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Strategic market approaches and project procurement performance: The moderating role of supply market intelligence in world bank-financed projects in Tanzania

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Abstract
The World Bank Group plays a significant role in financing and supporting the implementation of development projects across many developing countries. Moreover, 15% of these projects experiences delays, cost overruns and quality issues worldwide. Therefore, this study examines the moderating role of Supply Market Intelligence (SMI) in the relationship between market approaches (PM) and project procurement performance (PPP) in World Bank-financed projects in Tanzania. Grounded by Dynamic Capabilities Theory and Transaction Cost Economics theories, quantitative cross-sectional survey design was employed, primary data collected through a structured questionnaire from 181 Project Implementation Unit (PIU) staff from World Bank-financed projects in Dar es Salaam and Dodoma. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS 4. The findings reveal that market approaches are positively and significantly associated with project procurement performance, indicating contribution to improvement of cost-efficiency, quality, and timely project delivery. However, SMI negatively moderates the relationship between PM and PPP, suggesting that excessive or poorly integrated market intelligence may increase information-processing demands, procedural complexity, and coordination challenges within highly regulated procurement environments. The study concludes that while PM is positively associated with PPP, SMI is not universal beneficial. Projects should develop staff skills and capacity to collect, analyse, interpret and use supply market intelligence in context-based. This study recommends that, PIU to strengthening procurement analytical capabilities and skills that focus on collecting relevant, timely, and decision-oriented market intelligence that directly supports procurement strategic decisions while avoiding unnecessary information gathering that may increase administrative burden and delay procurement processes.

Introduction
Public procurement has increasingly evolved from a transactional function into a strategic mechanism for delivering infrastructure, public services, and sustainable development outcomes. Governments and international development agencies invest billions of dollars annually (with the World Bank

Group remaining the largest source of development financing) through procurement systems to achieve value for money, transparency, accountability, and timely project implementation (Onserio et al., 2021). Despite continuous reforms in procurement legislation and institutional capacity, many publicly funded projects continue to experience cost overruns, implementation delays, contractual disputes, and quality deficiencies, particularly in developing economies (Public Procurement Regulatory Authority of Tanzania - PPRA, 2021). These persistent challenges suggest that conventional procurement approaches alone are insufficient for improving project performance in increasingly dynamic and uncertain supply markets. The growing complexity of procurement environments has shifted attention towards market-oriented approaches that enable procuring entities to make informed sourcing decisions. Market approaches (PM) have received increasing attention as procurement strategies that encourage competition, supplier engagement, market responsiveness, and value creation throughout the procurement cycle (Matwa, 2023). Such approaches emphasise understanding market dynamics before procurement decisions are made, thereby improving supplier participation and procurement effectiveness. However, Gatari et al. (2022) argues that PM do not fit all situations, as different countries have different political, social, economic, and legal systems which support the Dynamic Capabilities Theory (DCT) and Transaction Cost Economics (TCE) theories' assumptions. Focus should be moved to process of implementation of market approaches and how context-based Supply Market Information (SMI) applied to support market approaches (Vishnoi et al., 2019). Although market-oriented procurement has been widely promoted by international development organisations, empirical evidence explaining whether SMI influences the effectiveness of PM remains limited. Coupled with DCT argument that SMI is context-specific, there is a need for new study on unlocking its role enhancing the relationship between PM and project procurement performance (PPP). Existing studies have primarily examined the direct effects of procurement practices on organisational or project performance, with comparatively little attention given to the contingent association of market intelligence in strengthening or weakening these relationships (Uwiringiyimana & Dieu, 2024: Cao & Wang, 2022). This represents an important gap in procurement and project management literature.

Supporting theoretical argumentation, Dijmarescu, (2024) argued that SMI, as the systematic collection, analysis, and utilisation of information regarding suppliers, market conditions, technological developments, pricing trends, and competitive dynamics, has emerged as a strategic capability that supports evidence-based procurement decisions. By reducing information asymmetry and enhancing market transparency, SMI enables procurement professionals to identify capable suppliers, anticipate market changes, strengthen negotiation strategies, and manage procurement risks more effectively. Consequently, TCE posits that organisations that effectively utilise market intelligence are expected to achieve superior procurement and project outcomes. Nevertheless, the benefits of SMI remain inconclusive. While previous studies generally associate SMI with improved procurement efficiency, supplier-selection, innovation, and organisational performance, emerging evidence suggests that its influence may not always be uniformly positive (Vishnoi et al., 2019). Excessive, outdated, fragmented, or poorly interpreted market information can increase decision complexity, delay procurement processes, and even weaken managerial judgement. In highly regulated procurement environments, where compliance requirements constrain procurement flexibility, extensive market intelligence may not necessarily translate into better project outcomes. These mixed findings indicate that the effectiveness of SMI is likely to depend on how it interacts with specific procurement strategies rather than exerting a universally positive influence. Moreover, although SMI has been increasingly recognised as strategically important by theory, its moderating role in shaping the effectiveness of market approaches remains under-explored, with prior studies

focusing mainly on private-sector or supplier-selection contexts rather than development-financed projects. The Tanzanian context provides an appropriate setting for examining this issue.

World Bank Group and Tanzania has undertaken substantial procurement reforms through modernisation of public procurement regulations and increased adoption of international procurement standards to manage development projects (URT, 2023). Despite of procurement reforms, 15% of projects experiences delays, cost overruns and quality issues worldwide (World Bank, 2022). Moreover, National Audit Office of Tanzania (NAOT) reports (2020; 2022; 2023) and Public Procurement Regulatory of Tanzania (PPRA) reports (2019, 2020 & 2021) shows projects delays, poor quality and project overbudget. Further, in 2024 projects still evidenced with delays, quality issues and cost overrun (NAOT, 2024). These projects involve complex procurement activities characterised by multiple stakeholders, international competition, stringent donor regulations, and rapidly changing supply markets. Under such conditions, procurement decisions increasingly depend on access to timely and reliable market intelligence (Ozyurek & Erdal, 2025). However, limited empirical evidence exists regarding whether SMI consistently enhances the effectiveness of PM within donor-financed procurement environments. Consequently, considering these arguments, there is a pronounced contextual and theoretical gap concerning World Bank-financed projects, which operate under distinctive procurement arrangements characterised by stringent donor regulations, multiple stakeholders, and dual compliance requirements. While persistent procurement performance challenges are well documented in such projects, little is known about the mechanisms through which market approaches influence performance outcomes, or how context-specific SMI conditions these relationships.

Addressing the gap, this study investigates whether SMI matters differently by examining its moderating role in the relationship between PM and PPP in World Bank-financed projects in Tanzania. Unlike previous studies that primarily focus on direct relationships, this research explores the conditional influence of SMI, providing new insights into when market intelligence strengthens or weakens procurement effectiveness. Therefore, the study examined how PM relate to the World bank-financed PPP. Further, it determined the moderating role of SMI on the relationship between PM and World bank-financed PPP. The findings contribute to procurement and project management literature by advancing contingency-based explanations of procurement performance. It further offers, practical guidance to procurement professionals, policymakers, and international development partners that, institutional rigidity limits the positive value of intelligence in world bank-financed projects.

Theoretical Review

Transaction Cost Economics (TCE)

Originally developed by Oliver E. Williamson in 1979, Transaction Cost Economics posits that organisations seek PM that minimise the costs associated with planning, negotiating, monitoring, and enforcing transactions under conditions of uncertainty, bounded rationality, and opportunism (Williamson, 1979). Within project procurement, different PM such as open competitive bidding, restricted tendering, and direct procurement represent designed to balance transaction costs against procurement objectives. The theory suggests that no single PM is universally superior; rather, the most effective approach depends on the characteristics of the procurement transaction, including market complexity, supplier availability, project risk, and asset specificity (Ghadamsi & Braimah, 2016). Accordingly, TCE predicts that selecting an appropriate PM improves procurement performance by reducing unnecessary costs, minimising delays, and enhancing procurement efficiency. However, TCE primarily explains the selection of PM and provides limited insight into the organisational capabilities required to make effective procurement decisions in rapidly changing supply markets.

Dynamic Capabilities Theory (DCT)

DCT developed by Teece and Pisano (1994) supports moderation variable. Theory argues on the importance of organisation to accommodate business changes through its internal and external capabilities. DCT aligns with SMI concept, as it responds to the business environment for best procurement decisions (Kakwezi & Nyeko, 2019). Theory addresses limitation caused by changing supply markets by arguing that sustainable organisational performance depends on the ability to sense opportunities and threats, seize emerging opportunities, and continuously reconfigure organisational resources in response to environmental change. In procurement settings, this capability is reflected in the organisation's ability to gather, analyse, and utilise supply market information to support strategic decision-making. SMI therefore constitutes a dynamic capability that enables procurement professionals to monitor supplier markets, identify technological developments, anticipate price fluctuations, evaluate supplier capabilities, and respond proactively to changing procurement conditions. Procurement performance requires dynamic capabilities to function efficiently and effectively and to improve project performance (Karttunen, 2023). By having enough required information procurement experts can select best market approaches to enhance PPP (The World Bank, 2025). However, how enough is enough? Since DCT caution that excessive use of SMI can be detrimental to procurement decisions' ability in relating to performance (Musiba et al., 2026). Integration of these two theories explains how reduction of transaction cost in procurement process is not solely and automatic function of market approaches, rather by capacity of project implementation unit to use appropriate SMI. These theories suggest that effective procurement performance is achieved not only by selecting appropriate PM but also by possessing the capability to implement those approaches under prevailing market conditions.

Empirical Review and Hypotheses Development

PM and PPP

PM refer to the strategic mechanisms through which procuring entities engage suppliers and organise competition to acquire goods, works, and services (Cao & Wang, 2022). Different PM may generate different procurement outcomes because they involve different transaction cost structures and coordination requirements. By encouraging effective competition, improving supplier participation, reducing procurement risks, and aligning procurement strategies with project requirements, market approaches can enhance cost-efficiency, improve quality, and reduce procurement lead time. Empirical evidence generally supports the proposition that appropriate market approaches contribute positively to project procurement performance (Habibi et al., 2019; Karami, 2026).

Studies from international contexts also show similar results. According to Hegen et al. (2017), on their study on the effects of introducing competitive tendering on prices in private for-profit (PFP) hospitals in Norway. Using descriptive statistics, it was found that PFP hospitals performed day surgeries at lower prices than public hospitals. Equally, Yarmukhamedov (2020) used econometric techniques to examine if efficiency differences remained between state providers and private entrants following competitive tendering in Sweden. Results indicates that substantial savings could be achieved by opening road maintenance services to private-sector competition through competitive tendering. Another study done by Odeck and Høyen (2020) using an econometric to investigate the impact of competitive tendering on operational costs and market concentration in Norwegian public car ferry services shows that competitive tendering significantly reduced operational costs while increasing market concentration. These reflections are relevant to the current study because it recommends that the values of market approaches depend not only on the procurement mechanism itself but also on the characteristics and dynamics of the supply market. These studies underpin the cost-efficiency

dimension of market approaches, but they also highlight an important contextual limitation for the current study which cannot be generalised under World Bank procurement systems. Therefore, the current study extends this line of inquiry by examining whether the adoption of appropriate PM is associated with World Bank-financed PPP in Tanzania.

African contexts on public procurement also support these findings. Ofori and Dadzie (2024) examined the relationship between transactional costs, competitive tendering and public procurement performance in Accra, Ghana. Using an explanatory research design, study found that competitive tendering had a positive and significant influence on procurement performance, while competitive tendering was also positively and significantly associated with transactional costs. Same time when Maraka and Osoro (2024) examined competitive tendering and service delivery in Turkana County, Kenya, using a descriptive research design found a statistically significant relationship between competitive tendering and service delivery. Andika et al. (2021) similarly investigated the influence of competitive tendering on the performance of devolved systems of government in Kenya. Using a cross-sectional survey approach, the study found that successful execution of competitive tendering was associated with improved performance of devolved government systems. These studies are related to the current study because they strengthen the proposition that market approaches can enhance procurement outcomes. Nevertheless, the studies did not consider the distinctive governance, compliance and implementation characteristics of World Bank-financed projects. Consequently, the current study extends this evidence by examining the market approach and World Bank-financed project procurement performance.

Existing empirical evidence remains inconclusive. While several studies demonstrate positive effects of market approaches on procurement performance, others report insignificant or even negative relationships (Jillo et al., 2024; Musshoff, 2020; Jalagan et al., 2020; Lisa Chever et al., 2017). Jillo et al. (2024) investigated factors influencing procurement methods, legal awareness and procurement performance in public hospitals using a descriptive research design. Results shows no relationship between procurement methods and procurement performance. This contradictory evidence indicates that the relationship between market approaches and performance may not be universal across every institutional setting. Such inconsistencies imply that the effectiveness of PM is contingent upon contextual factors rather than the procurement arrangements themselves. Therefore, the performance of PM is expected to vary according to the level of organisational capability supporting their implementation. This gap is directly relevant to the current study, which introduces Supply Market Intelligence as a contextual variable in World Bank-financed projects.

SMI as a moderator

SMI refers to an organisation's capability to systematically acquire, analyse, interpret, and utilise information concerning supplier capabilities, market conditions, pricing trends, technological developments, and procurement risks to support strategic procurement decisions (Vishnoi et al., 2019). As an organisational capability, SMI enables procuring entities to reduce information asymmetry, improve market transparency, and make evidence-based procurement decisions. SMI has increasingly been recognised as an important contextual factor that influences the effectiveness of procurement strategies rather than directly determining procurement performance. Empirical evidence generally supports the strategic importance of supply market intelligence. Previous studies have shown that organisations possessing stronger market intelligence capabilities achieve better supplier-selection, procurement efficiency, operational performance, and supply chain resilience (Vishnoi et al., 2019; Dijmarescu, 2024). These studies argue that market intelligence enhances procurement effectiveness by improving decision quality and reducing uncertainty. However,

emerging literature also suggests that the influence of SMI is not necessarily linear or universally positive (Musiba et al., 2026).

Moreover, previous studies on market intelligence (Neirrotti et al., 2016; Al Shawabkeh, 2024) have been conducted predominantly in other contexts, providing limited evidence from World Bank-financed projects characterised by stringent procurement regulations, multiple stakeholders, and complex governance arrangements. With this regard, whether SMI strengthens or weakens the relationship between market approaches and project procurement performance remains an empirical question requiring further investigation. Therefore, this study examines the moderating role of SMI in the relationship between PM and World Bank-financed PPP in Tanzania. Rather than assuming that SMI always enhances procurement effectiveness, the study recognises that its influence may vary depending on how market intelligence is generated, interpreted, and integrated into procurement decision-making within donor-funded procurement environments.

Conceptual framework

The conceptual framework is developed to show the relationship between the study's variables. The independent variable PM and dependent variable PPP (indicated by cost, quality and time efficiency). The model is integrated by a contextual moderator (SMI) as presented in figure 1 to provide a nuanced understanding of the PPP-PPP link.

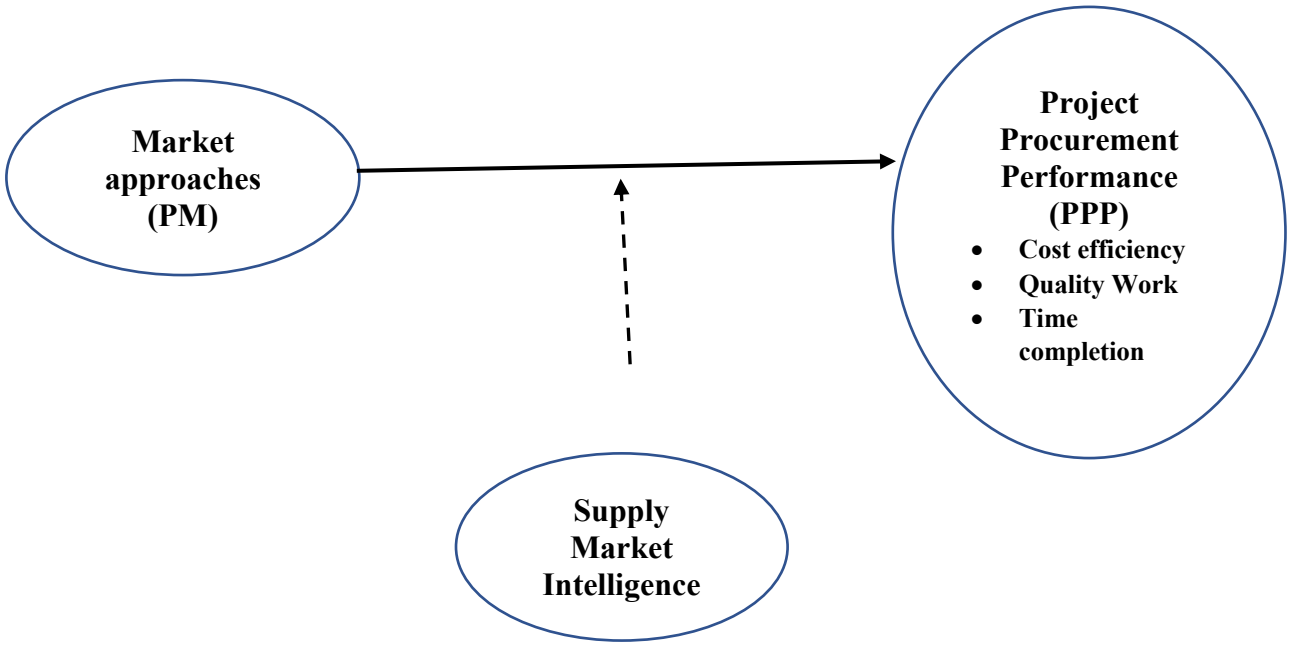


Figure 1: Conceptual framework: Source Authors' elaboration

Methodology

Research Design

This study adopted a quantitative research approach using a cross-sectional survey to test study hypotheses. (Saunders et al., 2019). A quantitative approach was considered appropriate because it enables to test and examine relationships among variables using statistical modelling. The cross-sectional design facilitated the collection of data from PIU at a single point in time, making it suitable

for investigating organisational practices and perceptions across multiple projects (Creswell & Creswell, 2023).

Study Area

The study area was Dar es salaam and Dodoma. Depending on the data available from World Bank, 37 Project Implemented Units (PIUs) are found in the government offices located in Dodoma and Dar es salaam. The intended subproject's participants are found mostly in Dodoma and Dar es salaam. In addition, according to (National Audit office of Tanzania, 2023, 2024; 2020) these projects experienced delays, cost overruns and questionable quality.

Study Population

The target population comprised Project Implementation Unit (PIU) staff from World Bank-financed projects located in Dar es salaam and Dodoma regions of Tanzania. These included project coordinators, procurement specialists, procurement officers, project managers, contract managers, engineers, finance officers, monitoring and evaluation officers, and other professionals directly involved in procurement decision-making.

Sampling and sample Size

Based on reviewed project appraisal documents, most of projects have range of 5 to 10 staff, moreover other projects are implemented by more than one institution which each institution has its own PIU (eg. Higher education for economic transformation project - HEET implemented by 17 institutions). The research used Yamane formula of 1967 by Yamane (Yamane, 1967) for sample size. Sample size (n) = N/ [1+N (e2)]. Whereby: N: total population size; and e: error of tolerance (e = 0.05). Available details through project appraisal document helped to determine sample size; n= 640/ [1+640 (0.052)]. The calculated sample size was 246 respondents. A purposive sampling was used in selecting respondents who are involved in procurement decision-making (Gordon, 2000; Wang et al., 2023).

Data Collection

Primary data were collected using online structured questionnaire comprising closed-ended questions measured on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The questionnaire was developed from validated scales reported in previous procurement and supply chain management studies and adapted to the context of World Bank-financed projects. Prior to the main survey, the instrument was reviewed by procurement experts and academic researchers to establish content validity and improve clarity.

Measurement of Variables

PM constituted the independent construct, PPP the dependent variable, and SMI the moderating variable. PPP was operationalised using three widely accepted dimensions: cost-efficiency, quality performance, and timely project completion (Matto et al., 2021). SMI was measured as the organisational capability to collect, analyse, and utilise market information for procurement decision-making (Gatari et al., 2022; Vishnoi et al., 2019). All constructs were modelled as reflective latent variables because their indicators represented manifestations of the underlying concepts.

Data Analysis

The data were analysed using SmartPLS version 4 following the two-step Partial Least Squares Structural Equation Modelling (PLS-SEM) procedure recommended by Hair et al. (2022). PLS-SEM was selected because it is appropriate for prediction-oriented research, accommodates complex models incorporating moderation effects, imposes minimal distributional assumptions, and performs well with relatively moderate sample sizes. The first stage involved evaluating the measurement model. Following satisfactory assessment of the measurement model, the structural model was evaluated. Path coefficients were estimated using the bootstrapping procedure with 5,000 bootstrap

resamples to determine the significance of the hypothesised relationships. Where a significant interaction effect was observed, a simple slope analysis was performed to facilitate interpretation of the moderation effect.

Ethical Considerations

Ethical approval of this study was granted by the University of Dodoma Ethics Committee (Institutional Research Review Ethics Committee-IRREC) with approval dated March 24 2025 with reference number: MA.84/261/87/80. Research procedures were followed in accordance with the requirement of ethical regulations and guidelines of the University of Dodoma (UDOM) and the principles outlined in the Declaration of Helsinki". Moreover, due to the low-risk nature of the study, verbal consent acquired in complying with institutional protocol prior to data collection and it was considered ethically appropriate.

Results

Demographic results

Respondents included male (77.3%) and female (22.7%) PIU staff, and males making a higher part. High number of respondents were procurement experts (55.2%), trailed by engineers (18.2%), and project managers (6.6%). The educational background indicates that most PIU possessed master's degrees (61.9%) and bachelor's degrees (36.5%), and only two respondents had a PhD (1.1%). Responses originated from projects implemented in the Education Sector (32.6%), Transport sector (27.6%), service sector (18.8%), energy sector (12.2%), water sector (7.7%), and others (1.1%). Respondents experiences varies from those with most experiences of over ten years (72.37%), zero to five years (4.97%), and six to ten years of experience (22.65%) in World bank-financed projects, as shown in Appendix 8.

Common Method Variance (CMV)

According to Kock (2015), common method variance (CMV) is an occurrence caused by the measurement method in an SEM study, particularly self-responses to Likert-type scales in a questionnaire and instructions by the researcher. The variance inflation factors (VIFs) in PLS- SEM are recommended to measure CMV because of their capability to detect both vertical and horizontal collinearity at once (Kock, 2015). The VIF values in Table 2 were less than the threshold of 5 recommended (Hair et al., 2017). As a result, it can be affirmed that the collinearity was limited in the construct model, suggesting that the model was free of common method bias and allowed to proceed with subsequent analysis.

Measurement Model Assessment

The reflective measurement model was assessed following the guidelines of Hair et al. (2022), focusing on indicator reliability, internal consistency reliability, convergent validity, and collinearity. Indicator reliability was evaluated using outer loadings, whereas internal consistency reliability was assessed using Cronbach's alpha (CA) and Composite Reliability (CR). Convergent validity was examined using the Average Variance Extracted (AVE), while collinearity among indicators was assessed using Variance Inflation Factors (VIF).

As presented in appendix 1, the measurement model demonstrated satisfactory psychometric properties. Cronbach's alpha and Composite Reliability values ranged from 0.802 to 0.887, exceeding the recommended threshold of 0.70 while remaining below the upper limit of 0.95, indicating satisfactory internal consistency reliability (Hair et al., 2022; Aburumman et al., 2023). Indicator loadings ranged from 0.672 to 0.876. Although a few indicators were marginally below the preferred threshold of 0.70, all exceeded the minimum acceptable value of 0.60 and were retained because they contributed to satisfactory construct reliability and convergent validity. Convergent validity was

supported by AVE values ranging from 0.568 to 0.657, all exceeding the recommended threshold of 0.50, indicating that each construct explained more than half of the variance of its respective indicators. Furthermore, VIF values ranged from 1.471 to 2.705, well below the conservative threshold of 3.3 and substantially below the maximum acceptable value of 5.0, suggesting that multicollinearity was not a concern. Overall, the results demonstrate that the measurement model satisfies the recommended criteria for indicator reliability, internal consistency reliability, convergent validity, and collinearity.

Discriminant validity assessment

Discriminant validity was assessed using three complementary criteria: cross-loadings, the Fornell–Larcker criterion, and the HTMT, as recommended by Hair et al. (2022). Employing multiple approaches provides more robust evidence that the latent constructs are empirically distinct and capture different theoretical concepts. Appendix 2 shows that all indicators loaded more strongly on their respective constructs than on any other construct, thereby satisfying the cross-loading criterion for discriminant validity. Furthermore, the Fornell–Larcker criterion was achieved, as the square root of the AVE for each construct exceeded its correlations with all other constructs, indicating that each construct shared more variance with its own indicators than with other latent variables. The HTMT analysis further confirmed discriminant validity. All HTMT values were below the recommended threshold of 0.90 (Hair et al., 2022), demonstrating adequate discriminant validity and indicating that the constructs were empirically distinct.

Structural Model Assessment

Direct-Effect of PM on PPP (H1)

Following the recommendation of Magno et al. (2022), a standardised path coefficient (β) greater than 0.10 indicates a meaningful relationship, while statistical significance is determined by the t-statistic and p-value. As presented in Appendix 3 and Table 2, the results reveal that PM exert a positive and statistically significant effect on PPP ($\beta = 0.321$, $t = 4.767$, $p < 0.001$). Since the path coefficient exceeds the recommended minimum threshold and the p-value is below 0.05, H1 is supported. The findings indicate that appropriate PM is associated with improved World Bank-financed PPP specifically in terms of cost-efficiency, quality, and timely project delivery.

Table 2: Results of Hypothesis Testing - Direct Relationship

Hypothesis	Path	Original (β)	Sample	Standard Deviation	T-Statistics	P Values	Decision
H1	PM → PPP	0.321		0.067	4.767	0.000	Accepted

Source: *SmartPLS 4*

Moderating Effect of SMI (H2)

Result of internal consistency show CA value of 0.884 for PM, 0.792 for PPP and 0.915 for SMI. CR value was 0.887 for PM, 0.852 for PPP and o.931 for SMI. Factor loading value are all approximately 0.70 or above. These results show that, internal consistency was established (Aburumman et al., 2023) as detailed in Appendix 4. Convergent validity assessment was sufficient and acceptable since AVE value of PM = 0.569, PPP = 0.659 and SMI = 0.731 (Hair et al., 2022). Since the value of cross-loading of own construct on Appendix 5 were greater than of the other constructs, they indicate compliance (Cao & Wang, 2022). Fornell–Larcker criterion was satisfactory in Appendix 6 as the AVE value square root being greater than its own correlation with other items (Hair et al., 2017). Equally, HTMT was also acceptable as detailed in Appendix 5 (Hair et al., 2022). These results highlight the robustness of the model and provide assurance of data quality (reliable and valid) to be used for analysis to test the study's hypothesis and later on the credibility of study findings. VIF was used to measure multicollinearity of the items. VIF value below 5; values above evidences existence of multicollinearity (Hair et el., 2017). Appendix 4 shows all value of VIF are below 5, which indicates no multicollinearity.

The moderating effect of SMI as presented in Table 3 and illustrated in Figure 2, showed interaction effect was statistically significant but negative (β = -0.119, t = 2.478, p = 0.013). Therefore, H2 is supported in terms of the existence of a significant moderation effect; however, the direction of the effect is negative rather than positive. The findings indicate that increasing levels of SMI weaken the positive relationship between PM and World Bank-financed PPP. The negative interaction coefficient suggests that, although PM positively influence PPP, their effectiveness diminishes as reliance on SMI increases. This finding implies that the value of SMI is contingent upon how it is generated, interpreted, and integrated into procurement decision-making.

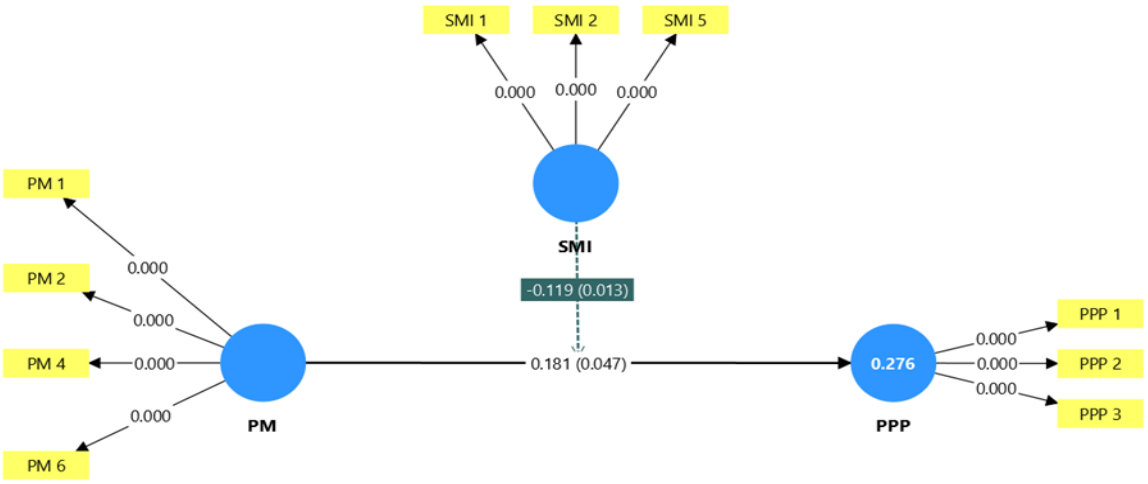


Figure 2: Structural Model Showing Moderation Effect, Path Coefficients and R2 Values

Source: SmartPLS 4

Table 3: Results of Hypothesis after moderation

Hypothesis	Path	Original Sample (β)	Standard Deviation	T-Statistics	P Values	Decision
H2	SMI x PM→ PPP	-0.119	0.048	2.478	0.013	Accepted

Explanatory power of the moderated model

The introduction of the SMI substantially improved the explanatory power of the structural model. As shown in Appendix 6, the coefficient of determination (R^2) increased from 0.103 in the direct effect model to 0.273 in the moderated model. This indicates that the proportion of variance explained in PPP increased from 10.3% to 27.3% following the inclusion of the interaction effect between PM and SMI. The increase in R^2 demonstrates that SMI contributes meaningfully to explaining variations in PPP beyond the direct-effect of PM alone. Although the interaction effect was negative, the inclusion of SMI improved the model's overall explanatory capability, suggesting that SMI is an important contextual factor influencing how PM translate into PPP. This finding supports the argument of Hair et al. (2022) that the inclusion of theoretically relevant moderating variables can substantially improve

a model's explanatory and predictive capability by capturing conditional relationships that would otherwise remain unexplained.

Simple slope analysis of the moderating effect

To further interpret the significant interaction effect, a simple slope analysis was conducted by examining the relationship between PM and PPP at three levels of SMI: low (−1 SD), mean, and high (+1 SD). The results are presented in Figure 3. The simple slope analysis demonstrates that the relationship between PM and PPP remains positive across all three levels of SMI; however, the strength of the relationship declines as the level of SMI increases. At low SMI (−1 SD), the relationship is strongest and statistically significant ($b = 0.300$, $p < 0.001$), indicating that PM have the greatest positive influence on PPP when reliance on SMI is relatively low. At the mean level of SMI, the relationship remains positive and statistically significant, although weaker ($b = 0.181$, $p = 0.047$). At high SMI (+1 SD), the relationship further weakens ($b = 0.063$, $p = 0.602$) and becomes statistically insignificant. These findings corroborate the significant negative interaction effect observed in the structural model.

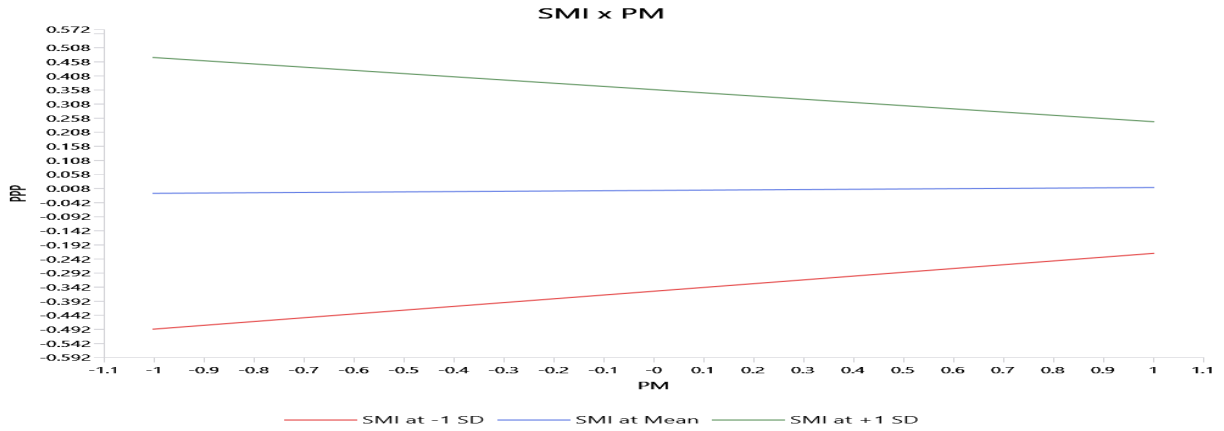


Figure 3: Simple Slope Analysis Showing Moderation Effect of SMI on PM and PPP

Source: SmartPLS 4

Discussion

This study examined the relationships among PM, PPP, and SMI in World Bank-financed projects in Tanzania. The findings indicate that PM are positively associated with PPP, while the strength of this relationship varies according to the level of SMI. The positive association between PM and PPP suggests that projects characterised by more appropriate procurement governance arrangements tend to report better procurement outcomes in terms of cost-efficiency, quality, and timely project completion. This finding is consistent with TCE, which posits that PM are designed to minimise transaction costs arising from supplier search, negotiation, contract administration, and monitoring. The results therefore support the proposition that PM aligned with project characteristics and market conditions is associated with superior procurement performance. However, given the cross-sectional nature of the data, these findings should be interpreted as evidence of statistically significant relationships rather than conclusive evidence that market approaches directly cause improvements in procurement performance.

The present findings are consistent with previous empirical studies reporting that market-oriented procurement practices improve procurement and project performance. For instance, Maraka and Anthony (2025) surveyed competitive tendering and service delivery in Turkana County, Kenya,

using a descriptive research design and census approach. The result established a statistically significant relationship between competitive tendering and service delivery. Also, Andika et al. (2021) similarly investigated the influence of competitive tendering on the performance of devolved systems of government in Kenya. Using a cross-sectional survey approach, the study found that successful execution of competitive tendering was associated with improved performance of devolved government systems. Moreover, Govender (2025) examined the implications of competitive tendering for pricing and delivery of consulting engineering services in South Africa using thematic analysis. The results indicated that competitive tendering caused in reduced fees and had implications for the delivery of consulting engineering services. These studies provide further evidence that PM positively contribute to institutional performance. However, the outcome variable was broader government-system performance rather than project-level procurement performance. Current study advances this argument by concentrating precisely on PPP rather than general procurement governance by examining World Bank-financed projects in Tanzania. Therefore, the current findings reinforce the argument that strategic selection of PM represents an important governance mechanism for improving procurement performance in development partner-financed projects.

The moderation analysis provides an equally important contribution. Although SMI substantially improved the explanatory power of the structural model, its interaction with market approaches was negative and statistically significant. This finding indicates that higher levels of SMI are associated with a weaker positive relationship between market approaches and procurement performance. Rather than contradicting existing theory, the results suggest that the effectiveness of SMI depends on capacity of how it is integrated into procurement decision-making within a particular institutional context. From a TCE perspective, this finding is theoretically supportive because market intelligence simultaneously generates benefits and costs. While access to relevant market information reduces uncertainty and information asymmetry, collecting, validating, interpreting, and applying extensive market information also requires organisational resources. In procurement environments characterised by stringent donor regulations, these additional activities may increase administrative burden, coordination requirements, and procedural complexity. Consequently, the transaction costs associated with processing extensive market intelligence may offset some of the efficiency gains associated with appropriate market approaches.

This study's results contrast with the mostly positive view of market intelligence in the literature. Vishnoi (2020) claimed that strategic market intelligence can improve business value through improved customer insights and loyalty. Similarly, Al Shawabkeh (2024) found that business intelligence positively moderated the relationship between strategic orientations and sustainable performance. The contrast suggests that the contribution of intelligence capabilities may depend on the institutional and operational context. Unlike these studies, the current research examines SMI within World Bank-financed projects characterised by specific donor procurement and governance requirements. Conceptually, the study supports the use of intelligence as a moderating variable rather than treating it solely as an independent predictor. However, its finding of a positive moderating role contrasts with the negative moderation observed in the current study. This difference is theoretically important because it suggests that the performance consequences of intelligence capabilities may depend on the institutional and operational context in which those capabilities are deployed.

The findings are also consistent with DCT, which argues that organisational capabilities create value only when they are effectively deployed. Possessing extensive market intelligence is not, by itself, sufficient to improve procurement outcomes. Instead, organisations must possess the analytical capability to transform market intelligence into timely and effective procurement decisions. The negative moderation observed in this study therefore suggests that Project Implementation Units may

encounter challenges in integrating market intelligence with donor procurement requirements, potentially resulting in information overload, delayed decision-making, or increased procedural complexity. Accordingly, the findings reinforce the DCT proposition that the value of organisational capabilities is contingent upon the context in which they are deployed and the organisation's ability to utilise them effectively. Importantly, the increase in explanatory power following the inclusion of SMI demonstrates that procurement performance is better understood when contextual organisational capabilities are considered alongside market approaches. This finding supports the growing contingency perspective in procurement management, which argues that procurement outcomes emerge from the interaction between procurement choices and organisational capabilities rather than from either factor independently (Musiba et al., 2026). The results therefore contribute to procurement theory by demonstrating that SMI should not be regarded as an inherently beneficial capability but as a context-dependent strategic resource whose contribution varies according to institutional conditions and implementation practices.

Conclusion

The study concludes that the PPP of World Bank-financed project in Tanzania is not determined solely by the PM. Rather, it is also contingent upon the PIU ability to effectively acquire, interpret, and apply SMI. Moreover, the effect of SMI is not universal, its negative moderating effect suggests that greater market intelligence does not necessarily strengthen the benefits of market approaches. Instead, its contribution appears to depend on how effectively market information is acquired, interpreted, and integrated into procurement decision-making within the institutional context of donor-funded projects. In this context, PPP in World Bank-financed projects are shaped by a dual mechanism, appropriate market approach and the dynamic capability to leverage market intelligence strategically. These findings underscore the critical role of projects to strengthening procurement analytical capabilities and skills that focus on collecting relevant, timely, and decision-oriented market intelligence that directly supports procurement strategic decisions while avoiding unnecessary information gathering that may increase administrative burden and delay procurement processes.

Future studies should employ longitudinal, panel, or quasi-experimental designs; and/or qualitative methods or mixed-methods designs would provide stronger evidence regarding the causal mechanisms through which PM and SMI are associated with PPP. Second, since the study was conducted exclusively within World Bank-financed projects in Tanzania the findings may not be fully generalisable to projects financed by other multilateral development banks or implemented under different institutional and regulatory environments.

References

Aburumman, O. J., Omar, K., Al Shbail, M., & Aldoghan, M. (2023). How to Deal with the Results of PLS-SEM? *Lecture Notes in Networks and Systems*, 495 LNNS (January), 1196–1206. https://doi.org/10.1007/978-3-031-08954-1_101.

Al Shawabkeh Khaled Mahmoud (2024). The Impact of Strategic Orientations on Sustainable Performance: The Moderating Role of Business Intelligence at Jordanian Commercial Banks. *Journal of Intelligence Studies in Business, 14*(1) (2024), 13–30

Amdany Rotich Moses and Dr. Josephat Kwasira (2016). Assessment of tendering methods on the successful implementation of constituency development fund projects in njoro sub-County, Nakuru Kenya. *International Journal of Science and Research* (IJSR) Vol. 6 2016 ISSN (Online): 2319-7064

Andika Mary, Mike Iravo and Noor Ismael (2021). Influence of competitive tendering on the performance of devolved system of governments in Kenya. *International Journal of Management Science and Business Administration*, 7(5), 52-57. 10.18775/ijmsba.1849-5664-5419.2014.75.1005

Cao, F., & Wang, C. (2022). Factors Influencing Procurement Officers' Preference for PPP Procurement Model: An Empirical Analysis of China. *Frontiers in Psychology, 13*, 1–15. https://doi.org/10.3389/fpsyg.2022.832617

Creswell, J. W., & Creswell, D. J. (2023). *Research Design: Qualitative, Quantitaive and Mixed Methods Approaches* (6th ed.). Los Angeles: SAGE Publications Inc.

Dijmarescu, E. (2024) Current and future trends in strategic procurement with Gen- AI. *Management and Economics Review* 9(2), 361–377. https://doi.org/10.24818/mer/2024.02-11

Gatari, C. N., Shale, I. N., & Osoro, A. (2022). Market approachess in Public Procurement and their effect on Sustainable Performance of State Corporations in Kenya. *International Journal of Scientific and Research Publications,* 12(9), 126–136.

Ghadamsi, A., & Braimah, N. (2016). The Impact of Design-Bid-Build Market approachess on Project Performance in Libya. *In Journal of Construction Engineering and Project Management* 6, 2. https://doi.org/10.6106/jcepm.2016.6.2.016

Gordon, E. J. (2000). When oral consent will do. *Field Methods,* 12(3), 235–238.

Govender Neil, Samuel Laryea and Ron Watermeyer (2025). Implications of competitive tendering on consulting engineering services in South Africa: a thematic analysis. *Journal of Financial Management of Property and Construction*, 30(1), 1-21 Emerald Publishing Limited 1366-4387 DOI 10.1108/JFMPC-06-2022-0029

Habibi, M., Kermanshachi, S., & Rouhanizaseh, B. (2019). Identifying and measuring engineering, procurement and construction (EPC) key performance indicators and management strategies. *Infrastructure, 4*(14), 1–19.

Hagen Terje P., Geir Hiller Holom Aand Kebebew N. Amayu (2017). Outsourcing day surgery to private for-profit hospitals: the price effects of competitive tendering. *Health Economics, Policy and Law,* page 1 of 18 Cambridge University Press.

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

Hair, Joe F, Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hair, J., & Linguistics, A. A.-R. M. in A. (2022). undefined. (n.d.). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: *Guidelines using an applied example*. Elsevier.

Idun, J. A. M., & Cobblah, C. (2020). Competitive Tendering Method and its Effect on Project Performance, SBS Swiss Business School, University of Applied Sciences Institute, *Journal of applied business research*, Flughafenstrasse 3,8302 Kloten-Zurich, Switzerland, Version 7.

Jalagam S, Muddukrishna BS (2021). An Overview on Pharmaceutical Tendering Process. Indian *Journal of Pharmaceutical Education and Research*, *55*(1), 21-5.

Jillo M, Kibuine M.K., & Kimemia, D. W. (2024). Supply chain procurement practices and procurement performance of public hospitals in Kenya: A case of Kenyatta Hospital. *African Journal of emerging issues,* 6(19), 73-86.

Kakwezi, P., & Nyeko, S. (2019). Procurement processes and performance: Efficiency and effectiveness of the procurement function. I*nternational Journal of Social Sciences Management and Entrepreneurship*, 3(1), 172–182.

Karami, M. (2026). Transformational Leadership and Supply Chain Sustainability in Emerging Economies: The Serial Mediating Roles of Digital Capability and Green Innovation. *SEISENSE Journal of Management,* 9(1). https://doi.org/10.33215/5npwz022

Karttunen, E., Jääskeläinen, A., Malacina, I., Lintukangas, K., Vos, F. G. S., & Kähkönen, A.-K. (2023). Dynamic capabilities in public procurement. *In Proceedings of the 32nd IPSERA 2023 conference*, Barcelona Spain, 2.-5.4.2023 (IPSERA Conference Proceedings). IPSERA.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Lars Holger Ehlers, Morten B. Jensen & Henrik Schack (2022) Competitive tenders on analogue hospital pharmaceuticals in Denmark 2017–2020, *Journal of Pharmaceutical Policy and Practice*, 15:1, 69, DOI: 10.1186/s40545-022-00464-6

Lisa Chever, Stéphane Saussier & Anne Yvrande-Billon (2017) The lawof small numbers: investigating the benefits of restricted auctions for public procurement, *Applied Economics, 49*(42), 4241-4260. DOI: 10.1080/00036846.2017.1279270

Magno, F., Cassia, F. & Ringle, C. M. (2022). A brief review of partial least squares structural equation modeling (PLS-SEM) use in quality management studies. *The TQM Journal* 36 (5): 1242–1251. https://doi.org/10.1108/TQM-06-2022-0197

Maraka, N. D., & Anthony, D. O. (2025). Procurement Practices on Performance of Donor-Funded Non-Government Organizations in Kiambu County, Kenya Article history: *Journal of Economics, Management Sciences and Procurement*. 4(I), 79–93.

Matto, M. C., Ame, A. M., & Nsimbila, P. M. (2021). Influence of contract management on value for money procurement in Tanzania. *International Journal of Procurement Management*, 14(6), 724–741. https://doi.org/10.1504/IJPM.2021.117889

Matwa, N. D. (2023). Effect of Market approaches on Procurement Performance in NG-CDF Funded Project in Kisii County, Kenya. Cross-Currents: *An International Peer-Reviewed Journal on Humanities & Social Sciences,* 9(10), 216–219. https://doi.org/10.36344/ccijhss.2023.v09i10.002.

Musiba, Jackson William, Victoria Makuya and Faustine Panga (2026). The role of supply market intelligence in the relationship between tender evaluation and world bank financed project procurement performance. *Discover Sustainability Journal*.

Musshoff Oliver and Cord-Friedrich von Hobe (2020). On the effectiveness of restricted tenders as a form of policy intervention on agricultural land markets. *Research in Agriculture and Applied Economics*, Germany.

Mwaririe, E. M., & Nyambura, M. T. (2024). Market approachess and Procurement Performance of Public Universities in Nairobi Metropolitan Region, Kenya. I*nternational Journal of Economics, Business and Management Research*, 08(05), 81–98. https://doi.org/10.51505/ijebmr.2024.8507.

National Audit office of Tanzania. (2023). *Annual general report of controller and auditor general for the financial year 2021/22*: Central Government. Dodoma.

National Audit office of Tanzania. (2024). *Annual general report on Audit of development projects for the financial year 2022/2023*. Dodoma.

National Audit Office of Tanzania. (2020). *The annual general report of the controller and auditor general on the audit of financial statments of the central government for financial year ended* 30 June 2019 (Vol. 255). National Audit Office of Tanzania.

National Audit Office of Tanzania. (2023). *Performance audit report on the implementation of rural electrification programme.* Dodoma.

Neirotti Paolo, Elisabetta Raguseo and Emilio Paolucci (2016). Are customers' reviews creating value in the hospitality industry? Exploring the moderating effects of market positioning. *International Journal of Information Management*, *36*, 1133–1143

Odeck James and Harald Høyem (2020). The impact of competitive tendering on operational costs and market concentration in public transport: The Norwegian car ferry services. *Research in Transportation Economics*, https://doi.org/10.1016/j.retrec.2020.100883

Ofori, I., Dadzie. B., E., (2024). The Effect of Transactional Costs and Competitive Tendering on Public Procurement Performance, *African Journal of Procurement, Logistics & Supply Chain Management Society*, 7(9), 33-59. https://dx.doi.org/10.4314/ajplscm.v7i9.2

Onserio, D., Ismail, D. N., & Kirima, D. E. (2021). Strategic procurement on performance of world bank funded projects in Nairobi city county, Kenya. *Journal of Business and Strategic Management, 6*(1), 42–61. https://doi.org/10.47941/jbsm.585

Owusu, E. K., & Chan, A. P. C. (2021). *Corruption in Infrastructure Procurement: Addressing the Dynamic Criticalities*. London, United Kingdom: Taylor & Francis Group.

Özyürek, İ., & Erdal, M. (2025). The Impact of Tender Procedures and Contract Types on Contract Prices in Public Works Procurement. *Gazi University Journal of Science*, 38(3), 1226-1245. https://doi.org/10.35378/gujs.1592872

Public Procurement Regulatory Authority (PPRA) (2021). *Annual performance evaluation report for the year ended 30th June 2021*. Dodoma.

Sama, H., Ndunguru, P & Nsimbila, P., (2021). Antecedents of Opportunism on Integrity in Competitive Tendering. *Journal of Business and Management*. 9(3), 155-161.

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

Teece, D., & Pisano, G. (1994). Working Paper, The Dynamic Capabilities of Firms: An Introduction *QBllASA International Institute for Applied Systems Analysis* A-2361 Laxenburg Austria.

The World Bank. (2025). P*rocurement Regulations for Investment Project Financing (IPF) borrowers: Goods, Works, Non-consulting and Consulting Services* (6th ed.). Washington: The World Bank Publisher.

United Republic of Tanzania. (URT) (2023). *The public procurement Act No. 10 of 2023*. Dodoma: United Republic of Tanzania.

Uwiringiyimana, T., & Dieu, D. D. J. de. (2024). Effect of procurement contract management practices on performance of public insititutions. A case of integrated polytechnic regional college (IRC) Musanze, Rwanda. *African Journal of Empirical Research*, *5*(1), 476-487.

Vishnoi, S. K., Bagga, T., & Aggarwal, R. (2019). Marketing intelligence and firm performance : Reviewing the mediating impact of customer relationships , customer satisfaction and customer loyalty, CU. *Indian Journal of Economics and Business,* 18(2):555-570.

Wang, E. S.-T., Lin, J.-Y., & Liao, Y.-T. (2023). The effects of positive valence and intensity of word-of-mouth and advertising on forming beer brand equity and purchase intentions. *Journal of Food Products Marketing*, 29(8-9), 255–269. https://doi.org/10.1080/10454446.2023.2273517

Williamson, O. E. (1979). Transaction-cost economies: The governance of contractual relations. *The Journal of Law and Economics,* 22(2), 233-261.

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). New York: Harper and Row.

Yarmukhamedov, S, Smith and Thiebaud, J-C (2020). Competitive tendering, ownership and cost efficiency in road maintenance services in Sweden: A panel data analysis. *Transportation Research Part A: Policy and Practice*, 136, 194-204.

Appendices

Appendix 1: Construct Reliability and Convergent validity Results

Construct	Items	Outer Loading	VIF	CA	CR	AVE
Project Performance (PPP)	PPP1	0.876	1.904			
	PPP2	0.691	1.471	0.802	0.851	0.657
	PPP3	0.853	1.483			
Market approaches (PM)	PM 1	0.788	1.627			
	PM 2	0.816	1.928	0.884	0.887	0.568
	PM 3	0.811	2.286			
	PM 4	0.686	2.705			
	PM 5	0.672	2.673			
	PM 6	0.736	1.853			

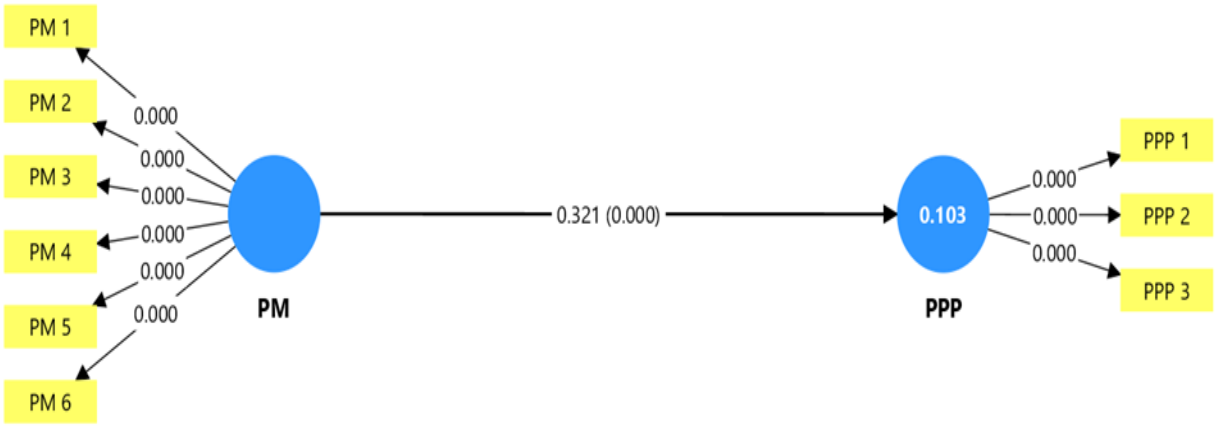
Note: CA – Cronbach's Alpha; CR – Composite Reliability and AVE - Average Extracted Variance; VIF - Variance Inflation Factor Source: *SmartPLS 4*

Appendix 2: Discriminant Validity Testing

Indicators	PM	PPP
Fornell – Larcker Criterion		
PM	0.754	
PPP	0.321	0.811
Heterotrait-Monotrait Ration (HTMT)		
PM		
PPP	0.326	
Cross Loading		
PM 1	**0.788**	0.319
PM 2	**0.816**	0.295
PM 3	**0.811**	0.237
PM 4	**0.686**	0.132
PM 5	**0.672**	0.061
PM 6	**0.736**	0.216
PPP 1	0.268	**0.876**
PPP 2	0.163	**0.691**
PPP 3	0.315	**0.853**

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Strategic market approaches and project procurement performance: The moderating role of supply market intelligence in world bank-financed projects in Tanzania

Appendix 3: Structural Model Showing PM: Market approaches and PPP: Project procurement performance of world-financed projects.



Source: *SmartPLS 4*

Appendix 4: Construct Reliability and Convergent validity Results - Moderation Effects

Construct	Items	Outer Loading	VIF	CA	CR	AVE
Market approaches (PM)	PM 1	0.787	1.627	0.884	0.887	0.569
	PM 2	0.817	1.928			
	PM 3	0.812	2.286			
	PM 4	0.686	2.705			
	PM 5	0.673	2.673			
	PM 6	0.736	1.853			
Project Performance (PPP)	PPP1	0.877	1.904	0.792	0.852	0.659
	PPP2	0.703	1.471			
	PPP3	0.846	1.483			
Supply Market Intelligence (SMI)	SMI 1	0.810	2.289	0.915	0.931	0.731
	SMI 2	0.863	2.624			
	SMI 3	0.879	2.693			
	SMI 4	0.844	2.642			
	SMI 5	0.878	2.906			

Note: CA – Cronbach's Alpha; CR – Composite Reliability and AVE - Average Extracted Variance; VIF - Variance Inflation Factor

Appendix 5: Discriminant Validity Testing – Moderation Effects

Indicators	PM	PPP	SMI
Fornell – Larcker Criterion			
PM	0.754		
PPP	0.319	0.812	
SMI	0.489	0.485	0.855
Heterotrait-Monotrait Ration (HTMT)			
PM			
PPP	0.326		
SMI	0.511	0.564	
SMIXPM	0.588	0.466	0.855
Cross Loading			
PM 1	**0.787**	0.317	0.446
PM 2	**0.817**	0.294	0.402
PM 3	**0.812**	0.237	0.384
PM 4	**0.686**	0.132	0.260
PM 5	**0.673**	0.061	0.223
PM 6	**0.736**	0.214	0.358
PPP 1	0.268	**0.877**	0.408
PPP 2	0.163	**0.703**	0.267
PPP 3	0.314	**0.846**	0.468
SMI 1	0.435	0.348	**0.810**
SMI 2	0.410	0.413	**0.863**
SMI 3	0.408	0.475	**0.879**
SMI 4	0.419	0.397	**0.844**
SMI 5	0.428	0.426	**0.878**

Appendix 6: Comparison between Non-moderated and Moderated Paths

	Non-moderated: R^2 = 0.103					Moderated: R^2 = 0.273			
Hypotheses	**β**	**t-statistic**	**p values**	**Decision**	**Hypotheses**	**β**	**t-static**	**p values**	**Decision**
H1	0.321	4.767	0.000	Accepted	H2	-0.119	2.478	0.013	Accepted

Appendix 7: Simple slopes of PM predicting PPP at values of SMI

SMI	Simple slope	t-value	p-value
+1SD (High)	0.063	0.521	0.602
Mean	0.181	1.991	0.047
-1SD (Low)	0.300	3.677	0.000

LL=Lower limit, UL=Upper limit, 5000 bootstrap samples

Appendix 8: Demographic Results of Respondents

Demographic Variable	Characteristic	Frequency	Percentage (%)
Gender	Male	140	77.3
	Female	41	22.7
Age	Below 30	9	4.97
	31–40	61	33.70
	41–50	79	43.65
	51 and above	32	17.68
Highest Level of Education	Certificate	0	0.0
	Diploma	1	0.6
	Bachelor's Degree	66	36.5
	Master's Degree	112	61.9
	PhD	2	1.1
Role in the Project	Procurement Specialist	100	55.2
	Project Manager	12	6.6
	Engineer/Technical Experts	33	18.2
	Architect	11	6.1
	M&E Experts	10	5.5
	Finance/Accounts Officer	6	3.3
	Environment and Social Expert	2	1.1
	Others	7	3.9
Project Sector	Education Sector	59	32.6
	Energy Sector	22	12.2
	Service Sector	34	18.8
	Transport Sector	50	27.6
	Water Sector	14	7.7
	Other	2	1.1
Years of Experience	0–5 years	9	4.97
	6–10 years	41	22.65
	11–15 years	77	42.54
	Above 15 years	54	29.83

Source: *Field Data (2025)*