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.

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EDITORIAL NOTE

It is with great pleasure and profound appreciation that we present Volume 10, Issue 1 of 2026 of the Pan African Journal of Business Management, published by The Open University of Tanzania. This issue marks another important milestone in our collective commitment to advancing scholarly discourse, promoting evidence-based knowledge, and strengthening research contributions that address contemporary business, management, governance, technology, and development challenges across Africa and beyond.

The manuscripts featured in this volume reflect the growing dynamism of African scholarship and the increasing engagement of researchers with emerging global and regional issues. The studies presented in this issue cover a wide spectrum of themes, including artificial intelligence adoption in higher learning institutions, digital technology adoption among women-owned enterprises, institutional resilience in development partnerships, healthcare supply chain management, procurement governance, branding and telecommunications performance, microcredit and women's livelihoods, as well as employee participation and organisational commitment.

Particularly noteworthy is the strong emphasis placed on digital transformation, technological innovation, governance effectiveness, and sustainable development. These themes continue to shape the future of business and public sector management in Africa and globally. We believe the contributions published in this issue will stimulate further academic discussions, inform policy decisions, and inspire practical interventions within organisations and institutions.

On behalf of the Editorial Team, I extend sincere gratitude to all authors who contributed manuscripts to this issue. Your scholarly efforts, patience during the review process, and commitment to academic excellence have made the successful publication of this volume possible.

I would also like to express my special appreciation to the Co-Editor, Dr Nasra Kara, for her exceptional editorial coordination and unwavering commitment throughout the publication process. Special recognition is equally extended to the Journal Webmaster, Mr. Augustine Kitulo, whose technical support ensured efficient journal management and online accessibility, and to the Journal Typesetter, Mr. Thomas Kilumbi, for his dedication and professionalism in preparing the final publication layout. Furthermore, I sincerely acknowledge the invaluable contributions of our Editorial Board and Advisory Board members, whose guidance, peer review support, and scholarly insights continue to uphold the academic quality and integrity of the journal.

As Chief Editor, I remain confident that the Pan African Journal of Business Management will continue to serve as an important platform for intellectual exchange and high-quality research dissemination within Africa and internationally.

We thank our readers, reviewers, authors, and partners for their continued trust and support.

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Artificial Intelligence Adoption and Usage for Academic Writing: A Technology Acceptance Model Perspective in Tanzanian Higher Learning Institutions

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Abstract
This study aims to examine the determinants influencing the adoption and continued usage of AI tools for research writing among academicians, focusing on the Tanzania Institute of Accountancy and Mzumbe University (Mbeya Campus). Grounded in the Technology Acceptance Model (TAM), the research investigates the effects of Perceived Usefulness (PU), Perceived Ease of Use (PEU), Behavioral Intention (BI), and Actual Usage (AU) on both adoption and continued usage intentions. A quantitative, cross-sectional design was employed using structured questionnaires distributed to 93 purposively selected academic staff. Exploratory Factor Analysis (EFA) confirmed the reliability and validity of constructs, and multiple regression analysis was used to test the hypothesized relationships. The findings reveal that AU, PEU, and BI are significant predictors of AI tool adoption and continued use, while PU does not have a statistically significant impact. The model explained 62.0% of the variance in adoption and 82.2% in continued usage intention, indicating strong explanatory power. The study concludes that behavioural engagement and tool usability are more critical than perceived usefulness in predicting the sustained use of AI tools in academic writing. It recommends that institutions enhance AI training, promote ethical usage, integrate AI into academic systems, and address user experience concerns to foster widespread and responsible AI adoption in Tanzanian higher education.

Keywords: *Artificial Intelligence (AI), Academic Writing, Technology Acceptance Model (TAM), Higher Learning Institutions, AI Adoption and Usage, Continued Usage Intention, Tanzania*

INTRODUCTION

The integration of Artificial Intelligence (AI) tools into academic writing has emerged as a transformative trend in higher education, particularly in research-intensive contexts. These tools have demonstrated substantial potential in enhancing writing performance, increasing efficiency, and streamlining the scholarly writing process (Agarwal, 2022; Upadhyay et al., 2022; William, 2024; Zhao et al., 2023). In recent years, their application has expanded rapidly among researchers in higher learning institutions, offering critical advantages such as improved productivity, grammar support, idea generation, and facilitation of self-regulated learning, especially for non-native English speakers (Grassini, 2023; Perkins & Roe, 2024). This growing reliance on AI is evident in the way academicians now incorporate tools like ChatGPT, Grammarly, and Turnitin to support various stages of the research writing process (Romero et al., 2024; Salas-Pilco & Yang, 2022; Selim, 2024). Nevertheless, the integration of AI into scholarly work raises important ethical concerns, particularly around authorship, originality, and academic integrity (Ahn & Al, 2024; Masukume, 2024; Zhao et al., 2023). As generative AI becomes more advanced, the academic community faces pressing questions regarding the authenticity and intellectual rigor of AI-assisted outputs (Amirjalili et al., 2024). While various studies have explored the adoption and use of AI tools among scholars globally (Abd-Elsalam & Abdel-Momen, 2023; Romero et al., 2024; Wang, 2024), there is a notable dearth of empirical research focusing on Tanzania. The unique socio-cultural landscape, varying digital literacy levels, and institutional dynamics in Tanzanian higher learning institutions demand localized investigations. Understanding the motivations behind academicians' sustained use of AI tools in such settings is critical for informing both practice and policy (Salas-Pilco & Yang, 2022; UNESCO, 2023). Context-specific studies can also contribute to a more nuanced global understanding of how cultural and institutional factors shape the adoption and integration of educational technologies (Nazaretsky et al., 2025; Wu et al., 2024). Despite the maturity of research on individual-level technology acceptance, especially to AI, most investigations have yet to address the continued usage of such tools within Tanzanian academia. The Technology Acceptance Model (TAM), originally developed by Davis (1989) and later expanded by Venkatesh & Bala (2008) provides a robust framework for analyzing user adoption of information technologies. This model has been widely applied in education and information systems research, with consistent empirical support (Cao et al., 2023b; Na et al., 2022). TAM posits that two primary constructs, Perceived Usefulness (PU) and Perceived Ease of Use (PEU), influence Behavioral Intention (BI), which in turn predicts Actual Usage (AU). These relationships offer valuable insights for understanding both initial adoption and sustained engagement with digital tools. However, limited studies have applied TAM within the specific context of Tanzanian higher learning institutions to examine continued usage intention of AI tools in research writing. Addressing this gap is essential, particularly given the potential of AI to revolutionize academic research processes. Exploring the drivers of both actual usage and continued intention will not only expand the theoretical application of TAM but also provide practical insights for fostering effective AI integration in local academic environments (Shoah & Putela, 2024; Upadhyay et al., 2022). The study focuses on the Tanzania Institute of Accountancy (Mbeya Campus) and Mzumbe University (Mbeya Campus College), both located in the Southern Highlands. These institutions serve as strategic settings for understanding emerging trends in AI adoption in the country. Based on the existing literature, Southern Highland has been underrepresented in empirical studies on digital transformation and AI adoption in higher education. By selecting institutions from this region, the study contributes new insights from an area where empirical evidence is still limited, thus enriching the national understanding of AI integration in academia. Thus, this study aimed to investigate the major predictors of actual usage of AI tools in research writing and examine whether the major determinants of actual usage can predict continued usage intention of AI tools in research writing.

LITERATURE REVIEW

Theoretical Perspectives

The adoption and continued use of technology have been widely studied using well-established theoretical models, with the Technology Acceptance Model (TAM) being among the most influential. Originally developed by (Davis, 1989), and further refined by (Venkatesh & Bala, 2008), TAM has been extensively applied across diverse contexts to understand how individuals accept and utilize new technologies, including those related to e-learning and artificial intelligence (AI) based systems (Na et al., 2022; Venkatesh et al., 2003). The model provides a robust theoretical foundation for analyzing user behavior and has been shown to account for a significant portion of the variance in users' intentions and actual usage of information technologies.

TAM theorizes that two primary constructs, Perceived Usefulness (PU) and Perceived Ease of Use, serve as the key drivers of Behavioral Intention (BI) to use a technology. These behavioral intentions subsequently influence Actual Usage (AU). PU is defined as the extent to which a user believes that using a specific technology will enhance their performance or productivity. In the context of academic research writing, PU reflects academicians' belief that AI tools improve research efficiency and writing quality. Perceived Ease of Use, on the other hand, refers to the degree to which a user perceives a technology as easy to learn and apply. The easier a tool is to use, the more likely users are to adopt it and incorporate it into their daily academic practices (Davis, 1989; Venkatesh et al., 2003). These relationships have been empirically validated in numerous studies involving technology use in higher education, making TAM a suitable framework for examining AI adoption among academicians in Tanzanian higher learning institutions. In addition to the core TAM variables, factors such as gender, age, voluntariness, and experience have also been recognized in extended models as potential moderators that may directly or indirectly shape technology usage behavior (Venkatesh & Bala, 2008). This is particularly relevant in the Tanzanian context, where digital literacy levels, infrastructural availability, and institutional support vary considerably. This study adopts TAM to explore both the adoption and continued usage intention of AI tools for research writing. The proposed conceptual model hypothesizes that Actual Usage is determined by perceived usage, Perceived Ease of Use, and Behavioral Intention, and in turn, Actual Usage influences the intention to continue using AI tools. Understanding these dynamics is crucial for ensuring the effective integration of AI in academic settings, especially in environments with heterogeneous digital readiness like Tanzanian universities (Na et al., 2022). By applying this model, the study aims to generate insights that not only extend the theoretical application of TAM but also offer practical recommendations for promoting AI adoption in Tanzanian higher learning institutions.

Perceived Usefulness of AI

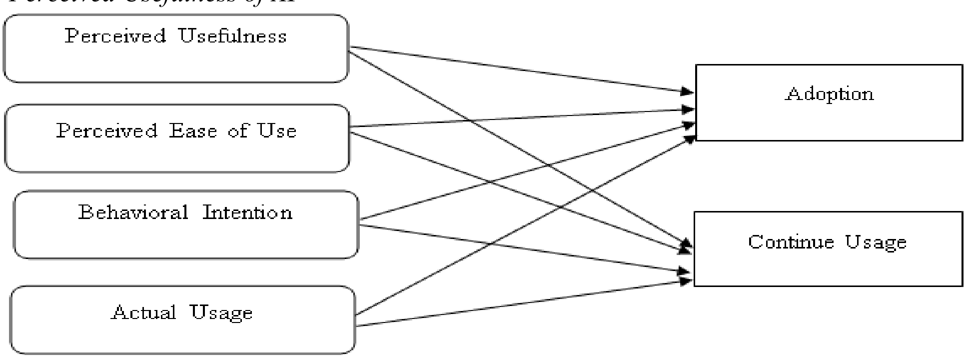

Figure 1: Conceptual Framework
Source: Modified from Technology Acceptance Model (TAM) (Davis, 1989)

Perceived Usefulness

Perceived usefulness was defined as the individual's perception of the extent to which the use of a given technology improves performance (Venkatesh & Bala, 2008). Perceived usefulness is a key concept in the Technology Acceptance Model (TAM), which explains how users come to accept and use new technologies. Perceived usefulness has been consistently identified as a key factor influencing the adoption and usage of AI across various fields (Abdallah et al., 2023; Agarwal, 2022; Cheng et al., 2023; Na et al., 2023; Nouraldeen, 2022; Qahtani & Alsmairat, 2023; Sadriwala & Sadriwala, 2022). The reviewed literature provides strong evidence for the significant and positive influence of perceived usefulness on the usage and adoption of AI across various contexts, including marketing, human resources, healthcare, and smart home technologies.

Perceived Ease of Use

Perceived ease of use was defined as the degree to which a person believes that using a particular system is free of determination (Na et al., 2022; Venkatesh & Bala, 2008). It was suggested that self-efficacy had a predictive role in decision-making about technology use. Perceived ease of use is a key determinant of user acceptance and adoption of AI technologies, as highlighted in several studies (Cao et al., 2023a; Geddam et al., 2024; Lai, 2017; Laurim et al., 2021; Wulyani et al., 2024). The reviewed literature consistently highlights the significant and positive influence of perceived ease of use on the acceptance and usage of AI technologies. Ensuring the user-friendliness and ease of use of AI systems is a crucial factor in promoting their adoption and utilization across various domains.

Behavioral Intention

Behavioral intention refers to an individual's readiness to perform a particular behavior, which, in this context, pertains to the continued use of artificial intelligence (AI) tools for research writing (Venkatesh & Bala, 2008). Several studies emphasize that the integration of AI into academic writing has improved researchers' productivity, writing quality, and efficiency, leading to greater behavioral intention to continue its use (Romero et al., 2024; Shopovski, 2024). The behavioral intention to adopt AI tools for research writing is further shaped by ethical considerations, academic integrity concerns, and perceived effectiveness in enhancing the writing process. Despite these challenges, empirical findings suggest that academicians with a positive perception of AI's utility are more inclined to adopt and continuously use AI in research writing, particularly in higher learning institutions (Abd-Elsalam & Abdel-Momen, 2023; Salas-Pilco & Yang, 2022).

METHODOLOGY

This study employed a quantitative approach and adopted a survey research methodology to investigate the factors influencing the adoption and continued use of Artificial Intelligence (AI) tools for research writing among academics. A multistage sampling procedure was used to select study areas, focusing on the Mbeya Region, with the second stage involving the selection of two higher learning institutions. The study sampled Mzumbe University (Mbeya Campus) and the Tanzania Institute of Accountancy (Mbeya Campus). Both Mzumbe University and TIA are public higher education institutions with comparable governance and operational procedures, making them suitable for addressing the research problem. A total of 93 academic staff members 47 from Mzumbe University and 46 from TIA were purposively sampled to ensure the inclusion of the intended study subjects. Data collection employed structured, self-administered questionnaires distributed physically to academic staff at the selected institutions. Respondent selection was based on teaching experience and engagement in academic research writing. The survey tools were developed using validated constructs from the Technology Acceptance Model (TAM), including Actual Usage (AU), Perceived Usefulness (PU), Perceived Ease of Use (PEU), Behavioral Intention (BI), Adoption (A), and Continued Usage Intention (CUI). All items were measured on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). For data analysis, a two-step approach was used. First, Exploratory Factor Analysis (EFA) tested the construct validity and reliability of the research variables, using principal component analysis with varimax rotation. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity assessed sampling adequacy and data factorability. Cronbach's alpha coefficients measured internal consistency reliability for each construct. In the second step, multiple regression analysis examined the relationships between independent variables (AU, PU, PEU, BI) and dependent variables (Adoption and Continued Usage Intention of AI tools). All analyses were performed using SPSS version 26. The regression results provided insights into the strength and significance of each predictor, and overall model fit was assessed through R^2, F-statistic, and the Durbin-Watson statistic. Collinearity diagnostics were also conducted to rule out multicollinearity concerns. This methodological design ensured a rigorous empirical examination of the key factors influencing AI adoption and sustained use in research writing, specifically within Tanzanian higher learning institutions.

RESULTS AND DISCUSSION

Demographic information of respondents

The demographic picture of respondents offers critical insights into the characteristics influencing AI adoption among academicians. The results indicate that the majority of the respondents were males (76.4%) and in the 26–35 age group (51.2%). These findings align with patterns identified in global research indicating that younger male academics tend to exhibit higher engagement with emerging technologies such as AI. Concurring to these Soulami *et al*. (2024) outlined the need for inclusive AI studies that examine how age, gender, and education level affect adoption behaviors, as existing literature often overlooks demographic disparities in AI acceptance. With respect to educational qualifications, most respondents held a master's degree (78.0%), followed by PhDs (16.5%), which is consistent with findings that AI adoption in academia is higher among those with advanced academic qualifications who are more likely to understand and integrate complex digital tools (Poenaru *et al*., 2024). Furthermore, assistant lecturers (74.0%), probably due to their familiarity with technology, have reported the predominance of usage of AI technologies. Gander & Shaw (2024), who found that mid-level academic staff are increasingly engaging with AI for teaching and research tasks, support this study. Additionally, the findings reveal that 36.2% of respondents have 5–10 years of experience, indicating that academics with moderate experience are more inclined to adopt AI tools, likely balancing familiarity with traditional academic processes and openness to innovation. Another study by Soodan *et al*. (2024) found that technology fit and colleague influence significantly affect AI adoption decisions among university faculties, echoing this trend. These findings underscore the importance of considering demographic factors when designing AI adoption strategies in academic settings.

Table 1:
Demographic Characteristics

Variable	Frequency (n)	Percentage (%)
Sex		
Male	97	76.4
Female	30	23.6
Age		
18-25	7	5.5
26-35	65	51.2
36-45	44	34.6
Above 45	11	8.7
Education		
Bachelor	7	5.5
Master	99	78.0
PhD	21	16.5
Academic Rank		
Tutorial Assistant	8	6.3
Assistant Lecturer	94	74.0
Lecturer	19	15.0
Senior Lecturer	3	2.4
Professor	3	2.4
Experience		
Less than 5 years	31	24.4
5-10	46	36.2
11-20	38	29.9
More than 20 years	12	9.4

Source: Field Data (2025)

Awareness and Usage of AI Tools among academicians

The findings from the data set demonstrate a significant level of awareness and utilization of AI tools among researchers engaged in academic writing. With 95.3% of participants reporting familiarity with AI-based tools, this suggests a widespread acknowledgement of their utility in scholarly environments. This is consistent with broader academic discussions that highlight the increasing prevalence of AI technologies in education and research. For instance, studies by Koos & Wachsmann (2023) noted that the accessibility and growing sophistication of tools like ChatGPT have significantly shaped research practices in higher education, particularly post-pandemic, where digital reliance has increased. In terms of frequency, data reveals that 39.4% of respondents use AI tools weekly, and 16.5% do so daily. This reflects an emerging norm where AI assistance is no longer sporadic but integrated into regular research routines. This pattern resonates with the evidence presented by Geddam *et al*. (2024) and Wulyani et al. (2024) on their studies, which emphasized the increasing integration of AI-driven chatbots and writing assistants in academic settings, noting their potential to streamline time-consuming tasks and improve productivity. Nevertheless, for the purpose of use, grammar and style correction emerged as the leading reason (45.7%), followed by reference management (42.5%) and plagiarism detection (39.4%). These findings are in line with (Abd-Elsalam & Abdel-Momen, 2023; Maphoto et al., 2024; Zhao *et al*., 2023) analysis of AI tool usage in academic writing, which shows that scholars predominantly use AI as an assistive rather than a generative tool. Users rely on AI to enhance the quality and integrity of their writing, while remaining cautious about ethical concerns related to full content generation. The diversity of tools used further underscores this assistive orientation. ChatGPT, the most utilized tool at 51.2%, was closely followed by Grammarly (48%) and Turnitin (46.5%). Other tools such as QuillBot, Scispace, and ChatPDF were also employed, suggesting a preference for modular AI support tailored to specific academic tasks. A number of scholars (Grassini, 2023; Ioku *et al.*, 2024; Kong et al., 2024) outlined diversified views with respect to the adoption and affordances of each tool, ranging from paraphrasing and summarization to citation generation and literature discovery, to optimize their workflow. The findings reflect a high level of academic engagement with AI tools, not merely as novel innovations but as practical instruments integrated into scholarly writing routines. The consistency of these findings with recent literature reinforces the view that AI tools have become indispensable in modern research environments, where efficiency, accuracy, and ethical writing practices are paramount.

Table 2.
Awareness and Usage of AI Tools among Academicians

Variable	Frequency (n)	Percentage (%)
Are you aware of AI tools used for research writing?		
Yes	121	95.3
No	6	4.7
How often do you use AI tools for Research?		
Daily	21	16.5
Weekly	50	39.4
Monthly	19	15.0
Rarely	30	23.6
Never	7	5.5
What is the primary purpose for using AI tools in research writing?		
Grammar and style correction	58	45.7
Content generation	32	25.2
Reference management	54	42.5
Plagiarism detection	50	39.4
Literature searching	48	37.8
AI tools used for research writing		
Grammarly	61	48
ChatGPT	65	51.2
Turnitin	59	46.5
Quill Bot	34	26.8
Scispace	41	32.3
Scite.ai	5	3.9
Elicit	1	0.8
Gemini	4	3.1
ChatPDF	17	13.4

Source: Field Data (2025)

Exploratory Factor and reliability analysis of an AI tool for research writing

The findings of the Exploratory Factor Analysis (EFA) and reliability analysis confirm the validity and internal consistency of the measurement model assessing AI adoption constructs among academicians. All factor loadings exceeded 0.65, indicating strong item-construct relationships, consistent with studies such as Ahmad et al. (2023) and Topal *et al.* (2025), who reported similarly high loadings in AI literacy and attitude scales. The Kaiser-Meyer-Olkin (KMO) values ranged from 0.756 to 0.838, and Bartlett's Test of Sphericity was significant at $p < 0.001$, confirming sampling adequacy and data suitability for factor analysis, as seen in studies by Abd-Elsalam & Abdel-Momen (2023), Koos & Wachsmann (2023 Nazaretsky *et al. (*2025).

The explained variance for each factor ranged from 44.742% to 62.569%, aligning with the accepted standard in psychometric studies and recent research, such as Wu *et al. (*2024), who reported a 58.4% variance in AI attitude scales. Cronbach's alpha values from 0.741 to 0.848 reflect good internal consistency, similar to the findings by Nguyen et al. (2024) on AI technology adoption in professional settings. These results reinforce the instrument's robustness for capturing Actual Usage (AU), Adoption (A), Perceived Usefulness (PU), Perceived Ease of Use (PEU), Behavioral Intention (BI), and Continuous Usage Intention (CUI) in the academic AI adoption context.

Table 3:
Exploratory Factor and Reliability Analysis of AI Tools for Research Writing

	Component	**Component**	**Component**	**Component**	**Component**	**Component**
Factor	1(AU)	2 (A)	3(PU)	4(PEU)	5(BI)	6(CUI)
Items Factor Loadings	AU10.801	A10.689	PU10.714	PEU10.667	BI10.728	CUI10.714
	AU20.821	A20.670	PU20.764	PEU20.702	BI20.795	CUI20.698
	AU30.701	A30.666	PU30.759	PEU30.650	BI30.767	CUI30.691
	AU40.793	A40.734	PU40.728	PEU40.706	BI40.681	CUI40.654
	AU50.833	A50.726	PU50.760	PEU50.698	BI50.740	CUI50.760
		A60.712		PEU60.682		
Bartlett's test	251.512($p<0.001$)	205.917($p<0.001$)	171.659($p<0.001$)	145.964($p<0.001$)	169.847($p<0.001$)	120.958($p<0.001$)
Kaiser-Meyer-Olkin (KMO)	0.838	0.756	0.815	0.838	0.817	0.781
Eigenvalue	3.128	2.941	2.778	2.685	2.763	2.468
Total variance explained (%)	62.569	49.018	55.564	44.742	55.262	49.363
Cumulative variance explained (%)	62.569	49.018	55.564	44.742	55.262	49.363
Cronbach alpha	0.848	0.791	0.800	0.751	0.797	0.741

Source: Field Data (2025)
Note: *AU=Actual Usage, A=Adoption, PU=Perceived Usefulness, PEU=Perceived Ease of Use, BI=Behavioral Intention, CUI=Continual usage Intention*

Regression Results of Factors Influencing the Adoption of AI Tools

The regression analysis underscores several key predictors of AI tool adoption, including Actual Usage (AU), Perceived Ease of Use (PEU), and Behavioral Intention (BI), while showing that Perceived Usefulness (PU) is not statistically significant. The strong positive correlation between AU and AI adoption (coefficient = 0.388, $p < 0.001$) aligns with existing literature that emphasizes the importance of prior hands-on experience in driving sustained use of AI technologies. Researchers are more likely to adopt AI tools when they are already using them in their daily academic workflows, indicating a reinforcement loop between familiarity and continued usage (Arora et al., 2023). This is further supported by evidence from Sasikumar & Sunil (2023), who noted that experiential familiarity enhances user confidence, which in turn promotes the integration of AI into academic routines. The finding that Perceived Ease of Use (PEU) negatively correlates with AI adoption (coefficient = -0.274, $p = 0.002$) is both surprising and significant. Traditionally, models such as the Technology Acceptance Model (TAM) suggest that greater ease of use facilitates technology adoption. However, recent literature suggests a more complex dynamic in the context of AI. Advanced users might associate ease of use with a lack of sophistication or perceive simplified tools as offering less control over outcomes. The studies by Ahn & Al (2024; Zhao et al. (2023) discuss how users may become skeptical of overly simplistic AI tools, questioning their robustness and the quality of output. Behavioral Intention (BI) also emerged as a significant positive predictor of AI adoption (coefficient = 0.218, $p = 0.014$). This supports extensive literature indicating that individuals who intend to use AI tools in the future are more likely to adopt them when opportunities arise. Intention acts as a cognitive precursor to behavior, aligning with findings in educational research that show a strong link between attitude, intention, and actual behavior in digital tool uptake. Nazaretsky et al. (2025) and Wu et al. (2025) also highlighted that positive anticipation of AI utility significantly predicts actual tool usage, particularly among digitally literate researchers. Contrary to expectations, Perceived Usefulness (PU) did not show a significant effect at $p = 0.975$, suggesting that the perceived value of the tool alone does not translate into actual adoption. This may reflect a disconnect between perceived and practical utility or suggest that usefulness is mediated through other variables like trust, context of use, or prior experience. Several recent studies challenge the long-standing assumption that perceived usefulness is a central determinant of adoption, especially in AI contexts where performance metrics and trust in algorithms also play critical roles (Ahmad *et al*., 2023; Gander & Shaw, 2024; Hajkowicz *et al*., 2023; McElheran *et al*., 2023). The model's explanatory power ($R^2 = 0.620$) and robust F-statistic (49.804, $p < 0.01$)

confirm that the chosen variables collectively provide a strong explanation for AI adoption behaviours. The Durbin-Watson statistic of 1.872 indicates minimal autocorrelation in residuals, and tolerance values all above 0.1 dismiss concerns of multicollinearity, supporting the model's statistical integrity. These findings collectively reinforce the relevance of behavioural and experiential variables over purely perceptual factors in predicting AI adoption in academia.

Regression Results of Factors Influencing Continued Usage Intention of AI for Research Writing

The regression results demonstrate that Actual Usage (AU), Perceived Ease of Use (PEU), and Behavioral Intention (BI) significantly influence the continued use of AI tools, whereas Perceived Usefulness (PU) does not. Actual Usage (coefficient = 0.159, $P < 0.001$) shows that prior engagement with AI tools reinforces future use. This finding is supported by (Naseri & Abdullah, 2024), who observed that habitual interactions with AI tools foster user familiarity, comfort, and trust, which are essential for sustained usage in academic settings. The strong positive association between Perceived Ease of Use and continued usage (coefficient = 0.392, $p < 0.001$) aligns with existing models of technology acceptance. Users who find AI tools intuitive and user-friendly are more likely to incorporate them into long-term workflows. This resonated in (Soulami *et al.*, 2024), who noted that ease of interaction significantly influences user retention, especially for tools integrated into educational platforms. Behavioral Intention (BI) also plays a pivotal role, with a high positive coefficient (0.385, $P < 0.001$), indicating that individuals who intend to continue using AI tools are significantly more likely to do so. This finding is consistent with research by Na *et al.* (2023; Qahtani & Alsmairat, 2023), who emphasized the predictive strength of future usage intention as a behavioral driver in digital tool engagement. High intention often stems from perceived personal or professional benefit, especially in fast-evolving academic environments. In contrast, Perceived Usefulness (PU) does not significantly influence continued use (coefficient of 0.067 at $P = 0.221$). This is an important insight, suggesting that once users begin interacting with AI tools, the decision to continue is driven more by the ease of integration and behavioral intention than by abstract beliefs about usefulness. Recent literature echoes this shift, highlighting that long-term engagement is less influenced by perceived utility and more by experiential and contextual factors such as trust, user experience, and peer influence (Nouraldeen, 2022; Sadriwala & Sadriwala, 2022). The model's robustness is further confirmed by a high R^2 value (0.822) and adjusted R^2 (0.816), indicating a strong explanatory power of the predictors. The F-statistic (140.675, $p < 0.01$) reinforces the overall model significance, while the

Durbin-Watson statistic of 2.193 confirms that residuals are independent. Additionally, collinearity diagnostics show no multicollinearity issues, making the findings statistically reliable. Continued use of AI tools is significantly driven by behavioral patterns and ease of use rather than perceived usefulness. These insights support a more user-centric approach to AI tool design and deployment in academia, emphasizing experiential engagement and intuitive interfaces.

Table 4:
Regression Results Regarding Factors Influencing the Adoption of AI Tools

Variable	Coefficient	t-Value	Sig	Collinearity statistics tolerance
AU	0.388	4.523	<0.001	0.422
PU	0.003	0.031	0.975	0.451
PEU	0.274	-3.148	0.002	0.410
BI	0.218	2.489	0.014	0.406

=0.620 Adj.=0.608 F=49.804(p<0.01) Durbin-Watson=1.872

Source: Field Data (2025)

Note: *AU=Actual Usage, A=Adoption, PU=Perceived Usefulness, PEU=Perceived Ease of Use, BI=Behavioral Intention, CUI=Continual usage Intention*

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study investigated the determinants influencing the adoption and continued usage of Artificial Intelligence (AI) tools for research writing among academicians in Tanzanian higher learning institutions. Drawing upon the Technology Acceptance Model (TAM), the study empirically examined the roles of Perceived Usefulness (PU), Perceived Ease of Use (PEU), Behavioral Intention (BI), and Actual Usage (AU) in predicting both the adoption and continued use of AI tools. The findings confirm that AU, PEU, and BI are significant predictors of AI tool adoption and sustained use, while PU did not exhibit a statistically significant influence in either model. Actual Usage emerged as a strong determinant of both initial adoption and continued use, underscoring the importance of hands-on experience in shaping user behaviour. Similarly, Behavioral Intention showed a consistent and positive relationship with adoption outcomes, indicating that academicians with future-oriented motivations are more likely to embrace AI technologies. Interestingly, PEU was found to be positively associated with continued usage but negatively associated with adoption, suggesting that perceptions of ease may have nuanced effects depending on users' engagement stages. The model demonstrated a high explanatory power, particularly for continued usage (Adjusted $R^2 = 0.816$), confirming the robustness of TAM in this context. These results highlight the need for institutions to not only promote awareness of AI tools but also focus on fostering meaningful user engagement and training, which are more predictive of sustained tool usage than perceived utility alone. Furthermore, the study fills a critical gap in the Tanzanian context, offering localized insights into how digital literacy, motivation, and user experience shape AI integration in academic research writing.

Recommendations and Policy Implications

Higher learning institutions should implement structured workshops and hands-on training sessions to increase faculty competence and confidence in using AI tools. This would help convert intention into actual and sustained usage. Moreover, developers and vendors of AI writing tools should prioritise user-friendly interfaces and minimal learning curves to encourage broader adoption and long-term engagement among academicians. Also, institutions should consider integrating AI tools into research workflows, learning management systems, and writing support services. Official endorsement and support will normalize usage and reduce skepticism. Furthermore, academic institutions must establish clear ethical frameworks that define the appropriate use of AI tools, especially around authorship, plagiarism, and data integrity. This will safeguard academic standards while leveraging AI's benefits.

Additionally, there is a pressing need for national-level policy frameworks that guide ethical AI use in academia, in particular, to address issues of academic integrity, authorship, and data usage, and be enforced across institutions to maintain educational standards and credibility. In addition, National education policies should encourage the integration of AI technologies into university systems such as research platforms, learning management systems (LMS), and writing support services. Official institutional support legitimizes AI use and fosters a more innovation-friendly academic culture. Policymakers in higher education should mandate the development and delivery of AI literacy programs for academic staff. By institutionalizing structured training, universities can bridge the gap between intention and consistent use, ensuring faculty are equipped to harness AI tools effectively in teaching and research.

Areas for further Study

Future studies should adopt longitudinal designs to examine how the perception of usefulness, ease of use, and behavioral intention change over time as academicians gain more experience with AI tools. Conducting comparative studies across countries, regions, or institutional types could reveal contextual factors such as policy framers, funding structures, and institution types.

Limitations of the Study

Despite the valuable insights generated, this study has the following limitations that should be acknowledged. The sample was restricted to academicians within Tanzania's higher learning institutions. While this provides useful insights, it limits the generalizability of the findings to other institutions. Additionally, the study focused primarily on AI tools used for research writing, excluding other academic functions such as teaching, assessment, and supervision. Assessing AI adoption across these additional academic dimensions would provide a more comprehensive understanding of AI integration in higher learning.

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Adoption of Digital Technologies in Women-Owned Small Businesses: A Global Review of Patterns, Growth Factors, and Barriers

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Abstract
Digital technologies are increasingly central to small business growth; still, adoption among women-owned small businesses (WOSBs) remains uneven worldwide. This study systematically reviews 117 peer-reviewed articles published between 1987 and 2023, with Tanzania as a central case study, focusing on Sub-Saharan Africa. The findings reveal persistent divides: in developed economies, WOSBs integrate advanced systems such as e-commerce, customer relationship management, and cloud computing. In contrast, in developing contexts, adoption is mainly limited to mobile money and social media, with slow and uneven progression toward advanced digital systems, particularly in Tanzania. Barriers, including weak infrastructure, limited finance, low digital literacy, socio-cultural constraints, and inadequate policy support, continue to restrict sustainable adoption. The review extends the Technology Acceptance Model (TAM) by showing that adoption depends not only on perceived usefulness and ease of use but also on systemic and socio-cultural dynamics. This highlights that bridging digital divides requires more than access; it requires supportive ecosystems, affordable infrastructure, and gender-responsive policies. The study contributes by offering practical strategies for inclusive digital transformation and identifying priorities for future research in Sub-Saharan Africa, emerging technologies, and long-term adoption.

Keywords: *Women-owned small businesses, Digital technology adoption, Technology Acceptance Model, Tanzania, digital divide.*

INTRODUCTION

Digital transformation is reshaping industries worldwide and creating both significant opportunities and persistent challenges for small businesses. Women-owned small businesses (WOSBs) are poised to gain significantly from these changes, as digital tools help expand market access, enhance operational efficiency, and strengthen competitiveness (Marino-Romero & Fernández, 2024; Vial, 2019). However, the pace and extent of adoption remain uneven. In many developing countries, women entrepreneurs continue to face substantial challenges, including inadequate infrastructure, high costs, and limited digital literacy (Qureshi, 2023; UNCTAD, 2025). In contrast, women entrepreneurs in developed economies are better positioned to access advanced technologies, but they continue to face barriers such as intense competition, cybersecurity threats, and persistent financing gaps (OECD, 2024).

Despite the growing volume of research on digital transformation and entrepreneurship, existing studies remain limited. Many studies group women-owned enterprises with general small and medium-sized enterprises (SMEs), making it difficult to understand their unique experiences. Consequently, there is limited clear evidence on how digital technology adoption affects women-owned small businesses and how adoption patterns, enabling factors, and barriers differ across economic and socio-cultural contexts.

This imbalance is significant because WOSBs contribute meaningfully to inclusive economic growth, employment creation, and sustainable development. Their ability to benefit from digital technologies depends not only on access but also on broader enabling conditions, including financial resources, skills development, institutional support, and social networks (Sharabati et al., 2024; Camps, 2025). Empirical studies indicate that digital tools such as social media, e-commerce platforms, mobile money services, and cloud-based systems can improve productivity, market reach, and customer engagement among small businesses (Qalati et al., 2022; Nyarko et al., 2022; Octafia et al., 2025). Nevertheless, important questions remain regarding how adoption patterns vary across regions and which factors most strongly enable or constrain the sustainable use of digital technologies, particularly in developing contexts such as Tanzania.

Tanzania presents a relevant and under-examined context for exploring these issues. Despite rapid growth in mobile connectivity, empirical evidence on how women-owned small businesses in Tanzania transition from basic digital tools to more advanced systems remain fragmented and insufficient. While the country has experienced rapid growth in mobile technologies and digital financial services, many women entrepreneurs continue to operate under conditions of informality, limited access to finance, and uneven digital skills (World Bank, 2022; UNCTAD, 2025). Gendered socio-cultural norms, affordability constraints, and institutional gaps further shape how digital technologies are adopted and sustained, highlighting the need for context-specific evidence on WOSBs' digital engagement.

To address these gaps, this study conducts a systematic review of the literature on the adoption of digital technologies among women-owned small businesses. Peer-reviewed articles indexed in the Scopus database between 1987 and 2023 were analyzed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This approach enables the identification of global and regional adoption patterns, as well as the key growth drivers and barriers shaping WOSBs' use of digital technologies.

The adoption of digital technologies is frequently explained by the Technology Acceptance Model (TAM), which posits perceived usefulness and perceived ease of use as primary determinants of technology adoption (Davis, 1989). In the context of WOSBs, TAM suggests that digital tools are more likely to be adopted when they are perceived as beneficial and easy to use. However, existing evidence indicates that individual perceptions alone do not fully explain adoption outcomes. Broader systemic factors, including infrastructure limitations, affordability challenges, financial exclusion, and socio-cultural norms, play a critical role in shaping adoption decisions, particularly in resource-constrained environments (Qureshi, 2023; Khoo et al., 2024 UNCTAD, 2025). This underscores the need to extend TAM by incorporating contextual and gender-sensitive perspectives.

This review makes a distinct contribution to the literature by focusing explicitly on women-owned small businesses, an area where systematic and comparative evidence remains limited (Sharabati et al., 2024, Marino-Romero & Folgado-Fernández, 2024). Specifically, this study offers a novel contribution by systematically integrating gender, contextual conditions, and technology adoption theory to compare digital adoption patterns between developed and developing economies, with a focused examination of Tanzania. (Sharabati et al., 2024; Marino-Romero & Folgado-Fernández, 2024). Unlike many prior studies that examine SMEs broadly or emphasize technological determinants in isolation, this review situates digital adoption within broader socio-economic and gendered contexts. By integrating technology adoption theory with gender and development perspectives, and by contrasting developed and developing economies with a specific focus on Tanzania, the study offers a more holistic and contextually grounded understanding of WOSBs' digital technology adoption.

Therefore, the objective of this study is to review and analyse how women-owned small businesses adopt digital technologies across different contexts. Specifically, the study examines global and regional adoption patterns, identifies key factors that enable or constrain the adoption of sustainable digital technologies, and explores the interaction between socio-cultural conditions and technology adoption processes. The following research questions guide the study: 1. How do women-owned small businesses (WOSBs) adopt digital technologies across global, regional, and Tanzanian contexts? 2. What factors enable or constrain sustainable digital technology adoption among WOSBs? 3. How do socio-cultural and systemic conditions interact with the Technology Acceptance Model (TAM) in shaping digital adoption among WOSBs?

METHODOLOGY

This study employed a systematic review to examine how women-owned small businesses (WOSBs) adopt digital technologies. The review was guided by the following research question: How do women-owned small companies adopt digital technologies, and what factors influence adoption outcomes in developed and developing economies? A systematic review was chosen because previous studies on digital transformation and women entrepreneurship are scattered across different fields. This approach enables the collection, comparison, and summarisation of findings from many studies in a clear and organised way. The study followed the PRISMA guidelines (Moher et al., 2009) to ensure transparency, consistency, and reliability throughout the review process.

Research Design

The study was based on a positivist philosophy, which posits that knowledge can be gained by examining facts in a structured manner. A systematic review design was employed because it enables the consolidation of results from multiple studies, the identification of key trends, and the highlighting of areas where further research is still required (Zupic & Čater, 2015). This design was suitable because the goal was to see overall patterns in adoption, growth factors, and barriers facing WOSBs.

Data Source and Search Strategy

The Scopus database was chosen as the sole data source. Scopus was selected because it covers a broader range of peer-reviewed journals in business, entrepreneurship, and social sciences, including studies from both developed and developing countries. Compared to Web of Science, Scopus includes more journals from regions such as Sub-Saharan Africa, making it suitable for this study (Falagas et al., 2008).

The literature search was carried out on 3 April 2024 using the following search terms applied to article titles:
TITLE ("digital technology" OR "women entrepreneur" OR "small business")
AND (LIMIT-TO (LANGUAGE, "English"))
AND (LIMIT-TO (SRCTYPE, "j"))
AND (LIMIT-TO (DOCTYPE, "ar"))

Only peer-reviewed journal articles written in English were included to ensure quality and consistency. The initial search identified 121 articles, which were then screened to check if they met the study's requirements. Restricting the review to a single comprehensive database reduced duplication, ensured consistency in indexing standards, and strengthened the methodological rigor of the evaluation.

Screening and Eligibility Criteria

The selection of articles followed the PRISMA process, including identification, screening, eligibility, and inclusion stages. Following the PRISMA guidelines, the review process proceeded through four structured stages. During the identification stage, 121 records were retrieved from the Scopus database. In the screening stage, titles and abstracts were reviewed to assess relevance. The eligibility stage involved a full-text assessment based on predefined inclusion criteria. Finally, 117 articles met all requirements and were included in the systematic review. Articles were included if they: were peer-reviewed journal articles, written in English, published between 1987 and 2023, and focused specifically on women-owned small businesses and examined digital technology adoption, use, and or impact on growth. After applying these criteria, 117 articles were included in the final analysis, while four articles were excluded.

Data Extraction and Analysis

Relevant information was carefully extracted from each selected article. This included the year of publication, journal name, authors, citation counts, types of digital technologies discussed, areas of application, adoption factors, barriers, and reported business outcomes.

The studies were also grouped by whether they focused on developed or developing economies, with particular attention to Sub-Saharan Africa and Tanzania.

The data were analysed using thematic analysis, which involved grouping similar findings into key themes. This helped to identify common patterns in digital adoption, as well as factors that support or limit adoption among WOSBs. The analysis focused mainly on the content of the studies rather than on citation counts, enabling a deeper understanding of the findings.

Reliability and Validity

To ensure reliability, the same search strategy and selection criteria were used throughout the review process. All steps were clearly documented so that other researchers can repeat the study if needed.

The use of peer-reviewed articles from Scopus helped ensure that the data were of good academic quality (Falagas et al., 2008). Following PRISMA guidelines also helped reduce bias and improve transparency, making the results more trustworthy.

Methodological Contribution

This study focuses specifically on women-owned small businesses rather than grouping them under general SMEs. By doing so, it addresses a key gap in existing research. The systematic approach used in this review provides a clear basis for comparing digital adoption across different economic contexts and for drawing conclusions that are useful for policy and practice.

RESULTS

The results are presented directly aligned with the study's research questions. These findings directly address Research Question 1 by illustrating how adoption patterns differ across global, regional, and Tanzanian contexts. First, the findings examine how women-owned small businesses adopt digital technologies across international, regional, and Tanzanian contexts (RQ1). Second, the analysis identifies the key factors that enable or constrain the adoption of sustainable digital technologies among WOSBs (RQ2). Finally, the results explore how systemic and socio-cultural conditions interact with the Technology Acceptance Model (TAM) in shaping adoption outcomes (RQ3). The reviewed studies show that women-owned small businesses (WOSBs) are adopting digital technologies across different regions; however, the level and types of adoption vary significantly between developed and developing economies. These differences reflect variations in digital infrastructure, financial capacity, and access to skills and support systems.

In developed economies, women entrepreneurs tend to use more advanced digital technologies, including e-commerce platforms, customer relationship management (CRM) systems, cloud computing, and financial technologies. These tools are often integrated into structured business models and aligned with broader strategic objectives such as market expansion, efficiency improvement, and innovation (Marino-Romero & Folgado-Fernández, 2024; Vial, 2019; OECD, 2024).

In contrast, in developing economies, digital adoption among WOSBs is focused mainly on simple, affordable, and widely accessible technologies. Mobile money platforms, particularly M-Pesa, and social media applications such as WhatsApp, Facebook, and Instagram are the most commonly used tools. These technologies are mainly applied for communication, marketing, and basic financial transactions. Adoption rarely extends to more advanced systems such as dedicated business websites, online sales platforms, or enterprise-level digital applications (Qureshi, 2023; Qalati et al., 2022; Octafia et al., 2025).

The adoption patterns of digital technologies among WOSBs identified in the reviewed studies are summarized in Table 1, which highlights the types of digital tools used and their main functionalities across different contexts. To synthesize these variations, the reviewed studies were categorized according to the types of digital technologies adopted and their primary business applications.

Table 1:
Adoption Patterns of Digital Technologies Among WOSBs

Digital Technology	Features	Functionality/Application
Industry-Specific Digitalization	Digital Auditing, Taxation Digitalization	Enables automation and efficiency in specific sectors, such as finance and government services. (Verbiuska, 2023)
Internet of Things (IoT)	IoT for Monitoring IoT Security	Facilitates real-time monitoring and enhances security through interconnected devices and data exchange. (Ikram, 2022)
Digital Entrepreneurship and Innovation	Crowdfunding, Startups, Digital Platforms	Supports new business creation, funding options, and scaling opportunities through digital platforms. (Haryati, 2022)
Cybersecurity and Data Management	Data Security, Big Data	Protects data integrity and privacy, manages large data sets for insights, and prevents cyber threats (Aithalathini, 2023)
Social media and Communication Tools	Facebook, WhatsApp, YouTube	Enhances connectivity, communication, and marketing reach across global platforms. (Ukpere, 2014)
E-Commerce and Digital Solutions	Online Stores, digital Payments, CRM Systems	Enable online sales, secure digital payments, and customer relationship management for business growth. (Smeshko, 2022; Guimaras, 2022; Mishra, 2022)
Digital Infrastructure and Technologies	5G, Cloud, AI, Blockchain, IoT, Tech Parks	Provide foundational support for advanced digital services and innovation through robust networks. (Parkinson, 2023; Kelly, 2023)

Source: created by authors (information extracted from Scopus database)

The information presented in Table 1 shows that WOSBs make use of both basic and advanced digital technologies. Social media platforms and e-commerce solutions are widely adopted because they offer affordable entry points for communication, marketing, and sales. At the same time, more advanced technologies such as cloud computing, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) are increasingly recognized for their potential to improve efficiency, data management, and innovation. However, the use of these advanced technologies is largely concentrated in developed economies, where supportive infrastructure and technical capabilities are more readily available.

Growth Factors Supporting Digital Technology Adoption by WOSBs

The reviewed studies consistently show that several enabling factors play a crucial role in supporting the adoption of digital technologies by WOSBs. These factors influence whether women entrepreneurs can access digital tools, develop the required capabilities, and translate digital adoption into business growth. Table 2 summarizes the main growth factors identified in the literature and compares how these factors operate in developed and developing economies, as well as their impact on opportunity and capability development.

Table 2:
The Growth Factors Enabling the Adoption of Digital Technologies for Women-Owned Small Businesses in Developed and Developing Countries

Growth Factor	Developed Countries	Developing Countries	Impact on Opportunity	Impact on Capability
Access to Digital Infrastructure	High-speed internet, 5G, cloud computing, and advanced digital networks (Rastvortseva, 2024)	Mobile connectivity, expanding internet access, and affordable technology (West, 2015)	Broader market reach access to online platforms	Enables efficient operations and remote management
Digital Literacy and Skills Training	Specialized training in advanced tools like data analytics CRM systems (UNCTAD, 2022)	Focus on basic digital skills, social media marketing, and mobile technology (Mishra, 2022)	Opens doors to complex digital strategies and innovation	Enhances ability to adopt and use digital tools
Access to Digital	Crowdfunding, online loans, and investment (Wesemann, 2021)	Microfinance, mobile money (e.g., M-Pesa), digital banking (Modiba, 2024)	Expands funding sources and reduces reliance on banks	Increases financial management skills and independence
E-Commerce and Online Marketplaces	Established e-commerce platforms and reliable logistics for international reach (Omoush, 2024)	Regional online marketplaces, social media commerce, and mobile payments (Nawar, 2024)	Access to national and international customer bases	Develops skills in online sales and customer service
Social media and Digital Marketing	Targeted ads, content marketing, and data-driven insights on multiple platforms (Ukpere, 2014)	Social media promotion and customer engagement via platforms like Facebook and WhatsApp (Lawal, 2022)	Creates affordable marketing and customer engagement channels	Build brand management and customer engagement skills

Growth Factor	**Developed Countries**	**Developing Countries**	**Impact on Opportunity**	**Impact on Capability**
Supportive Ecosystems and Networks	Incubators, accelerators, mentorship programs, and women-focused business networks (Avnimelech, 2023)	Informal networks, NGO-led training, and local women's organizations (Souleyman, 2024).	Access mentorship, resources, and growth guidance	Develops networking, business skills, and peer support
Government Policies and Support Programs	Grants, incentives, and subsidies for technology adoption (OECD, 2017)	Financial inclusion initiatives, affordable internet, empowerment programs (Ozili, 2023)	Increases accessibility to financial and digital resources	Improves ability to compete and innovation through support
Trust and Security in Digital Transactions	Established cybersecurity measures and strong regulatory protections (Wickramatillake, 2023)	Secure mobile payment platforms, initiatives to improve cybersecurity (Osabutey, 2024)	Builds customer trust in digital transactions	Enhances capability to handle secure online payments

Source: created by authors

The evidence summarized in Table 2 indicates that access to reliable digital infrastructure is a foundation requirement for adoption. In developed economies, high-speed internet, cloud computing, and advanced digital networks enable women entrepreneurs to engage in online transactions, manage operations remotely, and access global markets. In developing economies, expanding mobile connectivity and affordable internet access provide basic entry points into digital participation, particularly through mobile-based platforms.

Digital literacy and skills training also emerge as essential drivers of growth. In developed countries, training often focuses on advanced tools such as data analytics and customer relationship management systems, enabling more complex digital strategies. In developing contexts, emphasis is placed on basic digital skills, including social media marketing and mobile technology, to enhance women entrepreneurs' ability to adopt and apply digital tools effectively.

Access to digital finance plays a key role in enabling technology adoption. Crowdfunding, online loans, and investment platforms in developed economies expand funding opportunities beyond traditional banking systems. In developing economies, mobile money services, microfinance, and digital banking platforms such as M-Pesa support financial inclusion and enable women entrepreneurs to invest in digital tools and business operations gradually.

The availability of e-commerce platforms and online marketplaces further supports business growth by extending market reach beyond local boundaries. Established platforms and logistics systems in developed economies facilitate international trade, while regional marketplaces and social media commerce dominate in developing countries. These platforms help women entrepreneurs develop skills in online sales, customer service, and digital transactions.

Social media and digital marketing tools are widely used across both contexts, though their sophistication differs. In developed economies, data-driven advertising and content marketing strategies are common, while in developing economies, platforms such as WhatsApp and Facebook provide affordable channels for promotion and customer engagement. These tools enhance brand visibility and strengthen customer relationships.

Supportive ecosystems and networks, including incubators, accelerators, mentorship programs, and women-focused organizations, also contribute significantly to adoption. In developing economies, informal networks, non-governmental organizations, and community-based initiatives play an important role in building confidence, skills, and peer support.

Finally, government policies and trust in digital systems influence adoption decisions. Grants, incentives, and regulatory support in developed countries encourage technology uptake, while financial inclusion initiatives and empowerment programs in developing countries improve access to digital resources. Trust in secure digital transactions, supported by cybersecurity measures and regulatory protections, further strengthens women entrepreneurs' willingness to adopt and sustain digital technologies.

Overall, the findings show that digital adoption among WOSBs depends not only on access to technology but also on the broader enabling ecosystem. Infrastructure, skills, finance, networks, policy support, and trust collectively shape women entrepreneurs' ability to adopt digital technologies and translate them into meaningful business growth.

Regional Disparities in Digital Technology Adoption
The reviewed studies highlight a clear digital divide between developed and developing countries, with Tanzania providing an illustrative example of both progress and persistent challenges. In developed economies, women entrepreneurs generally operate within advanced digital ecosystems characterized by widespread internet access, high smartphone penetration, and strong engagement with online business platforms (Vial, 2019; OECD, 2024). These conditions support the use of sophisticated digital tools and facilitate deeper integration of technology into business operations.

In contrast, developing economies exhibit lower internet penetration and more limited engagement with online business practices, despite moderate smartphone usage (Qureshi, 2023; UNCTAD, 2025). Digital adoption in these contexts tends to focus on basic applications rather than advanced online platforms.

Tanzania illustrates a mixed picture. Mobile phone usage among women entrepreneurs is nearly universal, enabling communications with customers and access to mobile money services (World Bank, 2022; UNCTAD, 2025). However, relatively low levels of internet access and limited participation in online business activities continue to restrict progression towards more advanced digital platforms. These regional disparities are summarized in Figure 1.

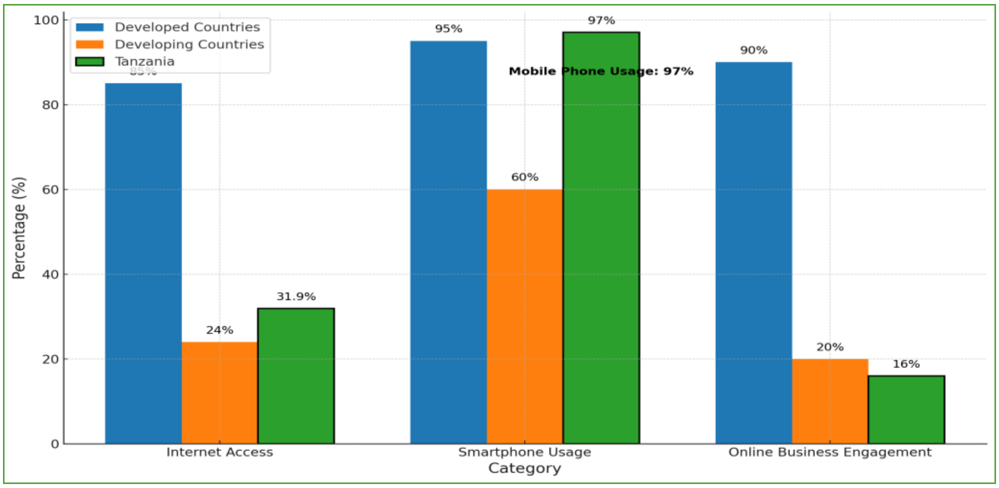

Figure 1: *Regional Disparities in Digital Technology Adoption Among WOSBs*

As illustrated in Figure 1, internet access is highest in developed economies (86%), while in developing countries it is 24%, and in Tanzania it is 31.9%. Smartphone usage is widespread across all regions, reaching 95% in developed economies and 97% in Tanzania, but significantly lower at 60% in developing economies overall. When it comes to online business engagement, 90% of WOSBs in developed countries participate actively, compared to only 20% in developing countries and 16% in Tanzania (World Bank, 2023).

These findings demonstrate that although smartphone penetration is high, particularly in Tanzania, access to reliable internet and translating digital connectivity into online business engagement remain significant challenges.

This disparity underscores the importance of addressing infrastructure, affordability, and digital literacy to empower women entrepreneurs in developing contexts to transition from basic connectivity to full digital integration.

Barriers to Sustainable Adoption of Digital Technologies Among Women-Owned Small Businesses

Although digital technologies offer tremendous opportunities for the growth of women-owned small businesses (WOSBs), the analysis reveals that several barriers continue to hinder their sustainable adoption. These barriers are interconnected, meaning that solving one without addressing the others rarely leads to long-term success. A significant challenge lies in inadequate digital infrastructure. Many developing countries continue to face poor internet penetration, unreliable electricity, and high costs of broadband services. In Tanzania, for example, mobile phones have helped women entrepreneurs connect with clients and utilize mobile money services; however, the absence of stable and affordable internet prevents them from adopting advanced solutions, such as e-commerce and cloud systems. As Qureshi (2023) explains, without strong infrastructure, digital adoption becomes fragmented and unsustainable.

Affordability is another critical barrier. Women entrepreneurs often struggle with recurring costs, including internet bundles, software subscriptions, and device maintenance. Adoption in such cases becomes fragile; it is possible when resources are available, but easily disrupted when finances are tight. UNCTAD (2020) similarly notes that affordability is not only about initial access but also about sustaining consistent usage over time. The analysis suggests that unless affordability is addressed, adoption will remain shallow and short-lived.

Digital literacy gaps further complicate the sustainable use of resources. Many WOSBs lack the skills and confidence to operate advanced systems such as online stores, customer relationship management tools, or data analytics platforms. Training programs exist, but they are often short-term or project-based, which means women cannot build long-term capacity. According to Marino-Romero and Folgado-Fernández (2024**)**, skills are a decisive factor: entrepreneurs with stronger digital literacy tend to sustain adoption, while those without abandon digital tools after initial trials. This aligns with the evidence that skills development must be continuous rather than one-off.

Financial exclusion is also a significant obstacle. Women entrepreneurs face systemic barriers to accessing credit and investment due to gender bias and limited collateral. While mobile money and microfinance have made a difference, they are often too small to support scaling into advanced digital systems. OECD (2021) emphasises that women-owned firms remain underrepresented in formal financing structures, which limits their ability to expand their digital capabilities. The perspective is critical, as it creates what can be described as a “low equilibrium trap”; adoption remains basic because women cannot afford to grow or sustain it.

Trust and security concerns present another layer of challenge. Fear of cybercrime, fraud, and data misuse discourages many women from fully embracing digital transactions. OECD (2024) stresses that without trust in the system, access alone cannot guarantee sustainable use. The study finds this particularly important: even when tools are available, adoption cannot last if entrepreneurs feel unsafe.

Sociocultural norms further constrain women's engagement with digital tools. In some communities, women have limited decision-making power or face resistance from family members when they attempt to expand their businesses digitally. Khoo et al. (2024) note that cultural attitudes often intersect with economic barriers, reinforcing women's exclusion from technology. The findings suggest that adoption is not only a technical or financial issue but also a profoundly social one.

Finally, weak policy and institutional support reduce the chances of sustained digital integration. Many government programs remain fragmented or donor-driven, with little long-term continuity. Policies may recognize the importance of women's digital inclusion, but implementation often falls short. As the World Bank (2023) highlights, sustainable adoption requires not just individual effort but supportive ecosystems that combine infrastructure, training, finance, and policy. The findings suggest that without this ecosystem, women-owned businesses are left to adopt piecemeal solutions that cannot be sustained.

In conclusion, barriers to sustainable adoption are multi-dimensional. Infrastructure and affordability restrict entry, literacy and finance limit scaling, and trust, gender norms, and policy weaknesses undermine long-term sustainability. In developed economies, barriers tend to revolve around advanced issues such as cybersecurity, high innovation costs, and competition. In developing economies, however, barriers are more structural and foundational. Addressing these challenges requires a systemic approach that integrates reliable infrastructure, affordable access, continuous digital literacy programs, financial empowerment, trust-building mechanisms, and gender-inclusive policies. Only then can digital adoption by WOSBs move from basic use to sustainable integration.

DISCUSSION OF FINDINGS

This study provides several significant findings with implications for theory, practice, policy, and future research on women-owned small businesses (WOSBs) and digital technology adoption. This confirms that technology adoption among WOSBs cannot be fully explained by individual perceptions alone, as the original TAM framework proposed.

Theoretically, the results extend the Technology Acceptance Model (TAM) by demonstrating that digital adoption is influenced not only by perceptions of usefulness and ease of use but also by broader systemic and socio-cultural conditions. Infrastructure, access to finance, cultural expectations, and trust in digital systems strongly shape how women entrepreneurs engage with technology. By centring WOSBs, this review introduces a gender-sensitive perspective that has often been overlooked in digital adoption research, filling a critical gap in the literature, especially in Sub-Saharan Africa, where systematic evidence remains scarce.

These findings have important implications for practice, policy formulation, and future research on inclusive digital transformation among women-owned small businesses. From a practical standpoint, the findings highlight the importance for women entrepreneurs to move beyond entry-level tools such as mobile money and social media toward more advanced digital systems, particularly in Tanzania. While these platforms provide affordable entry points, long-term competitiveness requires adopting more advanced systems such as e-commerce platforms, customer relationship management, and digital finance solutions. To sustain use, continuous investment in digital literacy, mentorship, and networking is essential for building confidence, capabilities, and resilience.

At the policy level, governments and institutions need to prioritise the provision of affordable internet access, reliable electricity, and inclusive financial services. Policies should be long-term, gender-responsive, and supportive of women entrepreneurs rather than fragmented or donor-driven. In addition, stronger cybersecurity frameworks are necessary to build trust in digital transactions. Establishing supportive ecosystems through incubators, accelerators, and women-focused mentorship programs can further encourage sustainable adoption.

The review also identifies important directions for future research. More studies are needed in underrepresented regions such as Sub-Saharan Africa, where mobile phone penetration has not translated into advanced digital adoption. Scholars should explore how emerging technologies, including artificial intelligence, blockchain, and the Internet of Things, can be adapted to women-owned businesses in resource-constrained settings. Longitudinal studies would provide deeper insights into how digital adoption affects resilience, sustainability, and long-term growth of WOSBs.

Finally, this study contributes to knowledge in three critical ways. First, it places WOSBs at the center of analysis, offering a gender-aware perspective that enriches research on entrepreneurship and digital transformation. Second, it advances methodology by moving beyond citation-based bibliometrics and applying thematic coding, generating deeper insights into adoption patterns, enablers, and barriers. Third, it extends TAM by demonstrating that systemic and socio-cultural conditions play a decisive role in shaping adoption outcomes. Collectively, these contributions strengthen theoretical understanding and provide practical strategies for inclusive digital transformation.

CONCLUSION AND RECOMMENDATIONS

This systematic review of 117 peer-reviewed articles (1987–2023) examined how women-owned small businesses (WOSBs) adopt digital technologies across global contexts, with Tanzania as a central case example, highlighting Sub-Saharan Africa. The findings reveal a persistent digital divide: WOSBs in developed economies increasingly integrate advanced systems such as e-commerce, customer relationship management, and cloud computing, while those in developing contexts primarily rely on mobile money and social media with slow and uneven progression toward advanced digital systems. Barriers such as limited infrastructure, affordability challenges, weak policy frameworks, financial exclusion, and socio-cultural constraints continue to restrict sustainable adoption.

By extending the Technology Acceptance Model (TAM), this study demonstrates that digital adoption is influenced not only by perceived usefulness and ease of use but also by systemic and socio-cultural factors. This gender-sensitive and context-based perspective makes a significant contribution to the literature by highlighting structural enablers and constraints that shape adoption. Overall, the study underscores the importance of moving beyond entry-level digital tools toward more advanced systems that enhance the growth, competitiveness, and resilience of WOSBs.
To achieve this, WOSBs should gradually expand from basic tools such as mobile money and social media to more advanced platforms, including e-commerce and customer relationship management systems. Continuous investment in digital literacy, mentorship, and participation in women-focused networks will strengthen confidence, competitiveness, and long-term sustainability.

Governments, meanwhile, should prioritize affordable internet, stable electricity, and inclusive financing mechanisms tailored to WOSBs. In the long term, gender-responsive policies are needed to reduce barriers, while stronger cybersecurity measures will build trust. Supportive programs such as incubators, accelerators, and mentorship schemes can provide the ecosystems required for sustained digital adoption.

Development partners should align interventions with structural barriers by lowering technology costs, supporting long-term and practical training in areas such as e-commerce and digital finance, and strengthening women-led networks and cooperatives. These efforts will enhance resilience, market access, and competitiveness, ensuring that digital adoption translates into sustainable business growth.

Finally, further research is needed in underrepresented regions such as Sub-Saharan Africa, where high mobile phone penetration has not translated into advanced digital adoption. Future studies should explore how emerging technologies, including artificial intelligence, blockchain, and the Internet of Things, can be adapted to women-owned businesses in resource-constrained contexts. Longitudinal research would also provide valuable insights into how digital adoption influences business resilience, sustainability, and long-term growth for WOSBs.

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Beyond Business as Usual: Institutional Resilience and Strategic Complementarity in Africa's Development Partnerships

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Abstract
For decades, the trajectory of African development has been predominantly charted by paradigms conceived in distant donor capitals, creating a persistent paradox. Despite substantial financial and technical assistance, the continent continues to be plagued by entrenched poverty and institutional fragility. This paper advocates for a fundamental reorientation towards investment-driven, contextually grounded development cooperation. It addresses a critical gap in the literature by interrogating how the interplay of political alignment, economic complementarity, and cooperative governance sustains partnerships over the long term. The study employed a qualitative documentary analysis of historical and institutional records to uncover the mechanisms sustaining the TAZARA partnership. Using the Tanzania-Zambia Railway Authority (TAZARA) as a case study, this research moves beyond celebratory narratives of South-South solidarity. The findings demonstrate that TAZARA's relative resilience stems not from external funding but from its foundational principles of mutual benefit, genuine co-ownership, and deep alignment with local socio-political aspirations. The study concludes that to break free from donor dependency, African nations and their international partners must build cooperation anchored in institutional resilience, strategic complementarity, and local agency.

Keywords: *Strategic development cooperation, TAZARA, mutual benefit, South-South cooperation, institutional resilience, African political economy*

INTRODUCTION

Since the early years of independence, a defining feature of the African political economy has been its heavy reliance on foreign aid from Western donors, a dynamic that has shaped national budgets and policy priorities for generations (UNCTAD, 2023). However, this long-standing relationship has yielded deeply unfounded results. Despite decades of substantial financial inflows and technical assistance programs, many African nations, including Tanzania and Zambia, continue to grapple with challenges of pervasive poverty, institutional fragility, and systemic underdevelopment (Moyo, 2009; Horner, 2020). This slow and uneven progress has prompted a sustained and robust critique of donor-centric methodologies, which are increasingly seen as cultivating a culture of dependency and disregarding the intricate local socio-political contexts essential for sustainable growth (Tint, 2020).

In response to these perceived failures, scholarly and policy analysis have progressively turned their attention towards models of mutually beneficial, context-specific partnerships, which are increasingly observable within the frameworks of South-South Cooperation (SSC). While the existing literature has usefully documented this normative shift, it has only rarely systematically interrogated the precise mechanisms through which the interplay of political alignment, economic complementarity, and cooperative governance sustains such partnerships over time, allowing them to weather political and economic storms.

This article addresses that gap through an in-depth examination of the TAZARA project. We argue that purposefully constructed development partnerships, founded on common interests and local development goals, represent a powerful and feasible substitute for conventional foreign aid. This leads to our core research questions: 1) How did strategic complementarity among Tanzania, Zambia, and China contribute to TAZARA's institutional resilience? 2) What role did trust-based governance structures play in sustaining the partnership beyond initial geopolitical motivations? and 3) How did the perception of mutual advantage ensure long-term political backing despite operational challenges?

LITERATURE REVIEW

This section synthesizes the historical, empirical, and theoretical literature to frame the study of African development partnerships, moving from a critique of conventional aid to a precise articulation of the knowledge gap this paper intends to fill.

The Persistence of Aid Dependence and Its Discontents

Emerging from post-colonial development ideologies, conventional foreign assistance has profoundly impacted Africa's institutional and economic landscape, often with unintended consequences that exacerbate dependence and inequality. Warmerdam (2014) argues persuasively that traditional aid programs are inherently prone to generating externally imposed policy prescriptions that are ill-suited to local contexts, thereby perpetuating profound power disparities between donor and recipient. The stringent conditionalities attached to aid from multilateral financial institutions, particularly during the Structural Adjustment era, entrenched this reliance dynamic, effectively hollowing out national policy space (Mkandawire, 2015). Berger (2016) adds a critical dimension to this analysis by noting that donor-driven projects frequently sideline or outright reject indigenous knowledge and governance systems in favour of imported neoliberal models, a process that systematically jeopardizes local ownership and long-term project viability. While Mkandawire (2015) emphasizes policy erosion through external control, Berger (2016) highlights epistemic dominance, revealing a dual dimension of dependency both institutional and cognitive.

South-South Cooperation as a Theoretical Alternative

In direct response to these structural deficiencies, South-South Cooperation (SSC) emerged as a formidable theoretical and practical alternative. Grounded in the shared historical experiences of colonialism and economic marginalisation, SSC frameworks explicitly prioritise principles of non-interference, respect for national sovereignty, and the pursuit of equitable partnerships (Nurdun, 2024a; 2024b). Scholars such as Enuka and Uchechukwuigwe (2012) assert that SSC offers a more tailored, contextually relevant, and therefore more effective method for development engagement, one that focuses squarely on mutual advantage rather than paternalistic dynamics. This theoretical framing positions SSC not merely as a different source of funding, but as a distinct modality of international relations that seeks to rebalance power and agency.

TAZARA as a Case Study

Within this discourse, the TAZARA railway is frequently cited as an early and powerful exemplar of SSC in practice. Established with major Chinese financial and technical support during the height of the Cold War, it is often framed, both in popular and academic circles, as a potent symbol of Third World solidarity and anti-colonial brotherhood (Rapanyane, 2020a). Its unique binational governance structure, managed by a Council of Ministers from both Tanzania and Zambia, underscores its foundational co-ownership model and represents a significant departure from externally controlled projects (TAZARA, n.d.). However, while scholars like Brautigam (2009) acknowledge its symbolic power, they also warn against overly romanticized interpretations, pointing to underlying asymmetries and challenges that suggest the TAZARA narrative is far more complex and nuanced than a simple story of solidarity.

The Research Gap

The prevailing literature thus establishes a clear critique of conventional aid and presents SSC, with TAZARA as a key historical example, as a promising alternative. However, a significant analytical gap remains. Much of the existing analysis is either purely descriptive of TAZARA's historical trajectory or remains celebratory of its symbolic value. There is a conspicuous lack of a systematic, analytical examination of the mechanisms the specific interplay of political, economic, and institutional factors that underpin its relative resilience and operational sustainability across decades. This paper fills this critical gap by applying a theoretical framework of mutual benefit and strategic complementarity to dissect TAZARA not as a static symbol, but as a dynamic and instructive model of strategic international cooperation.

THEORETICAL FRAMEWORK

This study is grounded in the established theoretical constructs of mutual benefit and strategic complementarity within development cooperation (Lampert et al., 2014; Morgan, 2018). This framework posits that successful and enduring partnerships are founded on two pillars: genuine co-ownership and intentionally aligned incentive structures among all stakeholders. In the TAZARA case, this theoretical lens reveals a clear alignment of distinct but complementary interests: China sought to expand its geopolitical influence and break diplomatic isolation; landlocked Zambia desperately needed an alternative, politically secure export route for its vital copper industry; and Tanzania aimed to enhance its national infrastructure and solidify its role as a regional hub (Zajontz, 2023).

This lens was preferred over alternatives like dependency theory because it focuses on African agency and the active negotiation of interests, rather than casting the continent as a passive victim of external forces. The framework directly links to the study's objective of explaining TAZARA's sustainability, moving beyond transactional aid models to examine how deliberately constructed partnerships can generate durable outcomes.

RESEARCH METHODOLOGY

This section provides a detailed account of the research methodology employed in this study. A qualitative case study design was adopted, focusing on the TAZARA railway as a critical case for examining sustainable South-South development partnerships. The methodology is presented with full transparency to enable replication and critical evaluation.

Research Design and Case Selection

This study employed a qualitative case study design centred on a systematic documentary review. This methodological approach was selected for its capacity to facilitate deep, contextual analysis of historical and contemporary details, which aligns perfectly with the study's exploratory and analytical aims. The case study method is particularly suited to investigating complex phenomena within their real-life contexts, where the boundaries between phenomenon and context are not clearly evident (Yin, 2018).

The TAZARA railway was selected as a critical case for examining sustainable South-South development partnerships due to its unique paradigmatic and analytical value. Its selection rationale is threefold.

First, TAZARA is the paradigmatic exemplar of Sino-African cooperation, a landmark project that defined the principles of South-South solidarity during the Cold War. As the largest single foreign aid project undertaken by China at the time, it serves as a crucial test case for the operationalization of "horizontal partnership" rhetoric (Monson, 2009, p. 3).

Second, it constitutes a theoretically significant "deviant case." It has demonstrated remarkable institutional longevity despite chronic financial non-viability that would have doomed a project governed by conventional donor-recipient models. This anomaly challenges explanatory frameworks focused solely on economic efficiency and necessitates the investigation of alternative factors like strategic trust and political will (Brautigam, 2009, p. 157). To leverage this deviant case logic, we define the reference population as major rail and transport infrastructure Public-Private

Partnerships (PPPs) and bilateral infrastructure projects in Sub-Saharan Africa initiated between 1960 and 1980. Within this population, most projects either collapsed within two decades of completion or required significant restructuring under external pressure. TAZARA's survival—despite operating at a loss for most of its history—constitutes a positive outlier. The usual explanatory variables (profitability, traffic density, debt servicing capacity) cannot alone account for its longevity, necessitating the investigation of alternative factors such as strategic complementarity and binational political commitment.

Third, its five-decade operational history provides a rare longitudinal perspective, allowing for a robust assessment of partnership sustainability beyond the project completion phase. This temporal depth enables analysis of how the partnership adapts to shifting geopolitical and economic landscapes, offering unparalleled insights into the mechanics of enduring cooperation.

Document Sampling Strategy

The sampling strategy was purposive and iterative, specifically targeting documents with high analytical relevance to the TAZARA case and the broader themes of SSC. The selection criteria were rigorously applied to ensure transparency and minimize researcher bias. A total of 47 documents were included in the final analysis, selected through a systematic process.

Table 4.1:
Document Selection Criteria and Count

Document Type	Number Selected	Selection Criteria	Sources/Access Method
Peer-reviewed journal articles	18	Published in Scopus-indexed or equivalent journals; focus on TAZARA, SSC, or African infrastructure development	Scopus, Google Scholar, university library databases
Academic books/book chapters	12	Published by university presses or major academic publishers (Oxford, Cambridge, Routledge, Palgrave, Indiana University Press)	University library catalogue, WorldCat
Institutional reports	9	Official TAZARA annual reports (select years: 1980, 1990, 2000, 2010, 2022), UNCTAD reports, World Bank policy papers	TAZARA official website, UN Digital Library, World Bank Open Knowledge Repository
Historical/archival materials	5	Primary documents from the Cold War era; historically significant works on development cooperation	Archival records, academic historical collections
Contemporary policy documents	3	African Union Agenda 2063 documents, recent SSC policy frameworks	AU official website, policy databases

Timeframe: Documents published between 1965 and 2025 were considered to capture the full historical trajectory from TAZARA's conception to contemporary reflections.

Inclusion and Exclusion Criteria: Documents were included if they met any of the following: (a) contained substantive analysis of TAZARA's history, governance, or operations; (b) provided theoretical or empirical analysis of South-South Cooperation in Africa; (c) offered comparative analysis of infrastructure development partnerships; or (d) were official TAZARA institutional records. Documents were excluded if they: (a) mentioned TAZARA only in passing (less than one paragraph); (b) were from non-academic, unverified online sources; or (c) were published in languages other than English without reliable translation.

Search Strategy: A systematic search was conducted across academic databases (Scopus, Google Scholar, JSTOR) using the following keyword combinations: "TAZARA" OR "Tanzania-Zambia Railway" AND "South-South cooperation" OR "development partnership" AND "Africa." Institutional reports were identified through targeted searches of the TAZARA official website and UN/World Bank document repositories.

Data Collection Procedures

Data collection involved the systematic retrieval, organization, and preliminary review of all selected documents. Each document was assigned a unique identifier code (e.g., DOC-01, DOC-02) to facilitate tracking and citation. A document log was maintained, recording for each item: author(s), publication year, title, source, date accessed, and key thematic areas. The documents were stored in a secure digital folder organized by document type. To ensure accuracy, all documents were read in full, with key passages highlighted and annotated.

Data Analysis

A systematic thematic content analysis was conducted on the collected corpus. The analysis followed a structured, multi-stage process to ensure rigor and transparency.

Stage 1: Familiarization and Initial Coding (Round 1)

All 47 documents were read carefully, with close attention to passages discussing TAZARA's governance, partnership dynamics, operational challenges, and historical context. Initial codes were generated inductively, capturing key concepts as they appeared in the text. Examples of initial codes included: "copper dependence," "binational governance," "Chinese engineering," "political will," "operational losses," and "symbolic value." This stage yielded approximately 85 distinct initial codes.

Stage 2: Code Grouping and Theme Development

Initial codes were grouped into broader thematic categories through an iterative process of comparison and consolidation. For instance, codes such as "copper dependence," "alternative export route," and "break from Southern routes" were grouped under the theme "Zambia's strategic need." Similarly, codes like "binational Council of Ministers," "alternating chairmanship," and "joint ownership" were grouped under "trust-based governance." Through this process, four core themes were identified: (a) strategic complementarity, (b) trust-based governance, (c) mutual advantage, and (d) institutional resilience. These themes were then reviewed against the theoretical framework to ensure alignment.

Stage 3: Refining and Defining Themes (Round 2)
A second round of coding was conducted, this time using the four core themes as analytical lenses. Documents were re-examined to identify how each theme manifested across different source types and time periods. Thematic definitions were refined: strategic complementarity was defined as the alignment of distinct but interdependent interests; trust-based governance as institutional mechanisms fostering co-ownership; mutual advantage as tangible and symbolic benefits valued by all parties; and institutional resilience as adaptive capacity in the face of adversity.

Stage 4: Thematic Validation and Saturation
Thematic saturation was reached after analyzing 38 documents, when no new themes or sub-themes emerged from subsequent documents. The remaining 9 documents were analyzed to confirm saturation and ensure no additional insights were missed. Saturation was assessed through a systematic review of coding patterns, confirming that the four core themes consistently captured the analytical substance across the corpus.

Stage 5: Source Triangulation and Cross-Verification
To strengthen credibility, findings were triangulated across source types. Table 4.2 illustrates how each theme was supported by multiple source categories, enabling cross-verification.

Table 4.2:
Triangulation of Themes Across Source Types

Theme	Supported by Academic Literature	Supported by Institutional Reports	Supported by Historical/Archival Sources	Degree of Convergence
Strategic complementarity	Monson (2009); Ampiah (2010); Zajontz (2023)	TAZARA (1980) Annual Report	Green (1988); Kumar (2009)	High convergence across all sources
Trust-based governance	Brautigam (2009); Nurdun (2024a)	TAZARA (n.d.) Administrative Structure	Siria (2022); Shaw (1987)	High convergence; archival sources add depth on Nyerere-Kaunda nexus
Mutual advantage	Addis & Zuping (2018); Kamuhuza & Jianya (2022)	TAZARA (2022) Annual Report	Yuan (2006); Monson (2009)	High convergence; some divergence on China's motivations (geopolitical vs. commercial)
Institutional resilience	Lammich (2024); Zajontz (2023)	TAZARA (2022) Annual Report	TAZARA (1980, 1990) Reports	High convergence on survival; some divergence on future viability

Resolving Contradictions: A noted point of divergence emerged regarding China's motivations for supporting TAZARA. Early historical sources (Yuan, 2006) emphasize geopolitical factors breaking diplomatic isolation and securing African support at the UN. Contemporary analyses (Alden & Wu, 2021; Tull, 2021) highlight commercial and strategic resource interests. This divergence was resolved by interpreting these as complementary rather than contradictory: geopolitical motivations dominated during the Cold War period, while economic and commercial considerations became more prominent from the 1990s onward. This temporal distinction is explicitly acknowledged in the findings.

Coding Transparency and Reliability

Coding was conducted manually, with careful documentation of the coding process. To ensure consistency, the following measures were implemented:

Code-recode procedure: A subset of 10 documents was coded twice, with a three-week interval between coding rounds. Comparison of the two coding rounds showed 89% consistency, with discrepancies resolved through re-examination of source texts.

Peer debriefing: A research colleague with expertise in African development reviewed the coding scheme and a sample of coded documents, confirming the logical coherence of thematic groupings.

Audit trail: A detailed audit trail was maintained, documenting all decisions regarding document selection, coding, theme development, and analytical judgments.

Table 4.3:
Coding Structure and Thematic Development

Core Theme	Sub-Themes/Indicators	Source Count	Example Code
Strategic complementarity	Zambia's copper dependence; Tanzania's port access; China's diplomatic goals	38	"Copper alternative route"
Trust-based governance	Binational Council; alternating leadership; capacity-building focus	35	"co-ownership structure"
Mutual advantage	Tangible economic benefits; symbolic solidarity; geopolitical leverage	41	"Dignified partnership"
Institutional resilience	Survival despite losses; modernization efforts; political protection	32	"Deviant case survival"

Reflexivity and Positionality

The researcher acknowledges that the interpretation of historical and institutional documents is shaped by prior knowledge and analytical assumptions. To mitigate potential bias, the following strategies were employed: (a) systematic use of source triangulation to counterbalance any single interpretive lens; (b) explicit documentation of selection criteria and coding decisions; (c) engagement with diverse perspectives within the literature, including both celebratory and critical accounts of TAZARA; and (d) grounding of findings in the documentary evidence, with direct quotes and citations provided to support interpretations.

Ethical Considerations

This study relied exclusively on publicly available documents, including academic publications, institutional reports, and historical archives. No human subjects were involved, and therefore, no ethical clearance for primary data collection was required. However, the following ethical principles guided the research: (a) accurate representation of source materials without selective omission of inconvenient evidence; (b) proper attribution of all cited works; and (c) acknowledgement of diverse perspectives, including critical voices challenging celebratory narratives of TAZARA. Where institutional reports were used, care was taken to interpret them within their broader political and historical contexts, recognizing that such documents may reflect institutional perspectives rather than objective realities.

RESULTS AND DISCUSSION

The documentary analysis reveals that the TAZARA railway, far more than a mere piece of transportation infrastructure, functioned as a complex, living organism of international cooperation. Its endurance for over half a century, despite significant operational headwinds, cannot be attributed to a single factor but rather to a synergistic interplay of political, institutional, and perceptual dynamics. This discussion is structured around four key, interconnected themes that collectively elucidate the internal mechanics and remarkable longevity of the TAZARA partnership. These themes—strategic complementarity, trust-based governance, mutual advantage, and institutional resilience—form a cohesive framework explaining how this tripartite venture transcended the common pitfalls of post-colonial development projects to become a symbol of South-South solidarity.

The Synergy of Strategic Complementarity

The TAZARA project serves as a paradigmatic example of functional complementarity, where each partner contributed unique and vital resources that were not only non-substitutable but also perfectly aligned to form a self-reinforcing strategic triangle. This was not a simple donor-recipient transaction but a sophisticated alignment of sovereign interests.

Tanzania's contribution was foundational: it offered its political stability under Julius Nyerere's Ujamaa philosophy, a vast sovereign corridor of territory for the rail line, and, most critically, access to the deep-water port of Dar es Salaam, the project's indispensable gateway to global markets. Without this Tanzanian provision, the entire geographic and economic logic of the railway would have collapsed.

China's role was that of a facilitator and executor, providing a comprehensive package of interest-free finance, sophisticated engineering expertise tailored to the challenging terrain of the East African rift system, and the deployment of tens of thousands of dedicated labourers and technicians. This human capital was not merely manual; it included engineers who performed what was then one of the largest overseas civilian projects in Chinese history. As noted by Monson (2009), the Chinese workforce lived in spartan conditions alongside the construction sites, a visible demonstration of shared sacrifice that distinguished them from Western expatriates.

Zambia, for its part, provided the project's core economic ethos: its strategic need for an alternative, sovereign copper export route, free from the extortionate economics and political blackmail of apartheid South Africa and Ian Smith's Rhodesia (Kumar, 2009). The value of Zambian copper, the lifeblood of its treasury, was held hostage by the hostile regimes controlling its southern trade routes.

The profound synergy lay in how these contributions interlocked. Tanzania's Ujamaa ideology, which emphasized self-reliance and collective development, found a sympathetic partner in China's rhetoric of anti-hegemonism and Third World solidarity. Zambia's existential crisis for economic survival dovetailed perfectly with Tanzania's ambition for regional leadership and China's strategic objective to break the diplomatic isolation of the 1960s and 70s by winning allies in Africa (Ampiah, 2010). This configuration created a system of mutual interdependence where the failure of one partner would lead to the collapse of the entire venture. As Green (1988) astutely observed, this model of horizontal cooperation derives its stability from this very interdependence, a stark contrast to the hierarchical, conditional, and often paternalistic power relationships that characterized traditional North-South aid dynamics.

In light of the above, it can be asserted that the project exemplifies functional complementarity, where each partner contributed unique resources. Tanzania provided political stability and port access; China provided finance and expertise; and Zambia contributed its strategic need for an alternative copper route (Monson, 2009; Kumar, 2009). This created a system of mutual interdependence. For instance, at its peak in the late 1970s, TAZARA carried over 1.2 million tons of freight annually, critically fulfilling Zambia's strategic objective (TAZARA, 1980). This model of horizontal cooperation, as Green (1988) notes, derives stability from interdependence, contrasting with hierarchical donor-recipient dynamics.

Institutional Cooperation as a Trust-Based Governance Model

A critical factor underpinning TAZARA's longevity has been its innovative, binational governance model, which institutionalized co-ownership and shared management, thereby fostering a profound sense of local ownership. Established as a joint venture between the two African nations, the project was governed by the TAZARA Council of Ministers, a body with representation from both Tanzania and Zambia, which held supreme authority over policy, budgeting, and strategic direction (Siria, 2022). This institutional architecture was not merely a legal formality; it was the operational heart of the partnership. It was underpinned and energized by the strong personal diplomatic relationship and shared anti-colonial, socialist-leaning political vision between Presidents Julius Nyerere and Kenneth Kaunda. This "Nyerere-Kaunda nexus" provided the essential political will and trust that enabled collaborative problem-solving at the highest levels, bypassing the bureaucratic inertia that often plagues multinational projects.

China's role in this framework was strategically minimalist yet pivotal to its trust-based nature. By designing the project as a "turn-key" operation to be handed over to the binational authority and by conspicuously eschewing the coercive control and stringent policy conditionalities common in World Bank or IMF projects of the era, Beijing helped solidify a framework of operational sovereignty. Instead of maintaining perpetual technical oversight that could foster dependency, China focused significant efforts on capacity-building. This included the comprehensive technical training of hundreds of African engineers and railway personnel in China and on-site, a conscious strategy aimed at fostering long-term operational independence for the authority (Lammich, 2024; Sun, 2023).

This approach stands in stark contrast to many Western-led projects where technical assistance, however well-intentioned, can create a "technocratic trap" of permanent foreign expertise, stifling the development of local managerial and technical capacity. The TAZARA model demonstrated that effective technology transfer requires not just the provision of tools and knowledge, but the deliberate ceding of control to allow for local mastery and adaptation.

Actual and Perceived Mutual Advantage

The sustainability of the TAZARA partnership was further cemented by its demonstrable ability to deliver a matrix of benefits, both tangible and symbolic, that were distinctly valued by all three parties, creating a powerful alignment of interests.

For Zambia, the railway provided an immediate and critical strategic dividend. Upon its completion in 1975, it drastically reduced the country's reliance on hostile, apartheid-era southern routes, cutting the distance to the sea by over 1,000 kilometres and granting Zambia crucial strategic autonomy over its primary source of national income, the copper trade (Kamuhuza & Jianya, 2022). This was not just an economic calculation; it was a fundamental imperative of national security and sovereignty in a volatile regional landscape.

For Tanzania, the project significantly enhanced its geostrategic standing, transforming it from a coastal nation into a pivotal regional transit hub and a leader in African liberation struggles. Furthermore, it stimulated socio-economic development in its previously marginalized and economically dormant southern regions, such as Morogoro and Mbeya, by connecting them to a major international trade artery (Magoma, 2019). New towns sprouted along the line, and agricultural commerce was given a vital channel to markets.

For China, the benefits were multifaceted. Beyond the immediate geopolitical gains of challenging Soviet and Western influence in Africa, TAZARA became a monumental source of soft power. It allowed Beijing to project an image of a reliable, capable, and authentically sympathetic collaborator in the Global South—a "friend in need" (Yuan, 2006). This narrative of selfless solidarity, encapsulated in the Chinese motto of "undemanding aid," was a powerful tool in its diplomatic arsenal. Crucially, as Addis and Zuping (2018) argue, the perception of the relationship as dignified, equitable, and mutually advantageous was as important as the material outcomes. This psychological sense of equivalence and respect fostered sustained political backing from all governments involved, creating a deep reservoir of goodwill. This reservoir has repeatedly enabled the project to survive numerous operational crises, financial shortfalls, and periods of underutilization, as the political cost of allowing TAZARA to fail consistently outweighed its economic underperformance.

This sense of shared dignity is a commodity often conspicuously absent in conventional donor-recipient relationships, where power imbalances can breed resentment and conditionality can undermine national pride.

Sustainability Through Institutional Resilience

TAZARA has demonstrated remarkable institutional resilience. The binational ownership structure has provided a political shield, allowing Tanzania and Zambia to jointly undertake revitalization and resist external pressures for privatization (Zajontz, 2023). Even amid well-documented operational challenges, the railway has maintained an average of 20 scheduled services weekly, demonstrating its embedded role in the regional economy (TAZARA, 2022). Recent modernization efforts show an adaptive capacity, aligning the project with long-term African development agendas like Agenda 2063.

Perhaps the most telling testament to the strength of the TAZARA model is its demonstrated institutional resilience in navigating persistent financial and operational difficulties that would have crippled less deeply rooted ventures. The very structure of binational ownership, while occasionally creating bureaucratic complexities and delays in decision-making, has also provided a powerful political shield. It has allowed Tanzania and Zambia to present a united front, jointly undertaking revitalization efforts and, importantly, resisting external pressures for privatization or dissolution that have frequently accompanied offers of conditional bailouts from international financial institutions (Zajontz, 2023). The entity's status as a shared national asset rendered its outright abandonment a politically unpalatable option for both governments, embedding a powerful survival instinct within the institution.

This resilience is not merely passive but is characterized by a distinct adaptive capacity. The authority's recent efforts to modernize and diversify its revenue streams are indicative of this. These include the adoption of digital management systems for freight scheduling, the exploration of passenger tourism on the "Uhuru Express," and the forging of new operational and maintenance partnerships with contemporary Chinese firms (Lammich, 2024). These reforms are not merely about short-term commercial survival; they are increasingly framed within and aligned with long-term African development agendas, such as the African Union's Agenda 2063, which explicitly emphasizes continental connectivity, infrastructural integration, and intra-African trade.

This strategic repositioning underscores a critical point often missed in narrow economic analyses of development projects: sustainability in international cooperation relies not merely on achieving financial self-sufficiency—a goal many railways in the developed world fail to meet without state support—but on the enduring political commitment and institutional agility that are rooted in a profound sense of local ownership. TAZARA's story is one of an institution that has repeatedly evolved and adapted, its original mission of liberation-era solidarity gradually transforming into a vehicle for 21st-century developmental integration, ensuring its continued relevance for a new era.

CONCLUSION

This study concludes that the TAZARA model, grounded in the synergistic principles of strategic complementarity, trust-based governance, and a clear articulation of mutual benefit, offers a demonstrably resilient and more equitable alternative to the donor-dependent development paradigm. Its historical experience demonstrates convincingly that sustainable outcomes are achievable when international partnerships are consciously designed from the outset to reinforce the agency and advance the long-term strategic interests of all partners involved, particularly the host nations.

The findings confirm that TAZARA's longevity stems not from economic efficiency alone but from the deeper political and institutional foundations laid during its creation. The alignment of distinct but complementary interests among Tanzania, Zambia, and China created a system of mutual interdependence that made project failure politically costly for all parties. The binational governance structure institutionalized co-ownership, fostering a sense of local agency often absent in donor-funded projects. The perception of a dignified, equitable partnership has sustained political backing across decades.

For African nations seeking to break free from cycles of aid dependency, the TAZARA experience offers valuable lessons. Sustainable partnerships are built on the careful articulation of shared interests, the institutionalization of genuine co-ownership, and the cultivation of mutual advantage that is both tangible and symbolic. While TAZARA's specific historical context—the Cold War, the liberation struggles, the personal leadership of Nyerere and Kaunda—cannot be replicated, the principles it embodied remain relevant for contemporary development cooperation.

RECOMMENDATIONS

Based on the analytical findings of this study, the following priority actions are recommended for policymakers:

Institutionalize Co-ownership: African governments and their development partners should establish joint governance structures with equal decision-making power from a project's inception. This includes creating binational or multilateral oversight bodies, ensuring balanced representation, and embedding mechanisms for shared accountability. Co-ownership must be substantive, not merely symbolic.

Articulate Mutual Strategic Interests: Partnerships should be preceded by a formal charter or memorandum of understanding that explicitly maps and aligns the strategic interests of all parties. This document should articulate not only the shared objectives but also the distinct benefits each partner expects to derive, ensuring transparency and a clear foundation for mutual commitment.

Shift from Conditional Aid to Aligned Partnerships: International financial institutions and bilateral donors should move away from prescriptive policy conditionalities toward aligning their support with nationally owned development plans. Respect for local agency and policy sovereignty is not merely a matter of principle but a prerequisite for building the trust and ownership essential for long-term sustainability.

Invest in Capacity-Building with Intentional Handover: Development partnerships should include explicit strategies for transferring technical and managerial capacity to local institutions, with clear timelines for reducing external technical assistance. The goal should be local mastery, not perpetual dependency.

7.5 Recognize and Uphold Symbolic Value: The symbolic dimensions of partnership—dignity, respect, shared identity—matter as much as material benefits. Development cooperation should be designed to affirm the agency and sovereignty of partner nations, recognizing that perceptions of equitable partnership generate political will, which is essential for sustainability.

STUDY LIMITATIONS AND FUTURE RESEARCH

This study, while providing valuable insights, is necessarily limited by its exclusive reliance on documentary sources. The absence of primary data from interviews with key stakeholders—such as former TAZARA managers, engineers, local community members, and government officials—means that certain lived experiences, internal governance dynamics, and contemporary perspectives remain unexplored. Future research could fruitfully employ mixed-methods approaches, combining documentary analysis with in-depth interviews and ethnographic fieldwork, to provide richer, more textured insights into the governance challenges and adaptive strategies of such cooperative models.

Furthermore, rigorously designed quantitative studies are needed to measure and compare the long-term socioeconomic impacts of cooperative models such as TAZARA with those of conventional aid projects. Such studies could examine employment outcomes, regional trade flows, and community development indicators across comparable infrastructure projects. Emerging and critical sectors—such as digital infrastructure, renewable energy, and pharmaceutical manufacturing—where new South-South partnerships are rapidly forming would be particularly valuable sites for such comparative research.

Finally, the case selection for this study TAZARA as a "deviant case" necessitates comparison with cases that did not survive. Future research could examine infrastructure partnerships in Africa that failed or collapsed, identifying the conditions that distinguish resilient from fragile partnerships. Such a comparative analysis would strengthen the generalizability of the findings and provide clearer guidance for policymakers.

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Supply Chain Integration and Inventory Control as Drivers of Medical Supply Chain Performance in Tanzania: Moderation by Information Technology

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Abstract
Reliable medical supply chains are critical to Tanzania's progress toward universal health coverage, yet public facilities continue to experience stockouts, delays, and waste. Grounded in the Resource-Based View, this study examines how Supply Chain Integration and Inventory Control shape Medical Supply Chain Performance and whether Information Technology conditions those effects. An explanatory cross-sectional survey was conducted among healthcare workers in public health centres and dispensaries in Songwe Region (n = 289), using validated Likert scales and estimating a variance-based structural equation model. Results show that Supply Chain Integration and Inventory Control are associated with higher Medical Supply Chain Performance, while Information Technology exerts the strongest direct influence. Information Technology also amplifies the payoff from Supply Chain Integration but attenuates the benefit of traditional inventory routines when they are not IT-aligned. Theoretically, the findings extend the Resource-Based View by identifying Information Technology as a platform resource that complements integration (co-specialization) and sets boundary conditions for inventory capabilities. Managers and policymakers should strategically embed Information Technology across supply chain functions by strengthening system interoperability, institutionalizing Information Technology-driven inventory governance (parameter tuning, FEFO enforcement, removal of duplicative paper processes), and investing in user capability and data stewardship to secure durable performance gains in the medical supply chain.

Keywords: *Medical supply chain performance; supply chain integration; inventory control; information technology.*

INTRODUCTION

Persistent challenges in accessing essential medical supplies continue to undermine healthcare delivery in Tanzania, with recurrent stockouts, delays, and wastage documented across public facilities (Mwakasala & Makoye, 2024; Silabi et al., 2023). Ensuring reliable, affordable, and high-quality medical products is central to Sustainable Development Goal 3 (SDG 3) on good Health and well-being, making the performance of national supply systems a public health priority (Sweileh, 2021).

The Medical Stores Department (MSD) manages nationwide procurement, warehousing and distribution in Tanzania. Despite reforms, most notably the Electronic Logistics Management Information System (e-LMIS), persistent problems such as stockouts, delivery delays, weak demand forecasting, and commodity expiry remain, with particularly poor performance reported in regions like Songwe (CAG, 2023; Milulu et al., 2024). These operational shortfalls erode service readiness and public confidence (Kesale et al., 2022).

Two operational capabilities are particularly salient for Medical Supply Chain Performance (MSCP). Supply Chain Integration (SCI) is the coordinated alignment of planning and execution through information sharing, collaboration, and systems linkage that supports more accurate forecasting and timelier replenishment (Alzoubi et al., 2022; Fernández, 2022). Inventory Control (INC), disciplined ordering, monitoring, and expiry management, reduces wastage and stabilises service continuity (Guo et al., 2024; Hezam et al., 2023). When weakly deployed, gaps in SCI and INC translate directly into avoidable stockouts and higher carrying costs.

Information Technology (IT) can enhance these capabilities by improving real-time visibility, interoperability, and automation across health system tiers (Yu et al., 2021; Mollel et al., 2024). Yet IT tools yield performance gains only when they are reliable and embedded in day-to-day routines; uneven connectivity, parameter mis-tuning, or parallel paper processes can dilute their benefits (Milulu et al., 2024).

Guiding this study, the Resource-Based View (RBV) explains performance differences by positing that firms possess and deploy valuable, rare, inimitable, and non-substitutable capabilities (Barney, 1991). Within this lens, SCI and INC are operational capabilities whose value depends on complementarity and fit with other resources, notably IT infrastructure and data quality (Afrifa et al., 2021; Wetering & Versendaal, 2020). We therefore conceptualize IT as a platform capability that can condition the returns to SCI and INC: when IT systems are reliable and well-governed, they should amplify the performance contribution of integration; when misaligned, they can substitute for or blunt the payoff to local inventory routines, a boundary condition that extends RBV's treatment of co-specialized assets (Giustiziero et al., 2023).

Despite ongoing digitization, few empirical studies in Tanzania test, within an RBV framework, whether IT moderates both the SCI→MSCP and INC→MSCP relationships. This study addresses that gap by modelling SCI and INC as core operational capabilities and theorizing IT as a moderator that conditions their effects on MSCP. We then empirically test this moderation model using facility-level survey evidence from the public sector and derive actionable recommendations for MSD-managed supply chains.

LITERATURE REVIEW

Theoretical Background

Resource-Based View (RBV)

The Resource-Based View (RBV) attributes performance differences to the possession and deployment of valuable, rare, inimitable, and non-substitutable resources and capabilities (Barney, 1991). In supply chain contexts, operational capabilities such as effective inventory systems, integrated information flows, and skilled personnel are frequently advanced as strategic assets that underpin superior outcomes (Giustiziero et al., 2023; Wetering & Versendaal, 2020). Within this lens, two capabilities are salient for Medical Supply Chain Performance (MSCP): Supply Chain Integration (SCI), the coordinated alignment of planning and execution through information sharing, collaboration, and systems linkage, and Inventory Control (INC), disciplined ordering, monitoring, and expiry management.

RBV further emphasises complementarity among co-specialized assets; consequently, we expect the realized value of SCI and INC to depend on their fit with IT infrastructure and data quality. Information Technology (IT) is a platform capability that can condition the returns to SCI and INC by enhancing real-time visibility, interoperability, and automation (Yu et al., 2021). The literature supports RBV as a coherent lens for modelling

SCI and INC as performance-enhancing capabilities. Still, it offers limited evidence on whether an IT platform capability systematically strengthens these effects in Tanzania's public sector. This study addresses that gap by theorizing and testing IT's conditioning role.

Empirical Literature and Hypotheses Development

Supply Chain Integration and Medical Supply Chain Performance

Empirical studies associate integration with gains in forecasting accuracy, reduced lead-time variability, and higher availability (Alzoubi et al., 2022; Fernández, 2022). In Tanzania, coordination with the Medical Stores Department and structured information sharing are particularly salient given dispersed facilities and variable demand patterns (Wiedenmayer et al., 2021). While this body of work indicates that SCI enhances visibility and delivery reliability, the magnitude of SCI's contribution under varying levels of IT maturity remains under-documented for Tanzania. Accordingly, we hypothesise a positive SCI→MSCP relationship and evaluate whether IT conditions affect it.

H1: Supply Chain Integration (SCI) positively influences Medical Supply Chain Performance (MSCP).

Inventory Control and Medical Supply Chain Performance

Evidence indicates that robust inventory control reduces expiries, stabilizes service continuity, and lowers costs through disciplined replenishment and FEFO-based stock rotation (Guo et al., 2024; Hezam et al., 2023). Persistent replenishment discipline and expiry management weaknesses have been reported despite IT investments, underscoring the need to align facility routines with system parameters. The literature, therefore, implies a positive association between INC and MSCP. Yet, it remains unclear in Tanzania whether IT platforms consistently augment local inventory routines or, under misalignment, attenuate their marginal returns. We test a positive INC→MSCP relationship and examine IT's conditioning role.

H2: Inventory Control (INC) positively influences Medical Supply Chain Performance (MSCP).

Moderating Role of Information Technology

From an RBV perspective, IT is a platform capability that complements operational routines by improving data timeliness and accuracy and supporting automation (Yu et al., 2021; Mollel et al., 2024). Where connectivity is stable and parameters are well-governed, IT should amplify the performance contribution of integration; conversely, misconfigured systems or duplicative paper processes may blunt the marginal benefits of local inventory routines. Existing studies generally support IT's role in strengthening visibility and process control. Yet, little evidence quantifies the sign and size of IT's moderating effect on the SCI→MSCP and INC→MSCP relationships in Tanzania. We therefore model IT as a moderator of both links and empirically estimate the conditional effects.

H3: IT positively moderates the relationship between SCI and MSCP.
H4: IT positively moderates the relationship between INC and MSCP.

Conceptual Framework
Figure 1 summarizes the RBV-based framework: SCI and INC are operational capabilities that drive MSCP, and IT is a platform capability that conditions both effects by enabling visibility, interoperability, and automation. The model specifies direct effects (H1, H2) and moderated paths (H3, H4).

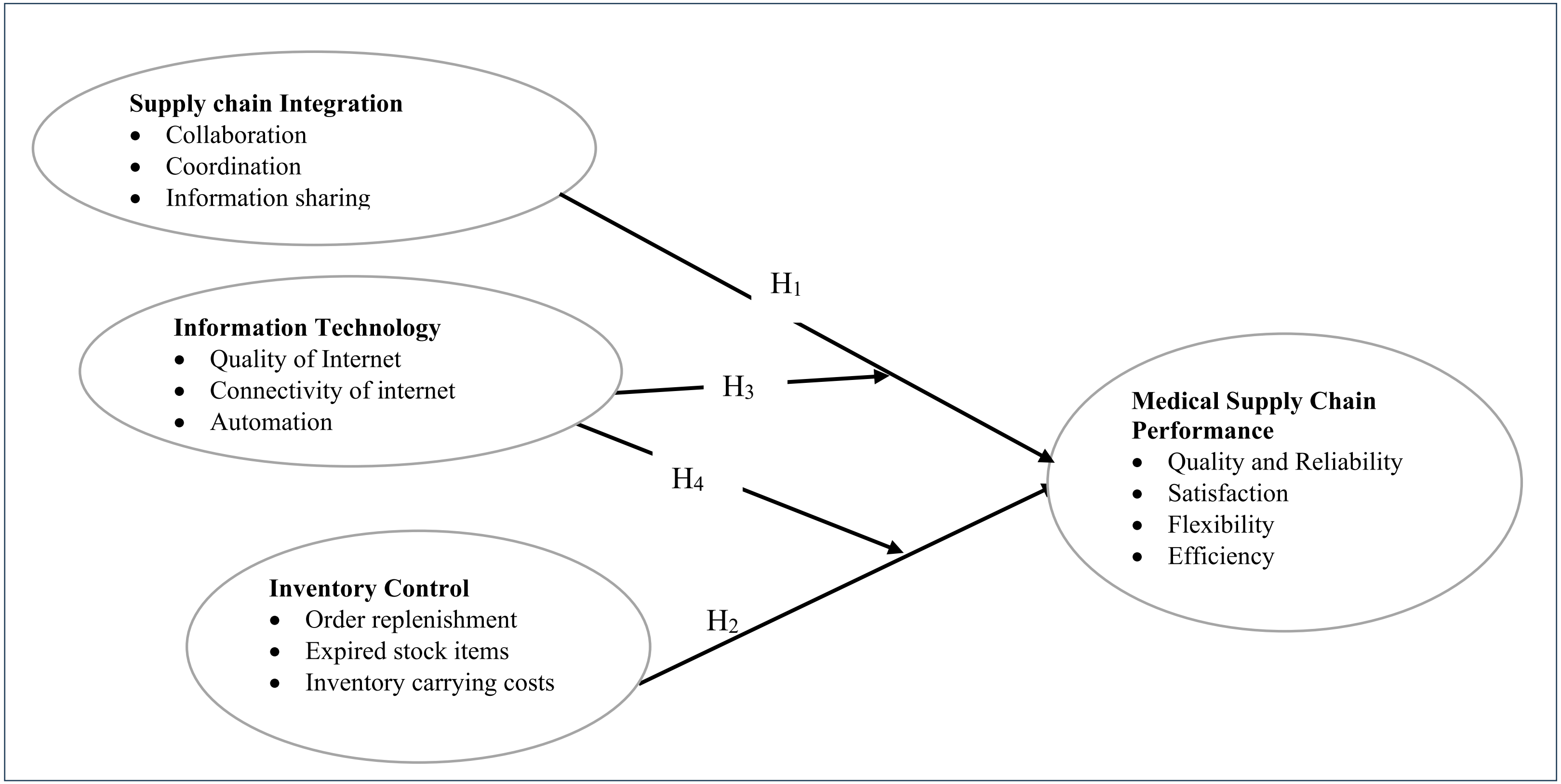

Figure 1: *Conceptual framework (RBV): IT moderates the effects of SCI and INC on MSCP.*
Source: Researcher (2025)

METHODS

Research philosophy, design, and approach

This study adopts a positivist, deductive design to test theory-driven hypotheses on Medical Supply Chain Performance (MSCP), using an explanatory cross-sectional survey to collect quantitative data at a single point in time from geographically dispersed facilities. The study Hypothesis estimates with variance-based structural equation modelling (PLS-SEM), a technique well suited to prediction-oriented research, reflective latent constructs, and moderation analysis (Creswell, 2018; Bentouhami et al., 2021; Mukherji & Albon, 2022; Firdaus et al., 2021; Hair et al., 2022; Sarstedt et al., 2021).

Population, sampling techniques, and sample size.

The empirical setting was the Songwe Region in Tanzania. The target population comprised healthcare workers who ordered, received, stored, or dispensed medicines and medical supplies at public health centres and dispensaries supplied by the Medical Stores Department (MSD). The study excludes staff from MSD personnel because the unit of analysis was the service-delivery facility and the focus was on facility-level practices and outcomes (Wiedenmayer et al., 2021).

Using a multistage probability strategy to balance geographical coverage with fieldwork feasibility. Councils in Songwe (Mbozi, Ileje, Momba, Tunduma, and Songwe) served as strata to ensure representation across administrative areas. Within each stratum, facilities were selected as clusters from District Medical Office lists, and eligible staff within sampled facilities were then chosen by simple random sampling, an approach consistent with best practice in survey sampling for dispersed populations (Bhandari, 2021; Lohr, 2021; Rahman et al., 2022). The a priori sample size was calculated using Yamane's (1967) formula at 95% confidence and a 5% margin of error, yielding (n=289). It exceeds common PLS-SEM heuristics—such as the 10-times rule based on the maximum number of structural paths entering an endogenous construct—and provides adequate power to detect both direct and interaction (moderation) effects (Hair et al., 2019; Hair et al., 2022).

Measures and instrument development

Data were collected via a structured questionnaire with five-point Likert scales (1 = strongly disagree to 5 = strongly agree). Instrument adaptation followed a staged protocol that mapped constructs to local workflows, sourced items from validated scales, and relied on expert review by supply-chain and public-health specialists to establish content validity. Items were forward–back translated by bilingual reviewers to ensure conceptual equivalence, cognitively pre-tested in two non-sampled facilities to check comprehension and cultural fit, and then piloted with approximately 20 respondents to assess clarity, item–total correlations, and preliminary reliability; wording was refined and ambiguous items revised or earmarked for removal (Podsakoff et al., 2003; Hair et al., 2022).

Supply Chain Integration (SCI) uses coordination, information sharing, collaboration, and systems alignment (Alzoubi et al., 2022; Fernández, 2022; Birhanu et al., 2022). Inventory Control (INC) covered replenishment discipline, expiry management using first-expiry-first-out (FEFO), and inventory carrying-cost consciousness (Guo et al., 2024; Hezam et al., 2023). Information Technology (IT), specified as the moderator, captured internet quality and uptime, connectivity, and interoperability with e-LMIS/ERP/EDI/API links, and process automation such as e-ordering, auto-replenishment, and barcode/RFID dashboards (El-Baz & Ruel, 2021; Kauppi & Luzzini, 2022; Spieske & Birkel, 2021; Yu et al., 2021). MSCP reflected quality and reliability, user satisfaction, flexibility, and efficiency (e.g., on-time-in-full, stockout days, and order-cycle time) when contextualized for the Tanzanian public sector (Wiedenmayer et al., 2021; CAG, 2023; George & Elrashid, 2023; Silabi et al., 2023).

Data collection, bias mitigation, and ethics

Surveys were administered in person or via supervised self-administration, during routine working hours after obtaining council and facility permissions. Participation was voluntary and anonymous; a written informed consent was required before completion. Ethical approval was granted by the relevant research ethics committee at the Open University of Tanzania, where I obtained a permit for data collection, and government research permits were obtained from the competent authorities in the offices of the regional administrative secretaries in Songwe and Mbeya regions. Facility-level approvals were secured from in-charges before fieldwork commenced (Creswell, 2018).

Data preparation and analysis

Data preparation followed a pre-specified pipeline. Coding verification and range checks were undertaken, followed by missing-data diagnostics. When item-level missingness was at or below five percent and plausibly Missing At Random, values were imputed using expectation–maximization or mean imputation as appropriate; when missingness exceeded five percent or appeared Not Missing At Random, cases were handled by list-wise deletion with sensitivity analyses to assess robustness (Hair et al., 2022). Potential outliers were screened using leverage, and Mahalanobis distance with conservative cut-offs, and distributional properties (skewness, kurtosis) and bivariate correlations were inspected (Hair et al., 2019). Before structural estimation, predictors were mean-centred, and product terms were created for the moderation effects SCI × IT and INC × IT (Hair et al., 2022; Sarstedt et al., 2021).

Descriptive statistics (means and standard deviations) and correlations were computed in SPSS v27. PLS-SEM estimation was performed in SmartPLS v4.1 with all constructs specified as reflective. Measurement quality was assessed against standard thresholds, retaining indicators with loadings of at least 0.708, accepting composite reliability between 0.70 and 0.95, and confirming convergent validity where average variance extracted was at least 0.50; discriminant validity was evaluated using the heterotrait–monotrait ratio with targets below 0.85–0.90 (Hair et al., 2019; Hair et al., 2022; Sarstedt et al., 2021). Inner and outer model collinearity was examined using variance inflation factors, with acceptable values ranging from 3 to 5 (Hair et al., 2019). To address common-method bias, Harman's single-factor test was applied with a criterion of less than 50% variance explained, and full-collinearity VIFs were inspected with a threshold of 3.3 or lower (Podsakoff et al., 2003; Kock, 2015). Structural paths were tested using non-parametric bootstrapping with at least 5,000 resamples, adopting significance thresholds of ($t \geq 1.96$) and ($p \leq .05$) (Hair et al., 2022). Moderation was estimated using the two-stage approach, and conditional effects were probed with simple-slope analyses at low (−1 SD), mean, and high (+1 SD) levels of IT following recommended procedures for variance-based SEM (Hair et al., 2019; Hair et al., 2022; Sarstedt et al., 2021).

MSCP was modelled as a reflective latent construct. For hypothesis testing, analyses relied on SmartPLS latent variable scores weighted by outer loadings, whereas unweighted item means were reported solely for descriptive summaries and were not used for inferential testing (Hair et al., 2019; Hair et al., 2022).

Results

This section reports the SmartPLS v4.1 results in the recommended order: measurement model assessment followed by structural model assessment.

Measurement model evaluation

Reliability and validity adhered to recommended thresholds (Hair et al., 2019, 2020; Sarstedt et al., 2021): loadings ≥ 0.708, composite reliability

0.70–0.95, AVE ≥ 0.50, HTMT < 0.85–0.90 with confidence intervals excluding 1, and inner/outer VIF < 3–5.

Table 1
Reliability and convergent validity

Construct	Cronbach's α	Composite (ρA)	Composite (ρC)	AVE
INC_	0.862	0.876	0.917	0.787
IT_	0.807	0.850	0.885	0.722
MSCP_	0.866	0.889	0.907	0.711
SCI_	0.895	0.918	0.926	0.758

Source: Survey data (2024)

Table 2
Discriminant validity (HTMT)

	INC_	IT_	MSCP_	SCI_	IT_×SCI_	IT_×INC_
INC_	—					
IT_	0.522	—				
MSCP_	0.704	0.845	—			
SCI_	0.388	0.372	0.547	—		
IT_×SCI_	0.082	0.344	0.234	0.121	—	
IT_×INC_	0.056	0.430	0.298	0.073	0.564	—

Source: Survey data (2024)

Structural model evaluation

Model paths were evaluated via bootstrapping (≥5,000 resamples) with significance at $t \geq 1.96$ and $p \leq .05$. Explanatory power used $R^2 \approx 0.25/0.50/0.75$ for weak/moderate/substantial; effect sizes used $f^2 = .02/.15/.35$; predictive relevance required $Q^2 > 0$ (blindfolding) and PLS predict for out-of-sample performance. Robustness checks (optional) included multi-group analysis and controls (facility level, region, ownership, and budget). IT functioned analytically as a moderator interacting with SCI and INC to amplify their effects on MSCP.

Table 3
Predictive relevance (Q^2)

Endogenous Construct	Q^2
MSCP_	0.33

Table 4
Inner model collinearity (VIF)

Path	VIF
INC_ → MSCP_	1.337
IT_ → MSCP_	1.555
SCI_ → MSCP_	1.269
IT_×SCI_ → MSCP_	1.577
IT_×INC_ → MSCP_	1.613

Source: Survey data (2024)

Table 5
Effect sizes (f^2)

Path	f^2
INC_ → MSCP_	0.182
IT_ → MSCP_	1.783
SCI_ → MSCP_	0.181
IT_×SCI_ → MSCP_	0.068
IT_×INC_ → MSCP_	0.123

Source: Survey data (2024)

Table 6. Explained variance (R^2)

Endogenous Construct	R^2
MSCP_	0.818

Overall, diagnostics indicate reliable and valid measures, acceptable collinearity, meaningful direct and moderated effects, with decisive IT contribution and substantial explained and predictive variance for MSCP.

Hypothesis Testing and Path Coefficients
Hypotheses were tested using bootstrapping with 5,000 resamples. Results are summarized in Table 7.

Table 7
Path coefficients and significance (bootstrapping, 5,000 resamples)

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
INC_ → MSCP_	0.211	0.210	0.034	6.141	0.000
IT_ → MSCP_	0.710	0.712	0.032	22.021	0.000
SCI_ → MSCP_	0.204	0.205	0.034	5.951	0.000
IT_×SCI_ → MSCP_	0.151	0.153	0.037	4.114	0.000
IT_×INC_ → MSCP_	-0.195	-0.198	0.038	5.200	0.000

Source: Survey data (2024)

Overall, the diagnostics indicate reliable and valid measures, acceptable collinearity, and substantial explained and predictive variance for MSCP; taken together, the results support significant direct effects of INC, IT, and SCI on MSCP, with IT making a decisive contribution and significantly moderating both the SCI→MSCP and INC→MSCP relationships

Response rate
Of 314 targeted respondents, 289 completed the survey (response rate = 92%), which exceeds common thresholds for high-quality survey research. Following established survey methodology practices, non-response bias was assessed using the extrapolation approach by comparing early vs late respondents on key study constructs and observable characteristics.

Independent-samples t-tests indicated no statistically significant differences between the groups ($p > 0.05$), suggesting that non-response bias is unlikely to threaten the validity of the findings. Consistent with Kuya and Kelei (2022), who categorize response rates above 70% as superb, the response rate achieved in this study is considered methodologically robust.

Based on this assertion, the response rate was deemed impressive. The response rate for this study is shown in Table 7. The results (found that more than 70% of respondents responded to their research, "Buyer-supplier integration's influence on supplier logistics performance" are consistent with the response rate of over 70%.

Table 8:
Respondents' Rate

Type of Respondent	Number of respondents		Per cent
	Expected	Actual	
Workers from Health Centres and Dispensaries in Songwe Region	314	289	92

Discussion of Results

The results portray a coherent pattern: Supply Chain Integration (SCI) and Inventory Control (INC) are both associated with higher Medical Supply Chain Performance (MSCP), and Information Technology (IT) exerts the strongest direct influence while conditioning the returns to these capabilities. Interpreted through the Resource-Based View (RBV), SCI and INC function as internal, performance-enhancing capabilities. Depending on alignment, IT can operate as a complementary resource that amplifies or attenuates productivity. The positive SCI effect aligns with evidence that coordinated planning, information sharing, and systems alignment reduce stockouts and improve availability (Alzoubi et al., 2022; Fernández, 2022; Birhanu et al., 2022; George & Elrashid, 2023; Wiedenmayer et al., 2021). The positive INC effect is consistent with studies showing that disciplined replenishment and FEFO-based expiry control stabilize supply and reduce waste (Guo et al., 2024; Hezam et al., 2023). The dominant direct role of IT aligns with research linking connectivity, interoperability, and automation to shorter cycles and more reliable fulfilment (Yu et al., 2021; Spieske & Birkel, 2021).

Beyond confirming RBV expectations, the moderation pattern advances theory in two ways. First, the positive IT×SCI effect indicates co-specialization: when IT quality and interoperability are high, integration routines translate more fully into performance. In RBV terms, IT and SCI are complementary assets, and their joint deployment yields super-additive returns. Second, the negative IT×INC effect marks a boundary condition for

RBV: as IT workflows (e.g., e-ordering, parameterized auto-replenishment) become dominant, the incremental value of legacy, manually governed inventory routines falls, unless those routines are re-engineered to be IT-native**.** It refines RBV by showing that the value of a capability depends on resource orchestration and its fit with the IT stack; capability returns are not uniform but depend on how processes are parameterized, trained, and governed in IT environments (see also Hezam et al., 2023; Milulu et al., 2024). In short, IT is not merely another resource but a platform resource that conditions when and how internal capabilities create value.

Theoretical implications (RBV)

The findings substantiate SCI and INC as valuable internal capabilities while extending RBV in three respects. First, they demonstrate complementarity between IT and SCI: performance gains from integration are larger when paired with robust IT, consistent with RBV's emphasis on resource bundles rather than isolated assets (Alzoubi et al., 2022; Yu et al., 2021). Second, they identify a boundary condition for INC: without IT alignment (e.g., tuned reorder points/lead times, in-system FEFO), automated routines can substitute for manual controls, reducing the marginal contribution of traditional INC. Third, they highlight resource orchestration as a mechanism: the same capability (INC) can yield different returns depending on how it is governed and embedded in IT-enabled workflows. Collectively, this moves beyond confirmation to specify when RBV capabilities pay off in public-sector health supply chains.

Managerial and policy implications

Beyond managerial actions at the facility level, the findings carry significant implications at the system and policy levels. Sustainable performance improvements in Tanzania's medical supply chain require institutional and regulatory conditions that scale IT- enabled integration across facilities.

First, national financing frameworks should prioritize earmarked investments in last-mile connectivity, power redundancy and system maintenance budgets to ensure baseline IT reliability. As highlighted by CAG (2023), infrastructure instability and inconsistent system usage undermine the effectiveness of automated replenishment and the integrity of audits.

Second, regulatory authorities should formalize national standards for master data governance (item catalogues, units of measure, pack sizes), interoperability protocols between e-LMIS and ERP platforms, and structured parameter governance. Evidence suggests that weak data governance and system fragmentation distort demand signals and compromise inventory accuracy (Wiedenmayer et al., 2021; Hezam et al., 2023).

Third, coordinated donor programs and structured public–private partnerships (PPPs) can accelerate the adoption of Automatic Identification and Data Capture (AIDC), including barcoding and RFID, particularly in resource-constrained facilities. Scaling such technologies has been associated with improved traceability, reduced expiry losses, and enhanced stock visibility (Guo et al., 2024; Hezam et al., 2023).

Fourth, regulatory guidance should institutionalize audit trails, parameter review cycles, and automated exception monitoring to stabilize replenishment systems and reduce opportunistic or ad hoc overrides. Institutional oversight mechanisms have been shown to strengthen accountability and operational transparency in public supply chains (CAG, 2023).

Finally, regional coordination mechanisms, such as collaborative forecasting platforms and pooled procurement arrangements, can mitigate demand volatility and improve supply continuity across facilities. Such inter-organizational integration aligns with emerging evidence on supply chain resilience and predictive performance monitoring (Yu et al., 2021; Spieske & Birkel, 2021).

Embedding standardized KPI monitoring (e.g., OTIF (On Time In Full), stockout days, expiry rates) alongside PLS predict-style predictive performance tracking into routine supervisory systems can further institutionalize data-driven decision-making and sustain reform momentum (Yu et al., 2021; CAG, 2023).

CONCLUSION

The study shows that SCI and INC relate positively to MSCP, while IT is the dominant lever shaping how those capabilities convert into performance. In RBV terms, IT acts as a platform resource that amplifies the value of integration and reconfigures returns to inventory routines unless they are IT-driven, process-aligned. The actionable path, therefore, is to pair reliable IT infrastructure and interoperability with IT-native inventory governance, targeted capability building, and robust data stewardship, so that performance gains are both realized and sustained (Alzoubi et al., 2022; Fernández, 2022; Spieske & Birkel, 2021).

Limitations and future research

The cross-sectional design limits causal inference; phased or longitudinal studies, ideally linked to transactional e-LMIS logs and periodic physical counts, would better identify dynamics and reduce common-method risk (CAG, 2023; Milulu et al., 2024). Process evaluations should probe when IT complements rather than substitutes for local inventory routines, focusing on parameter governance, user training, and workflow redesign. Future work could also examine the cost-effectiveness and equity implications of IT-enabled supply-chain upgrades and deploy multilevel models to capture interactions between facility capabilities and system-level supports.

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User Involvement in Procurement Planning and Procurement Performance in Zanzibar local government authorities: The moderating effect of user competence

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Abstract
The paper aims to study the influence of user involvement in procurement planning on procurement performance, while also examining the moderating effect of user competence. This study employed a quantitative approach. The primary data were collected from 159 heads of departments in Zanzibar Local Government Authorities using a structured questionnaire, and the partial least squares structural equation model (PLS-SEM) was employed for data analysis. The results reveal that user involvement in procurement planning (UIPP) ($\beta = 0.560$, $p = 0.000$) significantly influences procurement performance (PP). Regarding the moderating effect of user competence, it positively moderates the relationship between UIPP and PP ($\beta = 0.181$, $p = 0.000$). Based on the main results, it was concluded that procurement planning and user competence are significant factors for the procurement performance in ZLGAs. This study provides empirical evidence of user participation in procurement planning and user competence in the previously unexplored context of Zanzibar. Additionally, policymakers are using the findings to develop targeted policies that promote user participation and relevant training for all stakeholders to enhance procurement performance. The study recommends that ZLGAs ensure user participation by adhering to procurement rules and regulations and employing well-equipped, adequately skilled personnel.

Keywords: *Procurement planning, Procurement performance, User competence, User involvement*

INTRODUCTION

Public procurement plays a crucial role in delivering services and ensuring the satisfactory performance of procuring entities (Lyimo & Mrema, 2022). The services and economic development brought about by public procurement is more effective and efficient in meeting procurement requirements. It can result in spending an enormous sum of money to reach the targets of the government and citizen satisfaction because of its positive influence on the government (Mwaiseje et al., 2024). Chaitongrat et al. (2021) stated that 75% of the world's spending is on state procurement, which is equal to approximately 12% of gross domestic product (GDP), and this amount has to increase to 12.7% in 2023 (World Bank, 2025a). As an example, Kenya uses 60% of its GDP, Angola 58%, Uganda 70% and 59.9% of its GDP in Tanzania (David, 2022). The semi-autonomous state of Zanzibar contributes about 7% of GDP (World Bank, 2025b).

The government implements various measures to improve public procurement and entrusts the public sector with full authority to execute procurement and meet public demand in line with laws, standard documents, and guidelines (Nisnisan & Salapa, 2024). Procurement laws and regulations have been implemented to normalise processes, foster equity, increase competition, and hold people accountable for the use of government-allocated funds (Mrope, 2017). Public procurement is related to training programmes, certification requirements, and ongoing professional development initiatives that aim to enhance the technical capabilities, ethical principles, and legal knowledge of public procurers and stakeholders (World Bank, 2025a). Governments have also enhanced the integration of budgeting and procurement planning to ensure procurement activities are sufficiently funded and aligned with policy priorities by linking procurement plans to approved budgets and national development plans (Belisca et al., 2023). This has enhanced procurement performance and facilitated the provision of improved services to people. Procurement performance is a key determinant of the success of public institutions, enabling organisations to acquire high-quality products, services and works to operate their institutions efficiently. Procurement performance must focus on internal processes that achieve timely, high-quality, quantity-suitable, and cost-effective delivery of the items (Nduhura et al., 2021).

Procurement performance is vital to the success of a government institution as it enables the organisation to acquire quality goods, services and labour that will support its operations through productive and efficient services (Kariuki & Kimani, 2021). According to Eliah and Athumani (2020) concluded that internal procedures are the core of procurement performance in terms of timely, high-quality, and appropriate quantity and cost-efficient delivery of goods and services. To achieve effective procurement performance, organisations must ensure that procurement activities are clearly identified and aligned with organisational objectives. To obtain this, the organisation should ensure they plan well what, when and how much to procure products and services (Christophe, 2021).

Procurement planning is a critical area which has a considerable effect on procurement performance. It gives a structure on how to determine needs, allocation of resources, and how to plan tasks involved with procurement (Salim & Kitheka, 2019). In this stage, the organisation identifies the scope, volume, and timeline of procurement activities (Konneh, 2024). A properly drafted procurement plan minimises the risk of buying in a hurry and going over budget, makes procurement more transparent, and provides a map of the process. It enhances the chances of tasks being completed and of goods being delivered on time (Prasetyo & Sri, 2025). Efficient organisational procurement planning should also be employed to achieve operational efficiency in line with available procurement laws, rules, and guidelines (Corboș et al., 2023)Poor stakeholder involvement or inadequate user training can hinder procurement performance, leading to unclear specifications or delays; thus, addressing these challenges through capacity building and clear guidelines is essential for effective user participation (Muhwezi et al., 2020).

User engagement in procurement planning highlights the importance of stakeholder involvement, making the audience feel their participation is valued in supporting operational success (Mgawe & Kiwango, 2023). Such insights can be integrated at an early stage to minimise the risk of contract breakdown, last-minute buying decisions, or changes in plans, and to make planning more reactive and realistic. User involvement enhances the planning process by harmonising procurement objectives with operational realities and project implementation (Chepkesis & Keitany, 2018). The user service is involved in creating the needs assessment, delivery schedule, and market analysis in procurement planning. This shows that user involvement in procurement planning has various advantages, including the ability to deliver the required items to the organisation in terms of quantity, time, and quality (Nduhura et al., 2021). Users will be required to be involved in the planning of the procurement process as part of the legal framework for public procurement (Salim & Kitheka, 2019). The user department must prepare a statement of requirements based on its budgetary authorisation. This statement should then be sent to the procurement management unit, where it is to be incorporated into the annual procurement plan and departmental requirements (RGZ, 2025).

There is little doubt that the effectiveness of the public entities in procurement can also depend on the involvement of the users in procurement planning (Changalima et al., 2020). Chepkesis and Keitany (2018) established that the active involvement of the users in defining and identifying the requirements and making the right estimates is related to the quality improvement and time management. Mutoro et al. (2018) state that user involvement in the development of the statement of requirements not only agrees with the approved budget but also guarantees the delivery on time and the appropriate quality. Udoba and Mwalukasa (2025) indicate that direct involvement of the user department in planning procurements entails proper requirement definition and the provision of approximate requirements, thereby enhancing quality and saving time. Mutoro et al. (2018) recognised that the timely delivery and the appropriate quality of the purchased materials were the outcomes of preparing the work plan by the user department based on the approved budget.

Various literature identifies the advantages of procurement planning and procurement performance (Corboș et al., 2023). Changalima et al. (2020) conclude that procurement planning is becoming important to the procurement practice and a major driver of balancing organisational objectives and success among organisations. It is applied to plan the acquisition of materials or items over a given period within the organisation's approved budget. It also helps to make sure that organisations are efficient and effective in the use of resources to provide improved services because it identifies the start and end of the procurement process (Nduhura et al., 2021). However, none of these studies has investigated how user involvement in procurement planning affects procurement performance. Furthermore, the researchers have examined the impacts of this relationship they found inconsistent findings. For instance, Odero and Shitseswa (2017) found an insignificant relationship between procurement planning and procurement performance, whereas Shisanya and Omwenga (2018) and Zemedagegnehu (2020) found positive, significant relationships between procurement planning and performance. Such inconsistent outcomes necessitate determining which variables affect the association between procurement planning and procurement performance. To overcome these issues, some previous studies have introduced a moderator. For instance, Mutangili et al. (2020) introduce the moderating effect of the regulatory framework and Matunga (2023) introduce the moderating effect of monitoring and evaluation. This study introduces the moderating effect of user competence, drawing on prior recommendations. Mwagike (2025) revealed that staff competence affects the quality of procurement delivery items and timely delivery. Furthermore, Azwandi et al. (2024) concluded that procurement strategies are successful in the organisation when staff involved in the process are well-trained and skilled. These studies, however, fall short of examining the relationship between user involvement in procurement planning and procurement performance, as well as whether user competence strengthens this relationship. To address this, the current study aims to investigate the moderating effect of user competence in the relationship between user involvement in procurement planning and procurement performance in Zanzibar local government authorities.

THEORETICAL LITERATURE REVIEW

The paper employs two theories, institutional theory and the competence model theory, to offer a holistic explanation of the relationship between individual abilities and institutional constraints.

Institutional Theory

John Meyer and Brian Rowan advanced institutional theory in the late 1970s. This theory deals with the relationships and interactions among organisations, as well as how they are influenced by the environment in which they operate. Dillard et al. (1991) point out that the first theory developed was institutional theory, which explains organisational behaviour, including methods of communication, collaboration, interaction, and employee decision-making. Dacin et al. (2002) state that institutional theory comprises three pillars: normative, cultural-cognitive, and regulatory. The normative theory concerns how the organisation should have done things, as well as the values that govern morality. Regulatory focus is centred on legally approved standards, rules, laws, procedures and regulations. Cultural cognition lies in collective cognition between significant stakeholders. This means that the positive impact on procurement performance depends on how procurement practitioners implement these pillars (Sindiga et al., 2019).

Considering user involvement in procurement planning, institutional theory shows how adherence to procurement rules symbolically enhances procedural compliance and credibility. It focused on what procuring entities are expected to do (Kabelele & Kitomo, 2022). Procurement planning is formalised and regulated to ensure the organisation's expectations are met (Keitany, 2024). If the organisation adopts procurement planning as a mechanism, it provides meaningful implementation by improving quality, timeliness and cost control (Nduhura et al., 2021). Institutional theory is relevant to this study because it provides insight into how user involvement in procurement planning influences procurement performance. It shows that user involvement in procurement planning is an institutional response to external pressures. It requires user participation in procurement planning to ensure better procurement performance in terms of delivery time, quality, and quantity. Institutional theory focuses on external pressures and overlooks individual knowledge and skills; this study addresses this gap by incorporating the moderating effect of user competence.

Competence Model Theory

Mwagike (2025) states that the concept of competence must be connected to the personality traits, including knowledge, academic aptitude and intelligence as related to effective organisational performance. From a human resources perspective, competence entails the capability of heads of departments/units/sections to detect, assign, deploy, and use organisational resources to create value for stakeholders (Riak & Bill, 2022). Competence encompasses the behaviours, knowledge, and skills required to perform the task allocated in the organisation and in line with its goals (Matunga et al., 2021). The competence model is an effective tool for users to identify needs, prepare budgets, and set delivery schedules, ensuring that the procured items align with the organisation's outcomes. The competence enables procurement practitioners to translate their needs into clear, accurate requirements, reducing the risk of inequality and delays. When procurement officers have high skills in preparing procurement plans, it enhances quality and improves timeliness. Involving competent personnel in preparing the delivery schedule streamlines procurement and improves cost efficiency (Horváth, 2019). User competence, as a moderator, helps determine whether it strengthens or weakens procurement performance, as it does not merely change outcomes. The model believes that user involvement alone does not guarantee procurement performance; it depends on user skills and knowledge in performing their duties. Incompetent procurement staff weakens the positive impact of participation. The study revealed that competence acts as a contingency factor, strengthening the relationship between procurement planning and procurement performance (Matunga, 2023).

The institutional theory and competence model show that user competence moderates the relationship between user involvement in procurement planning and procurement performance, integrating the institutional environment and personal abilities. Institutional theory explains the formal laws, regulations, and norms that govern procurement planning behaviour. Competence model theory explains how individual competence enables the effective execution of assigned tasks and the achievement of procurement outcomes. Together, they provide a stronger theoretical foundation for investigating this relationship.

EMPIRICAL LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

User Involvement in Procurement Planning and Procurement Performance

Procurement planning is a set of activities used to arrange and ensure the what, where, how, and when of procurement for organisations over a given period. It provides a framework for contract implementation to ensure user department expectations are met and legally accepted (Muhwezi et al., 2020). Study results indicate that most challenges in public procurement stem from poor coordination among procurement stakeholders, leading to delays and ineffective processes. The study recommended that strategic action be taken across procurement entities to improve coordination and communication among stakeholders, thereby preventing project delays (Changalima et al., 2020). Stakeholder collaboration promotes an organisation's business performance by fostering risk sharing and innovation (Gambo & Musonda, 2021). It is commonly acknowledged that user participation in procurement procedures is crucial to procurement performance; however, it is unclear how user participation affects results (Nzovila et al., 2019).

Several studies support the role of user involvement in procurement planning. For instance, Panga (2020) assessed the adherence to procurement planning and performance. The findings revealed that procurement planning has a positive and significant influence on performance. This indicates that the organisation should prioritise procurement planning as a key driver of resource utilisation and ensure the timely delivery of items and the timely completion of projects. Keitany (2024) describes that procurement planning has a significant relationship with service delivery. This finding indicates that procurement planning is not a clerical task in government procurement, as it enables procuring organisations to support organisational objectives regarding time, delivery, quality, and quantity. It recommends that the organisation ensure that, during the planning process, all concerned stakeholders participate, from the need assessment through to budgetary approval. Those studies focused on how procurement planning enhances the organisation's ability to achieve its goals effectively and efficiently, but they ignored the participation of key players, such as user departments. However, a study conducted by Nduhura et al. (2021) examined the relationship between procurement planning and procurement performance. The study revealed that 94.7% of respondents agree that when they are involved in need assessment, they do their work well in the department. This implies that user involvement in needs assessment influences procurement performance. Hence, procuring entities were required to make sure that the different stakeholders, such as the user department, were engaged in the planning process (Dacha & Juma, 2018). This implies that when the user is involved in procurement, there is a likelihood of the organisation performing well, enhancing the quality of procured products, meeting the predetermined timelines, and minimising complaints from the user section (Mgawe & Kiwango, 2023). Hence, the study's proposed hypothesis was as follows.

H1. User involvement in procurement planning has a significant influence on procurement performance

User competence

Ketemaw (2020) defined competence as the capability, knowledge, or skills to deliver valuable outcomes consistently. It is an important feature of a successful performance. Better performance by public institutions requires employees with diverse knowledge and skills to simplify their assigned tasks (Mihungo & Mwagike, 2021). As Peter and Muli (2022) revealed, overall incompetence among officials in public procurement results in the loss of public funds, project delays, the delivery of noncompliant goods, and the escalation of public procurement fraud. Competent procurement staff are more adept at risk management and regulatory compliance, make better decisions, work more efficiently, and foster closer relationships with suppliers.
(Karani & Osoro, 2020).

Employee competence is important in the success of any organisation. The research found that staff competence positively influences performance in public procurement. It concludes that to meet the needs of procuring entities. Procurement practitioners shall be skilled and experienced to handle procurement functions (Orio, 2019). Batetah and Wabala (2021) emphasise the substantial impact of improving skills on effective performance. The study has established that the general incompetence of public officers in procurement-related positions causes problems such as the misuse of public funds, project and supply delays, the supply of unsanctioned procured commodities, and increased procurement malpractices. Competence in procuring entities ensures that purchased goods are of high quality, projects are completed/delivered on time, and users are satisfied (Lyimo & Mrema, 2022). User involvement in the procurement planning affects the procurement performance, although the organisation should also capacitate all the employees who participate in procurement planning (Mgawe & Kiwango, 2023). According to Dacha and Juma (2018) identified that all the staff members in the procurement activities should be aware of the applicable law and processes. Empirical studies explain the substantial impact of competence on procurement performance. However, most focus on procurement officers and ignore users who initiate procurement, budget planners, and those who draft their needs. To accomplish organisational goals, users should rely on competence, a contingent factor that shapes how they complete their assigned tasks. Thus, it is expected that user competence will affect the relationship between user involvement in procurement planning and procurement performance (Lyimo & Mrema, 2022; Masoud & Kawishe, 2024; Mwagike, 2025).. Therefore, the hypothesis presented below was suggested.

H2. User competence moderates the relationship between user involvement in procurement planning and procurement performance

Conceptual Framework

Figure 1 presents the study's conceptual framework. The conceptual framework shows how the hypotheses are theoretically related by linking the study variable into a single model. It illustrates the relationship between user involvement in procurement planning, user competence and procurement performance.

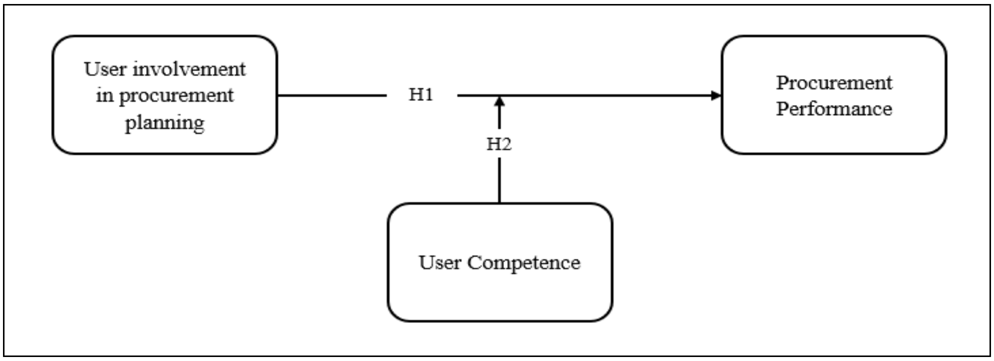

Figure 1: *Conceptual Framework*
Source: Figure by the author

RESEARCH METHODS AND DATA COLLECTION

Research Design and Approach

The research was quantitative and investigated the correlations between UIPP and PP. Quantitative data were also collected to test the moderating effect of user competence on the relationship between UIPP and PP. The quantitative approach aims to apply a multivariate method of data analysis (Sharma et al., 2023). They used an explanatory cross-sectional survey design (Shatta et al., 2024). This design helps to determine the influence of user involvement in procurement planning on procurement performance, as well as the moderating effect of user competence, and data collected at a single point in time. Additionally, it ensures that the statistical testing was required to establish a predictive relationship.

Sample Size and Sampling Technique

The researchers applied census techniques to choose ZLGA Heads of user departments to maximise response rates and minimise bias (Okinyi et al., 2023). There are 12 ZLGAs (CAG Report, 2023) with 15 heads of departments, units and divisions. The heads of departments were selected because they are the key players in initiating and influencing procurement activities. However, the study was conducted across 11 LGAs, with 1 LGA used for a pilot test to evaluate the appropriateness of its instruments. Piloting allows the researcher to determine whether the proposed instruments are too complicated or inappropriate. The LGAs selected for the pilot test are not included in the main study to improve data accuracy (Sutha & Nurhanani, 2023). A census sampling method was employed due to the small population and the ease of access. This method is vital in this study because it may provide accurate results, as all respondents are included (Stratton, 2023). The data were collected through a structured questionnaire sent to the heads of user departments. The 165 questionnaires were distributed among selected respondents using drop-and-pick-up methods. Of the 165 thus delivered, 159 were returned, corresponding to approximately 96%. This was regarded as sufficient to make the study generalizable and representative (Zhang et al., 2023).

Measurements

The three indicators measuring the study's dependent variable, PP, were adapted from previous research and include quantity, quality, and on-time delivery (Israel et al., 2023; Mahuwi & Panga, 2020; Damayanti & Aswar, 2021). For identification, the budget and delivery schedule were used to measure the independent variable, UIPP, and were adjusted based on past research (Nakhwanga & Malenya, 2020; Peter & Muli, 2022; Sheikh, 2019). Two constructs, adapted from Kariuki et al. (2018) and Matunga et al. (2021), were used to measure the moderating effect of UC, i.e., skills and knowledge. Table 2 represents the measurements of each variable. The dependent, independent, and moderating variables were measured on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

RESULTS AND ANALYSIS

Demographic Characteristics

This part is significant because it highlights the features that interest the respondent. Samples needed to be described to enhance transparency and to ascertain that the participants were known (Chaniago, 2021). Table 1 summarises this demographic information. The results show that the majority of respondents fall within the 31-40-year age range (57.9%), followed closely by those aged 20-30 years (23.3%), while those aged 40 and above represent the smallest portion at 18.9%. Regarding the gender distribution, the findings reveal that 49.7% are male and 50.3% are female. Furthermore, regarding the educational level of respondents, the findings revealed that a vast majority of participants 76.1% hold a Bachelor's degree. Those with a Master's degree 15.1%, an advanced diploma 8.2% and a PhD 0.6%. The results show that a bachelor's degree is prevalent, indicating that respondents are well educated.

Table 1:
Demographic Characteristics

Variable	Frequency	Percent
Age (Years)		
20-30	37	23.3
31-40	92	57.9
above 40	30	18.9
Total	**159**	**100**
Sex		
Male	79	49.7
Female	80	50.3
Total	**159**	**100**
Highest Level of Education		
Advanced Diploma	13	8.2
Bachelor Degree	121	76.1
Master Degree	24	15.1
PhD	1	0.6
Total	**159**	**100**

Source: Table by the author

Common method variance

Common method bias was evaluated using two techniques. First, the study employed Harman's single-factor test in Statistical Package for Social Sciences (SPSS) to assess whether a single factor accounts for most of the variance in the data. The results show that the model explains about 44.48% of the variance. This indicates that common method bias was not a significant problem, as the value was below 50% (Usmanova et al., 2021).

The second approach relies on the variance inflation factor (VIF). VIF can be used to detect collinearity and common method bias in PLS-SEM. It is recommended to set below 3.3 for all latent constructs. The results, as presented in Table 2, show that all VIF values are below the recommended threshold, which indicates that there is no common method bias in this study (Purwanto & Sudargini, 2021).

Measurement Model

PLS-SEM was employed to test the relationships and hypotheses in this study. This approach is useful because the study's aim is predictive, addressing complex models (moderation) and small sample sizes. It indicates that the direct and moderating effects were tested in a single PLS-SEM model (Sabol et al., 2023). The study evaluates the measurement model to ensure that the measures used were consistent and accurate. Both reliability and validity were assessed in this study to ensure the data are reliable and appropriate before testing the study hypotheses. Several aspects were examined in this study, including internal consistency reliability, indicator reliability, convergent validity and discriminant validity (Kharuddin et al., 2020) as presented in Table 2. The first step was assessing indicator loading. The recommended threshold is above 0.708. In this study, the loading value exceeds 0.708, indicating that the items provided are acceptable. Then followed by assessing internal consistency reliability. Cronbach's alpha and composite reliability were calculated, with all variables above 0.7, indicating satisfactory internal consistency (Hair et al., 2019). Convergent validity was assessed using the average variance extracted (AVE), which exceeded the recommended average of 0.5 (Hair et al., 2019). This indicates that convergent validity is satisfactory. The last step was to assess discriminant validity to ensure that the measure measured a distinct construct. Heterotrait-Monotrait ratio (HTMT) was used to assess discriminant validity. The HTMT value must be less than 0.85 (Mohd Dzin & Lay, 2021). As shown in Table 3, the HTMT value is below 0.85, indicating adequate discriminant validity.

Table 2:
Reliability, Convergent Validity and Collinearity

Constructs	Item codes	Item Loading	Cronbach's alpha	Average Variance Extracted (AVE)	Composite Reliability (rho_a)	VIF
User involvement in procurement planning	UIPP1-The user departments are involved in preparing a budget	0.833	0.875	0.598	0.875	2.422
	UIPP2-The user department involved in the selection of priority items	0.780				2.090
	UIPP3-The user department involved in the consolidated procurement plan is subject to the approved annual budget	0.786				1.889
	UIPP4-User departments are involved in designing procurement plans.	0.685				1.577
	UIPP5-The user department is involved in choosing the right method of procurement	0.807				2.107
	UIPP6-The user department ensures budget approval is obtained for the required items before purchase in the organisation	0.742				1.711
User competence	UC1-The user department has adequate knowledge and skills in procurement requirements	0.814	0.911	0.728	0.911	2.152
	UC2-The user department knows its function in procurement	0.882				3.180
	UC3-User department understanding of procurement procedures	0.845				2.450
	UC4-The user department is aware of the quality standard	0.867				2.867
	UC5-User departments know about procurement planning	0.856				2.440

Constructs	Item codes	Item Loading	Cronbach's alpha	Average Variance Extracted (AVE)	Composite Reliability (rho_a)	VIF
Procurement performance	PP1-Reduce the number of complaints about delays in service delivery	0.759	0.871	0.661	0.883	1.792
	PP2-There are minimal complaints from the user department on procurement matters	0.742				1.894
	PP3-There is an improvement in quality standards	0.825				2.192
	PP4-The procurement department delivers the requested item with the Right Quality	0.881				2.896
	PP5-Wastages of resources have reduced	0.851				2.621

Source: Table by the author

Table 3:
Discriminant Validity (HTMT)

HTMT) - Matrix	PP	UC	UIPP
Procurement Performance			
User Competence	0.530		
User involvement in procurement planning	0.841	0.586	
User competence -> Procurement performance	0.540	0.123	0.552

Source: Table by the author

Structural Model and Hypothesis

The structural model is the next step in data assessment after the measurement model has been assessed, and the results are satisfactory. All the study hypotheses are supported by the results presented in Table 4 and Figure 2. The R^2 value for the dependent variable (PP) is 0.596 as presented in Figure 2. Table 4 displays the value of the predictive relevance (Q^2), which was also considered significant because it was higher than zero (Hair et al., 2019).

Table 4:
The Predictive Relevance Value (Q^2)

	Q^2predict
PP1	0.327
PP2	0.230
PP3	0.349
PP4	0.458
PP5	0.470

Source: Table by the author

User involvement in procurement planning and performance.

The influence of the user in procurement planning on procurement performance is significant; it has a coefficient of 0.560, t = 9.592, p = 0.000, and f2 = 0.401 (see Table 5). Thus, H1 was confirmed: user-level engagement in the procurement planning process is a significant and positive predictor of procurement performance. Based on the analysis of the study results, user participation in procurement planning may affect procurement performance in the ZLGAs. This involves the accounting officer in ensuring that user departments are incorporated into procurement planning as stipulated by laws, regulations, and guidelines. The findings are consistent with those of Changalima et al. (2020), who reported that public procurement effectiveness is significantly associated with user involvement in procurement planning. Involvement of the user department in the procurement plan is necessary. User departments will prepare budgets and procurement plans, carry out a needs assessment and market analysis (Dacha

& Juma, 2018). It is also associated with institutional theory, which focuses on external pressures, including regulatory and normative pressures. The findings show that the ZLGAs may follow procurement rules and standards during procurement planning,

The Moderating Effect of User Competence
Regarding the moderation effect, user competence in procurement planning positively and significantly impacts procurement performance, with a coefficient of 0.181, t = 3.318, p = 0.000, and f2 = 0.061. This result indicates that the coefficient on the interaction term (UIPP*PP) is positive, demonstrating that UIPP positively influences PP when moderated by use competence. H2 shows that user competence is significant in the relationship between user involvement in procurement planning and procurement performance. Such outcomes presuppose that users engaged in procurement planning must have the skills and knowledge of needs during the designated planning period. According to Jaffu and Changalima (2023) state that better carrier development for employees leads to better procurement, both in terms of time and quality. Changalima and Mdee (2022) argue that departmental competence contributes to identifying and developing a precise and adequate budget. The organisation should ensure that employees involved in procurement procedures are well-equipped and skilled to meet their goals. Additionally, the results align with institutional theory and the competence model. It indicates that organisations need to balance regulatory compliance and individual competence development in procurement planning.

Figure 2 presents structural model analysis results. It explains the relationship among user involvement in procurement planning, user competence and procurement performance. Generally, the results imply that the proposed structural relations supported and identified the important role of user competence in shaping the influence of user involvement in procurement planning on procurement performance.

Table 5:
Hypothesis Testing

Path	Coefficient (β)	Standard deviation	T Value	P Value	Decision
user competence -> procurement performance	-0.171	-0.179	2.651	0.004	Accepted
procurement planning -> procurement performance	0.560	0.561	9.592	0.000	Accepted
user competence x procurement planning -> procurement performance	0.181	0.177	3.318	0.000	Accepted

Source: Table by the author

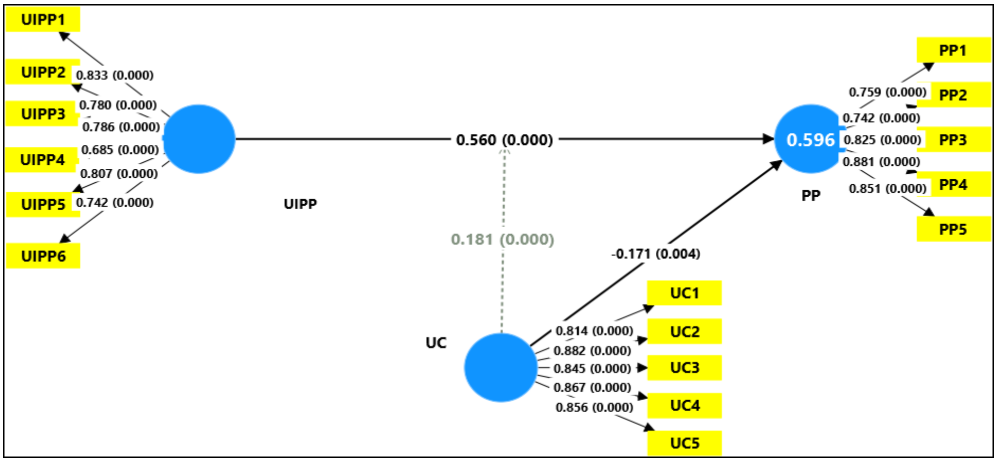

Figure 2: *The Structural Model*
Source: Figure by the author

CONCLUSION

The study employed user competence as a moderator to examine the impact of user involvement in procurement planning on procurement performance in ZLGA. The outcomes indicated that UIPP has a substantial positive impact on procurement performance. In addition, it was discovered that user competence moderates the positive UIPP-PP relationship. It is therefore advisable that the concerted efforts of the public entities should be towards ensuring that their user departments are not merely engaged in procurement planning but are equipped with the skills and knowledge to deliver procurement performance. Besides, the outcomes provide a strong argument for continued investments in stakeholders' capacity building to ensure and enhance procurement performance. Furthermore, the results revealed that user involvement in procurement planning enhances the organisation's ability to achieve its goals. However, when integrated with competence, it may translate users' duties into satisfactory procurement performance

CONTRIBUTION AND LIMITATION OF THE STUDY

Theoretical Contribution

The study findings confirm the appropriateness of applying the Competence Model Theory and Institutional Theory to procurement performance. The practical contribution is grounded in the study's research design, which investigates the role of the user department in procurement planning and its impact on procurement performance, and evaluates whether this relationship is moderated by user competence. Institutional theory provides an understanding of the benefits and drawbacks of organisational behaviour on influencing user involvement in procurement planning in ZLGAs. The study expanded on this theory by discovering that compliance and ethical expectations alone are insufficient to determine procurement performance. The results show that competent personnel for all stakeholders involved in procurement planning are essential. The competence model theory focused on individual skills and knowledge. It shows that all users engaged in procurement planning should know how to perform their assigned tasks effectively. It implies that public procurement performance can be improved by professionals skilled in effective planning. Combining this theory with the existing knowledge on public procurement performance, especially in ZLGAs, is essential for regional and national development.

Practical Contribution

The study's practical contribution is particularly relevant to the public sector. It shows how user involvement in procurement planning influences procurement performance. In addition, the moderating influence of user power on the relationship between UIPP and PP is underlined. Provide accounting officers with insight into how user involvement in procurement planning can improve procurement performance. Additionally, by understanding the moderating effect of user competence, accounting officers can assess current user competence and identify areas for improvement, such as needs assessment, budget preparation, and preparation of the delivery schedule. On the other hand, policymakers can use the study results to develop targeted policies that support, improve, and sustain procurement performance. Given the need for user expertise to improve public institution performance, the government can use this insight to establish professional procurement bodies and reform the procurement system to ensure active engagement of procurement practitioners.

Limitations and Future Study

Like any other academic research, the study has limitations. It employed a cross-sectional design, in which data were gathered at a single point in time, limiting the ability to observe changes in the variable over time. The research relied on the quantitative data from questionnaires. This approach failed to provide deeper insight into users' participation, abilities, or outputs in procurement. As the research was carried out in Zanzibar, one should be cautious when generalising the study to other areas with different conditions, since legal and political structures differ across countries. Other countries could replicate the study in future to enhance the validity and generalisability of the findings. The longitudinal method would also be desirable, and since this research was entirely quantitative, the mixed-methods approach would be a useful option to deepen and confirm the results.

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Examining How Brand Awareness Drives Performance in Tanzanian Telecommunication Companies: The Mediating Role of Brand Reputation and the Moderating Effect of Brand Attitude

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Abstract

This study examines the influence of brand awareness on brand performance in Tanzanian telecommunication companies by analysing its direct effect and indirect effect through brand reputation, as well as the moderating role of brand attitude. Using stratified and systematic sampling, data were collected from 314 employees across four major telecommunication companies in Dar es Salaam. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed to test the hypothesised relationships. The results reveal that brand awareness has a positive and significant effect on brand performance both directly and indirectly through brand reputation, confirming the mediating role of reputation. Brand reputation also significantly enhances brand performance, highlighting its importance as a key relational mechanism. Furthermore, brand attitude negatively moderates the relationship between brand awareness and brand performance. However, brand attitude does not significantly moderate the relationship between brand reputation and performance. This study concludes that brand awareness is a precursor of brand performance, directly or through brand reputation, depending on customer attitudes. Study contributes to theory by extending the Resource-Based View (RBV) through the integration of mediating and moderating mechanisms that capture consumer-driven brand dynamics. Practically, it highlights the need for managers to combine awareness-building with strong reputation management while considering variations in customer attitudes.

Keywords: *Telecommunication companies, Brand performance, Brand reputation.*

INTRODUCTION

Over the past two decades, the telecommunication industry in Tanzania has undergone a profound transformation, evolving from basic voice services into a highly competitive, technology-driven sector characterised by mobile data, digital financial services, and integrated communication solutions (TCRA, 2024). As the market has matured, it is now marked by intensified competition, growing service convergence, and increasingly sophisticated customer expectations driven by digitalisation and continuous innovation (Mmasi and Mwaifyusi, 2021). In this evolving industry, telecommunication firms are no longer competing solely on price or network coverage, but are increasingly differentiating themselves through intangible brand-related factors that shape customer perceptions and influence choice (Gonzalez-Rodriguez *et al.*, 2021). Consequently, brand performance has become a critical determinant of business growth, customer retention, and long-term competitiveness (Firdaus *et al.,* 2025).

In such dynamic conditions, firms must leverage strategic intangible assets to sustain superior performance (Cahyani and Sutedjo, 2022). Among these, brand awareness plays a pivotal role by enhancing visibility, reducing consumer uncertainty, and increasing the likelihood of brand choice. However, in a mature and highly competitive market like telecommunications, awareness alone may no longer be sufficient to secure superior performance outcomes (Foroudi, 2019; Liu *et al.*, 2020). Customers are increasingly influenced not only by how well they recognise a brand, but also by how they evaluate it and the reputation it holds in the market. This shift highlights the need to move beyond direct relationships and examine the underlying mechanisms and conditions through which brand awareness translates into performance (Gonzalez-Rodriguez *et al.,* 2021).

The Resource-Based View (RBV) provides a useful theoretical foundation for explaining how such intangible resources contribute to firm performance (Barney, 1991; Rahman *et al.,* 2019). RBV posits that firms achieve competitive advantage when they possess valuable, rare, inimitable, and non-substitutable resources. Within this perspective, brand awareness is conceptualised as a strategic intangible asset that drives market performance (Liu *et al.,* 2025). However, RBV has been criticised for its limited attention to consumer perceptions and demand-side dynamics (Shi *et al.,* 2022; Alwan and Alshurideh, 2022). Moreover, to strengthen theoretical alignment, the study is grounded not only in RBV but also in internal branding and employee-based brand equity viewpoints. These viewpoints highlight the role of employees as brand ambassadors and knowledgeable informants whose perceptions are critical in evaluating brand-related outcomes (Burmann *et al.,* 2009; King & Grace, 2010). In addition, this study extends the RBV by incorporating brand reputation as a mediating mechanism and brand attitude as a moderating condition.

The inclusion of brand reputation as a mediator is grounded in the argument that awareness alone does not automatically translate into improved performance; rather, it must first shape favourable perceptions of credibility, trust, and reliability (Hultman *et al.,* 2021). In this sense, brand reputation acts as the mechanism through which awareness is converted into tangible outcomes such as customer loyalty and market success (Qalati *et al.,* 2019; Rahmah, 2020). At the same time, the effect of both brand awareness and brand reputation on performance is unlikely to be uniform across all consumers (Hultman *et al.,* 2021). In this regard, brand attitude is incorporated as a moderating variable, as variations in consumers' evaluative dispositions toward a brand can influence the extent to which awareness and reputation are translated into performance outcomes. Specifically, more favourable brand attitudes are likely to strengthen the effectiveness of awareness and reputation in driving customer responses, whereas less favourable attitudes may weaken these effects (Safitri, 2024).

Although prior studies have examined the direct effects of brand awareness and reputation on performance, empirical findings remain inconsistent (Firdaus *et al.,* 2025; Widodo and Rakhmawati, 2021; Razak *et al.,* 2020), and limited attention has been given to their combined roles within a single framework, particularly in service-intensive sectors in developing economies. This gap is especially evident in Sub-Saharan Africa, where telecommunication markets exhibit unique characteristics, including rapid technological adoption, diverse customer segments, and evolving competitive strategies.

Against this backdrop, this study aims to examine how brand awareness influences brand performance both directly and indirectly through brand reputation, while also assessing the moderating role of brand attitude in Tanzania's telecommunication industry. By doing so, the study contributes to RBV theory by integrating it with internal branding and employee-based brand equity perspectives and incorporating both mediating and moderating mechanisms, and to practice by providing insights into how telecommunication firms can effectively leverage brand-related resources to enhance performance in a highly competitive and dynamic market.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 presents the research methodology, including sampling, measurement, and data analysis techniques. Section 4 presents the findings and Section 5 discusses the empirical findings, while Section 6 provides implications of the study, and the last section covers the limitations and recommendations for future research.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical Review

This study adopts the Resource-Based View (RBV) as the guiding theoretical lens to explain how intangible brand-related resources create and sustain competitive advantage in the telecommunication industry. In line with the proposed model, brand awareness is conceptualised as the primary strategic resource that influences brand performance both directly and indirectly through brand reputation, while brand attitude conditions the strength of these relationships. By incorporating brand reputation as a mediating mechanism and brand attitude as a moderating factor, the RBV framework is extended to better capture consumer-driven dynamics, thereby enhancing its explanatory and predictive power (Liu *et al.,* 2025).

The RBV, as advanced by Barney (1991), posits that a firm achieves superior performance when it possesses resources that are valuable, rare, inimitable, and non-substitutable. Within the context of branding, brand awareness represents such an intangible resource (Liu *et al.,* 2025). It reflects the extent to which consumers are able to recognise and recall a brand, reducing uncertainty in decision-making and increasing the likelihood of brand choice. In highly competitive markets such as telecommunications, awareness functions as a strategic resource that enhances visibility, supports customer acquisition, and sustains brand differentiation (Rahman *et al.,* 2019). Accordingly, RBV provides a strong theoretical foundation for the direct relationship between brand awareness and brand performance, as well as its influence on brand reputation.

However, RBV has been criticised for paying limited attention to demand-side factors and consumer perceptions (Uzir *et al.,* 2021). In order to strengthen the theoretical orientation, this study also integrates the internal branding and employee-based brand equity perspectives. These standpoints emphasise the role of employees as brand ambassadors and knowledgeable informants whose perceptions are critical in evaluating brand-related outcomes (Burmann et al., 2009; King & Grace, 2010). Furthermore, the present study incorporates brand reputation as a mediating resource that explains how brand awareness is translated into improved performance outcomes. A strong brand reputation enhances trust, credibility, and customer loyalty, thereby serving as a key mechanism through which awareness drives performance. In addition, brand attitude is introduced as a moderating variable that influences the strength of the relationships between brand awareness, brand reputation, and brand performance. Positive brand attitudes are expected to amplify these relationships, while less favourable attitudes may weaken them (Mmasi and Mwaifyusi, 2021).

The theoretical contribution of this study lies in extending RBV beyond its traditional resource-centred perspective by integrating it with internal branding and employee-based brand equity perspectives and including both mediating and moderating mechanisms. While RBV explains how brand awareness acts as a strategic intangible asset (Liu *et al.,* 2025), the integration of brand reputation and brand attitude provides a more comprehensive framework that captures how internal consumer perceptions shape and condition the translation of resources into superior brand performance in dynamic and competitive markets.

Development of Hypotheses

Brand Awareness

Brand awareness refers to the extent to which consumers are able to recognise and recall a brand within a given product category (Firdaus *et al.,* 2025). Empirical evidence across diverse industries and geographical contexts consistently demonstrates that brand awareness plays a critical role in shaping brand reputation and performance (Cahyani and Sutedjo, 2022). Studies in sectors such as fast-moving consumer goods, technology, digital services, hospitality, and small and medium enterprises indicate that higher levels of brand awareness are associated with improved brand reputation and performance (Firdaus *et al.,* 2025; Widodo and Rakhmawati, 2021; Razak *et al.,* 2020; Anees-ur-Rehman *et al.,* 2017). From the Resource-Based View (RBV), brand awareness represents a valuable intangible resource that enhances visibility, differentiation, and competitive advantage, which are essential for sustaining market performance (Liu *et al.,* 2025). However, some studies suggest that awareness alone may not be sufficient to guarantee superior performance, particularly in highly competitive markets (Hultman *et al.,* 2021). This implies that the effect of brand awareness on performance may operate through other mechanisms, highlighting the need for mediating variables, as well as moderating factors that may influence the strength of this relationship. Therefore, guided by both theoretical and empirical evidence, this study hypothesises that:

H_{1a}: *Brand awareness is positively related to brand performance of the telecommunication companies.*

H_{1b}: *Brand awareness is positively related to brand reputation of the telecommunication companies.*

Brand Reputation

Brand reputation refers to the overall evaluation of a brand based on stakeholders' perceptions of its credibility, reliability, and trustworthiness over time (Anugrah, 2025; Foroudi, 2019). Prior studies examining the link between brand reputation and brand performance have produced mixed but insightful findings across different contexts. While some studies, particularly in the USA, report negative or insignificant effects of brand reputation on performance (Paul and Bhakar, 2018), a substantial body of evidence from countries such as Poland, China, and Botswana demonstrate that a strong and favourable reputation significantly enhances customer trust, loyalty, and overall brand outcomes (Kucharska, 2019; Gonzalez-Rodriguez *et al.,* 2021; Ledikwe and Roberts-Lombard, 2019). These inconsistencies suggest that the impact of brand reputation on performance may not be uniform but could depend on other influencing factors, indicating the potential need for moderating variables in this relationship. Hence, this study hypothesised that:

H_2: *Brand reputation has positive effect on brand performance of the telecommunication companies*.

Mediating Effect of Brand Reputation

Although numerous studies have confirmed the direct effect of brand awareness on brand performance across different industries and contexts (Firdaus *et al.,* 2025; Widodo and Rakhmawati, 2021; Razak *et al.,* 2020; Anees-ur-Rehman *et al.,* 2017), limited attention has been devoted to the mechanisms through which this relationship unfolds. Limited attention has been given to the underlying mechanisms through which this relationship operates. In particular, the mediating role of brand reputation remains underexplored, creating a gap in understanding how brand awareness is translated into enhanced performance outcomes. Existing evidence suggests that while awareness increases recognition and visibility, it may not be sufficient on its own to drive superior performance unless it is supported by a strong and favourable brand reputation. Studies conducted in contexts such as Pakistan and Indonesia demonstrate that brand reputation serves as a crucial mechanism through which awareness influences customer perceptions, trust, and ultimately performance (Qalati *et al.,* 2019; Rahmah, 2020). Brand reputation is expected to act as mediator that channels the effect of brand awareness into improved brand performance. Therefore, the study proposes the following hypothesis:

H_3: Brand reputation mediates the relationship between brand awareness and brand performance of the telecommunication companies.

Moderating Role of Brand Attitude

Brand attitude refers to consumers' overall evaluative judgement of a brand, reflecting their favourable or unfavourable feelings based on prior experiences and perceptions (Anugrah, 2025; Foroudi, 2019). While a considerable body of literature has examined the direct effects of brand attitude on outcomes such as purchase intention, loyalty, and brand performance, relatively limited studies have explored its role as a moderating variable within brand-related relationships. Existing research suggests that consumers with more favourable attitudes towards a brand are more likely to respond positively to brand-related stimuli, thereby strengthening the effect of marketing constructs on performance outcomes (Liu *et al.,* 2020; Hameed *et al.,* 2023). In this context, brand attitude is expected to influence how effectively brand awareness translates into improved brand performance. When consumers hold strong positive attitudes, the impact of awareness on performance is likely to be amplified, whereas weaker attitudes may diminish this effect. Similarly, the relationship between brand reputation and brand performance may also vary depending on the level of brand attitude, as favourable attitudes can reinforce trust and enhance the effectiveness of a strong reputation (Qalati *et al.*, 2019; Safitri, 2024). Hence, this study hypothesised that:

H4a: Brand attitude moderates the relationship between brand awareness and brand performance of the telecommunication companies.

H4b: Brand attitude moderates the relationship between brand reputation and brand performance of the telecommunication companies.

Conceptual Framework

The conceptual framework positions brand awareness as the primary independent variable influencing brand performance both directly and indirectly. It is hypothesised that brand awareness positively affects brand reputation, which in turn enhances brand performance, indicating a mediating role of brand reputation in this relationship. In addition, brand awareness is expected to exert a direct effect on brand performance, suggesting that increased recognition can independently improve outcomes. Importantly, brand attitude is proposed as a moderating variable that influences the strength of the relationship between brand awareness and brand performance, such that the effect varies depending on the level of consumers' attitudes toward the brand. These relationships are illustrated in Figure 1.

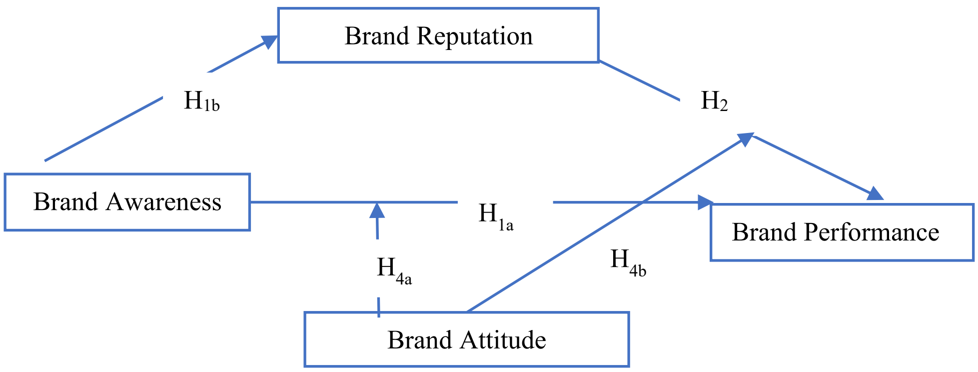

Figure 1: *Conceptual Framework*

METHODOLOGY

Sample and Data Collection

This study employed a probability sampling approach that aligns with the principles of the positivist research paradigm. The target population consisted of 1,832 employees working in the four major telecommunication companies in Dar es Salaam, namely Vodacom Tanzania Limited, Airtel, Yas, and Viettel Tanzania Limited (Halotel). This study employed a probability sampling approach that aligns with the principles of the positivist research paradigm. The target population consisted of 1,832 employees working in the four major telecommunication companies in Dar es Salaam, namely Vodacom Tanzania Limited, Airtel, Yas, and Viettel Tanzania Limited (Halotel). This study used employees as respondents based on their role as knowledgeable informants within the organization. Employees have a comprehensive understanding of the company's branding strategies, internal communication processes, and performance outcomes. They also regularly observe customer behaviours including complaints and preferences as they interact with customers on daily basis. From an internal branding viewpoint, employees are considered internal customers and brand ambassadors who play a vital role in delivering brand value to external stakeholders (Burmann *et al.,* 2009; Punjaisri & Wilson, 2011). Previous scholars on employee-based brand equity also support the use of employees as appropriate research participants in brand-related research, as they offer informed and organization-wide assessments of brand constructs (King & Grace, 2010). Moreover, internal brand management literature emphasizes that employees' perceptions of brand awareness and brand attitude are critical for understanding overall brand performance (Baumgarth & Schmidt, 2010).

The four telecommunication companies were selected because they account for approximately 97% of the national market share and represent high performing brands in Tanzania (TCRA, 2024). They also have extensive branding and marketing strategies, which aim to strengthen customer loyalty and performance in an increasingly dynamic market (Amani, 2022).

A stratified random sampling technique was employed to ensure proportional representation of employees across the four companies. Each company constituted a stratum, from which participants were drawn systematically to maintain balance relative to the population size of each firm. In line with methodological guidance, a sample size of 300 was deemed optimal for Structural Equation Modelling (SEM), given that SEM generally requires samples ranging from 200 to 400 to achieve adequate statistical power while avoiding model over-sensitivity (Hair *et al.*, 2021). To safeguard against potential non-responses, the final sample was inflated to 375 respondents, reflecting an expected response rate of approximately 80%, which is consistent with prior survey-based studies in brand management (Hultman *et al.,* 2021; Razak *et al.,* 2020).

Data collection was conducted between August 2023 and February 2024 using a drop-and-collect method, which is particularly efficient for large-scale surveys (Kumar, 2018). A total of 375 questionnaires were distributed, of which 351 were returned, yielding a response rate of 91.9%. After screening for incomplete or inconsistent responses, 314 valid questionnaires were retained for analysis, corresponding to an effective response rate of 82.2%. This final sample size met the recommended threshold for Partial Least Squares Structural Equation Modelling (PLS-SEM) and provided sufficient statistical power for hypothesis testing.

Measures

The study measured brand awareness, attitude, reputation, and performance, which form the basis of the hypothesised relationships. All constructs were operationalised using multi-item scales adapted from prior validated studies, and responses were captured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This approach is widely adopted for assessing perceptions, attitudes, and behavioural outcomes in marketing and management research (Foroudi, 2019; Mmasi and Mwaifyusi, 2021).

Brand awareness was assessed through six items adapted from Razak *et al.,* (2020); Mmasi and Mwaifyusi (2021). These items measured recall, recognition, familiarity, and informational knowledge about the company's brand. Moreover, brand attitude was measured using six items drawn from Liu *et al.*, (2020); Foroudi (2019). The items reflected consumer confidence in the brand, emotional attachment, trust, and positive feelings associated with using the company's products and services. Brand reputation was captured with five items adapted from Foroudi (2019); Mmasi and Mwaifyusi (2021). These items focused on credibility, dependability, fulfilment of customer needs, and responsiveness to consumer concerns. On the other hand, brand performance was operationalised through four perceptual measures items adapted from Mmasi and Mwaifyusi (2021) and Foroudi (2019). The measures captured key outcomes such as sales growth, customer acquisition, repeat purchases, and positive word-of-mouth, as illustrated in Table 1.

Table 1:
Measurement of the Variables

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 recognizable 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 company's products and services
Brand attitude	ATT1	Our customers feel confidence 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
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

In line with the recommendations of Podsakoff *et al.,* (2024), the issue of Common Method Variance (CMV) was addressed using both procedural and statistical techniques. On the procedural side, anonymity and voluntary participation were emphasised to participants, thereby minimising the risk of evaluation apprehension and response bias. Statistically, Harman's single-factor test was employed. The analysis revealed that the five largest factors together accounted for 27.9% of the total variance, which is substantially lower than the 50% cut-off point suggested by Podsakoff *et al.,* (2023). These results suggest that CMV did not pose a significant threat to the validity of the findings of the study.

Data Analysis Techniques

To evaluate the proposed hypotheses and test the conceptual framework, this study employed Partial Least Squares Structural Equation Modelling (PLS-SEM). This technique is particularly suitable for analysing complex models involving multiple constructs, as well as both mediating and moderating relationships (Hair *et al.,* 2019). Given that the present study examines the direct effect of brand awareness on brand performance, the mediating role of brand reputation, and the moderating role of brand attitude, PLS-SEM provides a robust and flexible approach for simultaneously estimating these relationships. Furthermore, its suitability for prediction-oriented research and theory development makes it appropriate for examining consumer-driven brand dynamics in the telecommunication sector.

The analysis was conducted using SmartPLS version 4, following the two-stage approach recommended by Hair *et al.,* (2021). In the first stage, the measurement model was assessed to ensure the reliability and validity of the constructs. This involved evaluating internal consistency reliability using Cronbach's alpha and composite reliability, convergent validity using average variance extracted (AVE), and discriminant validity using the Fornell–Larcker criterion and heterotrait–monotrait (HTMT) ratio.

In the second stage, the structural model was evaluated to test the hypothesised relationships. This included examining the direct effects of brand awareness on brand performance (H_{1a}) and brand reputation (H_{1b}), as well as the effect of brand reputation on brand performance (H_2). The mediating effect of brand reputation in the relationship between brand awareness and brand performance (H_3) was assessed using bootstrapping procedures to determine the significance of indirect effects. In addition, the moderating role of brand attitude (H_{4a} and H_{4b}) was tested by incorporating interaction terms into the model to examine whether variations in brand attitude influence the strength of the relationships between brand awareness, brand reputation, and brand performance. Bootstrapping with a large number of resamples was employed to assess the significance of path coefficients, indirect effects, and interaction effects.

RESULTS OF ANALYSIS

Measurement Model Assessment

Following the guidelines of Fornell and Larcker (1981), the reliability and convergent validity of the constructs were assessed. As shown in Table 2, all standardised item loadings exceeded the recommended threshold of 0.70, confirming satisfactory indicator reliability. Internal consistency was established, with Cronbach's alpha and composite reliability (rho_A) and (rho_C) values ranging between 0.753 and 0.955, which surpass the minimum criterion of 0.70 (Hair *et al.,* 2019). Moreover, the Average Variance Extracted (AVE) values ranged from 0.574 to 0.781, exceeding the threshold of 0.50, thereby confirming convergent validity. These results indicate that the measurement model demonstrates adequate reliability and convergent validity, and is therefore suitable for further structural analysis.

Table 2:
Assessment of Reliability and Convergent Validity

Item	Loadings	Cronbach's alpha	rho_A	rho_C	AVE
Brand awareness		0.932	0.933	0.946	0.746
AW1	0.854				
AW2	0.871				
AW3	0.899				
AW4	0.833				
AW5	0.870				
AW6	0.854				
Brand attitude		0.944	0.946	0.955	0.781
ATT1	0.899				
ATT2	0.889				
ATT3	0.892				
ATT4	0.833				
ATT5	0.887				
ATT6	0.901				
Brand reputation		0.909	0.910	0.933	0.736
REP1	0.768				
REP2	0.908				
REP3	0.861				
REP4	0.876				
REP5	0.871				
Brand performance		0.753	0.754	0.844	0.574
PER1	0.747				
PER2	0.757				
PER3	0.748				
PER4	0.779				

AVE: Average Variance Extracted

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. As reported in Table 3, the square roots of the AVEs (diagonal values) are greater than the inter-construct correlations, thereby satisfying the Fornell–Larcker criterion (Fornell and Larcker, 1981). Furthermore, all HTMT ratios are below the conservative threshold of 0.85 (Henseler *et al.,* 2015), indicating that discriminant validity is well established among the constructs. These results confirm that the measurement model adequately distinguishes between brand awareness, brand attitude, brand reputation, and brand performance, thus supporting the construct validity of the study.

Table 3:
Discriminant Validity

Variables	ATT	AW	PER	REP
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]

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

Results of Hypotheses Testing

The results of the hypotheses testing are presented in Table 4 and illustrated in Figure 2. The assessment focused on the significance of path coefficients (β), t-values, p-values, effect sizes (f^2), multicollinearity using Variance Inflation Factors (VIF), and the explanatory power of the model through coefficients of determination (R^2) (Hair *et al.,* 2019). All VIF values were below the threshold of 5, indicating that multicollinearity was not a concern (Hair *et al.,* 2021). The R^2 values indicate that brand awareness explains 22.2% of the variance in brand reputation, while brand performance is explained at 49.3% by the combined effects of brand awareness, brand reputation, and the interaction terms, suggesting moderate explanatory power.

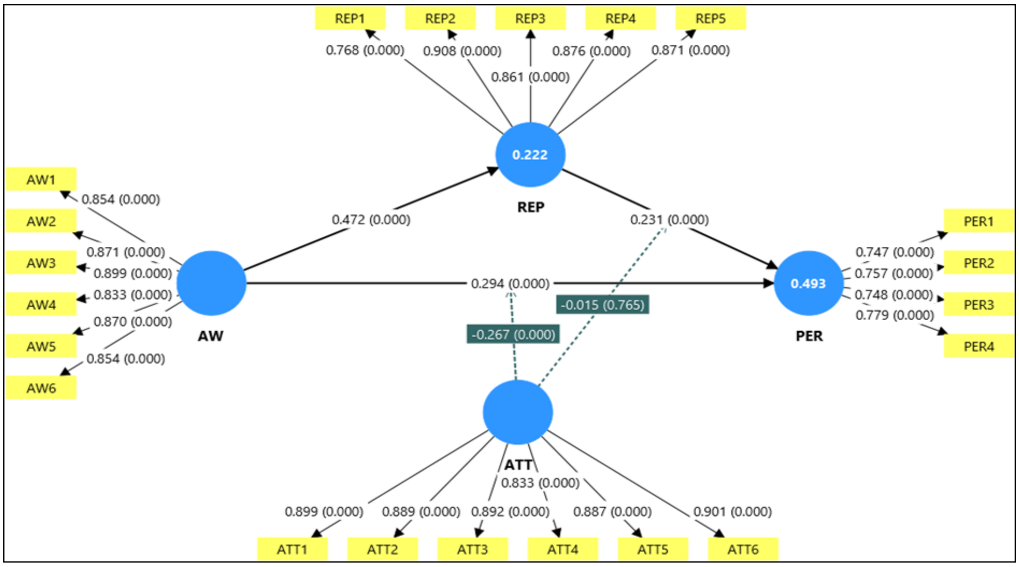

Figure 2: *Structural Model*

As shown in Table 4 and Figure 2, brand awareness has a positive and significant effect on brand performance ($\beta = 0.294$, $t = 8.258$, $p < 0.001$, $f^2 =$

0.088), supporting H_{1a}. The effect size indicates a small to moderate practical effect, suggesting that while brand awareness is an important driver of performance, it is not the sole determinant. In addition, brand awareness significantly influences brand reputation ($\beta = 0.472$, $t = 4.602$, $p < 0.001$, $f^2 = 0.286$), supporting H_{1b}. The relatively large effect size implies that brand awareness plays a substantial role in shaping brand reputation. Furthermore, brand reputation exerts a positive and significant effect on brand performance ($\beta = 0.231$, $t = 4.658$, $p < 0.001$, $f^2 = 0.091$), thereby supporting H_2, with a small to moderate effect size, indicating that reputation meaningfully contributes to performance outcomes.

Regarding mediation, the indirect effect of brand awareness on brand performance through brand reputation is positive and significant ($\beta = 0.110$, $t = 3.720$, $p < 0.001$, $f^2 = 0.089$), confirming the mediating role of brand reputation and supporting H_3. The effect size suggests a small but meaningful mediating effect, indicating that brand awareness enhances performance not only directly but also indirectly by strengthening brand reputation.

Table 4:
Results from Hypothesis Test

Hypothesis	Path	β	*t*-value	*p* values	Effect size *(f2)*	VIF
H_{1a}	AW -> PER	0.294	8.258	0.000	0.088	1.912
H_{1b}	AW -> REP	0.472	4.602	0.000	0.286	1.000
H_2	REP -> PER	0.231	4.658	0.000	0.091	1.349
H_3	AW -> REP -> PER	0.110	3.720	0.000	0.089	1.000
H_{4a}	ATT x AW -> PER	-0.266	4.683	0.000	0.087	1.334
H_{4b}	ATT x REP -> PER	-0.013	0.299	0.765	0.000	1.331

R^2 for PER = 0.493
R^2 for REP = 0.222
Note:
AW: Brand awareness; ATT: Brand attitude; REP: Brand reputation; PER: Brand performance.

With respect to moderation, the interaction effect between brand attitude and brand awareness on brand performance is negative and significant ($\beta = -0.266$, $t = 4.683$, $p < 0.001$, $f^2 = 0.087$), supporting H_{4a}. The small to moderate effect size indicates that brand attitude meaningfully conditions the awareness–performance relationship, such that the strength of this relationship varies depending on the level of brand attitude. In contrast, the interaction effect between brand attitude and brand reputation on brand performance is negative but not statistically significant (β = -0.013, t = 0.299, p = 0.765, f^2 = 0.000), leading to the rejection of H_{4b}. The negligible effect size (f^2 = 0.000) confirms that brand attitude does not exert any meaningful moderating influence on the relationship between brand reputation and brand performance.

DISCUSSION OF FINDINGS

The findings of this study provide important insights into the role of brand awareness, brand reputation, and brand attitude in shaping brand performance within the Tanzanian telecommunication industry. Consistent with RBV, the results confirm that brand awareness constitutes a valuable intangible asset that contributes both directly and indirectly to performance. Specifically, brand awareness was found to have a positive and significant effect on brand performance, supporting H_{1a}. This finding aligns with prior studies (Firdaus *et al.,* 2025; Widodo and Rakhmawati, 2021; Razak *et al.,* 2020; Anees-ur-Rehman *et al.,* 2017), which emphasise that increased brand visibility enhances customer recognition, recall, and ultimately market outcomes. In the Tanzanian telecommunication context, where competition is intense and services are increasingly similar, brand awareness serves as a critical mechanism for differentiation and customer attraction.

In addition, the study establishes that brand awareness significantly influences brand reputation, supporting H_{1b}. This result highlights the foundational role of awareness in shaping how consumers perceive a brand's credibility, trustworthiness, and reliability. Increased familiarity with a brand reduces uncertainty and fosters positive evaluations, which in turn strengthen its reputation. This finding is consistent with prior research (Qalati *et al.*, 2019; Safitri, 2024), which suggests that awareness is a key antecedent of relational constructs such as reputation. The relatively strong effect observed in this study further underscores that in emerging markets like Tanzania, awareness is not merely a communication outcome but a strategic resource that shapes broader consumer perceptions.

Furthermore, brand reputation was found to have a positive and significant effect on brand performance, supporting H_2. This finding reinforces the argument that a favourable reputation enhances customer trust, loyalty, and positive word-of-mouth, all of which are essential drivers of performance. The result is consistent with studies by of Kucharska (2019) and Gonzalez-Rodriguez *et al.,* (2021), which demonstrate that firms with strong reputational capital tend to achieve superior market outcomes. In the Tanzanian telecommunication industry, where customer trust and service reliability are critical, reputation emerges as a key determinant of sustained competitive advantage.

Importantly, the study confirms the mediating role of brand reputation in the relationship between brand awareness and brand performance, supporting H_3. This indicates that brand awareness enhances performance not only directly but also indirectly through its impact on reputation. In other words, awareness alone is insufficient to generate optimal outcomes unless it translates into favourable perceptions of credibility and trust. This finding extends the RBV by demonstrating that intangible resources such as awareness require relational mechanisms to fully realise their value. It also supports the growing body of literature that emphasises the importance of mediation processes in understanding how marketing resources influence performance outcomes.

With respect to moderation, the results reveal that brand attitude significantly moderates the relationship between brand awareness and brand performance, supporting H_{4a}. Interestingly, the interaction effect is negative, suggesting that the positive impact of brand awareness on performance weakens as brand attitude becomes stronger. This counterintuitive finding implies that when consumers already hold strong positive attitudes toward a brand, additional increases in awareness may yield diminishing returns in terms of performance. Conversely, when brand attitudes are less favourable, awareness plays a more critical role in influencing performance. This finding provides a nuanced understanding of consumer behaviour and suggests that the effectiveness of awareness-building strategies depends on the existing evaluative disposition of consumers.

In contrast, the moderating effect of brand attitude on the relationship between brand reputation and brand performance was found to be non-significant, leading to the rejection of H_{4b}. This suggests that once a strong brand reputation is established, its impact on performance remains relatively stable regardless of variations in consumer attitudes. This finding highlights the robustness of brand reputation as a strategic asset and implies that reputation-driven performance is less contingent on short-term fluctuations in consumer evaluations.

IMPLICATION OF THE STUDY

Theoretical Implications

This study advances theory by integrating RBV with internal branding and employee-based brand equity perspectives and through the integration of brand reputation as a mediating mechanism and brand attitude as a moderating condition, thereby addressing its traditional neglect of consumer-driven dynamics. The findings confirm that brand awareness enhances brand performance both directly and indirectly through brand reputation, while the strength of this relationship is contingent upon brand attitude, supporting a moderated mediation framework. Importantly, the significant moderation of brand attitude on the awareness and performance link, alongside its non-significant effect on the reputation and performance relationship, provides a more nuanced understanding of how consumer evaluations shape the effectiveness of strategic resources. Furthermore, by offering empirical evidence from Tanzania's telecommunication sector, the study enriches the limited literature in Sub-Saharan Africa and demonstrates that RBV's explanatory power is strengthened when combined with demand-side behavioural insights in emerging market contexts.

Managerial Implications

From a managerial perspective, the findings suggest that telecommunication companies in Tanzania should prioritise building brand awareness through targeted advertising, digital engagement, and sponsorships, while recognising that awareness alone is insufficient without a strong brand reputation. Investing in consistent service quality, transparency, and responsiveness is essential to strengthen reputation, which mediates the effect of awareness on performance and drives outcomes like customer loyalty and market success. Additionally, fostering positive consumer attitudes through enhanced customer experience, emotional connection, and trust can amplify the impact of awareness on performance, though once reputation is established, its effect remains stable regardless of attitude variations, highlighting reputation as a durable strategic asset.

LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDIES

Despite its contributions, this study has several limitations that point to directions for future research. The cross-sectional design restricts causal inference, suggesting that longitudinal or experimental studies could better capture the dynamics of brand-related relationships. The focus on telecommunication companies in Dar es Salaam may limit generalisability, so future research could explore other industries or regions, including rural markets. Moreover, while brand reputation and brand attitude were examined, other mediators (brand trust, customer loyalty) and moderators (service quality, customer involvement) could be investigated to provide a more comprehensive view of brand performance. Furthermore, the non-significant moderating effect of brand attitude on the reputation and performance link warrants further exploration of alternative contextual factors that may influence this relationship.

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Effects of the Financial Management System on Managing Project Funds in Local Government Authorities in Tunduru, Tanzania

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Abstract
This study examines the Effects of the Financial Management System on Managing Project Funds in Local Government Authorities in Tunduru, Tanzania. It explores the effectiveness of these systems in managing project funds by assessing technical challenges, identifying factors influencing system use, and determining appropriate management procedures. Ineffective financial management often leads to poor fund utilization, project delays, overspending, and substandard outcomes. A qualitative research approach was adopted, involving focus group discussions and in-depth interviews with 30 representatives from local government authorities. Data were analyzed using descriptive and content analysis techniques. Findings reveal that the existing financial management systems are inadequate, characterized by limited staff training, weak financial controls, and poor monitoring and evaluation mechanisms. These shortcomings contribute to inefficient fund utilization and hinder successful project implementation. The study recommends strengthening financial management systems through comprehensive capacity-building programs, improved financial controls, and robust monitoring and evaluation frameworks. These measures are essential for enhancing transparency, accountability, and efficiency in managing project funds. Strengthened systems will support timely project completion, effective resource use, and improved public service delivery.

Keywords: *Financial Management Systems, Local Government Authorities, Project Fund Management, Accountability.*

INTRODUCTION

Globally, financial management systems (FMS) are vital for enhancing the efficiency, accountability, and transparency of financial operations within local government authorities (LGAs). Financial management systems encompass a range of technologies and practices designed to automate financial transactions, manage budgets, ensure compliance, and generate accurate and timely reports. Their role is particularly critical in the public sector, where mismanagement of funds can lead to project failures, loss of public trust, and development setbacks. Effective fund management for development projects relies heavily on the availability of reliable financial systems that ensure funds are allocated, tracked, and utilized as planned.

According to Kinyua and Muathe (2020), the adoption of FMS in local governments globally has led to improved financial discipline and reduced opportunities for corruption. In developed countries such as the United States, Canada, and several European nations, the integration of FMS into public financial management has been linked to better budgeting outcomes, more effective internal controls, and enhanced financial reporting (Gupta & Chalu, 2022). The use of Integrated Financial Management Information Systems (IFMIS) has become a best practice globally, providing a centralized platform for managing all financial transactions, enhancing data accuracy, and supporting sound decision-making processes (Hendriks, 2012). Such improvements directly support project fund management by ensuring that funds are released on time, expenditures are tracked in real time, and deviations are detected early, minimizing risks of fund misappropriation or delays in project implementation.

The World Bank (2021) emphasizes the transformative impact of digital governance tools, including FMS, in promoting transparency and accountability in the public sector. The implementation of FMS aligns with broader trends in e-governance and digital transformation, aiming to streamline public sector operations and combat inefficiencies. Robust financial management systems contribute to effective project fund management by enhancing resource allocation, enabling real-time monitoring, and improving cash flow forecasting, and ensuring compliance with financial regulations (Bokpin, 2021).

In Africa, the management of public funds at the local government level presents unique challenges due to systemic issues such as corruption, inadequate financial management capacity, and outdated technological infrastructure. Many African countries have recognized the need for financial management reforms and have made efforts to implement FMS to address these challenges (Ocheni & Nwankwo, 2020). Despite these efforts, the success of FMS in African LGAs has been mixed. Studies indicate that while the implementation of IFMIS and other FMS tools has improved financial reporting and accountability in some countries, challenges such as poor implementation, lack of skilled personnel, and resistance to change have hindered their effectiveness (Bokpin, 2021).

Countries like Ghana, Nigeria, and South Africa have been at the forefront of adopting FMS, but the journey towards fully functional and effective systems remains ongoing. According to Ocheni and Nwankwo (2020), the effectiveness of financial management systems in Africa is often compromised by governance issues and political interference. In Nigeria, for example, the implementation of financial management reforms has faced obstacles due to weak institutional frameworks and a lack of political will. Similarly, in South Africa, despite having one of the most advanced public financial management systems on the continent, challenges such as corruption and inefficiencies in local government operations continue to affect the management of project funds (Chalu, 2022). These challenges undermine the effective use of project resources and delay service delivery at the community level.

East Africa has made notable progress in adopting financial management systems at the local government level, but challenges remain. Countries like Kenya, Uganda, and Rwanda have implemented various reforms aimed at enhancing financial management within LGAs. For instance, Kenya's Public Finance Management Act (2012) and the adoption of IFMIS have significantly improved financial oversight and transparency in local governments (Wamalwa, 2022). However, the effectiveness of these reforms is often limited by capacity constraints, inadequate training, and resistance from local government officials.

Uganda's experience with IFMIS highlights the potential of financial management systems to improve financial governance, but also underscores the challenges of ensuring widespread adoption and effective use of these systems. According to Mugisha (2021), while IFMIS has improved budget execution and financial reporting in Uganda, issues such as technical glitches, inadequate infrastructure, and limited internet connectivity, particularly in rural areas, continue to pose significant challenges.

Rwanda has been relatively successful in implementing financial management reforms, thanks to strong government commitment and investment in digital infrastructure. However, as noted by Nkurunziza and Twahirwa (2021), even in Rwanda, challenges such as limited capacity at the local government level and the need for continuous training and support are critical issues that need to be addressed to maximize the benefits of FMS. Importantly, these systems have played a key role in improving project fund tracking and reporting, thereby increasing efficiency in service delivery and infrastructure development.

In Tanzania, local government authorities are critical in implementing development projects and delivering public services at the community level. Effective financial management of project funds is essential to ensure these projects are completed within budget, on time, and with the intended impact. The Tanzanian government has implemented several financial management systems, including the Epicor Financial Management System, MUSE, and the Local Government Revenue Collection Information System (LGRCIS), aimed at improving financial management and accountability within LGAs (Mwakyusa, 2023).

However, despite these initiatives, challenges persist. A study by Ngowi (2022) identifies key issues such as limited capacity of local government staff, technological challenges, poor oversight mechanisms, and corruption as major obstacles to the effective management of project funds in Tanzanian LGAs. The research further highlights that while financial management systems have the potential to significantly improve the efficiency and transparency of financial operations, their effectiveness is often undermined by systemic issues such as resistance to change and inadequate support from higher levels of government.

Recent studies suggest that to enhance the effectiveness of financial management systems in Tanzania, there is a need for continuous capacity building, investment in technological infrastructure, and strengthening of oversight and accountability mechanisms at the local government level (Chalu & Kessy, 2023). This study identifies technical, user, and organizational challenges as significant obstacles to the effective implementation of FMIS in Tanzanian LGAs. They recommend that the Tanzanian government, through the Ministry of Finance and Planning, the President's Office – Regional Administration, and Local Government Authorities, offer full commitment to ensuring effective implementation of FMIS by guaranteeing the constant supply of electricity in all district councils; provision of modern computing equipment; improved organizational management; and enhanced staff facilitation and motivation.

Additionally, they advocate for the engagement of qualified firms and consultants from the private sector to assist with the implementation of successful change management (Pasape & Godson, 2022). These interventions are directly linked to improved project fund management because they help create reliable, transparent, and accountable systems through which project resources can be allocated, monitored, and reported efficiently. Ultimately, strengthening financial management systems enhances the government's ability to deliver projects that drive socio-economic development at the local level.

Because they make budgeting, tracking spending, financial reporting, and accountability easier, Financial Management Systems (FMS) are essential to the management of project funding within local government agencies. Effective financial management is crucial to ensuring that allotted monies are used for the intended purposes of development projects carried out by LGAs. Effective financial management systems promote timely project implementation, decrease financial mismanagement, and increase transparency. On the other hand, ineffective project execution, erroneous financial reporting, and delays in money release can all be caused by weak or badly executed systems. Therefore, enhancing financial governance and guaranteeing good project outcomes within LGAs requires an understanding of how financial management systems affect the administration of project funds.

Research Problem

Local Government Authorities (LGAs) in Tanzania are responsible for implementing development projects that aim to improve public services and infrastructure at the community level. Effective management of project funds is therefore essential to ensure that these projects are completed on time, within budget, and according to the intended objectives. To strengthen financial accountability and transparency, the government has introduced several Financial Management Systems (FMS), including FFARS, Epicor, MUSE, and LGRCIS.

Despite the implementation of these systems, several audit reports and previous studies indicate persistent weaknesses in project fund management within LGAs. These challenges include delays in financial reporting, inefficient utilization of project funds, weak financial controls, and limited system integration. Technical problems such as system downtime, inadequate ICT infrastructure, and limited user capacity further reduce the effectiveness of these systems. As a result, many local government authorities continue to experience inefficiencies in managing project funds, which negatively affects project implementation and service delivery.

Although financial management systems have been introduced to address these challenges, limited empirical evidence exists on how these systems actually influence the management of project funds in Tanzanian LGAs, particularly in Tunduru District Council. This study, therefore, seeks to examine the effects of financial management systems on managing project funds in Local Government Authorities in Tunduru, Tanzania.

Research Objectives

General objective

The general objective of the study was to examine the effect of the Financial Management System on the management of project funds in LGAs in Tanzania.

Specific objectives

i) To examine the effects of technical challenges in financial management systems on project fund management in LGAs
ii) To identify factors affecting the usage of financial management systems in managing project funds in LGAs
iii) To examine the procedures used in managing the financial management system for effective project fund management in LGAs

Research Questions

i) What are the effects of technical challenges in financial management systems on project fund management in LGAs?
ii) What factors affect the usage of financial management systems in managing project funds in LGAs?
iii) What procedures are used to manage financial management systems for effective project fund management in LGAs?

LITERATURE REVIEW

Financial management systems

Financial management systems (FMS) are essential tools for monitoring the public sector's financial operations, especially when it comes to local government agencies. To effectively understand the function that financial management systems play in project finance management, it is necessary to define and conceptualise the components of these systems based on the corpus of recent literature. Purchasing, planning, and budgeting, assets, human resources, and income and expenditure management are all managed through a reporting system known as the Financial Management System. MUSE, Planrep, HRMIS, NeST, GAMIS, LGRCIS, TAUSI, and GoTHOMIS are among the systems used by LGAs.

Financial management systems, according to De Carvalho et al. (2020), are "digital platforms that integrate financial operations from planning and budgeting to execution and reporting, ensuring that all financial activities are coordinated and monitored in real-time."

According to Arapis and Reitano (2019), financial management systems are "institutional mechanisms that combine information technology, financial operations, and governance practices to ensure effective management of financial resources, promoting transparency, accountability, and fiscal sustainability."

Project
Organisation for International Standardisation (ISO, 2022): "A temporary endeavour undertaken to create a unique product, service, or result" is what ISO 21500:2022 defines as a project. It is distinguished by well-defined scope, precise start and finish dates, and resources allotted for the accomplishment of particular aims and objectives." According to ISO 21500:2022, Guidance on Project Management, this definition places a strong emphasis on the organised methodology and resource allocation used in project management.

Project funds
The International Monetary Fund (IMF, 2023) defined project funds as "financial resources designated for specific projects, including capital investments and operational expenditures." The management of these funds is ensured by means of comprehensive budgeting and financial controls, which also track project performance (IMF, 2023, Public Financial Management).

Theoretical Literature Review
Project Management Theory offers structured methods for planning, executing, and controlling projects to achieve specific goals within time, budget, and scope constraints. It has evolved from traditional linear approaches to dynamic methods like agile and lean project management, emphasizing adaptability and continuous improvement (Kerzner, 2017). Key strengths include structured planning, risk management, and stakeholder engagement, which are vital for managing public funds in local government authorities (LGAs). However, its rigidity and resource demands can challenge resource-constrained settings like Tunduru. The study explores how tailored financial management systems (FMS) integrated with project management practices can enhance the efficiency and transparency of fund utilization in LGAs.

Public Financial Management (PFM) **Theory** emphasizes the systematic management of public resources through budgeting, financial reporting, and accountability. Originating from fiscal discipline and economic theories, it has evolved with reforms like the Medium-Term Expenditure Framework (MTEF) and performance-based budgeting (Allen et al., 2013). PFM enhances transparency, reduces corruption, and aligns resources with development priorities. However, its complexity and resource-intensive nature pose challenges for implementation in contexts with limited capacity. This study examines how digital tools, such as electronic FMS and mobile money, can modernize PFM processes, improving transparency and accountability in Tunduru LGAs.

Contingency Theory of Accounting Information Systems (AIS) posits that financial systems must align with organizational and environmental factors for optimal performance. Developed from organizational behavior research, it highlights the importance of flexibility and customization in system design (Ismail & King, 2022). Strengths include adaptability to diverse conditions, enabling LGAs to tailor FMS to local needs. However, its reliance on contextual factors can complicate implementation and hinder standardization. This study explores how tools like MUSE and FFARS can enhance financial oversight in Tunduru LGAs, emphasizing the role of capacity building and training in adapting FMS to local contexts.

This research integrates these theories to analyze how tailored FMS and capacity-building initiatives can address the unique challenges of managing project funds in Tunduru, contributing to improved financial management practices in Tanzanian LGAs.

Empirical Literature Review

Impacts of Technical Problems in FMS on Project Fund Management in LGAs

Technical issues in financial management systems (FMS) significantly impact the management of project funds in local government authorities (LGAs). System integration challenges often disrupt data consistency and reporting. Okello (2023) found that poor interoperability in Kenyan LGAs caused delays, while Adedoyin and Akinloye (2022) noted inefficiencies arising from integrating legacy and new systems in Nigeria. Usability problems also lead to inefficiencies, as Njeri and Chege (2022) reported that complex user interfaces in Tanzanian LGAs caused frequent errors, mirrored by findings in Ghana by Akinwande (2023).

Data security and system reliability are critical. Osei-Tutu and Asare (2023) observed that cyber-attacks and downtimes in Ghanaian LGAs delayed fund disbursement, with Juma (2023) reporting similar vulnerabilities in Tanzanian LGAs, undermining trust in FMS. Additionally, insufficient technical support exacerbates system failures. Moyo and Zulu (2023) highlighted prolonged downtimes in Zambian LGAs, with Chirwa and Kalid (2022) emphasizing the lack of vendor support in Malawi.

Infrastructure limitations also hinder FMS functionality. Studies by Kinyua and Mwaura (2023) and Mwamba and Mwanza (2022) revealed issues like unreliable internet and power supplies in Kenyan and Zambian LGAs, respectively, affecting system performance. Resistance to adopting new technologies further impedes progress. Nkosi and Ngwenya (2023) and Phiri (2022) found staff resistance and insufficient change management strategies problematic in South African and Zimbabwean LGAs.

Moreover, technical issues compromise transparency and accountability. Muriuki and Ndungu (2023) reported delayed reporting in Kenyan LGAs due to system failures, while Lungu and Chirwa (2022) highlighted accountability concerns in Zambia. The financial burden of resolving technical issues was evident in studies by Malwa and Katende (2023) and Banda and Zimba (2022), documenting high costs in Tanzanian and Malawian LGAs.

Effective strategies can mitigate these challenges. Chikowore and Dube (2023) observed that training and dedicated support teams improved outcomes in South Africa, while Gachanja and Karanja (2022) found that cloud-based solutions enhanced reliability in Kenya. Strong policies, as emphasized by Asare and Osei (2023), are essential for addressing technical issues and improving FMS performance.

Factors Affecting Financial Management System Usage in LGAs

The effectiveness of FMS in managing project funds in LGAs depends on various factors. Adequate training is critical, as insufficient training leads to underutilization (Mukhongo, 2023; Nyambura& Muriuki, 2022). Usability also matters, with Juma and Nguvumali (2023) and Okafor and Onwuka (2022) emphasizing the role of user-friendly interfaces in Tanzania and Nigeria.

Infrastructure limitations, such as unreliable internet and outdated hardware, are major barriers (Mwaura & Wanjiru, 2023; Chikondi & Malisa, 2022). Integration challenges, as noted by Zziwa and Kasozi (2023), disrupt efficiency, with Kinyua and Mwaura (2022) highlighting compatibility issues in Kenyan LGAs.

Ongoing technical support is essential. Akinpelu and Sanni (2023) and Njeri and Wambui (2022) found that the lack of support in Nigerian and Kenyan LGAs led to frequent disruptions. Organizational resistance also affects adoption. Musasizi and Kiggundu (2023) and Mwale and Banda (2022) noted resistance to change in Ugandan and Zambian LGAs, impeding FMS usage.

Policy and institutional support are vital for success. Chirwa and Ndebele (2023) and Osei-Tutu and Asare (2022) highlighted the importance of robust frameworks in South African and Ghanaian LGAs. Data security concerns, as seen in Tanzanian LGAs (Tindwa & Moyo, 2023), also affect confidence in FMS usage.
Budget constraints hinder procurement and maintenance (Akinwande & Olaniyan, 2023; Maseko & Nyoni, 2022). Involving users in system implementation, as Kasim and Ibrahim (2023) and Akinleye and Bello (2022) reported, enhances acceptance and usage.

Procedures for managing the financial management system in LGAs
Effective FMS management in LGAs involves structured implementation, continuous training, and monitoring. Okonkwo and Ijeoma (2023) and Adebayo (2022) stressed the importance of phased rollouts and needs assessments during implementation in Nigerian and Kenyan LGAs. Regular training, as shown by Moyo and Banda (2023), improved FMS usage in Zambia, with Kamau and Gachanja (2022) emphasizing ongoing capacity building in Tanzania.

Monitoring ensures system performance. Chirwa and Moyo (2023) and Chikondi and Malisa (2022) found that regular evaluations in South African and Malawian LGAs addressed inefficiencies. Proper data management practices, including backups and validation, are crucial (Osei-Tutu & Asare, 2023; Njeri & Wambui, 2022).

Proactive maintenance enhances reliability, as seen in Nigerian LGAs (Akinwande & Olaniyan, 2023), while integration with existing systems streamlines operations (Kinyua & Mwaura, 2023; Zziwa & Kasozi, 2022). Risk management procedures, as reported by Ndlovu and Sithole (2023) and Tindwa and Moyo (2022), mitigate potential disruptions.

Compliance with policies is essential for accountability (Malwa & Katende, 2023; Asare & Osei, 2022). Incorporating user feedback, as Gachanja and Karanja (2023) and Akinleye and Bello (2022) suggested, enhances system performance. Proper record-keeping supports transparency and auditing, as highlighted by Mukhongo and Muremi (2023) and Kamau and Gachanja (2022).

Research Gap

Several important research gaps are shown by the critical literature evaluation of theoretical and empirical studies on the effectiveness of financial management systems (FMS) in managing project money in local government authorities (LGAs), especially in Tunduru. Theoretical frameworks, such as Public Financial Management Theory and Project Management Theory, frequently lack context-specific modifications to address the particular institutional and socioeconomic difficulties faced by LGAs. Regionally specific research is also lacking, according to empirical investigations, especially when it comes to the practical concerns of system implementation, user training, and system integration. Notably, there is a lack of knowledge regarding how to improve the efficacy of current FMS frameworks by integrating cutting-edge technical breakthroughs like cloud computing and artificial intelligence.

Furthermore, the practical difficulties of risk management and user feedback systems, as well as the local procedural and compliance issues unique to Tunduru, are not sufficiently explored in current research. In order to improve FMS for managing project funds in Tunduru's LGAs, filling in these gaps will offer more specialised and useful insights. This will aid in the creation of more successful, contextually appropriate plans and solutions.

Research Hypothesis

H1: Technical challenges in financial management systems negatively affect the management of project funds in Local Government Authorities.

H2: User-related factors such as training, technical support, and system usability significantly influence the usage of financial management systems in managing project funds.

H3: Effective management procedures of financial management systems positively influence project fund management in Local Government Authorities.

Conceptual Framework of the Study

The conceptual framework is a structured guide in research that connects theoretical concepts to empirical analysis, providing a clear roadmap for data collection, analysis, and interpretation. According to Miles and Huberman (1994), it visually or narratively represents key variables—such as dependent, independent, control, moderating, and mediating variables—and their presumed relationships. In studying financial management systems (FMS) in managing project funds within local government authorities (LGAs), the framework situates "effectiveness of project fund management" as the dependent variable, influenced by independent variables like technical infrastructure, human resource capacity, and organizational support. The framework draws on theories such as Public Financial Management Theory and Contingency Theory, offering a solid theoretical foundation and aligning research with broader academic insights. Ultimately, it provides coherence throughout the study, linking research questions, methods, and findings in a meaningful and theoretically grounded way.

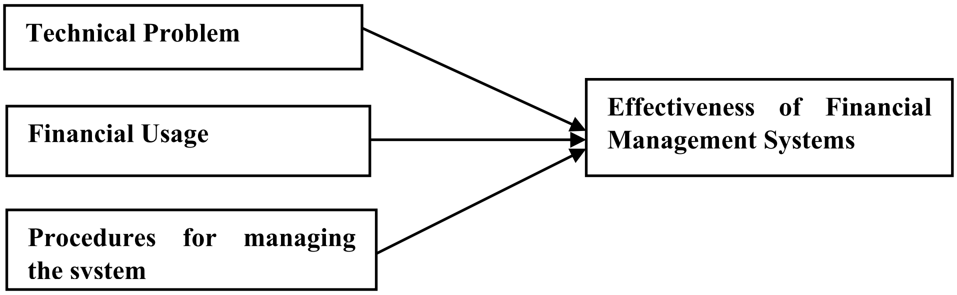

Figure 2.2: *Conceptual framework*
Source: Researcher (2024)

METHODOLOGY

Research Philosophy

Research philosophy refers to the set of beliefs and assumptions about the nature of knowledge, the process of its development, and how it should be gathered, analyzed, and interpreted in the research process. It essentially defines the framework within which a researcher works, influencing their methodological choices and how they perceive the research problem (Saunders, Lewis, & Thornhill, 2019).

Saunders et al. (2019) identify several key research philosophies commonly used in research, including positivism, interpretivism, realism, and pragmatism. Each philosophy represents a different stance on the nature of reality (ontology), the nature of knowledge (epistemology), and how knowledge can be acquired (methodology).

The research philosophy adopted in a study reflects the beliefs and assumptions about the nature of knowledge, the process of its development, and the approach to investigating reality. For this study on the effects of financial management systems in managing project funds in Local Government Authorities (LGAs), an interpretivism philosophy has been employed, aligned with a qualitative research approach. Interpretivism posits that reality is socially constructed and subjectively experienced, emphasizing the need to understand phenomena from the perspectives of those involved (Saunders, Lewis, & Thornhill, 2016). This approach is rooted in the idea that social contexts are complex and cannot be fully understood through objective measurements alone, necessitating methods that capture the richness of human experiences and interactions.

Research Approach

A qualitative research approach is employed to investigate the effects of financial management systems (FMS) in managing project funds within local government authorities (LGAs) in Tunduru. This approach is chosen due to its strength in exploring complex, context-specific phenomena through detailed and nuanced data collection methods.

Research Design and Strategy

Research design is the detailed plan that outlines the procedures for conducting a research study, specifying how data will be collected, measured, and analyzed. It provides a structured framework to ensure that the research objectives are systematically addressed. According to Creswell and Creswell (2018), research design is "a blueprint for conducting the research and includes the methodology, sampling, and data collection and analysis techniques to answer the research questions effectively. The design ensures that the study is conducted systematically and that the results are valid and reliable.

The study employed purposive sampling to select 30 participants from various departments of Tunduru LGAs, including finance, planning, and project management units. Data were collected using in-depth interviews and focus group discussions, which provided detailed insights into the operational strengths, weaknesses, and challenges of the existing financial management systems.

Data were analyzed through descriptive and content analysis techniques, allowing the identification of recurring themes, patterns, and relationships within the participants' responses. This design facilitated a comprehensive understanding of how financial management systems influence fund utilization, accountability, and project performance, enabling the formulation of practical recommendations to improve the management of project funds in Tunduru District.

Research strategy refers to the overall plan and approach for conducting a research study, including the specific methods and procedures for data collection and analysis. It is a crucial component of research design and determines how the study will be executed to address the research problem. According to Yin (2018), a research strategy is "the approach used to achieve the research objectives and answer the research questions, including the selection of methods for data collection and analysis". The strategy provides a coherent framework for systematically gathering and analyzing data to ensure that the research findings are robust and relevant.

In this study, the case study strategy is employed as part of the qualitative approach. This strategy involves an in-depth examination of specific instances of FMS implementation within Tunduru's LGAs. Case studies provide rich, detailed insights into how FMS is applied in practice, highlighting successes, challenges, and contextual factors that influence its effectiveness. This strategy allows for a comprehensive understanding of the real-world implications of FMS on project fund management.

Research Population and Study Area

The study targeted a total population of 30 government officers responsible for project implementation, which includes project planning officers, IT officers, project managers and coordinators, finance officers, procurement officers, and project engineers. This study was conducted at the Tunduru District Council. According to the 2022 Tanzania National Census, the population of the Tunduru District was 412,054 (URT, 2013). According to the 2022 Tanzania National Census, the population of the Tunduru District was 412,054 (URT,2013). According to the Tunduru District Council Financial Statement 2023, the main reason for researching the Tunduru District Council is that there are existing incidences of the effects of the financial management system on the management of project funds in the Tunduru District Council, which could help in conducting the study more easily

Sampling Design and Procedure

According to Cochran (1977), sample design refers to the strategy or plan that outlines how a sample is chosen from a broader population. It involves selecting a subset of individuals or units in a way that enables researchers to make reliable inferences about the entire population. The goal of a sample design is to ensure that the sample accurately represents the larger group, allowing for generalizations to be made with a reasonable degree of confidence. It includes decisions about the sampling method, the size of the sample, and the procedures used to select participants, all of which play a crucial role in the validity and accuracy of the research findings.

Sampling procedures involve the systematic steps taken to select participants or units from a research population to form a sample for study. These procedures ensure that the sample is representative, relevant, and able to provide meaningful insights into the research questions. According to Fink (2013), sampling procedures include "the steps taken to identify, select, and recruit participants or units to ensure the sample is appropriate for addressing the research objectives".

In this study, purposive sampling was employed because the research focused on individuals who are directly involved in financial management and project implementation in the Tunduru District Council. These participants possess the necessary knowledge, experience, and insight to provide meaningful information about the effects of financial management systems on project fund management. The sample size of 30 participants was determined based on the qualitative nature of the study. In qualitative research, the focus is on depth of understanding rather than statistical representation, and smaller sample sizes are often sufficient to capture detailed insights. Literature suggests that qualitative studies typically use 20–50 participants to achieve data saturation, which occurs when no new information or themes emerge from additional data collection. The total population of Tunduru District Council is approximately 412,054 people, but not all individuals are relevant to the study. The population figure helped to identify the specific sub-group of interest—staff involved in financial management and project operations. By focusing on this relevant group, the study could select 30 key informants whose experiences reflect the practices and challenges of the financial management system, ensuring the study remains manageable while providing rich, meaningful data.

Sample Size

According to Saunders, Lewis, and Thornhill (2016), a sample is defined as the number of participants or units selected from the research population for inclusion in the study. It is a critical aspect of the research methodology, as it affects the reliability and validity of the study findings. "The sample size must be large enough to provide reliable and valid data, but not so large that it becomes unmanageable or impractical." The appropriate sample size depends on the research design, objectives, and methodological approach. For this study, a sample size of 20-30 participants was targeted. This range is considered adequate for qualitative research to provide rich, detailed data while allowing for thorough analysis. The sample will include project planning officers, IT officers, project managers and coordinators, finance and accounting officers, procurement officers, and project engineers. The sample size for this study was selected as follows:

Table 3.1:
Sample Size

Category	Total number	Percentage
Project planning officers	5	16.67
IT officers	2	6.67
Project managers & coordinators	6	20.00
Finance & accounting officers	8	26.67
Procurement officers	4	13.33
Project engineers	5	16.67
Total	**30**	**100**

Data Collection

Data collection tools are instruments used to gather information from participants to address research questions and objectives. They play a crucial role in ensuring that the data collected is relevant, accurate, and useful for analysis. "Devices or methods used to collect data from research participants, including interviews, surveys, and observational techniques, to ensure the reliability and validity of the research findings" are what Robson and McCartan (2016) define as data collecting tools. The choice of tools depends on the research design, methodology, and objectives. In this study, the data were collected by the following tools;

Semi-structured interviews are a qualitative data collection method where the interviewer follows a guide with predefined questions but allows flexibility for the interviewee to elaborate and provide detailed responses. This tool is used to explore participants' experiences, opinions, and insights into the FMS. It allows for in-depth understanding and the flexibility to probe further based on responses. A set of open-ended questions will be developed based on the research objectives. The guide covers topics related to FMS implementation, challenges, and impacts on project fund management. Interviews were conducted face-to-face and via digital platforms (Microsoft Teams), depending on participants' availability and location. Every interview will be transcribed for analysis and, with approval, recorded.

Focus groups in this study were 6-10 participants selected from staff who are directly involved in financial management, project planning, and implementation within the Tunduru District Council. The size was chosen because groups of this range are large enough to generate diverse perspectives but small enough to allow each participant to contribute meaningfully. The purpose of conducting focus groups is to gather collective insights and explore shared experiences regarding the Financial Management System (FMS). Unlike individual interviews, focus groups encourage interaction among participants, allowing them to build on each other's ideas, challenge assumptions, and discuss differing opinions. This dynamic often uncovers common themes, challenges, and suggestions for improvement that may not emerge in one-on-one interviews.

Case studies involve an in-depth examination of specific instances or examples of FMS implementation within the LGAs. This tool is used to provide detailed contextual analysis and real-world examples of how FMS affects project fund management. It offers practical insights and lessons learned. Specific projects or instances where FMS has been implemented will be selected based on their relevance and impact. Data was collected through documentation, interviews, and observations. Detailed analysis of each case was conducted to understand the successes, challenges, and outcomes of FMS implementation.

Document review involves analyzing existing records, reports, and documents related to FMS and project fund management. This tool provides additional context and background information, helping to corroborate findings from interviews and focus groups. Relevant financial reports, project plans, and policy documents were collected from LGAs and reviewed. Documents were analyzed through the use of identification and selection of documents, organising documents, content analysis, cross verification, and thematic synthesis.

Variables and Measurement

To investigate the impact of Financial Management Systems (FMS) on project finance management in Local Government Authorities (LGAs), variables were divided into dependent and independent categories. Project fund management, or how well financial resources allotted to development projects are planned, used, tracked, and reported within the local government system, was the dependent variable. Respondents' opinions about the promptness of fund usage, the correctness of financial reporting, the accountability and openness of financial transactions, and the general effectiveness of project implementation were used to qualitatively evaluate this variable.

Factors about the operation and administration of financial management systems comprised the independent variables. These included financial management practices, system utilisation concerns, and technological difficulties. The term "technical challenges" refers to system-related issues, such as system outages, inaccurate data, erratic network connectivity, and inadequate ICT infrastructure that impact the functionality of financial management systems. System use considerations include things like user training, system usability, technical support, and system interaction with other platforms that affect how well employees use financial management systems. The operational techniques used to efficiently manage financial systems, including forecasting and budgeting, financial reporting, audit compliance, system upkeep, user access control, and data backup protocols, are referred to as financial management procedures.

Qualitative information gathered from focus groups, semi-structured interviews, and document reviews was used to measure these variables. Participants were invited to provide their thoughts and experiences about how financial management systems affect project finance management. Following the collection of data, the responses were classified into themes that represented the main study variables using content and thematic analysis. Using this method, the researcher was able to find trends and connections between the Tunduru District Council's project money management efficacy and elements of the financial management system.

Data Processing and Analysis

According to Smith (2020), data Processing involves the collection, manipulation, and transformation of data into a format that is useful for analysis. This process includes steps like data cleaning, sorting, filtering, aggregation, and data integration, which prepare raw data for further use in decision-making and analysis.

After data collection, the field data from interviews, focus group discussions, and document reviews were systematically processed and analyzed to ensure accuracy and extract meaningful insights into the effects of financial management systems (FMS) in Tunduru District Council. All audio recordings were transcribed verbatim, and field notes from discussions and observations were typed and organized, while documents such as financial reports, audit records, and project plans were cataloged according to type and relevance. The transcripts and notes were carefully reviewed for errors, inconsistencies, or incomplete information, and irrelevant content, repetitions, or unclear statements were removed or clarified. Data were then manually coded by assigning labels to meaningful units of text reflecting specific ideas, experiences, or challenges related to FMS, and similar codes were grouped into broader categories such as “capacity gaps,” “system inefficiencies,” and “oversight challenges.” Using content and thematic analysis, patterns, relationships, and recurring themes were identified, focusing on key objectives such as the impact of FMS on fund utilization and accountability, challenges in system implementation, and recommendations for improving effectiveness. Finally, the themes and patterns were interpreted to provide a comprehensive understanding of FMS effects on project fund management, highlight operational gaps, and suggest practical recommendations, with illustrative quotes from participants included to enrich and contextualize the findings.

Descriptive and Inferential Statistical Analysis
According to Saunders, Lewis, & Thornhill (2019), descriptive analysis refers to the process of summarizing and presenting data to highlight patterns, trends, and relationships without making inferences or predictions. It uses various statistical measures, visual tools, and qualitative methods to describe the characteristics of a dataset or phenomenon systematically. The aim is to answer "what" is happening rather than exploring "why" it is happening. In qualitative research, descriptive and thematic analysis replace traditional statistical methods. Descriptive analysis involves summarizing participants' responses and identifying common themes.

Validity and Reliability of Measurements
In qualitative research, ensuring validity and reliability is critical to produce credible and trustworthy findings. Validity refers to the extent to which the collected data accurately represent the phenomenon under study—in this case, the effects of financial management systems (FMS) on project fund management in Tunduru District Council (Saunders, Lewis, & Thornhill, 2019). To enhance validity, this study employed triangulation, combining data from interviews, focus group discussions, and document reviews. This approach ensured that findings were cross-verified across multiple sources, reflecting participants' true perspectives and experiences. Additionally, member checking was conducted by sharing preliminary findings with selected participants to confirm the accuracy of interpretations, further strengthening the validity of the results.

Reliability refers to the consistency and dependability of the data collection and analysis process. In this study, reliability was ensured by applying consistent data collection procedures, such as using the same interview and focus group guides for all participants. Detailed documentation of field procedures, coding processes, and analytical steps was maintained to allow for transparency and potential replication. Using multiple data sources and systematic content analysis reduced the risk of researcher bias and enhanced the consistency of findings. Together, these strategies ensured that the study produced trustworthy, credible, and meaningful insights into the functioning and impact of FMS in Tunduru LGAs.

Ethical Considerations
The researcher followed these ethical guidelines when conducting this study:

In this study, the fundamental ethical principle was used to ensure that no harm would arise to participants as a result of their participation in this study. The researcher adhered to rules and regulations guiding the initial consideration of issues in the field that a researcher should address when planning and conducting research. First, the clearance letter was sought from the following office: The Executive Director of Tunduru District Council, for adequate data collection.

After receiving a research permit from the Executive Director of Tunduru District Council, the researcher met with respondents to inform them about the purpose of the study. Informed consent enabled respondents to be aware of the purpose of the study and to understand the importance of participating in it (Leedy, 2001). The researcher also explained how the study was going to be conducted and the uses of the information obtained from the respondents. No one was forced to participate in the study, and participants were informed that they were free to participate or withdraw from the study.

DATA ANALYSIS, FINDINGS, AND DISCUSSION

Technical Challenges with FMS

Analysis of the data revealed that technical issues are among the most significant barriers to effective FMS utilization. Three major challenges emerged: system downtime (76.67%), data inaccuracies (66.67%), and user interface issues (53.33%). Respondents consistently emphasized that frequent system downtimes disrupt payment processing, financial reporting, and record updates, causing project delays and increasing operational costs. Data inaccuracies, including duplication and incomplete entries, were linked to poor financial reporting and reduced accountability. Complex and non-intuitive user interfaces further limited system usability, discouraging users and increasing the likelihood of reverting to manual processes.

Content analysis further identified four dominant themes associated with technical challenges: system reliability (76.67%), data integrity (66.67%), user experience (53.33%), and training and support (43.33%). These findings highlight that technical inefficiencies significantly affect the accuracy, timeliness, and credibility of financial information used in managing project funds.

Factors Affecting Usage of FMS

The data indicated several factors influencing the effective use of financial management systems. These include system usability (73.33%), data accuracy and reliability (66.67%), technical support and training (60.00%), and most notably, integration with other systems (86.67%). Respondents explained that the lack of system interoperability leads to data inconsistencies and inefficient financial operations. In addition, inadequate technical training limits staff competence, reducing the system's effectiveness in managing project funds.

Management support (50%) also emerged as a crucial factor. Limited managerial commitment reduces system enforcement, which affects compliance and staff motivation. These findings align with the Technology Acceptance Model (TAM) and Systems Theory, which emphasize ease of use, system integration, and organizational support as key determinants of successful technology adoption. Addressing these factors through capacity building, system improvements, and strong leadership commitment is critical for enhancing FMS effectiveness.

Procedures for Managing FMS in Project Fund Management

Respondents also identified key procedures integral to the successful operation of FMS in project fund management. The most frequently mentioned were budgeting and forecasting (80%), financial reporting (63.33%), and system maintenance (63.33%). Budgeting and forecasting were recognized as essential for resource allocation and financial planning, ensuring projects are adequately funded and aligned with development priorities. Regular financial reporting was associated with improved transparency and accountability.

Other important procedures included user access management (60%), audit and compliance (50%), and data backup and recovery (46.67%). These procedures are essential for ensuring system security, data integrity, and compliance with financial regulations. Regular system maintenance and audits were particularly emphasized as strategies to ensure reliability and prevent disruptions in financial processes.

Key Themes and Implications

From the overall qualitative analysis, several key themes emerged across technical challenges, usage factors, and operational procedures: System Reliability and Data Integrity: Frequent system downtimes and data inaccuracies undermine financial accountability and delay project implementation. Enhancing system performance and ensuring data accuracy through regular maintenance and audits is essential. User capacity and Experience: Inadequate training, coupled with complex system interfaces, reduces system adoption. Comprehensive capacity-building initiatives can improve usability and reduce reliance on manual processes. System integration and Management Commitment: Poor system integration with other platforms leads to inefficiencies, while weak managerial support reduces compliance and motivation. A more integrated and supported system environment will enhance performance and standard Operating Procedures. Clear procedures for budgeting, reporting, auditing, and data management strengthen transparency, accountability, and operational consistency within LGAs.

Discussion

The findings demonstrate that while FMS is a critical tool for improving public financial management, technical inefficiencies, weak user capacity, poor system integration, and inadequate management support hinder its optimal use in the Tunduru District Council. These findings are consistent with previous research emphasizing that technological adoption in the public sector is shaped by technical reliability, user competence, and organizational commitment. Strengthening FMS requires a holistic approach that addresses both technological and institutional dimensions.

These results underscore the need for capacity building, infrastructure investment, enhanced system integration, and strengthened leadership support to maximize the potential of FMS in promoting efficient, transparent, and accountable project fund management in Tanzanian LGAs.

SUMMARY OF THE FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the study

This study investigated the impact of Financial Management Systems (FMS) on project fund management in Tunduru's Local Government Authorities (LGAs). Interviews with 30 government officials revealed key issues, including system downtimes, complex user interfaces, unreliable data, lack of training and support, poor system integration, and insufficient management commitment. These challenges were found to align with previous research on system reliability, usability, and the importance of training and support. Key procedures for managing FMS were identified, including budgeting, financial reporting, audits, system maintenance, data backup, and user access management. The study concludes that addressing technical issues, improving system usability, ensuring accurate data, and securing management support are essential for effective project fund management. Further research is recommended to explore new technologies, user experiences, and system comparisons across LGAs.

Summary of the findings

The study revealed several key challenges in managing project funds through Financial Management Systems (FMS) in LGAs. Frequent system downtimes and failures led to delays in transactions, inaccurate financial data, and increased manual intervention, reducing efficiency and raising the risk of errors. Resistance to adopting FMS was observed, with many users preferring traditional methods due to insufficient training. Poor system integration created data silos and inefficiencies, while inconsistent management practices and a lack of clear, up-to-date procedures further hindered effective use of the systems. The study also identified weaknesses in monitoring and compliance, which contributed to unresolved issues and reduced system effectiveness.

Conclusions

The study's theoretical conclusions emphasize the impact of technical problems on the efficiency and accuracy of project fund management, aligning with Systems Theory, which stresses the importance of system reliability. The findings on barriers to system usage, such as resistance to change, lack of training, and integration issues, support Innovation Diffusion Theory and the Technology-Organization-Environment (TOE) Framework. Additionally, the lack of standardized procedures in managing financial systems underscores the importance of Institutional Theory in ensuring consistency and compliance. From a managerial perspective, addressing technical issues, improving user engagement, enhancing training, and ensuring better integration are crucial for improving financial management system effectiveness in LGAs.

Recommendations

To enhance financial management in LGAs, clear policies for standardizing procedures, including data entry and reporting, should be established and enforced through audits. Investment in reliable, integrated systems and regular system upgrades is essential to reduce technical issues and improve performance. Continuous training and dedicated technical support will ensure user proficiency and minimize errors. Regular maintenance, backup systems, and disaster recovery plans must be implemented to ensure data security and system stability. Additionally, seamless integration with other systems, comprehensive documentation, compliance checks, and performance audits will support efficient system usage and drive continuous improvement.

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The Impact of Microcredit on Livelihood Improvement of Women in Muhanga District, Rwanda

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Abstract

This study aimed to examine the contribution of Microfinance to improving the livelihoods of women in rural Rwanda. The study area was Muhanga District, where this research seeks to address through the lens of microfinance. An explanatory design was employed to assess the extent to which women's livelihoods changed as a result of microcredit. A deductive approach was adopted to compare arguments from previous studies, collect data, analyse results, and interpret findings. Data were collected from a sample size of 309 respondents systematically selected from a population of 1,349 women beneficiaries of a local microfinance institution. Structured questionnaires were used to gather data, which were entered into SPSS version 20 and analysed using descriptive statistics and bivariate Correlation techniques. The findings reveal a strong positive correlation between access to microloans and improvements in key livelihood dimensions, although not all areas experienced uniform growth. Importantly, participants reported increased financial stability and greater access to essential services. The study concludes that microcredit significantly enhances women's livelihoods and supports poverty reduction efforts. The study recommends that lending institutions, policymakers, and nations strengthen access to credit by providing favourable loan conditions and coordinating with governmental and non-governmental stakeholders to enhance long-term impact.

Keywords: *Impact of Microcredit; Livelihood Improvement*

INTRODUCTION

Microfinance Institutions (MFIs) have emerged as vital tools for poverty alleviation and access to finance by offering microcredits to marginalised people. In Europe and America there were numerous studies like Quibria (2015) in Maryland, Baumert (2012) in German, and Bildirici and Özaksoy (2017) in Turkey investigated the effect of microloans on women income, Muharremi and Madani (2021) in Albania stressed the relationship between microloans and women asset possession, Zioło and Luty (2020) in Poland revealed that one of the target groups for microloans is women, Banto and Monsia (2020) aligned that women use their loans for consumption rather than investment in developing countries, Basto et al. (2020) in Portugal found the impact on health and education, Feldhoff et al. (2019) concluded that microfinance has a significant positive effect on school and food expenditure in America but it was not the same in Mexico. Furthermore, Martin et al. (2019) investigated the effects of a housing boom on credit to non-housing firms in Europe.

In Asia, to mention a few, Maaitah (2019) in Jordan revealed that the level of education, social status and the whole dimension of social empowerment have not been affected by profitability policy, while Razith and Nihara (2022) in Sri Lanka supported the relationship and strength between microcredit and women's livelihood, namely poverty, education, saving, family size. Other related studies were Datta and Sahu (2021) in India, Al-shami et al. (2021) in Yemen, and Haque et al. (2021) in Malaysia.

In Africa, to mention a few, studies include Zelu et al. (2022) in Ghana, which integrated microcredit into women's income, and Chitema and Chitongo (2020) in Zimbabwe, which focused on the role of Internal Savings and Lending Schemes. The studies in East Africa were Muhwezi (2021) and Isoto and Kraybill (2019) in Uganda, with the objectives of assessing the impact of microloans on women's empowerment. In Tanzania, Kevela and Magali (2022) found that education moderated the impact of SACCOS microcredit on women-headed households. Namayengo (2023) in Uganda assessed the impact of microcredits on agriculture and food security. Furthermore, Johnson (2015) in Kenya and Mukhooli (2015) in East Africa established the effect of microcredit interventions on women’s empowerment in Uganda, Kenya and Tanzania.

In Rwanda, Igihozo (2017) focused on rural women's empowerment and highlighted the role of education loans, but she didn’t measure the impact on livelihoods. Moreover, Habimana and Haughton (2022) assessed how microcredit programmes enhance agricultural productivity and incomes.

Women constitute a significant share of the informal economy in Rwanda and continue to face challenges in accessing financial services. MFIs have been promoted as a means of fostering women's empowerment and improving livelihoods. For instance, there remains limited empirical evidence on how microcredit influences the multifaceted aspects of women’s livelihoods at the household level, particularly in rural settings such as Muhanga District (NISR, 2022).

While international studies have highlighted the benefits of microcredit in enhancing income, business development, and access to basic services, most have generalized across broad populations or focused on urban areas. For example, research by Alshammari (2021) explored how microcredit improves business productivity (Alshammari, 2021), while Wondimu (2023) examined the social development implications of microfinance (Wondimu, 2023). However, these studies did not address localized impacts in Rwanda or offer detailed insights into specific livelihood indicators such as food security, housing quality, or educational access for dependents.

Moreover, microfinance programs in Rwanda have expanded rapidly in recent years, yet questions remain about their effectiveness in supporting sustainable, long-term improvements in women's well-being (BNR, 2023). Existing literature provides insufficient analysis of how microcredit influences income generation, asset accumulation, food security, and access to health and education services in rural Rwandan districts. Furthermore, few studies have examined how borrower demographics, such as age, education, and family size, shape the outcomes of microcredit use. Research from nearby countries, such as Magali (2023) in Tanzania, found that demographic variables significantly affected loan repayment behavior within Savings and Credit Cooperative Societies (SACCOS) during the COVID-19 pandemic (Magali, 2023). However, that study did not explore whether such behaviors translated into tangible improvements in livelihood indicators. Thus, there was a significant knowledge gap regarding the actual household-level impact of microcredit for women in rural Rwanda, particularly in Muhanga District.

This study examined the multidimensional effects of microcredit on economic and social aspects of women's lives, including income generation, asset accumulation, productivity, access to business capital, health and education, food security, and housing conditions. Grounded in recent empirical literature, the study was guided by a general hypothesis that microcredit positively affects women's livelihoods, supported by specific assumptions regarding various dimensions of livelihoods. This study tested seven specific hypotheses to evaluate the impact of microcredits on various aspects of women's livelihoods in Muhanga District. These included H01 (impact on income), H02 (impact on assets), H03 (impact on production), H04 (impact on business capital), H05 (impact on health and education), H06 (impact on food intake), and H07 (impact on housing). Each hypothesis posited that microcredit had no significant effect on the corresponding variable. These were analyzed using descriptive statistics and correlation tests from 309 women beneficiaries of CLECAM EJO HEZA Plc. Drawing from relevant research (Mengstie, 2020); (Haque, 2021); (Sawalu, 2023); (Fayyaz, 2016); (Kapoor, 2019) and (Wondimu, 2023), the study applied a quantitative approach to measure how microcredit contributes to financial independence and improved household welfare. By focusing on a rural Rwandan context, the research contributes nuanced insights to ongoing discussions on microfinance and women's empowerment and provides evidence-based recommendations for policy and practice.

The theoretical foundation of this study integrates the Theory of Change (ToC) and the Quantitative Impact Assessment Model (QIAM) to evaluate the effects of microcredit on women's livelihood outcomes in Muhanga District, Rwanda. The Theory of Change, originally proposed by Weiss and widely used in development planning, serves as a conceptual roadmap for linking microcredit interventions to social and economic outcomes through clearly defined assumptions and causal pathways (Weiss, 2019). This approach is particularly relevant in tracing how microcredit can lead to changes in income, education, health, and housing, as illustrated in development-focused studies such as Faki et al. (2024), who emphasized the role of stakeholder engagement in improving program effectiveness through logical planning frameworks (Faki, 2024). Meanwhile, the QIAM offers a complementary lens by quantifying intervention effects, enabling this study to capture the tangible impact of microcredit through statistically measurable indicators. Though not often explicitly named, QIAM's methodology aligns with empirical models used in financial development research, such as Kapaya (2023), who assessed the impact of public investment on sectoral outcomes using rigorous statistical tools (Kapaya, 2023). Together, ToC and QIAM provide a robust analytical model that captures both the causal logic and quantifiable outcomes of microcredit programs, thereby enhancing the validity and policy relevance of this study's findings.

Empirical analysis of relevant studies

Globally, microcredit has been empirically examined as a tool for poverty reduction and livelihood enhancement, especially among women in low-income communities (Al-Shami, et al., 2021). Numerous studies have shown that access to microfinance can increase women's income and business opportunities, although the extent of impact varies (Rahman, et al., 2022). For instance, Rahman and Akter (2022) found that women in rural Bangladesh who accessed microcredit demonstrated significant improvements in business activity, asset ownership, and household food security. However, they also noted inconsistencies in outcomes related to education and health, suggesting that financial inclusion alone does not guarantee broad-based welfare improvements (Rahman, et al., 2022). Similarly, in Nepal, Adhikari and Shrestha (2021) conducted a cross-sectional survey of 150 women microfinance clients and observed that, although microcredit recipients reported improved consumption patterns and higher incomes, challenges such as over-indebtedness and limited training services hindered long-term gains. These findings reflect the importance of assessing both the financial and non-financial dimensions of livelihood improvement, as well as the role of contextual factors in shaping outcomes (Adhikari, et al., 2021).

Across Africa, studies have yielded mixed empirical evidence on the efficacy of microcredit in transforming women's livelihoods. (Amoako, et al., 2023). In Ghana, Amoako and Baah (2023) demonstrated that microfinance improved women's financial autonomy and income generation, particularly when complemented by institutional support and entrepreneurial training. However, they cautioned that the lack of follow-up services limited bigger changes in areas such as housing and children's education (Amoako, et al., 2023). In Nigeria, Eze and Okonkwo (2021) conducted a comparative analysis of women-led households, showing that those with access to microloans had higher rates of asset acquisition and meal frequency, though the improvements were often modest and not sustained without additional social safety mechanisms (Eze, et al., 2021). These African studies suggest that while microfinance holds promise, its success depends on design, delivery, and support systems, especially in rural and underserved communities.

In East Africa, empirical studies have focused heavily on access, repayment behavior, and financial inclusion, yet often fall short of linking microcredit to comprehensive livelihood metrics. (Magali, 2023). Magali (2023), analyzing loan repayment behaviors in Tanzanian SACCOS during the COVID-19 pandemic, found that education, financial literacy, and strategic business planning were key to repayment success. However, the study did not explore how these repayments translated into broader livelihood outcomes such as improved housing, healthcare, or educational attainment. In Kenya, Omondi and Muturi (2022) reported that microcredit improved the performance of small businesses among rural women, contributing to moderate income growth and increased food security (Omondi, et al., 2022). Nevertheless, they emphasized that long-term welfare impacts remained dependent on loan size, repayment period, and borrower training. Overall, East African literature emphasizes operational aspects of microcredit while still lacking a detailed analysis of its multidimensional impact on women’s lives.

A relevant case study that offers additional insight comes from Uganda, where Namukasa and Kibirige (2023) used a mixed-methods approach to evaluate how microcredit affected rural women’s welfare in Mpigi District (Namukasa, et al., 2023). Their results showed that while most beneficiaries reported increased income and small-scale business growth, improvements in social welfare, such as access to healthcare and education, were achieved only when non-financial support services, such as training and Community-based monitoring, accompanied loans. This case highlights the importance of integrating financial services with broader development initiatives to ensure meaningful, sustained improvements in livelihoods.

In the Rwandan context, the empirical literature is relatively limited, particularly with respect to localized studies that evaluate household-level livelihood indicators. Nkundabanyanga and Tuyisenge (2021) assessed the impact of microfinance institutions on women's economic empowerment in rural Rwanda and found positive results related to income generation and savings behavior (Nkundabanyanga, et al., 2021). However, they acknowledged that improvements in health, education, and housing were less visible and often dependent on external factors such as government programs or NGO support. Another study by Mukamana and Habimana (2022) examined the role of microloans in women's entrepreneurship in the Southern Province and concluded that while access to finance boosted business activity, gaps remained in financial literacy and the use of credit for non-productive purposes (Mukamana, et al., 2022). These findings reveal a persistent gap in Rwandan research, particularly in assessing ~~how~~ microcredit affects the full spectrum of livelihood indicators, including nutrition, education, and housing quality.

In summary, empirical evidence from global to local levels suggests that microcredit can positively influence women's livelihoods, particularly with respect to income, asset ownership, and small-scale entrepreneurship. However, its impact on broader social indicators such as education, housing, health, and food security is often inconsistent or underexplored, particularly in rural African settings. In Rwanda, and specifically Muhanga District, such localized empirical data remains scarce. This underscores the value of the present study, which was conducted to fill this gap by providing a comprehensive, evidence-based assessment of how microcredit contributes to multidimensional livelihood outcomes for women in a rural Rwandan context.

MATERIALS AND METHODS

This study applied a quantitative research methodology rooted in a positivist philosophy and a deductive approach, aimed at measuring the extent to which microcredits affect women's livelihood improvement in Muhanga District, Rwanda (Jansen, 2023). The research employed an explanatory design, which enabled the researcher to investigate causal relationships between microcredit access and women's livelihoods, including income, asset acquisition or increases, productivity, business capital, health and education, the number and quality of meals, and house building or maintenance.

The study focused on women who accessed microloans in the Muhanga district. The sample size was determined using systematic sampling. The sampling interval ensured fair representation across the district's rural areas. Based on the study objectives, 1,349 women beneficiaries of the CLECAM EJO-HEZA Plc loan in Muhanga district were qualified as the target population. Because the population was large, a 5% level of significance was used to determine the sample size, where n = N/(1 + N*e^2). Thus, the sample size was 1,349/(1+1,349*(0.05)^2) = 308.519153802173, equivalent to 309 women beneficiaries of CLECAM EJO-HEZA Plc in Muhanga district.

Data were collected exclusively from primary sources using structured questionnaires that incorporated both open-ended and closed-ended questions to generate both quantifiable and nuanced insights. The use of both open- and closed-ended questionnaires in this study enhanced data quality by combining the strengths of these approaches. Closed-ended questions provided structured, quantifiable data that could be easily analysed statistically, ensuring consistency and reliability across responses (Saunders et al., 2019). On the other hand, open-ended questions allowed respondents to provide detailed answers, capturing insights and perspectives that may not be anticipated by pre-set questions. This combination offered a balanced approach, enabling the researcher to gather both measurable data and rich qualitative insights, improving the depth and comprehensiveness of the findings.

The questionnaires were distributed in person to women at their homes or workplaces. Questionnaires were distributed in hard copy to all respondents, who completed them directly; the researcher collected all completed questionnaires automatically, and none were left. This technique reduced some possible response bias. The study emphasised a structured data processing approach, involving editing, coding, and tabulation to prepare the responses for statistical analysis. The quantitative data were entered into SPSS Version 20 and analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) and bivariate correlation analysis to test relationships between independent and dependent variables. Variables included microcredit (loan amount) as the independent variable, and seven indicators of livelihood improvement (income, assets, productivity, business capital, health and education, meal frequency, and housing). Results were interpreted using Descriptive statistics and Bivariate Correlation techniques to determine whether statistically significant associations existed between the variables.

Conceptual framework of the study

The variables used in the conceptual framework are indeed aligned with the theoretical foundations guiding this study, specifically the Theory of Change (ToC) and the Quantitative Impact Assessment Model (QIAM). Within the ToC approach, microcredit was conceptualized as the key intervention (independent variable), while the livelihood indicators (income, assets, productivity, business capital, health and education, meal frequency, and housing) represented the expected outcomes along the causal pathway. Similarly, QIAM supported the use of measurable, multidimensional livelihood indicators as dependent variables for assessing intervention effects.

Each type of microcredit (business loans, agriculture/livestock loans, health/education loans, and housing loans) was not treated as an individual theoretical variable but as a subcategory of the main independent variable, microcredit access. The dependent variables were assessed separately to avoid masking situations where some outcomes may improve while others decline. This refinement clarifies the causal structure and strengthens the linkage between theory and operationalization.

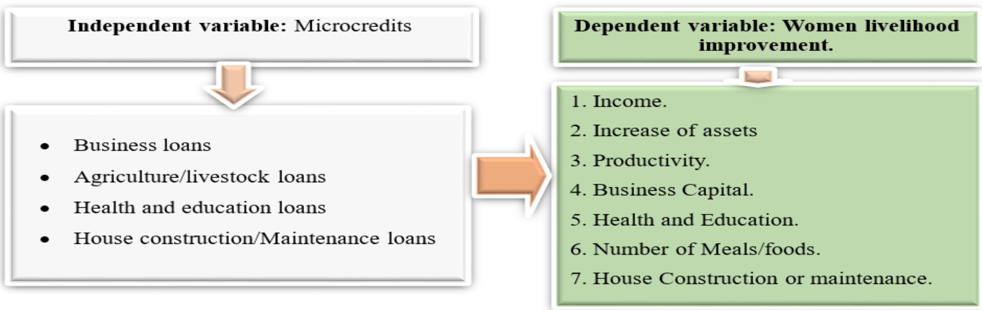

Figure 1: *Conceptual framework of the study*
Source: Compiled by the Researcher

To ensure the validity and reliability of the data collection instruments, a pre-test was conducted with 10 women from a comparable loan program (Bank of Kigali) in Muhanga Town. The questionnaire was validated by peers and approved by the academic supervisor. Cronbach's Alpha values for all tested variables ranged from 0.7024 to 0.9738, indicating high reliability. Ethical standards were strictly observed: respondents were informed of the study's purpose, assured of confidentiality, and participation was voluntary with no signed consent required. Approval for the study was granted by the

CLECAM EJO HEZA Plc main branch in Muhanga, and all collected data remains secure, accessible only to the researcher and supervisor.

RESULTS AND DISCUSSION

Loan size and loan activities of women in Muhanga district

Tables 2, 3, 4, 5, and 6 present a detailed cross-tabulation of the types of activities for which women in Muhanga District borrow microcredit, by loan size. By disaggregating the data, the analysis highlights how different loan sizes are allocated across key livelihood activities such as animal husbandry, business, crop growing, house construction, and other purposes, including education, health, and asset acquisition. This breakdown provides insights into borrowing patterns, financial needs, and priorities among women microcredit beneficiaries, offering a clearer understanding of how microloans are utilised to support both economic ventures and household welfare improvements.

Table 1:
Loan Size for Women in Muhanga District

Loan Size (Rwf)	Count	% of Total
25,000–500,000	142	46.00%
500,001–1,000,000	61	19.70%
1,000,001–5,000,000	91	29.40%
5,000,001–15,000,000	15	4.90%
Total	**309**	**100.00%**

The overall loan-size distribution indicates that a substantial majority of women borrowers (46%) were in the smallest loan bracket (Rwf 25,000–500,000), whereas only 4.9% received more than Rwf 5 million. This distribution suggests that while microcredit is accessible to a broad base of women in Muhanga District, the extent of financial empowerment may be modest for most women. Nonetheless, the presence of mid-sized loans (29.4% in the Rwf 1–5 million range) indicates growing confidence in women's ability to manage larger financial responsibilities for livelihood enhancement.

Table 2:
Animal Husbandry vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	27	69.20%	19.00%	8.70%
500,001–1,000,000	6	15.40%	9.80%	1.90%
1,000,001–5,000,000	6	15.40%	6.60%	1.90%
5,000,001–15,000,000	0	0.00%	0.00%	0.00%
Total	**39**	**100.00%**		**12.60%**

In Muhanga District, a significant proportion of women (69.2%) who borrowed for animal husbandry received small loans ranging from RWF 25,000 to RWF 500,000. This suggests that animal husbandry is a popular entry-level economic activity for women with limited capital requirements. However, the absence of higher loan allocations (e.g., Rwf 5 million and above) for this activity highlights a potential constraint in scaling such ventures, possibly due to perceived risk or limited business expansion plans among borrowers in this category.

Table 3:
Business vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	9	15.30%	6.30%	2.90%
500,001–1,000,000	15	25.40%	24.60%	4.90%
1,000,001–5,000,000	35	59.30%	38.50%	11.30%
5,000,001–15,000,000	0	0.00%	0.00%	0.00%
Total	59	100.00%		19.10%

Women's loans for business activities show a clear pattern of higher capital investment, with nearly 60% of women borrowers receiving between RWF 1,000,001 and RWF 5,000,000. This indicates that women engaged in business ventures in Muhanga District are more likely to demand and access medium-sized loans compared to other activities. The data also implies that microfinance institutions may view business projects as more viable for larger credit disbursement, potentially due to higher expected returns or better repayment prospects.

Table 4:
Crops Growing vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	98	64.90%	69.00%	31.70%
500,001–1,000,000	20	13.20%	32.80%	6.50%
1,000,001–5,000,000	27	17.90%	29.70%	8.70%
5,000,001–15,000,000	6	4.00%	40.00%	1.90%
Total	**151**	**100.00%**		**48.90%**

Crops growing emerged as the most funded activity, comprising nearly half of all loan usage among women (48.9%). Notably, the majority of these loans (64.9%) fell within the smallest bracket, Rwf 25,000–500,000, indicating that many women rely on small-scale farming as their primary livelihood. However, the presence of higher-value loans, including up to RWF 15 million, suggests that crop farming has both subsistence and commercial dimensions in the district, albeit with limited penetration into the commercial sector.

Table 5:
House Construction vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	0	0.00%	0.00%	0.00%
500,001–1,000,000	5	45.50%	8.20%	1.60%
1,000,001–5,000,000	3	27.30%	3.30%	1.00%
5,000,001–15,000,000	3	27.30%	20.00%	1.00%
Total	**11**	**100.00%**		**3.60%**

House construction loans showed a balanced distribution across mid- and high-value brackets, with approximately 45.5% of women accessing loans between Rwf 500,001 and 1,000,000, and another 27.3% each in the 1–5 million and 5–15 million ranges. This pattern indicates that women are using microcredit not only for income-generating activities but also for improving long-term living conditions. It reflects how access to microfinance supports household asset formation and infrastructure development in both urban and rural segments of Muhanga District.

Table 6:
Other Activities vs Loan Size

Activity	25,000–500,000	500,001–1,000,000	1,000,001–5,000,000	5,000,001–15,000,000	Total	% of Total
Buy a Car	0	0	3	3	6	1.90%
Buy a House	0	0	3	0	3	1.00%
Buy Plot of Land	0	0	5	0	5	1.60%
Carpentry	0	0	3	0	3	1.00%
Tailoring	0	3	0	0	3	1.00%
Health	0	3	3	0	6	1.90%
House maintenance	2	6	3	0	11	3.60%
Livestock	3	0	0	0	3	1.00%
Mining	0	0	0	3	3	1.00%
Studying	3	3	0	0	6	1.90%

A variety of other loan uses were observed, though in smaller proportions. Activities like buying cars, land, or constructing houses attracted mid to high loan sizes, signalling a shift toward asset accumulation. Educational loans and those for health or tailoring remained modest in volume but represent essential aspects of women's socio-economic advancement. These diverse uses of microcredit underscore that, beyond core income generation, loans are increasingly leveraged to meet household welfare, asset acquisition, and personal development needs.

Table 7:
Significance of loan activity and loan size

Chi-Square Tests			
	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	237.137[a]	39	0
Likelihood Ratio	188.165	39	0
N of Valid Cases	309		
Loan size analysis	**Value (Rwf)**		
Range	14,975,000		
Minimum	25,000		
Maximum	15,000,000		
Mean	1,550,825		
Std. Deviation	2,562,002		

a. 44 cells (78.6%) have expected count less than 5. The minimum expected count is .15.

Source: Primary data, 2024

Analysis of loan size vis-à-vis the activity for which the loan was used was conducted after evaluating all 309 women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District. The results indicate a Pearson chi-square statistic of 237.137 with 39 degrees of freedom, at the 95% significance level (p-value = 0.05); thus, the critical value for X-squared is 55.76 < 237.137. This means there is evidence to reject the null hypothesis, stating that "there is no significant association between loan size change and loan activity". A descriptive analysis of loan sizes shows that the average loan taken by women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District is approximately 1,550,825 Rwandan francs; the minimum loan was 25,000 RWF, and the maximum observed was 15,000,000 RWF. The loan was proportional to the activity for which it was used; the principal activities were mining, for which a 15,000,000 RWF loan was taken, followed by the purchase of cars, land, a house, and crop cultivation.

Loans and livelihoods in Muhanga District

The objective of this data analysis section was to evaluate how access to microcredit from CLECAM EJO HEZA Plc contributed to the multidimensional improvement of women's livelihoods in Muhanga District. Through a quantitative assessment of 309 women beneficiaries, the study found that microcredit significantly improved income, productivity, business capital, access to health and education, food security, and housing. Positive correlations between loan size and key livelihood indicators were statistically significant in most areas, supporting the rejection of the null hypotheses across multiple dimensions. While some effects, such as asset acquisition, showed weaker correlations, the overall findings align with global evidence on the transformative potential of microcredit, though context-specific factors must be considered.

The study assessed 309 women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District and found that 100% reported improvements in their livelihoods due to microcredit use. These improvements included increased income, enhanced crop and animal production, greater asset accumulation, improved health, education, nutrition, and housing, and business growth. Women used the loans to start or expand income-generating activities, thereby increasing household financial stability. While global studies support these findings, some studies report that microcredit's impact may vary, sometimes increasing debt without improving livelihoods.

The study found that microcredit significantly increased women's incomes in Muhanga District. Following loans from CLECAM EJO HEZA Plc, the number of women earning income increased, and average annual income rose by 32,415 RWF. A statistically significant positive correlation ($r = 0.285$, $p < 0.01$) between loan size and income was observed, supporting rejection of the null hypothesis, consistent with findings from Egypt, India, Nigeria, and other countries. Access to microcredits led 25.2% of women to acquire assets such as land, agricultural tools, or vehicles, although the majority reinvested in production. A weak but statistically significant positive correlation ($r = 0.041$, $p = 0.022$) between loan size and asset value supports rejection of the null hypothesis, indicating that microcredit contributed to asset acquisition, albeit to a limited extent. Productivity increased significantly after loan access, with production value increasing by an average of more than 2.5 million RWF and more women engaging in productive activities. A strong, significant correlation ($r = 0.392$, $p < 0.01$) between loan size and productivity supports rejection of the null hypothesis, indicating that microcredit boosts productivity. However, crop production alone showed no significant correlation ($r = -0.155$, $p = 0.066$), as women shifted toward other higher-return activities.

Women's business capital increased significantly after receiving loans, with the average capital rising from 1.9 million to 2.9 million RWF, and more women engaged in business. A significant positive correlation ($r = 0.472$, $p < 0.01$) was observed between loan amount and business expansion, leading to rejection of the null hypothesis and supporting microcredit's impact on business investment. Health and educational access improved for all women after receiving microcredit, with 100% able to meet their families' needs in these areas, compared with 85.4% before. The significant improvement led to rejection of the null hypothesis, confirming that microcredit positively affected women's ability to support family well-being through improved access to health care and education services.

Household food security improved post-loan, with more women able to afford three meals daily and higher meal quality. The correlation between loan size and the number of meals was positive and statistically significant ($r = 0.323$, $p < 0.01$), supporting rejection of the null hypothesis and indicating that microcredit contributed to improved nutrition and living standards. Access to microcredit enabled more women to build or maintain houses, increasing from 29.8% before loans to 42.7% after loans. A statistically significant positive correlation ($r = 0.298$, $p = 0.001$) between loan size and housing investment supported the rejection of the null hypothesis, showing that microcredits helped women improve their housing conditions.

Discussions

In this study, the researcher tested seven specific hypotheses. These included H01: impact on income; H02: impact on assets; H03: impact on production; H04: impact on business capital; H05: impact on health and education; H06: impact on food intake; and H07: impact on housing. All seven null hypotheses were rejected due to significant positive changes observed after loan access. Specifically, income increased by 28.5%, asset ownership by 4.1%, and business productivity by 39.2%, supporting the rejection of H01, H02, and H03. Business capital increased from 1.9M to 2.9M RWF, with a strong correlation with loan size ($r = 0.472$, $p < 0.01$), thereby rejecting H04. For H05, access to health and education services increased from 85.4% to 100% following the loan, indicating a significant effect. Meal frequency (H06) improved from 5.5% to 17.2% having three meals, and quality from 28.2% to 60.5% reporting good meals, with a moderate correlation to loan size ($r = 0.323$, $p < 0.01$). Housing improvements (H07) were also noted, with an increase in women building or maintaining homes (from 29.8% to 42.7%) and a significant correlation with loan size ($r = 0.298$, $p = 0.001$).

Hypothesis testing findings align with empirical evidence from other developing regions. For instance, Hushmat and Basri (2023) found that microcredits significantly enhanced income, asset acquisition, and housing in Pakistan (Hushmat, et al., 2023). Similarly, Wondimu et al. (2023) in Ethiopia and Kevela and Magali (2022) in Tanzania emphasized microfinance's role in increasing productivity and access to education and healthcare. The improvement in food access mirrors findings from the

Women Global Empowerment Fund (2023), which linked financial stability to better nutrition (WGEF, 2023). However, the 15.5% decline in crop production observed suggests a shift in women's investment preferences from agriculture to faster-return business ventures, echoing trends noted by Namayengo et al. (2023) in Uganda (Namayengo, 2023).

Theoretically, these outcomes support models of women's empowerment and livelihood improvement, which posit that access to credit increases women's agency in economic and social domains. The significant statistical relationships found reinforce microfinance theories that stress access to capital as a catalyst for self-reliance and household welfare (Alshammari, 2021). Additionally, the empowerment effect is consistent with Sawalu (2023), who emphasized that microloans enhance women's decision-making power in both family and business contexts. (Sawalu, 2023). Therefore, this study demonstrates that microcredit is not merely a financial tool but a foundational instrument for holistic development and empowerment in rural communities such as Muhanga.

CONCLUSION AND RECOMMENDATIONS

This study examined the impact of microcredit on women's livelihoods in Muhanga District and found significant improvements in income, assets, productivity, business capital, food security, housing, and access to health and education. Beyond reaffirming existing evidence, the study provides new, context-specific insights by offering localized empirical data from rural Rwanda, a setting in which such comprehensive analyses are scarce. The findings indicate a distinct shift from agriculture toward small-business ventures. The research revealed a negative correlation between loan size and crop production, despite high loan repayment compliance, and documented underutilization of higher loan ceilings due to fear, limited information, or low financial literacy. These context-driven patterns add nuance to the broader microfinance literature and demonstrate how microcredit influences livelihood pathways differently within rural communities.

The theoretical and academic contribution involves applying change theory to the marginalized community in the Muhanga District of Rwanda. The empirical results further validate the role of microfinance in poverty alleviation and women's empowerment. However, this research also highlights the role of change theory by indicating a shift from agriculture to small-business ventures, revealing a potential trade-off between short-term economic returns and long-term agricultural productivity. This nuance is important for policymakers and practitioners to consider when designing inclusive financial programs that balance diverse livelihood strategies, including food security in rural economies. Previous studies have failed to integrate microfinance and its impacts in Rwanda, whereas this study focuses on diverse impact variables.

While the study provides strong evidence of positive outcomes, some limitations emerged. A small number of women used the loans for non-productive purposes, such as personal vehicle purchases, which could threaten repayment capacity. Additionally, although CLECAM EJO HEZA Plc offers loans up to 25 million RWF, none of the 309 women accessed more than 15 million RWF, despite a 99% repayment compliance rate. This suggests potential underutilization of available credit due to fear, lack of information, or limited financial literacy, which warrants further attention.

In closing, this study provides valuable empirical insights into the transformative role of microcredit in improving women's livelihoods in Rwanda. It is demonstrating that microfinance not only uplifts individuals but also promotes broader socioeconomic development. To achieve sustainable impact, financial institutions should increase lending ceilings, provide targeted training, and ensure effective monitoring of loan utilisation. Ultimately, empowering women through microcredit is not just a financial investment; it is a strategic step toward inclusive growth and long-term community resilience.

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Participation in Decision Making and Employee Commitment among Nurses in Ghana

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Abstract

This paper explored the effect that participation in decision-making types (consultative, delegative and representative) has on employee commitment types (affective, continuance and normative) among nurses. The research was a cross-sectional descriptive research design. Data were collected through the use of a self-administered questionnaire from 280 nurses in the Cape Coast Teaching Hospital. Analysis was done using Partial Least Square-Structural Equation Modelling (PLS-SEM). The study found that consultative, delegative and representative participation had a significant positive relationship with affective commitment. Consultative and representative participation were found to have an influence on continuance and normative commitments, whereas delegative participation failed to influence both continuance and normative commitments of the nurses. This study gives a broader understanding for stakeholders to be proactive about the types of participation in decision making to adopt in order to achieve the desired employee commitment type among nurses and other health workers.

Keywords: *Employee participation, Ghana, nurses, employee commitment*

INTRODUCTION

Several decades ago, the styles of management did not consider employees as a driving force of the organisation; hence employees were not given much relevance as in the case of modern businesses, especially within the service sector (Patwary et al., 2025). Goka et al. (2024) assert that human resources, in other words, employees, are an important resource without which the success of an organisation is unattainable. This is mostly true for service-rendering organisations like hospitals (Ginbeto et al., 2023). Thus, an organisation's success can only be achieved effectively depending on employees' competencies and willingness. Esther (2023) describes employee commitment as a significant issue in today's global trend in healthcare practice and research.

The health sector is one of the most sensitive sectors in the delivery of service, hence, its employees hold the key to healthy living of patients (Abu Arab et al., 2023; Amoah et al., 2022). Nurses who are front line providers of healthcare and the largest workforce in most hospitals play a vital role in the delivery of quality health care in the hospital (Goka et al., 2024). The nature of the nursing profession requires high commitment to get the job done efficiently and effectively. Hence their commitment cannot be overemphasised. However, present day nurses have been found to lack commitment in Ghana as their actions have either caused severe injury or death of relatives and friends (Amoah et al., 2022).

An essential aspect of nurturing nurses' commitment in the health sector is to identify factors that increases their commitment. Esther (2023); Yamoah (2025) assert that participatory management is key towards increasing the commitment of nurses. Previous research has explored these variables by mainly focusing on them as a whole without reference to the types (Esther 2023). However, literature indicates that both employee participation and employee commitment have various dimensions with varied influence (Abraham et al., 2026), hence the need for researchers to explore the types of both employee participation and commitment to give a clear understanding on which participation type to adopt to achieve desired commitment. Clearly, little research work has been done in this regard especially in Ghana. It is based on these shortfalls that this study is being conducted.

Employee Commitment

Theoretically, commitment is an essential concept in the literature of both management and psychology and remains one of the most researched areas in the fields of psychology, management, organisational behaviour and Human Resource Management (HRM) (Abraham et al., 2026). The concept of commitment is considered to enable employees better perform and attain their goals effectively as they feel connected to the organisation (Patwary et al., 2023). Abraham et al. (2026) defines individual commitment as an emotional and psychological attachment one has towards his/her careers, jobs, work teams or groups, peers and supervisors. Organisational commitment on the other hand is directed by the attributes of an organisation where employees become emotionally and psychologically attached towards the organisation (Yamoah 2025). Individuals are either committed to an organisation, an occupation or a union (Attitudinal Commitment) or to policies, goals or to continue to be a member (Behavioural Commitment) (Mwesigwa et al., 2020).

Commitment is described as a psychological state which shows that the employee’s relationship with the organisation has implications for his/her decision to continue membership in the organisation (Mwesigwa et al., 2020). Common components in commitment definitions reflect the employee’s attachment, identification, loyalty and allegiance to their organisation. Commitment has been classified into affective, normative and continuance (Abraham et al., 2026; Yamoah 2025). Affective commitment is considered the affection or emotional attachment employees have for their organisation and its purpose and hence enjoy being part of that organisation (Akudugu et al., 2023; Opoku & Boateng, 2024)). Continuance commitment, on the other hand, is exhibited by employees who consider the economic benefit they stand to gain and the high cost of exiting the organisation (Akudugu et al., 2023). Finally, normative commitment describes employees who feel that it is morally right to continue being part of the organisation (Akudugu et al., 2023). Amoah et al. (2022) found that health workers' commitment in the Ghanaian public hospitals was low compared to those in the private hospitals.

Employee Participation

Employee Participation is based on the recognition that an organisation's success is determined by the high effort put in by its employees. Employees, also referred to as the human resource, of every organisation constitute its solid foundation. One important issue in the policies of human resource management is the influence of employees which shows the essential role employee participation in decision-making must have (Esther, 2023). Employees serve as sources of knowledge and ideas. However, these sources of knowledge and ideas are usually not tapped by management during the decision-making process. Whenever employees are permitted to partake in the process of decision-making, they become empowered and committed to contribute to the accomplishment of the organisation (Opoku & Boateng, 2024).

Employee participation shows that top level managers share some power with lower level workers in the workplace (Esther, 2023). Employee participation has been described as top-level management allowing all workforce take part and influence the decision-making process of the organisation directly by themselves or indirectly through their representatives, especially on issues related to their work (Dedding et al. 2023). Generally, there has been a wide range of Participation in Decision Making implemented in many organisations. According to (Goka et al. 2024) participation in decision-making can take the form of consultative, delegative and representative. Consultative participation is where employees' opinions are sought for before final decisions are made whereas delegative participation gives employees the autonomy and responsibility to organise and accomplish their jobs as they deem suitable. Representative participation is where employees elect their executives or members who represent them at the decision-making table with management.

Workplace issues can be very complex and interdependent for just top-level managers to handle, hence, the importance of participation of all employees in the organisation cannot be overemphasised (Kwon & Kim 2025). Employee participation is described as the direct and indirect participation of employees in the decision-making process of the organisation/workplace Dedding et al (2023). Thus, the power distribution between management and employees either directly or indirectly in the decision-making process of the organisation. This definition highlight clearly two forms employee participation can take, thus, either directly by the employees themselves or indirectly by employee's representatives. (Obembe et al. 2025) also describes employee participation as the process by which superiors and subordinates share vital information in order to come out with various alternatives, new ideas and results which would help achieve organisational set goals. Torlak et al. (2022); Akanbi et al. (2025) describe EP as the sharing of power between superiors and subordinates in work related issues. Here, employees take part in the formulation and implementation of certain decisions that affect their jobs.

Goka et al., (2024) found that when participation in decision making was restricted, it results in low performance and the vice versa in Ghana. In a study conducted by Esther (2023) she found a low level of employee involvement in the decision-making process in hospitals, health centres, and CHPS compounds. According to Kwon & Kim (2025), participatory management was one of the key factors found to have positive influence on employee commitment, similar to earlier by Ogu (2024); Yamoah (2024); Akudugu et al., (2023). Owuor (2020) posits that participation of employee in the decision-making process has a significant influence on productivity and commitment. Employee engagement was found to significantly influence job performance of nurses and midwives in the Cape Coast Teaching Hospital (Opoku & Boateng, 2024). A study by Abu Arab et al. (2023) found that nurses' participation in decision-making has a significant influence on their work performance. The level of influence on the types of participation is key and varies (Kuria 2017; Dedding et al., 2023; Goka et al., 2024). Little work exists on the influence participation types have on employee commitment types; hence, this study aims to explore the influence level each participation type in decision making has on each commitment type within the health sector.

METHODS

Population

The target population were all nurses working at the Cape Coast Teaching Hospital of Ghana. Both male and female nurses with permanent employment at the hospital were included. However, retired and temporary nurses who were working on contract at the hospital were excluded. Nurses in the context of the study included community health nurses, enrolled nurses, and midwives. The total number of nurses according to the HRM's record was eight hundred and nine.

Research Questions

a) What influence do employee participation types have on affective commitment?
b) What influence do employee participation types have on continuance commitment?
c) How do employee participation types influence normative commitment?

Sampling Procedure

A sample of at least two hundred and sixty (260) was calculated from the population of 809 using the sample determination table by Krejcie and Morgan (1970), as it is widely accepted in social science research and ensures representativeness at a confidence level of 95% and margin of error at 5% (Owuor et al. 2020). To minimise bias and give each member an equal opportunity to be selected, the study employed the simple random sampling technique. This approach helps reduce bias, enhances the representativeness of the sample, and allows for the generalization of the study findings to the entire population.

Data Collection

The study adopted a cross-sectional descriptive research design through a positivist paradigm. A research questionnaire was adopted for data collection using a combination of existing scales across two themes: employee participation types and organizational commitment types (Akanbi et al, 2025). The questionnaire was pre-tested using thirty respondents drawn from another hospital sharing similar features to that used in the main work. The values of Cronbach's alpha were all equal or above the value of 0.70 except for affective commitment, which initially recorded 0.420 and subsequently 0.667 after some of the items were reconstructed to give clear meaning to the respondents. The instruments covered parts A-C. Part A consisted of demographic information, Part B consisted of 4-point Likert Scale questions and Part C covered a 5-point Likert Scale questions.

Prior to administering the questionnaire, ethical approval was obtained from the Teaching Hospital's Ethical Clearance Board. Respondents were given informed consent forms to read and sign, to show their voluntary participation as they were assured a risk-free study, confidentiality and anonymity.

Data Analysis

In order to account for possible non-response, incomplete responses and improperly filled questionnaires which would reduce the usable sample for analysis, two hundred and eighty (280) questionnaires were administered in all out of which two hundred and sixty-seven (267) were retrieved. However, two hundred and forty-eight (248) questionnaires representing 88.6% response rate was used in the study. The response rate is an acceptable rate as according to Kuria (2017), who states a response rate of 50% as adequate, 60% as good, and over 70% as very good. Each questionnaire was assigned numerical values (coded) and keyed into Statistical Package for Social Sciences (SPSS) Version 21. SPSS was used in analysing demographic variable, while analyses of the objectives of the study was done using Partial Least Square-Structural Equation Modelling (PLS-SEM). Presentation and discussion of the findings were done after following acceptable assessment criteria of the measurement and structural models of the PLS-SEM.

RESULTS AND DISCUSSION

Using Partial Least Square-Structural Equation Modelling (PLS-SEM). Presentation and discussion of the findings were done after following acceptable assessment criteria of the measurement and structural models of the PLS-SEM. This section gives a presentation and discussion of the results of the study based on the objectives and hypotheses of the study.

The Influence of Participation in Decision making Types on Affective Commitment

The first objective sought to analyse the influence participation in decision-making types has on affective commitment among nurses. Specifically, the objective looked at the influence consultative, delegative and representative participation has on affective commitment. Per the objective, the study has the following hypothesis, H1: “There is a significant positive relationship between consultative participation and affective commitment”; H2: “There is a significant positive relationship between delegative participation and affective commitment” and H3: “There is a significant positive relationship between representative participation and affective commitment.”

The findings of the objective were presented after assessment of the measurement model as shown in Figure 1, Tables 1, 2 and 3 below.

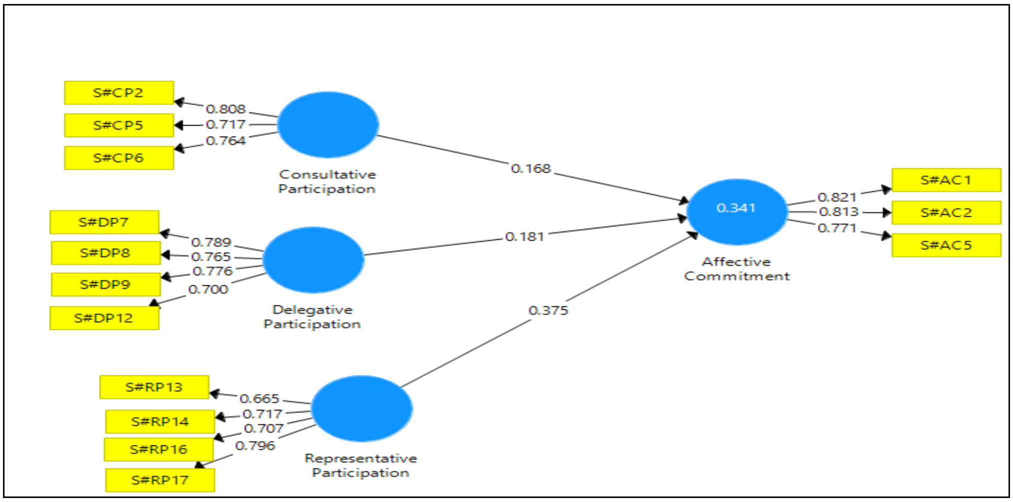

Figure 1: *Output of indicator loadings for participation in decision-making types and affective commitment*

Figure 1 gives a good revelation about the performance of the indicators measuring the various constructs of the study. The loadings on each construct met the acceptable threshold for attaining indicator reliability except that some indicators below the 0.70 cut-off point were retained in so far as the items did not increase the Average Variance Extracted (AVE). Specifically, loadings for Consultative Participation (CP) were ranging from 0.717 – 0.808, that of Delegative Participation (DP) were between 0.700 – 0.789, Representative Participation (RP) ranged from 0.665 – 0.796 and Affective Commitment (AC), from 0.771 – 0.821.

Assessing Reliability and Validity

Table 1 below shows the assessment of reliability and validity of objective one

Table 1:
Assessing Reliability and Validity of Objective One

Construct	CA	rho A	CR	AVE
AC	0.722	0.725	0.843	0.642
CP	0.652	0.672	0.807	0.583
DP	0.756	0.767	0.844	0.575
RP	0.696	0.709	0.814	0.523

"Notes: Loadings between 0.4 and 0.7 are acceptable. >0.7 is high. CA > 0.7 is acceptable and high. CR should be 0.7 or higher. AVE should be 0.5 or higher."

"CA – Cronbach's alpha; CR – Composite reliability; AVE – Average Variance Extracted."

Table 1 shows that, the model passed reliability and validity problems. The CR was used as basis for assessing the internal consistency of the indicators due to the weaknesses of the CA and rho A. The CR captures how reliable the indicators put together are able to measure a construct. It is seen from the table that all the CR values met the acceptable threshold of > 0.70. Also, the AVEs of the various constructs were above the 0.50 threshold, which means that the model had no issues with internal consistency and convergent validity. In respect of how sound the independent constructs (consultative, delegative and representative participation) are distinct from one another in predicting the dependent variable (affective commitment), the Fornell-Larcker criterion and the HTMT ratio were used as presented in Table 5 below.

Assessing Discriminant Validity

Table 2:

Assessing Discriminant Validity for Objective One

Fornell-Larcker Criterion				
	AC	CP	DP	RP
AC	0.802			
CP	0.426	0.764		
DP	0.418	0.553	0.758	
RP	0.515	0.422	0.384	0.723
Heterotrait-Monotrait Ratio (HTMT)				
AC				
CP	0.598			
DP	0.542	0.779		
RP	0.717	0.624	0.520	

"Notes: (a) Bold values are the square root of each construct's AVE which is higher than their correlation with other constructs; (b). Bold values of HTMT less than 0.85."

The results as captured in Table 2 above show that the constructs were distinct from one another. Relying on the scores of the HTMT ratio which indicate superiority over the Fornell-Larcker in explaining discriminant validity, the scores were far below the acceptable level of ≤ 0.85. By implication, the model was good for advanced analysis based on the fact that the individual constructs were different from each other from measuring the same phenomenon.

Structural Model Examination for Objective One

Next is the presentation and interpretation of the findings based on the results of the structural model for participation in decision-making types and their influence of affective commitment.

Table 3:
Results of the Structural Model Examined for Objective One

	Beta (R)	T Statistics	P Values	Decision rule	R^2	f^2	Q^2
AC					0.341		0.205
CP ->AC	0.168	2.344	0.020	Supported		0.027	
DP ->AC	0.181	2.529	0.012	Supported		0.033	
RP ->AC	0.375	5.200	0.000	Supported		0.168	

"Notes: The significance level of 5% is for critical t-value of 1.96 (2-tailed); R^2 of 0.75 is substantial, 0.50 is moderate and 0.25 is weak; Effect size of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively; Predictive relevance of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively."

It is recalled that, this objective sought to analyse the influence of participation types on the affective commitment of nurses. After confirming that all the reliability and validity issues were absent based on the measurement model, the results of the objective were reported in Table 3. The results as captured in the table suggest that there is a significant positive relationship between the participation types (CP: R = 0.168, t = 2.344, P = 0.020; DP: R = 0.181, t= 2.529, P =0.012; RP: R = 0.375, t = 5.200, P < 0.001) and affective commitment.

The results confirm that consultative, delegative, and representative participation positively influence affective commitment, supporting H1, H2, and H3. A unit increase in these participation types corresponds to increases of 0.168, 0.181, and 0.375 in affective commitment, respectively. Collectively, participation types accounted for 34.1% of the variance in affective commitment, the highest among the commitment types. While consultative (f^2 = 0.027) and delegative (f^2 = 0.033) participation had small effects, representative participation (f^2 = 0.168) had a moderate effect. Overall, employee participation moderately predicted affective commitment (Q^2 = 0.205), suggesting that engaging nurses in decision-making can meaningfully enhance their affective commitment, consistent with previous studies (Akanbi et al., 2025; Dedding et al., 2023; Goka et al., 2024; Opoku & Boateng, 2024).

The Influence of Participation in Decision Making Types on Continuance Commitment

The second objective of the study aimed at assessing the influence employee participation types (consultative, delegative and representative participation) has on the continuance commitment of nurses. Here, the study has the following hypotheses; H4: "There is significant positive relationship between consultative participation and continuance commitment"; H5: "There is significant positive relationship between delegative participation and continuance commitment"; and H6: "There is significant positive relationship between representative participation and continuance commitment." The findings were reported after assessing relevant indicators and assumptions for model reliability and validity as well as discriminant validity issues. These checks were presented in Figure 2, Tables 4, 5 and 6.

A quick examination of the indicator loadings revealed that, loadings for each item of the various constructs met the relevant empirical standards except that some were retained due to their inability to lead to an increase in the overall reliability. The indicator loadings on each construct as shown in Figure 2 were: consultative participation (0.712 - 832), delegative participation (0.629 – 0.835), representative participation (0.662 – 0.777) and Continuance Commitment (CC) (0.663 – 0.845).

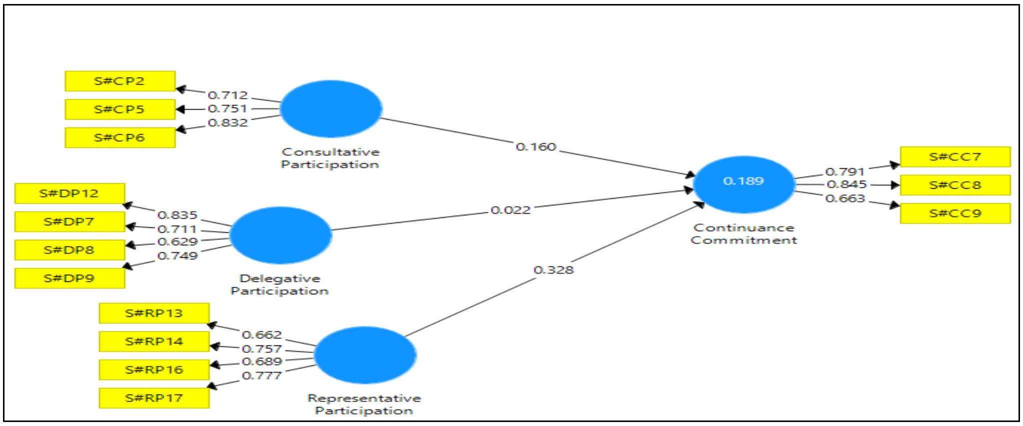

Figure 2: *Final Output for participation in decision-making types influence on continuance commitment*

Again, the constructs' reliability and validity criteria were met following the observation of the results in Table 4 below.

Table 4:
Assessing Reliability and Validity for Objective Two

Construct	CA	rho A	CR	AVE
CC	0.652	0.673	0.810	0.588
CP	0.663	0.705	0.812	0.593
DP	0.756	0.751	0.823	0.540
RP	0.696	0.709	0.813	0.522

"Notes: Loadings between 0.4 and 0.7 are acceptable. >0.7 is high. CA > 0.7 is acceptable and high. CR should be 0.7 or higher. AVE should be 0.5 or higher."
"CA – Cronbach's alpha; CR – Composite reliability; AVE – Average Variance Extracted."

The results from Table 4 provided clear indication that the model had no violation of issues of internal consistency, reliability and convergent validity. This is because the CR values were above the threshold of 0.70 and AVE also above the satisfactory value of 0.50 or high. By all standards, the model was fit for the researcher to proceed on reporting the key findings of the study.

Table 5:
Assessing Discriminant Validity for Objective Two

Fornell-Larcker Criterion				
	CC	CP	DP	RP
CC	0.767			
CP	0.312	0.770		
DP	0.566	0.253	0.735	
RP	0.424	0.406	0.427	0.723
Heterotrait-Monotrait Ratio (HTMT)				
CC				
CP	0.460			
DP	0.779	0.281		
RP	0.624	0.565	0.520	

"Notes: (a) Bold values are the square root of each construct's AVE which is higher than their correlation with other constructs; (b). Bold values of HTMT less than 0.85."

Finally, the DV of the study's construct in respect of the objective two were seen as appropriate in this study. A careful examination of the HTMT values confirmed the absence of the constructs representing the same phenomenon. All scores were well below the acceptable 0.85 criteria (the bold values). The results imply that no issues of discriminant validity were present in this model.

The next Table presented results of the main findings of the influence participation in decision making types have on continuance commitment.

Table 6:
Results of the Structural Model Examined for Objective Two

	Beta (R)	T Statistics	P Values	Decision rule	R^2	f^2	Q^2
CC					0.189		0.098
CP -> CC	0.160	2.331	0.020	Supported		0.020	
DP -> CC	0.022	0.324	0.746	Rejected		0.000	
RP -> CC	0.328	4.242	0.000	Supported		0.102	

"Notes: The significance level of 5% is for critical t-value of 1.96 (2-tailed); R^2 of 0.75 is substantial, 0.50 is moderate and 0.25 is weak; Effect size of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively; Predictive relevance of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively."

The second research question aimed at assessing the influence employee participation types (consultative, delegative and continuance commitment) has on continuance commitment. Table 9 indicates that consultative (R = .160, p = .020) and representative participation (R = .328, p < .001) had significant positive relationships with continuance commitment, supporting H4 and H6. However, delegative participation (R = .022, p = .746) was not significant, contradicting Akanbi et al. (2025), possibly due to differences in study population and context.

Overall, participation types explained 19% of the variance in continuance commitment, with consultative and representative participation showing small effects and the model demonstrating low predictive relevance. This implies that employee involvement through consultation and representation contributes modestly to nurses' continuance commitment.

The Influence of Participation in Decision making Types on Normative Commitment

This section sought to analyse the final objective of the study, which assesses the influence employee participation types (consultative, delegative and representative participation) has on Normative Commitment (NC) of nurses. Based on the objective of the study, three hypotheses were tested comprising: H7: "There is significant positive relationship between consultative participation and normative commitment"; H8: "There is significant positive relationship between delegative participation and normative commitment" and H9: "There is significant positive relationship between representative participation and normative commitment." Assessment of the measurement model used in the objective was done after which the findings were interpretation.

Basically, Figure 3 shows that item loadings for each construct were qualified to be included in measuring the study's constructs. This is because loadings were within the rule of thumb of values greater than or equal to 0.70 or below provided those loadings below the standard do not inflate the AVE. In view of the foregoing, indicator loadings from 0.60 were retained.

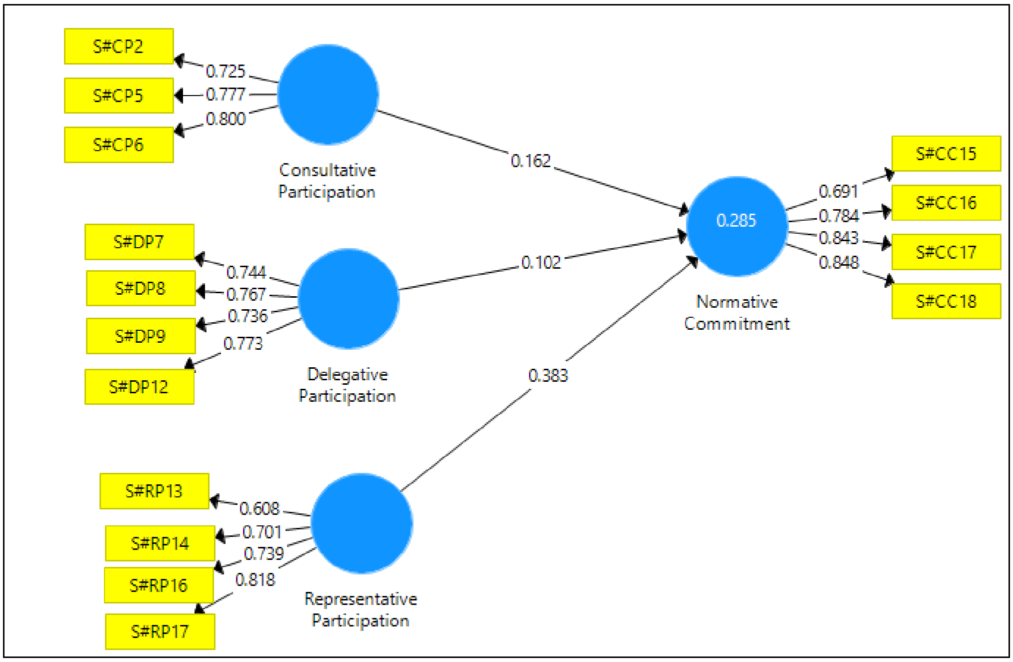

Figure 3: *Output of the indicator loadings of participation in decision-making types and normative commitment*

Table 7:
Model's Construct Reliability and Validity of Objective Three

Construct	CA	rho A	CR	AVE
NC	0.652	0.655	0.811	0.590
CP	0.756	0.773	0.841	0.570
DP	0.802	0.809	0.872	0.631
RP	0.696	0.733	0.810	0.519

"Notes: Loadings between 0.4 and 0.7 are acceptable. >0.7 is high. CA > 0.7 is acceptable and high. CR should be 0.7 or higher. AVE should be 0.5 or higher."
"CA – Cronbach's alpha; CR – Composite reliability; AVE – Average Variance Extracted".

Table 7 also examined the constructs' reliability and validity. The CR was used to measure the extent to which indicators put together satisfactorily measured what they were supposed to measure. Based on the already established criteria, it can be seen that, the constructs were reliable in the context of this study. Furthermore, the AVE scores which measure the convergent validity of the constructs met the value defining the rule of thumb (AVE $\geq$ 0.50). These suggest that the constructs achieved their required reliability and validity criteria.

Table 8:
Discriminant Validity for Objective Three

Fornell-Larcker Criterion				
	NC	CP	DP	RP
NC	0.768			
CP	0.555	0.755		
DP	0.379	0.347	0.794	
RP	0.419	0.405	0.492	0.720
Heterotrait-Monotrait Ratio (HTMT)				
NC				
CP	0.779			
DP	0.519	0.422		
RP	0.624	0.520	0.634	

"Notes: (a) Bold values are the square root of each construct's AVE which is higher than their correlation with other constructs; (b). Bold values of HTMT less than 0.85."

Table 8 provides information relevant in determining how distinct the constructs were from each other using the HTMT scores. By empirical standards, HTMT values should fall below 0.85 to justify no discriminant validity issues. From the results the values (Bolded) were well below 0.85. Next is the interpretation of the significance of the structural model. In analysing the influence of the participation types on normative commitment, results in Table 12 offered relevant support to researcher and facilitated the discussion.

Table 9:
Significance Of Structural Model Assessment for Objective Three

	Beta (R)	T Statistics	P Values	Decision rule	R^2	f^2	Q^2
NC					0.285		0.164
CP -> NC	0.162	2.111	0.036	Supported		0.024	
DP -> NC	0.102	1.523	0.129	Rejected		0.010	
RP -> NC	0.383	5.933	0.000	Supported		0.161	

"Notes: The significance level of 5% is for critical t-value of 1.96 (2-tailed); R^2 of 0.75 is substantial, 0.50 is moderate and 0.25 is weak; Effect size of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively; Predictive relevance of 0.02, 0.15 and 0.35 indicates small, medium and large effect respectively."

In addressing the final research question on how employee participation types (consultative, delegative, and representative participation) influence normative commitment, Table 12 shows that consultative (R = .162, p = .036) and representative participation (R = .383, p < .001) had significant positive relationships with normative commitment, supporting H7 and H9. However, delegative participation (R = .102, p = .129) was not significant and did not support H8. This contradicts Akanbi et al. (2025), who found delegative participation to be the strongest predictor, possibly due to contextual differences in leadership style.

Overall, participation types explained 28.5% of the variance in normative commitment. Representative participation had a moderate effect, consultative participation had a small effect, and the model demonstrated moderate predictive relevance ($Q^2 = .164$).

CONCLUSION AND RECOMMENDATION

The study found that consultative and representative participations had a significant positive relationship with all three employee commitment types. Delegative participation failed in influencing continuance and normative commitments, influencing only affective commitment. Especially, representative participation had the strongest association with all the three types of employee commitments. The implications are that allowing nurses to take part in the decision-making process through union representatives does influence their emotional attachment towards the hospital. Empirically, this study findings adds significantly to existing knowledge on participation in decision making and organisational commitment. It is much clearer which types of participation to be adopted in order to achieve the desired commitment among nurses especially in the health sector. Management must create a favourable environment for nurses so they are able to make recommendations, give opinions and suggestions and have their representatives at the decision-making table.

LIMITATIONS

This study focused exclusively on nurses in the Cape Coast Teaching Hospital. The study did not include other categories of healthcare professionals. Future research could examine participation in decision-making among other health workers or undertake a comparative analysis involving all health professionals in both developed and developing economies. The study was also limited to types of participation in decision-making (consultative, delegative, and representative) and types of nurses' commitment (affective, continuance, and normative commitment). Subsequent studies may explore other factors that influence the commitment of healthcare workers, either independently or alongside participation in decision-making.

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Employee Voice Mechanisms and Their Implications for Employee Absenteeism in Tanzania: A Study of Dar es Salaam Manufacturing Industries

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Abstract
Employee voice contributes to a variety of outcomes in manufacturing industries worldwide. However, although this claim is often repeated in the literature, empirical research on the link between employee voice mechanisms and employee absenteeism remains scarce. This study examines how employee voice mechanisms influence employee absenteeism in Tanzanian manufacturing industries in Dar es Salaam. Survey data were collected from 126 randomly selected manufacturing industries in Dar es Salaam, Tanzania, using a cross-sectional study design. Human resource managers were the unit of observation, and manufacturing industries were the unit of analysis. Descriptive statistics and the Poisson Regression Model aided data analysis. The results show that employee voice mechanisms, such as formal surveys, suggestion boxes, joint consultative committee meetings, collective bargaining, and general meetings, have a negative and significant influence on employee absenteeism. In contrast, newsletters, intranet-shared information, and email use did not. This finding indicates that workers' attendance in manufacturing industries improves when employees have opportunities to express their problems to their employers. Therefore, manufacturing industries should use formal surveys, suggestion boxes, joint consultative committee meetings, general meetings and collective bargaining to reduce employee absenteeism. Other employee mechanisms, such as the intranet, newsletter, and email, should be reviewed and improved.

Keywords: *Employee Voice Mechanisms; Employee Absenteeism, Manufacturing Industries*

INTRODUCTION

Employee absenteeism has been extensively studied in the literature due to its adverse effects in several organisations (Ojha, 2020; Rehman, 2019; Stander, 2021). It becomes an organizational management issue, especially when employees are absent from work without prior arrangements and provide false reasons for their absence (Basariya, 2015). Indeed, if such absences become excessive, it escalates organisational costs while compromising overall performance (Chiloane, 2020). Such costs include wages paid to absent employees without the corresponding provision of services, and the hiring of temporary personnel to fulfill the responsibilities of absent employees (Kammoun & Dhifaoui, 2021; Leblond, 2019).

In Organisation for Economic Co-operation and Development (OECD) countries, for example, member states lost approximately \$0.6 to \$1 trillion in 2018 due to employee absenteeism (Lawrance et al., 2021). In 2019, the USA lost approximately \$225.8 billion due to employee absenteeism (US Statistics, 2018; Turner, 2020). Yearly, in the Mexican manufacturing industries, the country incurs \$266 million in wages alone due to employee absenteeism (Cachazo, 2018). The South African economy loses between R12 billion and R16 billion annually due to employee absenteeism in manufacturing industries (Gutsa et al., 2021).

Similarly, Ethiopian industries over the past five years have incurred costs of between R52 million and R65 million per year due to employee absenteeism, by hiring extra people as replacements, or working overtime or on shift work to cover the work (Fink et al., 2021). Certainly, in Tanzania, rising labour costs, reduced employee productivity, and poor service delivery in manufacturing businesses have also been linked to employee absenteeism (Mgonja, 2017), which entails high costs in terms of recruiting, training, and a variety of indirect costs.

To date, the literature has explored several strategies to reduce employee absenteeism (Kim & Beehr, 2020; Stander, 2021). Strategies include surveillance cameras, salary freezes, and transferring employees (Mgonja, 2017; Ruane, 2020). Other strategies include rewards programs (Duncombe, 2019), health and safety programs (Egoávil & Leguía, 2021; Nawata, 2024), and High-Performance Work Systems (HPWS), which include selective hiring and extensive training (Kwon, 2017; Shantz & Alfes, 2015; Unur & Arasli, 2022). In fact, managing employee absenteeism is the operational problem in several organisations, which, in either case, needs to be reduced as much as possible (Kocakulah et al., 2016).

Nevertheless, despite these predetermined strategies for reducing employee absenteeism, which have been widely studied in several sectors (Brown, 2020; Forte, 2017; Johnson-Tate, 2018; Ruane, 2020), other aspects, including the relationship between employee voice and employee absenteeism, require further empirical investigation (Kaufman, 2015; Morrison, 2023). This is because employee absenteeism decreases when employees exercise their voice at work (Allen, 2015; Unur & Arasli, 2022). Thus, through employee voice mechanisms such as regular workplace meetings and other online channels, dissatisfied employees may express their concerns and pressure their employer to improve working conditions, thereby reducing employee absenteeism Iloekwe, 2022). Conversely, when employee voice is ignored, employee absenteeism tends to increase (Nanjundeswaraswamy, 2016; Ojha, 2020).

Therefore, given the limited western based empirical literature that have supported the linkage between employee voice and employee absenteeism (Townsend & Wilkinson, 2020), and the fact that the majority of employee absenteeism studies have largely focused on its causes, characteristics, and effects (Duncombe, 2019; Ojha, 2020), this study determined the influence of employee voice mechanisms on employee absenteeism in Tanzanian manufacturing industries, which are characterised by vulnerable working conditions and a high employee absenteeism rate (LHRC, 2023; Mgonja, 2017; Palmer, 2018). Certainly, unlike other studies in Tanzania that have documented well about employee absenteeism incidences in the health sector, service sector and construction sectors (Besamusca & Tijdens, 2015; Council, 2018), this study has encompassed the manufacturing sector, which has a significant contribution to Tanzania's and Africa's economic growth (Andreoni, 2017).

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Exit – Voice - Loyalty, and Neglect (EVLN) theory

The study was guided by the EVLN theory, as proposed by Farrell (1983). The theory elaborates well on employees' responses when there is no employee voice at work (Sjöberg, 2017). The theory also recognizes absenteeism as neglectful behavior, which arises when employee voice is absent at work (Allen, 2015). Therefore, in this case, organisations might utilise employee voice mechanisms (direct and indirect) as a substitute for employee absenteeism (Iloekwe, 2022). Therefore, in line with the theory mentioned above, the primary theoretical assertion of this research is that when the voice is exercised through direct and indirect mechanisms within the organisation, employee absenteeism is reduced; conversely, when the voice is absent, employee absenteeism tends to rise.

Employee Voice Mechanisms and Employee Absenteeism

According to Wilkinson et al. (2020), employee voice encompasses all the mechanisms an organisation uses to gather and address employee issues to accomplish organisational objectives. These mechanisms include direct mechanisms such as workplace meetings, an open-door policy, newsletters, notice boards, email use, and suggestion schemes (Dobbins & Dundon, 2020), and indirect mechanisms such as collective bargaining and work councils (Laroche, 2021). According to the literature (i.e., Iloekwe, 2022; Muhammed & Soumyaja, 2019; Sjöberg, 2017), all these mechanisms have a significant impact on employee absenteeism. However, according to Okpu et al. (2018), the effects of these mechanisms depend on the mechanism through which voice is expressed. Specifically, this is the case when employee voice mechanisms are not quantified as a single composite construct (Della Torre et al., 2021) but measured independently (Okpu et al., 2018).

Notably, employees utilise these mechanisms to voice their opinions to their employer, which motivates them to be dedicated to their work (Amponsah-tawiah, 2020). Otherwise, if employee voice is absent, workers may experience anger and anxiety, which could result in counterproductive behaviours such as absenteeism (Laroche, 2020; Srivastava et al., 2019). Specifically, Sjöberg (2017) found that indirect voice mechanisms reduce absenteeism in several organisations. Since they are mechanisms that enable management and workers collectively to address organisational problems (Addison & Teixeira, 2019). However, direct voice mechanisms are increasingly widely employed in many organizations (Emelifeonwu & Valk, 2019) as a result of the drop in global union membership (Kwon & Farndale, 2020; Nechanska et al., 2022). Therefore, collective voice mechanisms through unions become obsolete, and direct voice mechanisms dominate in various organisations (Begum, 2017).

Therefore, based on the arguments mentioned above, the current study takes into account various direct and indirect voice mechanisms to tests the following hypotheses; H1: collective bargaining has a negative influence on employee absenteeism, H2: departmental meeting has a negative influence on employee absenteeism, H3: general meeting has a negative influence on employee absenteeism, H4: joint consultative committee meeting has a negative on influence employee absenteeism, H5: noticeboards has a negative influence on employee absenteeism, H6: suggestion box has a negative influence on employee absenteeism, H7: a formal survey has a negative influence on employee absenteeism, H8: a regular newsletter has a negative influence on employee absenteeism, H9: regular use of email has a negative influence employee absenteeism, H10: intranet-shared has a negative influence on employee absenteeism, H11: organisational policy has a negative influence on employee absenteeism.

Conceptual Framework

Figure 1 illustrates the linkage between predictor variables (employee voice mechanisms) and outcome variable (employee absenteeism) in Tanzanian manufacturing industries.

Independent Variable **Dependent Variable**

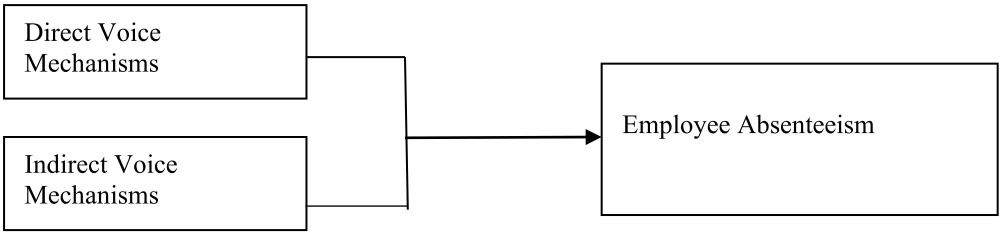

Figure 1: *Research Framework*

METHODOLOGY

Research Design and Study Area

The research utilised a cross-sectional research design to examine the influence of employee voice mechanisms on employee absenteeism. The survey occurred between August 2022 and April 2023 in the Dar es Salaam region, which ranks first among Tanzania's top manufacturing hubs (29.4% of its manufacturing industries), followed by Manyara (12.6%), Arusha (6.7%), Kagera (5.8%), Mbeya (5.4%) and Mwanza (4.2%) (Andreoni, 2017). The target population was 629 manufacturing industries obtained from BRELA in 2021/2022. Simple random sampling was employed to select 245 industries using a sampling fraction of 245/629 = 0.3895 (see Table 1). The sample size was calculated through Yamane's formula (Yamane, 1967, cited by Israe, 2013):

$$n = N / [1 + N(e^2)] \quad \text{......} \quad (1)$$

Where: N = population size, n = sample size, e = 0.05

$n = 629 / [1 + 629(0.05)^2] = 245$

Table 1:
Sampling Distribution

Manufactured Products	Industries per products	Sampling Fraction	Sub - Sample
1. Food products	68	0.3895	26
2. Beverage's products	37	0.3895	14
3. Tobacco products	4	0.3895	2
4. Machinery and transport equipment	49	0.3895	19
5. Wood products	29	0.3895	11
6. Textile products	27	0.3895	11
7. Leather products	18	0.3895	7
8. Basic metal and fabricated products	53	0.3895	20
9. Optical and electronic products	27	0.3895	11
10. Printings and paper products	27	0.3895	11
11. Refined petroleum products and Gas	6	0.3895	3
12. Chemical products, soap, and detergents	48	0.3895	18
13. Pharmaceutical, botanical, and medicinal	14	0.3895	5
14. Plastics and rubber products	148	0.3895	58
15. Non-metallic mineral products	74	0.3895	29
Total	**629**		**245**

Data Collection Methods

Survey questionnaires were employed to collect data from human resource managers in the selected manufacturing industries. Human resource managers were chosen because they are more informed and responsible for employee voice practices (Della Torre et al., 2021). Mixed-mode survey designs (paper mail, online, and telephone) were used to minimise coverage and non-response errors (Sakshaug et al., 2017). The study distributed 245 questionnaires and collected 126 (response rate of 51.4%). The percentage of respondents based on category of industries were food products (10.3%), beverages products (7.9%), textiles products (3.2%), machinery and equipment (2.4%), woods products (6.3%), fabricated metal (6.3%), computer, electronic and optical products (4.8%), printing and reproduction of recorded media (6.3%), chemicals, cosmetics, fibres, soap and detergents (3.2%), rubber and plastic products (18.3%), basic metal and non-metallic materials (10.3%), and other materials (20.6%).

Measurement of Study Variables

Employee voice was measured using items adapted from Wanrooy et al. (2011) and Holland et al. (2017), operationalised to capture the presence of collective bargaining, departmental meetings, general meetings, regular newsletter, joint consultative committee meetings, notice board, email, suggestion box, formal survey, organisational policy, and intranet-shared information (coded 1 = present, 0 = absent). Employee absenteeism was estimated as the average number of days employees were absent from work per year in the organisation, as in Nguyen et al. (2016) and Tregaskis (2015). It can be proxied by the number of days employees take unauthorised leave, excluding authorised leave of absence, employees away on secondment or courses, or days lost through industrial action, over the last 12 months (Tüselmann *et al.*, 2007, cited by Allen, 2015). In this context, employee absenteeism, as the term suggests, is simply employees not showing up for their scheduled work (Nanjundeswaraswamy, 2016).

Table 2:
Variable Description

Variable	Description	Measures
Dependent Variable		
Absenteeism_DaysYear	The average number of days employees were absent from work per year	Count
Independent Variable Variables		*Dummy*
CBA_Availability	Presence of collective bargaining meetings	0 = No 1 = yes
Dmeetings_Availability	Presence of departmental meetings	0 = No 1 = yes
Gmeetings_Availability	Presence of general meetings	0 = No 1 = yes
Newsletters	Presence of newsletters	0 = No 1 = yes
Committee _Availability	Presence of joint consultative committee meetings	0 = No 1 = yes
Notice _Boards	Presence of a noticeboard	0 = No 1 = yes
Emails	Use of email at the establishment	0 = No 1 = yes
Suggestion_Box	Suggestion boxes availability	0 = No 1 = yes
Formal_Survey	Employee surveys availability	0 = No 1 = yes
Organisation_Policy	Organisational policy availability	0 = No 1 = yes
Intranet	Presence of intranet meetings at the establishment	0 = No 1 = yes

Data Analysis

Descriptive statistics and the Poisson Regression Model (PRM) aided data analysis. A PRM was employed because employee absenteeism was measured as count data (Zeeshan et al., 2024), assuming the possible Y values are non-negative integers, such as 0, 1, or 3 (Muhihi & Pascal, 2020). The model is estimated as:

$$\mu = t \exp \beta 0(\beta 1X1 + \beta 2X2 + \cdots + \beta kXk) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(2)}$$

μ = the expected count of the dependent variable during a specified exposure, t, t = exposure, β_0 are the intercept, β_1 to βk are the coefficients for the predictor variable X_1 to X_K.

RESULTS AND DISCUSSION

Table 3 presents the mean score for employee absenteeism across the employee voice mechanisms utilised in the manufacturing industries.

Industries utilising collective bargaining (CB), newsletters (NL), joint consultative committee meetings (JCCM), email (EU), suggestion box (SB), formal survey (FS), and intranet shared information (ISI) had lower employee absenteeism level (below mean score of 4 days), compared to industries that utilised departmental meetings (DM), general meetings (GM), notice boards (NB), and organisation policy (OP) which had a higher employee absenteeism averaging 4 days similar to the overall manufacturing industries employee absenteeism mean score of 4 days. The findings also show that, on average, industries implementing employee voice mechanisms experienced lower employee absenteeism rates compared to those that did not. This suggests that some manufacturing industries have higher or lower employee absenteeism rates than the average, depending on the type of employee voice mechanism employed.

Table 3:
Descriptive Statistics (n =126)

	Industries With EVM			Industries Without EVM		
EVM	**N**	**(%)**	**Mean (Days)**	**N**	**(%)**	**Mean (Days)**
Collective Bargaining	38	30.2	3.08	88	69.8	5.00
Departmental Meetings	126	100	4.42	-	-	-
General Meetings	102	81	4.20	24	19	5.37
Newsletters	2	1.6	1.00	124	98.4	4.48
Joint Consultative Committee Meetings	74	58.7	3.16	52	41.3	6.21
Notice Boards	126	100	4.42	-	-	-
Email	2	1.6	2.00	124	98.4	4.46
Suggestion Box	75	59.5	3.13	51	40.5	6.31
Formal Survey	49	38.9	3.02	77	61.1	5.31
Organisation Policy	126	100	4.42	-	-	-
Intranet Shared Information	1	0.8	1.00	125	99.2	4.45

Note (s): *N is the number of manufacturing industries, EVM = Employee Voice Mechanisms, and mean = Average number of days employees were absent from work per year*

Table 4 presents the Poisson Regression Model (PRM) results on the influence of employee voice mechanisms on employee absenteeism based on a sample of 126 manufacturing industries. Results show a Chi-square of 159.877 and p = 0.000, implying the model fits the data well. To reduce the risk of multicollinearity, all employee voice mechanisms were mean-centered, and the variance inflation factors (VIFs) were estimated. All VIF values ranged from 1.38 to 1.72, with a mean VIF of 1.53, suggesting no multicollinearity. Certainly, the model dropped departmental meetings, noticeboards, and organisational policy variables due to perfect collinearity with the intercept.

Furthermore, the results indicated that collective bargaining had a negative influence on employee absenteeism (coefficient = -0.376, p = 0.05; IRR = 0.687). Therefore, supporting H1. This indicates that collective bargaining lowers employee absenteeism by 31.3%. This finding is consistent with Sjober's (2017) findings, who noted that collective bargaining reduces employee absenteeism. This is because the mechanism through a trade union allows employees to express their discomfort to their employer, thereby solving the issue before engaging in absenteeism behaviours. However, the result contradicts the contemporary view that collective bargaining is an obsolete strategy for dealing with employee absenteeism compared to non-union voice (Iloekwe, 2022).

Likewise, the general meeting had a most substantial negative influence on employee absenteeism (coefficient = -0.600, p = 0.000, IRR = 0.549), supporting H3. Thus, the presence of a general meeting reduces employee absenteeism by 45.1%. This indicates that general meetings have a negative predictive value for employee absenteeism in the manufacturing industries. Thus, through meetings, workers can have sufficient freedom to raise their issues and concerns with management, which are then addressed, thereby reducing employee absenteeism. However, general meetings can be time-consuming and may lead to unnecessary disagreements among organisational members (Dundon & Wilkinson, 2018), which can sometimes result in employee absenteeism.

Additionally, joint consultative committee meetings (coefficient = -0.493, $p < 0.05$, IRR = 0.611). had a negative influence on employee absenteeism, resulting in a 38.9% reduction. Therefore, the hypothesis that joint consultative committee meetings negatively influence employee absenteeism is supported. This suggests that joint consultative meetings in the manufacturing industries reduce employee absenteeism. The results align with the study by Muhammed & Soumyaja (2019), which found that joint consultative meetings reduce employee absenteeism. This is because, through consultative voice, employees can make operational decisions and feel engaged to work (Azevedo et al., 2021). This result, however, contradicts the observation that joint consultative meetings do not influence employee absenteeism in several sectors (Allen, 2015).

Results in Table 4 also revealed that suggestion boxes had a negative influence on employee absenteeism (β = -0.445, P = 0.05; IRR = 0.641), supporting H6. Thus, the presence of a suggestion box reduces employee absenteeism by 35.9%. This result implies that the suggestion box in the manufacturing industries reduces employee absenteeism. This is because the voice mechanism is frequently depicted in business literature as a 'win-win' tool for employees and management to increase productivity, engage workers, and promote better communication at work (Collins & Sendziuk, 2025). However, according to Wilkinson et al. (2020), this cannot be achieved when procedures are unclear, excessive paperwork is used, and feedback is unclear.

Formal surveys revealed an important influence on employee absenteeism (coefficient = -0.466, $p < 0.05$; IRR = 0.628), implying an approximate 37.2% reduction in expected absenteeism days. The data therefore support hypothesis 7. The result implies that formal surveys reduce employee absenteeism in the manufacturing industries. This is because a formal survey enables employees to express their problems directly to their managers, which is eventually reflected in reduced exit behaviours such as absenteeism (Iloekwe, 2022; Szołkiewicz & Kowalska, 2024).

Contrarywise, newsletter (coefficient = -0.954, $p > 0.05$; IRR = 0.385), use of email (coefficient = -0.754, $p > 0.05$; IRR = 0.470) and intranet-shared information (coefficient = -0.694, $p > 0.05$; IRR = 0.500) were also associated with lower absenteeism with 61.5%, 53% and 50% consecutively, but failed to reach significance ($p < 0.05$). Therefore, H8, H9, and H10 were not supported. In particular, the insignificant results for email and intranet-shared information may be linked to the low level of skill among employees in manufacturing industries, who may not be able to use electronic communication mechanisms. And wherever important information is shared, unskilled employees might not be able to access their email accounts (Iloekwe, 2022). However, these results differ from the current literature, which reveals that electronic mechanisms such as email use and intranet-shared information are now predominantly used by both employers and employees to address workplace problems (Akarika & Effiong Umoren, 2021).

Table 4:
Influence of Employee Voice Mechanisms on Workplace Absenteeism (Poisson Regression Model)

Variables	Coefficient	Std. errs.	z	P>z	[95% conf.	interval]	VIF
Collective bargaining	-0.376	0.135	-2.780	0.005**	-0.641	-0.111	1.42
General Meeting	-0.600	0.111	-5.420	0.000**	-0.817	-0.383	1.61
Joint consultative committee meeting	-0.493	0.093	-5.320	0.000**	-0.675	-0.312	1.53
Suggestion box	-0.445	0.114	-3.910	0.000**	-0.668	-0.222	1.47
Formal survey	-0.466	0.097	-4.810	0.000**	-0.656	-0.276	1.38
Newsletters	-0.954	0.714	-1.340	0.181	-2.354	0.446	1.49
Emails	-0.754	0.513	-1.470	0.142	-1.761	0.252	1.72
Intranet	-0.694	1.007	-0.690	0.491	-2.669	1.280	1.66
constant	2.699	0.120	22.550	0.000	2.464	2.933	

Note (s): *** Significant at 5%, number of observations = 126, Pseudo r-squared = 0.277, Chi-square 159.877 with Prob > chi2 of 0.000. AIC = 435.081, and BIC = 460.608.*

CONCLUSION AND RECOMMENDATION

This study examined the influence of employee voice mechanisms on employee absenteeism in manufacturing industries in Dar es Salaam, Tanzania. The study confirms that lower employee absenteeism rates occur when multiple employee voice mechanisms are implemented. Furthermore, the study confirms that employee voice mechanisms such as formal surveys, suggestion boxes, joint consultative committee meetings, collective bargaining, and general meetings have a negative and significant influence on employee absenteeism. Nevertheless, employee voice mechanisms, including newsletters, intranet-shared information, and email, did not influence employee absenteeism. Therefore, this study recommends that manufacturing industries should implement collective bargaining, general meetings, joint consultative meetings, suggestion boxes, and formal surveys to reduce employee absenteeism, while reviewing and improving the use of organisational newsletters, intranet-shared information, and email. Legally, the government of Tanzania should enforce the implementation of both direct (non-unionised) and indirect (unionised) employee voice mechanisms in the manufacturing industries to promote workplace presenteeism.

Nevertheless, this study has several limitations and offers areas for future research in employee voice. A larger sample size could be used in future research to validate the present findings, which employed a small sample size and enable generalisation of the results to the Tanzanian context. This study employed a field survey; future studies could replicate it using a qualitative approach, such as in-depth interviews and focus group discussions. Lastly, future studies could utilise a longitudinal or quasi-experimental design, collecting multiple observations over several time periods, to establish a causal link between employee voice mechanisms and employee absenteeism. This approach would be comparative rather than cross-sectional, unlike this study.

IMPLICATIONS OF THE STUDY

This study adds to the literature on the relationship between employee voice mechanisms and employee absenteeism in the manufacturing industries. The study found that employee voice mechanisms, including collective bargaining (indirect voice mechanism) and general meetings, joint consultative meetings, suggestion boxes, and formal surveys (direct voice mechanisms), significantly reduce employee absenteeism. Thus, the result supports the EVLN theory, which proposes that employee voice, once exercised, reduces employee absenteeism. Importantly, this study underscores the need to incorporate a range of voice mechanisms, measured separately in relation to organisational outcomes (Bashshur & Oc, 2015; Okpu et al., 2018). A different approach compared to the extant literature (i.e., Della Torre et al., 2021), which has measured employee voice as a single composite construct or two broader direct and indirect mechanisms, each measured as an index. Lastly, unlike other studies in Tanzania that have documented well about employee absenteeism incidences in the health sector, service sector and construction sectors (Besamusca & Tijdens, 2015; Council, 2018), this study has encompassed the manufacturing sector, which has a significant contribution to Tanzania's and Africa's economic growth (Andreoni, 2017). In practice, managers and trade unions in Tanzania's manufacturing industries can utilise the study's findings to create a working environment that promotes employee voice through general meetings, joint consultative meetings, suggestion boxes, formal surveys, and workplace collective bargaining, thereby reducing employee absenteeism. This, in turn, reduces labour costs while improving organisational performance. Furthermore, the findings reveal the need to revise and improve the use of organisational newsletters, intranet-shared information, and email to improve workplace presenteeism in the manufacturing industries.

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