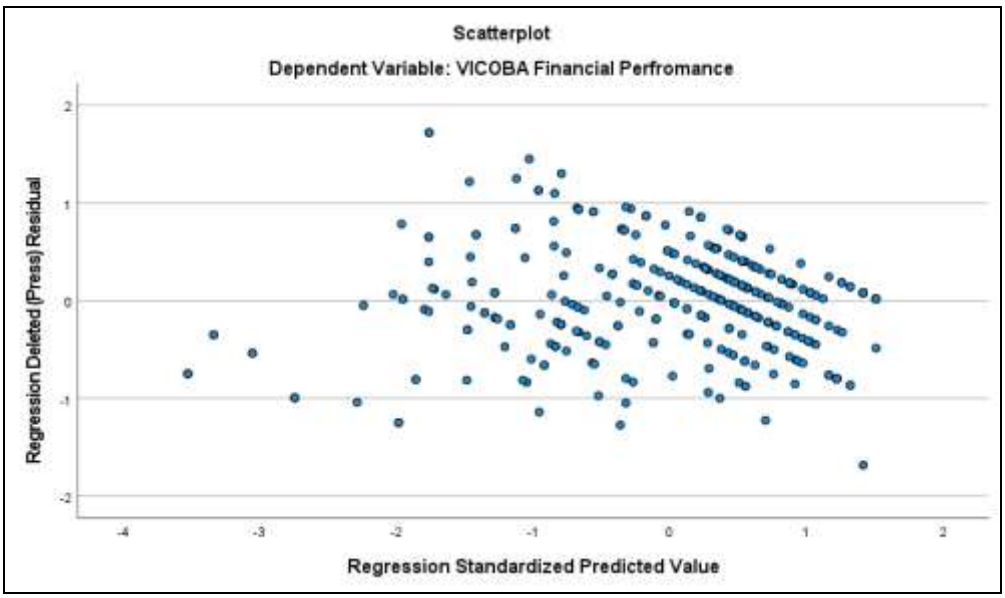

Figure 3: Homoscedasticity Assumption
Source: Field Data (2025)