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Exploring the nexus between procurement contract administration and quality attainment of force account construction projects in Tanzania

Shadrack Samwel Mwaiseje^a , Alban Dismas Mchopa^b , Faustine Peter Panga^b  and Mathias Sylvester Nkuhi^c

^aDepartment of Procurement and Supply Management, College of Business Education–Dodoma Campus, Dodoma, Tanzania;

^bDepartment of Procurement and Supply Chain Management, Moshi Co-operative University, Moshi, Tanzania; ^cDepartment of Law, Moshi Co-operative University, Moshi, Tanzania

ABSTRACT

Currently, there is an increasing focus on procurement contract administration as among of the key variables in explaining the performance of construction projects. Despite such observations, their relationship with quality attainment of the Force Account (FA) construction projects is not well postulated to cement the observed causal relationship. Therefore, this study assesses the role of procurement contract administration in the quality attainment of FA construction projects in Local Government Authorities (LGAs) in Tanzania. The study employed a cross-sectional research design, and data was collected by using structured questionnaires from primary schools in Dodoma, Tanzania. The study used 318 respondents to analyse data by using Partial least square structural equation modelling (PLS-SEM). The findings of the study reveal that risk management, relationship management, dispute management, and monitoring and control are positive and significant factors in explaining the quality attainment of FA construction projects. Notably, risk management is the strongest predictor of quality attainment of FA construction projects. It was concluded that the quality attainment of FA construction projects is highly influenced by procurement contract administration. These findings have practical implications, as procurement practitioners and FA committees can use them to make decisions concerning the quality attainment of the projects through the implementation of procurement contract administration practices.

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Introduction

Globally, quality achievement in construction projects is a problem in the construction industry. This is normally because there are frequent occurrences of issues, ranging from poor workmanship and substandard materials to inadequate project management (De Silva et al., 2023). In Africa, quality problems in construction projects are caused by inadequate infrastructure, regulatory problems, and inadequate technology for assessing the performance of construction projects (Gadisa and Zhou, 2021; Santoso and Gallage, 2019). This case was also prevalent in Tanzania, where quality problems were observed owing to resource constraints, failure of suppliers to supply quality materials and poor contract management (Mtana et al., 2023). Recently,

Tanzania has increased the adoption of force accounts (FA) in construction projects, an approach where procuring entities (PEs) use internal labor or hire labor and procure materials for construction projects, bypassing traditional contracting procedures (Macharia et al., 2023). The motive behind implementing construction projects through FA is to reduce costs, but regularly, the projects suffered from a lack of skilled labor, poor oversight, inadequate use of procurement procedures, and limited accountability, which in turn confounded the success of quality standards. Worldwide, poor-quality construction projects are frequently reported because of ineffective project management of projects (Jraisat et al., 2016). Furthermore, Wawak et al. (2020) stated that in construction projects, achieving quality satisfaction is challenging, which is considered a severe

CONTACT Shadrack Samwel Mwaiseje  mwaiseje@gmail.com  Department of Procurement and Supply Management, College of Business Education–Dodoma Campus, Dodoma, Tanzania

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issue. Hence, most countries have struggled to achieve the intended quality standards for construction projects (Koo et al., 2024). As a result, it is important to assess the quality of a construction project can achieved through procurement contract administration.

Procurement contract administration is considered important in construction projects, as it involves ensuring adherence to the terms and conditions of the contract and managing and supervising the implementation of the contract (Matto et al., 2021). It also enhances the monitoring and handling of disputes that may arise during the project's lifecycle (Alwee et al., 2023). For instance, PEs in Tanzania are required to manage and implement all procurement proceedings of goods, works, and services to comply with the terms and conditions of the contract (United Republic of Tanzania, 2013). Studies on contract management have highlighted the significance of procurement contract administration in achieving successful project outcomes (Kongsong & Pooworakulchai, 2018; Matto et al., 2021; Park & Kim, 2018). These studies emphasize that effective contract administration practices can mitigate risks, enhance performance, ensure compliance, and facilitate clear communication among all stakeholders involved in the project. For instance, proper contract administration can prevent cost overruns, avoid delays, and ensure that the quality of work meets or exceeds project specifications (Alwee et al., 2023; Gunduz & Elsherbeny, 2020). However, despite the recognized importance of procurement contract administration, there is a notable gap in the literature concerning its application and impact on FA construction projects. FA projects, where construction activities are performed by internal labour rather than by a traditional contractor, have unique challenges that require effective procurement contract administration. These challenges include but are not limited to, poor planning of contracts, inadequate follow of guidelines in purchasing materials, and a lack of skilled personnel (Matto, 2023).

Quality attainment is an indicator of the performance of a construction project. Other studies, such as Ali et al. (2022) and Maqsoom et al. (2021), used timely completion and cost-effectiveness as measures of construction project performance; however, this study focuses on the quality attainment of FA construction projects. Achieving acceptable quality standards in the construction sector has long been problematic (Kamal et al., 2022). Each year, significant amounts of time, money, and material resources, both human and material, are wasted because

of ineffective or missing quality-management methods (Kazar et al., 2022). In recent years, the construction sector has faced significant criticism regarding its productivity and performance about other industries. The issue of inadequate quality of construction projects is globally predominant (Maqsoom et al., 2021). Ensuring customer satisfaction and success in construction projects requires effective quality management. Many countries have realized the importance of establishing quality standards to improve the overall quality of building works despite the difficulties in obtaining appropriate quality levels in projects (Khadim et al., 2023). Increased knowledge and training among construction stakeholders are necessary to improve the efficiency and performance of construction projects (Alencastro et al., 2024). Hence, obtaining the intended quality outcomes during the construction project execution phase depends on quality management. Thus, research on quality attainment for the success of overall construction projects is required.

Furthermore, recent audit findings on Tanzanian public procurement show significant noncompliance issues with quality attainment. For example, the value-for-money audit report carried out by the PPRA for three years in a row reveals significant deficiencies across several dimensions, critically undermining construction project performance. Key issues include inadequate planning and site selection, leading to frequent delays, quality problems, and cost overruns (PPRA 2020, 2021, 2022). Additionally, the audit report on FA construction projects in Tanzania underscores severe quality-related flaws that significantly impair project performance and sustainability. A predominant issue is the widespread use of sub-standard materials, which compromises the structural integrity and longevity of construction (National Audit Office [NAOT], 2022; PPRA, 2021). The report also identifies poor workmanship, often attributed to inadequate training and lack of skilled labour in the workforce, resulting in constructions that fail to meet the required standards (NAOT, 2022). Additionally, the absence of uniform quality control measures impairs these problems, as low-standard work frequently goes unchecked and uncorrected (NAOT, 2021). Additionally, non-compliance with established construction standards and regulations is rampant, further degrading the project quality (Zhong et al., 2022). Collectively, these flaws indicate critical issues in project execution and oversight that must be addressed to ensure the quality of the FA construction projects in Tanzania. The current study believes that procurement contract

administration would be the solution to achieve the quality attainment of FA construction projects.

However, to the best of our knowledge, few studies have addressed the role of procurement contract administration on the quality attainment of FA construction projects in Tanzania. It has been highlighted that a related paper by (Mchopa, 2015) examines how contract management techniques help achieve VfM, Matto et al. (2021) assess how value for money can be achieved through contract management, and Obadia and Chole (2024) addresses how procurement contract management can be achieved through employee proficiency. The aforementioned studies did not find a link between quality attainment and procurement contract administration in FA construction projects. Therefore, this study intends to fill this gap by assessing the role of procurement contract administration in the quality attainment of FA construction projects in Local Government Authorities (LGAs) in Tanzania.

2. Theoretical underpinning and hypotheses

2.1. Transaction cost theory

The Transaction Cost Theory (TCT) highlights that companies can increase their economic efficiency by reducing transaction costs (Williamson, 1993). The transaction costs incurred by a company in finding a buyer or seller, negotiating agreements, keeping an eye on, and upholding contracts are referred to as transaction costs (Rokkan & Haugland, 2022). The costs associated with risk management, relationship management, dispute management, and monitoring and control of contracts are referred to as transaction costs in this study. As a result, transaction costs are examined from the client's perspective at every level of the public procurement contract. Pre-contract or pre-award (i.e. information search costs), award (negotiating costs), and post-award (monitoring expenses) are stages.

The TCT is useful in construction projects because uncertainty is constant when estimating project costs (Mwaiseje et al., 2024). There will be ambiguity over the nature of the task to be performed, the working conditions throughout the project's implementation, and other issues. The project is at risk owing to these unknowns, as they could lead to unanticipated costs and compromise the project's overall budget. Transaction costs are another term for these additional charges (Abdel-Galil et al., 2022). Since multiple parties are engaged in project contracting, design, and implementation, construction

projects usually involve some degree of uncertainty (Ikuabe et al., 2020). Many uncertainties are involved in these projects. These uncertainties affect a project's cost and performance. These include estimate-related uncertainties (such as inadequate estimation, specifications, knowledge, etc.), contracting party uncertainties (such as work quality and dependability, performance, and motivation), and project cycle uncertainties (such as incomplete design and implementation).

In addition, in the TCT, the relationship between procurement contract administration and transaction costs is established. For example, Rasheli (2016) conducted a study on procurement contract management using the TCT. When there is an increase in transaction costs during the execution of a project, quality attainment will be a problem (Li et al., 2012), and overall performance will suffer (Munir et al., 2020). This implies that the poor performance of project teams in procurement contract administration for projects is likely due to high transaction costs. If procurement contract administration is ignored, the transaction costs will be high. As a result, it is better to apply effective procurement contract administration through risk management, relationship management, dispute management, and monitoring and control to reduce transaction costs, which can hinder the quality attainment of construction projects. If these are ignored, the transaction cost of each element involved in the project will increase, leading to deterioration in the quality of the project.

2.2. Procurement contract administration and quality attainment

2.2.1. Risk management

Risk management is regarded as necessary for managing construction projects because of the relationship between risk and the three essential components of construction projects: time, cost, and quality (Bissah & Nkrumah, 2021). These risks and uncertainties are brought on by worker performance, the quality of the materials and components, delays in obtaining vital supplies to the job site, project budget, cost management, and the difficulty of the procurement processes, all of which could threaten the project objectives (Khalef et al., 2021). The performance of project management in a situation where there are complex phenomena and competition is becoming more severe and contract risk management is considered important (Khalef et al., 2021). In addition, to achieve project performance,

contract risk can be identified at the initial stage of implementation of the project to detect all risks that can impact the success of projects (Tumuhairwe & Ahimbisibwe, 2016). Studies indicated that Some projects have been completed with delays, cost overruns, and unsatisfactory quality owing to poor risk management (Iyer et al., 2020; Khattak et al., 2019; Myeza et al., 2021). Studies have revealed contradictory findings regarding the use of certain risk management strategies and project success to enhance the performance of the construction sector. For instance, Myeza et al. (2021) and Szymański (2017) pointed out that improving one's understanding of risk management and putting it into practice may assist the construction industry in enhancing project performance. Khan et al. (2019) found no major impact on risk management and project success. However, studies have not clarified the mechanisms by which risk management influences the quality of FA construction projects. Subsequently, we propose the following hypothesis:

H1: Risk management influences the quality attainment of FA construction projects

2.2.2 Relationship management

Relationship management is a crucial component of construction project management because it involves managing complex interactions among various stakeholders, including clients, contractors, subcontractors, suppliers, and regulatory bodies (Meng, 2012). The effectiveness of relationship management depends on its ability to nurture trust, improve communication, and promote collaboration among project participants, resulting in superior project outcomes. Significant research conducted by Kim and Nguyen (2018) and Koolwijk et al. (2018) emphasizes the essentiality of cultivating long-lasting relationships and skillfully handling disagreements to enhance project performance. Quality achievement is a fundamental aspect of building projects, encompassing various dimensions such as the strength of the structure, its ability to last, safety, and aesthetic appeal. Ensuring high quality requires careful planning, strict attention to quality control processes, compliance with regulatory standards, and constant vigilance during the project duration. Studies by Hoque and Hasan (2022) and Salvi and Kerkar (2020) emphasize the importance of incorporating strong quality management principles into construction processes to meet client requirements and ensure successful project completion. Hence, the current study assesses the impact associated with

relationship management, as elaborated in existing studies, to explain its effect on the quality of FA construction projects. For this reason, it is important for buying organisations to maximize relationship management at the maximum level to achieve the intended performance of the projects (Daboun et al., 2023). Thus, well-established environments for relationship management are relevant for attaining quality in construction projects. In this respect, relationship management is a vital tool for increasing the chances of meeting the performance requirements of construction projects that are willing to procure entities. Based on these discussions, we propose the following hypothesis:

H2: Relationship management influences the quality attainment of FA construction projects.

2.2.3. Dispute management

Disputes commonly arise in construction projects because of their complicated structure, the involvement of various stakeholders, and the substantial financial investments involved. Disputes are sometimes known as conflicts or claims (Safinia, 2014). When there is a misunderstanding between parties involved in a project, the relationship between parties cannot be good at the same time. For the successful completion of projects, it is important to have effective dispute management strategies to minimize cost overruns and delays. Studies have identified several issues that can cause misunderstandings in construction projects (Tabish & Jha, 2023). These issues include, but are not limited to, communication problems, misinterpretation of terms and conditions of contract, incomplete agreement, and absence of good and clear contract documentation. Employing dispute management strategies, such as preventive measures, will enable the organization to intervene early and get faster for successful projects (Vo et al., 2020). Preventive measures such as good contract drafting, risk allocation, and employing a collaborative environment in the project can help mitigate disputes before they arise. In addition, regular project audits and proactive issue resolution meetings have been considered and shown to be good mechanisms to reduce the cost and time of disputes, thus helping ensure project quality is achieved without forgone delays and cost overruns. The literature establishes a link between dispute management and construction performance (Do et al., 2023; Francis et al., 2022; Wang et al., 2023). They emphasize the use of dispute management strategies, such as negotiation, in solving the

misunderstandings that occur in construction projects. Despite studies on dispute management in construction project performance, the issue of quality attainment in FA construction projects through dispute management was uncovered, which is why this study proposes the following hypothesis:

H3: Dispute management influences the quality attainment of FA construction projects

2.2.4. Monitoring and control

Successful construction of projects depends on good monitoring and control of contracts. The contract management team is required to ensure that the contract is well-supervised to achieve the intended goal. Studies have indicated that the performance of construction projects is determined by proper monitoring of the contract through regular supervision or supervision of the contract by exception (Obondi, 2022). The monitoring and control of contracts include checking and verifying the implementation of the contracts to ensure quality achievement, cost-effectiveness, and timely completion of projects (Kissi et al., 2019). Hence, this study examines the outcome of monitoring and controlling the quality attainment of FA construction projects. For this reason, the organization needs to maintain the quality of construction projects through monitoring and control (Callistus et al., 2018). Thus, the commitment of the contract management team to monitoring and control is relevant in improving the quality of construction projects. In this regard, monitoring and control are vital tools for increasing the chances of meeting construction project outcomes that favor procuring entities' expectations. According to Obondi (2022), organizations can employ monitoring reports to take all necessary measures to enhance the performance of construction projects. Thus, in a

situation where the monitoring and control reports reveal that the execution of the projects is below the agreed standards, immediate action must be taken to alleviate the crisis. Monitoring and control are important instruments to enhance public procurement projects in Tanzania. Nevertheless, its contribution to explaining FA construction projects' quality attainment remains unknown. Therefore, it makes sense to develop this study's first hypothesis.

H4: Monitoring and control influences the quality attainment of FA construction projects

2.2.5. Conceptual framework. Using the literature as a foundation, this study aims to empirically investigate the model presented in Figure 1. According to the model, procurement contract administration that is, those that concentrate on risk management, relationship management, dispute management, monitoring, and control—affects the quality of FA construction projects. The decision to limit the framework to these four constructs is based on their proven relevance in the existing literature and their direct influence on procurement contract administration in construction projects, particularly in the context of FA projects. Each construct represents a critical aspect of procurement contract administration that has been consistently identified as pivotal to the success and quality attainment of construction projects. The underlying theory for these proposed relationships stems from the current corpus of literature, which primarily links procurement contract management and project performance, with a scant focus on their influence on the quality attainment of FA construction projects. Essentially, the conceptual model of this study fills this research gap by carefully examining four main hypotheses that assess the relationship between procurement contract

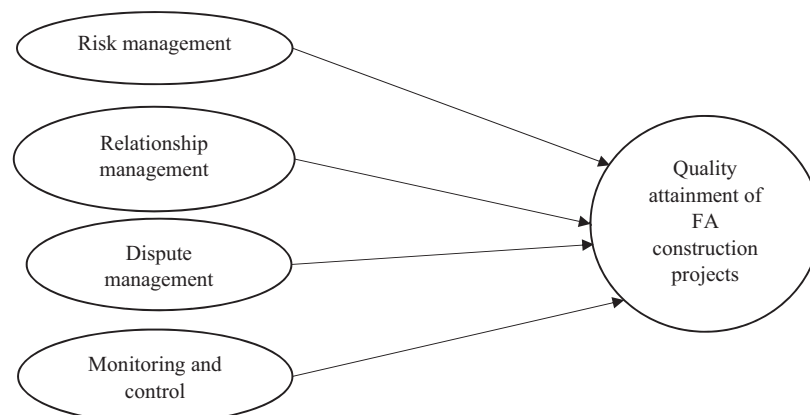


Figure 1. The conceptual framework.

administration and the quality attainment of FA construction projects.

3. Methodology

3.1. Research design and study area

The study employed a cross-sectional research design because it enabled the deployment of a sufficiently large number of people who were not geographically limited at a certain moment in time to identify the patterns and associations between variables (Changalima et al., 2021; Creswell & Creswell, 2018; Mushi et al., 2024). Furthermore, the design works well in this study because the main goal is to obtain a broad picture of the relationship between the variables rather than to record data on changes over time. This study was conducted in LGAs in Tanzania, specifically at primary schools in the Dodoma region. Primary schools were chosen because they have the most FA construction projects relative to other sectors (United Republic of Tanzania, 2022). For example, in Fiscal Year (FY) 2021/2022, a budget of TZS 2.71 billion was set up to build 237 primary school classrooms in the Dodoma region. Similarly, a budget of TZS 2.79 billion was allocated for classrooms and teacher houses construction in FY 2022/2023 in the Dodoma region (United Republic of Tanzania, 2022, 2023).

3.2. Sample and data collection

The study's target population consisted of 1800 respondents from 120 primary schools in eight LGAs in the Dodoma region and 15 members of the FA committee. The sample size was 327 respondents calculated using the Yamane formula as used in previous studies (Kazungu & Kubenea, 2023; Mwaizeje et al., 2024), considering a 95% confidence interval. However, the sample size of the study was 360 to increase the number of response rates, as suggested by Dolnicar et al. (2016), who reported that increasing the sample size can enhance the statistical power of the study. However, during the data collection process, only 318 individuals (88.3% of the total respondents) were able to provide their responses. In each selected primary school, simple random sampling was used to select 3 members of the FA committees from each selected primary school. This method was selected because it ensures that every member of the population (primary schools) has a fair chance of being chosen. By randomly selecting three members from each school, we created a

representative sample that correctly reflects the characteristics and variety of the primary school population. This reduces the bias and increases the generalizability of the findings (Noor et al., 2022). Members of the procurement committee, receiving and inspection committee, and construction committee were selected based on the fact that all FA construction activities are supervised and controlled by them. Hence, data were collected from the members of the FA committee formed by primary school teachers and representatives from the village committee.

The data collection phase was started after getting ethical research approval from Moshi Cooperative University with a letter of reference number MoCU/UGS/3/41 dated 24 February 2023. Furthermore, during the respondent's engagement in data collection, the survey uses an introduction letter that describes the intention of the researcher to collect data from the respondents for academic purposes only. All respondents were able to read and write. Hence, written consent was obtained from them by freely signing the informed consent form presented by the researcher. Therefore, the respondents were free to provide their opinions on the provided questionnaire without being forced. Data were collected using a questionnaire. This method allowed for quick collection of a large number of responses from the respondents (Creswell and Creswell, 2018). Before the main study, the questionnaire was pretested to assess its content validity with professional experts. A pilot study was conducted to ensure the clarity and comprehensiveness of the questionnaire. Twenty-five experts with at least five years of experience in FA projects were considered in a pilot study due to the fact that most individuals with relevant experience in managing FA construction projects have accumulated this expertise within the past five years. Feedback was obtained, and the questionnaire was improved for distribution in the main study.

3.3. Variable measurements

Risk management, relationship management, dispute management, monitoring, and quality control were included as independent and dependent variables. The design of the questionnaire was determined by the measurement items derived from earlier research, with minor modifications, following the scope of this research. Specifically, the variable risk management was evaluated using items adopted from Amoah and Pretorius (2019) and Serpell et al. (2017). Relationship management was evaluated using the measurement items developed by

Demirkesen and Ozorhon (2017). Dispute management was measured using the items adopted from Francis et al. (2022) and Elziny et al. (2016). Monitoring and control were determined using items derived from Kissi et al. (2019) and (2017). Furthermore, quality attainment items were obtained from Hoque and Hasan (2022).

3.4. Data analysis

Partial least squares structural equation modelling (PLS-SEM) was the main data analysis technique employed in this study. Thus, SmartPLS 4 was employed to analyze the quantitative data based on the primary goal of the investigation and the type of data collected. PLS-SEM is a second-generation technique that is frequently used to examine proposed relationships (Hair et al., 2019). This variance-based SEM technique is particularly useful when analyzing correlations between several constructs that contain both latent and observable variables. The growing need for more reliable quantitative approaches has been clearly expressed in the application of PLS-SEM in business research (Guenther et al., 2023). PLS-SEM is, therefore, highly appropriate because it is in line with the main area of investigation. Two distinct steps were performed during the analysis. First, the validity and reliability of the measurement model are evaluated. In the second step, the structural model was evaluated to determine the study's hypotheses and predictive usefulness. It is imperative to stress that the findings of this study provide a thorough presentation of the outcomes of both stages.

3.5. Common bias method (CMB)

Self-administered questionnaires were used in this study, from which a single respondent provided information regarding all items in the survey. This

methodology may have created bias, which is why Harman's single-factor test was conducted (Harman, 1967). This was done to determine if there was a dominating factor that accounted for most of the variance in all collected data. If this occurs, CMB are likely to arise. According to the analysis, there is no substantial CMB issue because only 34.61% of the explained total variance is associated with a single factor (Podsakoff et al., 2003). This result is because no single factor accounted for more than 50% of the variance. To detect bias, the study also closely examined the variance inflation factor (VIF) for the primary constructs. Since these VIF values were less than 3.3, there was no discernible bias introduced throughout the data-gathering process (Kock, 2015)

4. Findings

4.1. Respondents profile

The results in Table 1 indicate that the majority of participants in this study were members of Force Account (FA) committees involved in primary school construction projects. Most of the respondents were between 28 and 37 years old (44.7%, 142 individuals), followed by those aged 38–47 years (36.2%, 115 individuals), 18–27 years (11.9%, 38 individuals), and 48–57 years (7.2%, 23 individuals). The findings also reveal that the majority were male (70.1%, 223 respondents), with females making up 29.9% (95 respondents). In terms of education, 45.3% (144 respondents) held diplomas, 29.6% (94 respondents) had certificates, 23.5% (75 respondents) had bachelor's degrees, and 1.6% (5 respondents) had master's degrees. Additionally, 51.3% (163 respondents) had 4 to 6 years of experience in FA construction projects, while 48.7% (155 respondents) had between 1 to 3 years of experience. The data also show that 38.1% (121 respondents) were members of the

Table 1. Respondent's profile.

Demographics	Groupings	Frequency	Percentage (%)
Sex	Male	223	70.1
	Female	95	29.9
Education	Certificate	94	29.6
	Diploma	144	45.3
	Bachelor degree	75	23.6
	Master's degree	5	1.6
Age	18–27	38	11.9
	28–37	142	44.7
	38–47	115	36.2
	48–57	23	7.2
Experience in FA	1–3	155	48.7
	4–6	163	51.3
Type of FA committee	Receiving and inspection committee	111	34.9
	Construction committee	96	30.2
	Procurement committee	111	34.9

Table 4. Cross-loadings.

	DSL	MOC	QAL	RIM	RTM
DSL1	0.873	0.237	0.375	0.289	0.457
DSL2	0.901	0.299	0.393	0.251	0.48
DSL3	0.902	0.273	0.344	0.252	0.485
DSL4	0.858	0.256	0.300	0.201	0.454
MOC1	<u>0.282</u>	0.822	0.352	0.355	0.346
MOC2	0.272	0.873	0.398	0.373	0.354
MOC3	0.296	0.918	0.42	0.415	0.409
MOC4	0.185	0.847	0.328	0.331	0.404
QAL1	0.373	<u>0.367</u>	0.812	0.412	0.402
QAL2	0.331	0.333	0.794	0.426	0.32
QAL3	0.278	0.361	0.835	0.434	0.378
RIM1	0.293	0.334	<u>0.427</u>	0.822	0.251
RIM2	0.204	0.36	0.459	0.852	0.26
RIM3	0.248	0.393	0.433	0.812	0.215
RIM4	0.182	0.311	0.383	0.789	0.256
RTM1	0.370	0.355	0.363	<u>0.253</u>	0.757
RTM2	0.412	0.356	0.345	0.232	0.828
RTM3	0.464	0.385	0.443	0.274	0.881
RTM4	0.480	0.297	0.270	0.187	0.742

4.2 Structural model

This section presents the structural model results. These results are important for clarifying the proposed links (Figure 1). First, collinearity tests were performed to ensure that our analysis was efficient (Ringle et al., 2023). With values of 1.406 for monitoring and control, 1.270 for risk management, 1.583 for relationship management, and 1.429 for dispute management within the postulated relationships, the variance inflation factor (VIF) in the inner model revealed negligible collinearity. Since all values are substantially below the optimally recognized criterion of 3, these data confirm that collinearity is not a serious concern (Hair et al., 2019). To evaluate the strength and significance of the route coefficients following bootstrapping processes, this study employed the values of p and β (Ringle et al., 2023). Additionally, using the R^2 and f^2 values, the contributions of the predictive factors and the effect size of the route model were evaluated.

Four major hypotheses were tested in this study to validate the created model. Table 5 presents the structural model results along with the path coefficients and significance. All the hypotheses were confirmed by these results, which showed that risk management was strongly and highly correlated with the quality attainment of FA construction projects ($\beta = 0.354$, $t = 6.203$, $p < 0.001$), with an f^2 value of 0.165. This result supports the first hypothesis (H1). Moreover, the second hypothesis (H2), with an f^2 value of 0.042, was confirmed by the significant positive correlation between relationship management and quality attainment ($\beta = 0.200$, $t = 3.454$, $p = 0.001$). Determining the third hypothesis (H3), with an f^2 value of 0.026, dispute management is likewise positively significant for the quality

Table 5. Results of the structural model.

Relationships	β	t	p	Confidence interval		f^2	Decision
				Lower C.I	Upper C.I		
RIM -> QAL	0.354	6.203	0.001	0.243	0.466	0.165	Accepted
RTM -> QAL	0.200	3.454	0.000	0.086	0.317	0.042	Accepted
DSL -> QAL	0.151	2.544	0.011	0.036	0.266	0.026	Accepted
MOC -> QAL	0.151	2.418	0.016	0.026	0.270	0.027	Accepted

attainment of FA construction projects ($\beta = 0.151$, $t = 2.544$, $p = 0.011$). Finally, the quality attainment of FA construction projects is positive and significantly correlated with monitoring and control ($\beta = 0.151$, $t = 2.418$, $p = 0.016$), with an f^2 value of 0.027, thus supporting the fourth hypothesis (H4). Thus, only the effect of risk management on the quality attainment of FA construction projects had a medium effect (greater than 0.15) as the recommended range of f^2 , while the effects of dispute management, relationship management, and monitoring and control on the quality attainment of FA construction projects showed small effects (higher than 0.02) of f^2 values (Cohen, 1988)

Figure 2 displays the R^2 value for the dependent variable, which was 0.401. This indicates that approximately 40.1% of the variation in the quality attainment of FA construction projects can be attributed to the contract administration variables included in the study. The value in question is deemed sufficient in its ability to account for the extent of variation in quality attainment linked to procurement contract administration, as stated by Hair et al. (2021). The predictive accuracy of the PLS-SEM model was assessed using the Q2 value. A resulting value of 0.376 indicates that the model achieves medium predictive relevance (Hair et al., 2019). Please refer to Figure 2 for the partial least squares path model.

5. Discussion

The objective of this study is to assess the role of procurement contract administration in enhancing the quality of FA construction projects. The main findings reveal that procurement contract administration is an important factor in achieving quality in LGAs in Tanzania. Risk management positively influences the quality of FA construction projects. A possible explanation is based on the fact that, through proper ways of identifying, assessing, and mitigating potential risks across the project lifecycle, construction teams were able to prevent and address issues that could compromise quality to ensure that the execution of the project was conducted efficiently.

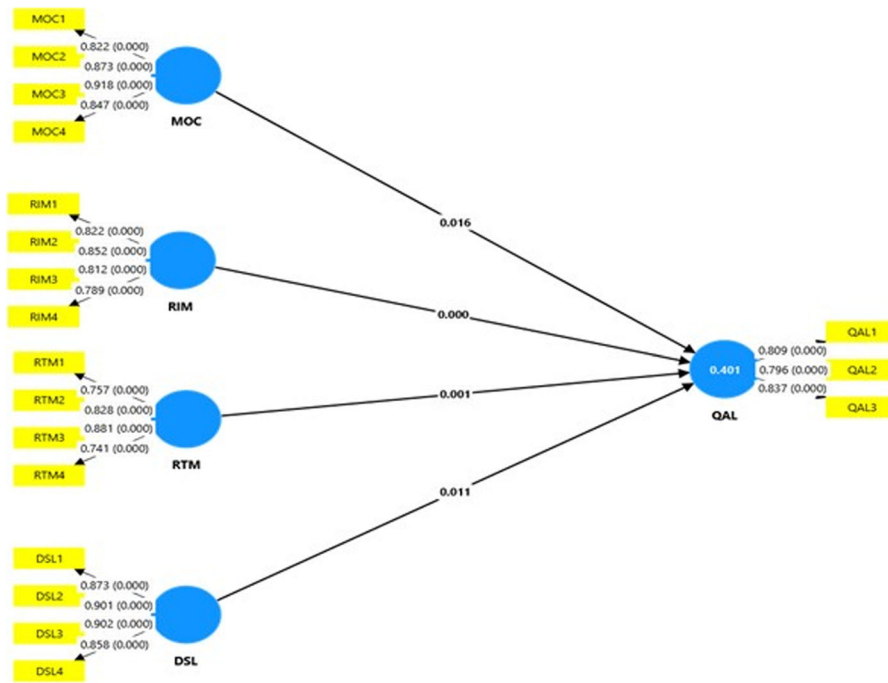


Figure 2. The structural model.

Furthermore, the implementation of effective risk management strategies fosters greater accountability and transparency among project stakeholders, facilitating clearer communication channels and collaboration. This proactive approach not only minimized the occurrence of costly errors and delays but also enhanced the overall efficiency and effectiveness of force-account construction projects. Suppose that the project teams were able to manage risk early during the execution of the project. In that case, there is the possibility of the project being completed on time, within the desired budget, and with quality achievement (Amoah & Pretorius, 2019). This study emphasizes the critical role of risk management in enhancing project quality standards and pinpoints its crucial contribution towards successful project delivery in the construction industry.

This result aligns with studies that emphasize the importance of risk management strategies in construction projects (Darko et al., 2020; Serpell et al., 2017). Although the study's results are consistent with the previously cited literature, they add important new information about the function of risk management, particularly within the framework of FA construction projects in public procurement, particularly in LGAs.

Moreover, relationship management and the quality attainment of FA construction projects in LGAs are related. The findings reveal that relationship management, as a mechanism of ensuring open and clear communication, increasing trust among project

participants, and promoting collaboration among team members (Safapour et al., 2021), positively and significantly affects the quality of FA construction projects. The relationship is significant because the procuring entity can identify and mitigate risks in projects through relationship management as participants in the project collaborate and provide feedback on risk occurrence and mitigation strategies (Demirkesen & Ozorhon, 2017; Martin & Benson, 2021). Thus, relationship management is a means of improving the quality of construction projects and ensuring that they are completed according to the intended objectives. In FA construction projects, if the project participants collaborate and work together as a team, quality attainment can be achieved because all issues that hinder achievement can be solved collaboratively at a time.

The results of Daboun et al. (2023) align with the current findings. Studies have revealed that there is indeed a significant connection between relationship management and the performance of construction projects. Specifically, this research highlights that Relationship Management positively influences construction project success by fostering collaboration, strengthening relationships, and ultimately enhancing project performance. Numerous studies have demonstrated that organizations experience a higher level of performance in building projects if there is a good collaboration environment with contractors and all stakeholders involved in construction projects (Ling & Khoo, 2016; Meng & Boyd, 2017; Yang et al.,

2023). Therefore, incorporating relationship management as a part of procurement contract administration remains important for increasing the quality of FA construction.

The findings indicate that dispute management and quality attainment of FA construction projects are positively related. Thus, dispute management is a relevant means of improving the quality of FA construction. This relationship can be explained by the fact that effective dispute management enhances collaboration and transparency in the working environment, which is very important for ensuring the quality standards of projects. When the project management team is able to manage disputes efficiently, it is possible to minimise disruptions and delays, ensuring that the project timeline remains on track and that resources are utilised effectively (Tabish & Jha, 2023; Wang et al., 2023). Furthermore, proactive dispute resolution usually includes clear documentation and communication, which improves general project supervision and responsibility (Wang et al., 2023). This careful attention to dispute-solving makes it possible to identify and resolve possible quality problems. A proper dispute resolution procedure also increases confidence among the parties involved, which promotes a team's dedication to the project goals and quality standards. Project teams may concentrate on following quality standards and best practices by quickly and equitably resolving disputes, which eventually results in better project outcomes.

Thus, dispute management, as among procurement contract administration practices, is crucial as it enhances collaboration and communication and hence reduces disruptions in the implementation of construction projects. This is relevant to the strong relationship observed between dispute management and the quality attainment of FA construction projects.

Existing literature supports the importance of dispute management in influencing the quality of FA construction projects. Elziny et al. (2016) explored how dispute resolution affects the performance of construction projects. Moreover, dispute management practices may result in timely project completion and quality achievement (Tabish & Jha, 2023). Therefore, an emphasis on dispute management in FA construction projects can enhance quality.

Finally, the findings indicate a positive and significant relationship between monitoring and control with the quality attainment of FA construction projects. This relationship is based on the fact that effective monitoring ensures that the project adheres

to its planned schedule, budget, and specifications, identifying and addressing potential issues promptly before escalating. Control mechanisms, such as regular inspections, compliance checks, and progress reviews, provide a structured approach to managing resources and workflows, thereby reducing errors and rework (Unegbu et al., 2022). This systematic oversight enhances communication among stakeholders, facilitates better decision-making, and ensures that quality standards are consistently met throughout the project's lifecycle. Consequently, rigorous implementation of monitoring and control practices leads to higher quality outcomes in FA construction projects. Additionally, these practices enable better resource management, ensuring that materials and labor are used efficiently and effectively, which contributes to the overall quality of FA construction projects. By maintaining tight control over the project schedule and budget, the FA management team can allocate resources where they are most required to uphold quality standards.

Numerous studies highlight the importance of constructing projects for effective monitoring and control procedures (Kissi et al., 2019; Obondi, 2022). In building projects, achieving quality and project success requires the effective application of monitoring and control techniques (Callistus & Clinton, 2018). Moreover, poor quality, delays, price overruns, and project discontent can result from neglect of monitoring and control technologies in building projects. Thus, as shown in the literature, incorporating strong monitoring and control is essential for improving the quality of FA construction projects.

6. Conclusion

The construction industry is highly criticized for its poor performance, as projects are completed with cost overruns, delays, and quality problems. Hence, more awareness of performance achievements needs to be created among people involved in construction activities because the primary goal of the construction project is to achieve project success. This study used quality attainment as part of the performance metrics of construction projects. Hence, this study proposes four hypotheses for procurement contract administration to measure the quality attainment of FA construction projects. Data were gathered using a questionnaire survey. PLS-SEM was used to validate the model and test the hypotheses. The study's findings revealed that all measurements of procurement contract administration, such as risk management, relationship management, dispute

management, and monitoring and control, are positive and significant relative to the quality attainment of FA construction projects. Hence, the study concluded that procurement contract administration is important for achieving the quality attainment of FA construction projects. The construction management team should invest time, effort, and resources to implement and strengthen procurement contract administration practices to achieve the intended quality of the projects. The challenges of cost overruns, delays, and quality issues are common worldwide, and the study's findings can be applied universally. By adopting and integrating strong procurement contract administration practices, construction teams and stakeholders around the world can enhance project quality and performance. Therefore, FA construction project stakeholders including FA committee members, procurement practitioners, and organizational management are encouraged to implement these practices not only to achieve quality attainment but also to ensure the overall success of construction projects global.

7. Implication of the study

The findings of this study have significant implications for the construction industry, particularly in the context of FA construction projects. By explaining the positive and significant impact of procurement contract administration, encompassing risk management, relationship management, dispute management, and the monitoring and control of quality attainment, this study emphasises the critical need to enhance procurement contract administration practices. Consequently, construction management teams must use their efforts, time, and resources to enhance the quality of FA construction projects through proper procurement contract administration. This focus is important for mitigating common quality deficiencies, as all issues that affect quality are determined early. Moreover, the study's findings provide practical insights for FA project stakeholders, including FA committee members, procurement practitioners, and organizational management, to prioritize and refine their efforts towards achieving good project performance. By adopting and integrating these procurement contract administration practices, stakeholders can not only enhance quality attainment but also improve the overall success of their FA construction projects, thus addressing the prevalent performance challenges within the construction sector. While the study is highly relevant to the local context, it has broader global implications.

The emphasis on improving procurement contract administration for better project performance can be applied to construction sectors in other regions where similar challenges may exist. Therefore, this study's contributions extend beyond its immediate setting, providing valuable insights for global construction industries striving to enhance project quality and performance.

8. Limitations and future scope of study

This study focuses on FA construction projects within LGAs in the Dodoma region of Tanzania, which limits the generalizability of the findings to other types of construction projects or geographical locations that use different laws and regulations to govern FA construction projects. This study measures the direct relationship between the variables; future studies should consider the mediating or moderating variables. Similarly, future research should consider other types of construction projects to measure the impact of procurement contract administration on quality. In addition, the study considered only quality attainment as a project performance measure, which was limited to other measures of project performance, such as stakeholder satisfaction, cost, and time dimensions, which future studies should consider. Furthermore, incorporating longitudinal data could provide deeper insights into the long-term impact of procurement contract administration practices on project quality.

Ethical approval

The research obtained ethical approval from the Moshi Cooperative University through its ethical committee with the reference number MoCU/UGS/3/41.

Authors' contribution

Shadrack Mwaizeje was involved in conceptualisation, data collection, methodology, data analysis and writing the draft of the research paper. Alban Mchopa, Faustine Panga, and Mathias Nkuhi were involved in supervision, reviewing and editing. All authors have read and approved the final version of Manuscript

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About the authors

Shadrack S. Mwaiseje is an Assistant Lecturer at College of Business Education, Tanzania working in the Department Procurement and Supply Management. He is a certified procurement and supplies professional holding a Master of science in Procurement and Supply Chain Management and Bachelor of Arts in Procurement and Supply Management. Current is pursuing PhD studies at Moshi cooperative University. His areas of interest and expertise include public procurement; contract management; strategic procurement; supply chain management; procurement auditing and logistics management

Alban D. Mchopa is a Senior Lecturer at Moshi o-operative University, Tanzania working in the Department Procurement and Supply Chain Management. He is a certified procurement and supplies professional holding a PhD, Master of Science in Procurement and Supply Chain Management, and Bachelor Degree in Procurement and Supply Management. is areas of interest and expertise in research include public procurement; procurement reforms; electronic procurement; procurement and supply audit; and donor funded procurement.

Faustine P. Panga is a Senior Lecturer at Moshi o-operative University, Tanzania working in the Department Procurement and Supply Chain Management. He is a certified procurement and supplies professional holding a PhD, Master of Science in Procurement and Supply Chain Management, and Bachelor Degree in Procurement and Supply Management. is areas of interest and expertise in research include sustainable procurement; public procurement; procurement reforms; electronic procurement; procurement and supply audit; and donor funded procurement.

Mathias S. Nkuhi is a senior academic at the Department of Law, Moshi Co-operative University (MoCU). He is also a researcher and consultant. He holds the Doctor of Philosophy (Ph.D) in Law Degree of the University of Mysore, India. He is also a holder of the degrees Master of Laws (LL.M.) and Bachelor of Laws (LL.B.) from University of Dar es Salaam, and Mzumbe University respectively. Dr. Nkuhi is also a holder of Postgraduate Diploma in Legal Practice (Law School of Tanzania). He is an advocate of the High Court and Courts subordinate thereto. He has been in service since 2010. He has been involved in teaching, research, consultancy and legal practice in diverse facets. Dr. Nkuhi has participated as a team member and successfully executed several consultancy undertakings, nationally and internationally.


ORCID

Shadrack Samwel Mwaiseje  <http://orcid.org/0000-0002-8713-5877>

Alban Dismas Mchopa  <http://orcid.org/0000-0001-8547-6267>

Faustine Peter Panga  <http://orcid.org/0000-0002-3626-5241>

Data availability statement

The data used in this will be made available upon reasonable request from the corresponding author Shadrack Samwel Mwaiseje with the email  mwaiseje@gmail.com

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