# The effect of technology readiness on e-procurement adoption in Zanzibar's public sector: A case of the Zanzibar Public Procurement Regulatory Authority

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## ABSTRACT

Even while e-procurement technologies have become more widely used worldwide, many underdeveloped nations, including Zanzibar, still struggle to fully digitize their procurement procedures. This study looked at how technology readiness affected the Zanzibar Public Procurement Regulatory Authority's (ZPPRA) adoption of e-procurement. Based on the Technology-Organization-Environment (TOE) architecture and Parasuraman's Technology Readiness Index (TRI), the study evaluated how e-procurement adoption is influenced by optimism, innovativeness, discomfort, and insecurity. 85 employees completed structured questionnaires as part of a quantitative research design, and 70 valid responses were evaluated using descriptive and inferential statistics using SPSS (version 28) and AMOS (version 26). The results showed that e-procurement adoption is positively and significantly impacted by technical readiness. In particular, while discomfort and uneasiness limited adoption, optimism and inventiveness increased user confidence and system utilization. However, effective implementation is still hampered by institutional and governance issues such as inadequate Information and Communication Technology [ICT] infrastructure, conflicting oversight agency mandates, and political meddling. The findings show that stronger optimism and innovativeness, coupled with lower discomfort and insecurity, enhance the effective use of the E-ProZ system. This highlights that e-procurement success in Zanzibar depends equally on users' readiness and supportive technology. The study suggests that in order to improve technology-driven procurement reforms in Zanzibar and other developing contexts, ICT capacity should be increased, staff digital competency should be strengthened, institutional autonomy should be ensured, and governance structures should be aligned.

**Keywords:** E-Procurement Adoption, Governance, ICT Infrastructure, Technology Readiness, Technology Readiness Index (TRI), Technology–Organization–Environment (TOE) Framework

## I. INTRODUCTION

Global procurement procedures have been drastically altered by the quick development of information and communication technologies (ICTs). E-procurement, as defined by the World Bank (2021) and the Organisation for Economic Co-operation and Development [OECD] (2016), is the process of integrating ICT into procurement processes in order to increase value for money, accountability, efficiency, transparency, and justice. Neupane et al. (2012) and Gunasekaran and Ngai (2008) state that institutional readiness, user acceptance of digital systems, and technological infrastructure are critical to the effective adoption of e-procurement systems. Therefore, procurement reforms have been positioned as important tools for advancing anti-corruption and good governance measures in many developing economies (Basheka & Bisangabasaija, 2019; UNCTAD, 2020). However, their application is still inconsistent throughout Sub-Saharan Africa, where human capacity limitations and a lack of technological infrastructure continue to compromise their efficacy (Mambo & Muriithi, 2020; Gichuki & Were, 2023).

A growing body of research has linked low levels of e-procurement adoption to insufficient technology readiness, user resistance, and system complexity (Bakar et al., 2020; Oyeyemi et al., 2023). In mainland Tanzania, the Public Procurement Regulatory Authority (PPRA) introduced the Tanzania National e-Procurement System (TANePS) to enhance accountability, transparency, and efficiency in public procurement. Conversely, Zanzibar through the Zanzibar Public Procurement Regulatory Authority (ZPPRA) developed its own e-procurement platform, E-ProZ (Electronic Procurement Zanzibar), under the legal framework of the Zanzibar Public Procurement and Disposal of Public Assets Act (ZPPDA, 2020). The E-ProZ system was designed to facilitate end-to-end digital procurement from tender advertisement and submission to evaluation and contract management. Despite these reforms, full adoption and consistent utilization remain limited, as many departments still rely on manual processes (Controller and Auditor General [CAG], 2023; Moshi & Komba, 2023).

The persistence of paper-based procedures has led to inefficiencies, reduced transparency and lost opportunities for data-driven decision making (Msuya & Malongo, 2022). Beyond legal and technical limitations, studies highlighted

that organizational behavior and human readiness play decisive roles in determining digital transformation success (Parasuraman, 2000; Mutua et al., 2024; Oyeyemi et al., 2023). Parasuraman (2000) introduced the Technology Readiness Index (TRI) to assess individuals and organization's predispositions toward adopting and utilizing new technologies. According to Parasuraman and Colby (2015), technology readiness comprises enablers (optimism and innovativeness) and inhibitors (discomfort and insecurity), which have been empirically validated in diverse contexts (Tsourela & Giaglis, 2022).

From a theoretical perspective, this study integrates the TRI and TOE frameworks (Tornatzky & Fleischer, 1990; Oliveira & Martins, 2011). The TRI captures the psychological readiness of users, while the TOE emphasizes the organizational and environmental factors such as ICT infrastructure, leadership, and regulatory environment that shape technology adoption in public institutions. The integration of these models provides a holistic lens for understanding how individual and institutional factors interact to influence e-procurement adoption within Zanzibar's public sector.

Consequently, this study focuses on examining the effect of technology readiness on e-procurement adoption at the Zanzibar Public Procurement Regulatory Authority (ZPPRA), using the E-ProZ system as the reference point. It draws from empirical literature to develop hypotheses and a conceptual model that tests the relationship between readiness dimensions and adoption outcomes. By addressing this critical yet underexplored behavioral dimension, the study aims to inform policy and institutional strategies that can strengthen digital capacity, enhance user competence, and accelerate effective e-procurement adoption in Zanzibar and comparable developing contexts.

### 1.1 Statement of the Problem

Despite the deliberate efforts undertaken by the Revolutionary Government of Zanzibar to publicly modernize procurement through digital reforms, the actual adoption and utilization of e-procurement system remain inconsistent, under-developed and far below their intended potential (ZPPDA, 2020; CAG, 2023; United Republic of Tanzania. [URT], 2020).

The Zanzibar government led initiative through E-ProZ system was aimed at enhancing transparency, accountability and efficiency. However, many departments and units at ZPPRA continue to rely on manual procedures or semi-automated processes, undermining the expected benefits of reform (World Bank, 2021; Moshi & Komba, 2023). While legal and regulatory framework exists, their practical effectiveness has been hindered by low system uptake, weak enforcement mechanism and the persistent operational inertia.

The recent assessment by Controller and Audit General – CAG (2023) revealed the recurring technical and institutional challenges affecting E-ProZ performance including inadequate ICT infrastructure, unreliable internet connectivity and limited technical support system. Moreover, the overlapping mandates between ZPPRA with e-Government Agency of Zanzibar (e-GAZ) following the administrative transfer of system management have blurred accountability and weakened regulatory oversight. On top of that, the system development through PPP (Public - Private Partnership) with OZON – International (Oman) had aimed at accelerating digitalization, however, the system was hindered by the induced contractual and compliance complexities that further restricted operational autonomy and fiscal efficiency.

Most Sub-Saharan African studies on e-procurement adoption have focused on the actor's declining the adoption and implementation of electronic systems such as infrastructure deficits, compliance gaps and weak enforcement mechanism (Basheka & Bisangabasaija, 2019; Gichuki & Were, 2023). Moreover, existing studies points out that the success of implementation largely depends on how mentally and behaviorally prepared institutional actors are (Parasuraman, 2000; Mutua et al., 2024; Oyeyemi et al., 2023). The TRI traits i.e. optimism, innovativeness, discomfort and insecurity was identified as the key factors shaping technology acceptance and utilization. However, there is lack of empirical validation on how technology readiness influence e-procurement adoption within Zanzibar context, as often researchers extrapolate findings from mainland-Tanzania and other African countries with different technology background, administrative loophole and resources constraints (Ismail & Harun, 2021; Bakar et al., 2020).

Consequently, a critical gap persists in understanding how technology readiness affects public officer's intension to accept and effectively use e-procurement system in Zanzibar. Thus, if user's behavior is overlooked, technological systems may not be used effectively, causing resource waste, resistance and lack of transparency. Therefore, relationship between technology readiness correlations to e-procurement adoption must be empirically studied, especially within ZPPRA and E-ProZ system to guide evidence-based policy reforms and to enhance digital governance in Zanzibar.

### 1.2 Research Objectives

i. To assess the influence of optimism on e-procurement adoption at ZPPRA.
ii. To determine the effect of innovativeness on e-procurement adoption at ZPPRA.
iii. To examine how discomfort affects e-procurement adoption at ZPPRA.
iv. To analyze the effect of insecurity on e-procurement adoption at ZPPRA.

v. To evaluate the overall contribution of technology readiness dimensions to the effective use of the E-ProZ system within ZPPRA.

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

This study is anchored on the Technology Readiness Index (TRI) developed by Parasuraman (2000) and supported by the Technology-Organization-Environment (TOE) framework proposed by Tornatzky and Fleischer (1990). Together, these frameworks explain how individual psychological readiness and institutional contexts influence adoption decisions. The TRI model assesses user's perception toward embracing new technologies across four dimensions: optimism, innovativeness, discomfort and insecurity (Parasuraman & Colby, 2015). As a predictor of digital adoption, the validation of the model has been assessed in several studies (Tsourela & Giaglis, 2022; Mutua et al., 2024). Within ZPPRA, optimism reflects the belief that e-procurement enhances transparency and efficiency; innovativeness captures staffs willingness toward exploring new digitalized tools; discomfort and insecurity reflect anxiety, uneasy and perceived risks associated with limited literacy of using ICT technologies and system reliability (CAG, 2023; ZPPRA, 2024).

On the other hand, the TOE framework situates technology adoption within technology, organization and environment framework contexts (Oliveira & Martins, 2011). The technology context constitutes advanced and adequate ICT infrastructure and system integration; the organization context encompasses leadership commitment and support, adequate resources allocation and staff competency; and environmental context represent legal, regulatory and social-political environment. TOE has been widely applied in various procurement studies (Bakar et al., 2020; Hassan & Mungai, 2022) purports to extrapolate how internal capabilities and external pressure shape digital transformation. Integrating TRI and TOE framework provides a holistic approach by linking human readiness factors with institutional enablers. As TRI focuses on behavioral readiness while TOE diverge into explaining organizational preparedness. Together, they bridge the psychological and institutional dimensions of e-procurement adoption, offering a comprehensive framework for analyzing digital transformation in public-sector contexts such as Zanzibar.

#### 2.1.1 Technology Readiness and E-Procurement Adoption

Technology readiness influences how public officers perceive, accept and use e-procurement systems. According to Parasuraman (2000), individuals high in optimism and innovativeness are more willing to experiment with new technologies, while those affected by discomfort and insecurity tend to resist adoption. In public procurement, technology readiness determines how staff interpret and use digital platforms to promote transparency and accountability (Gunasekaran & Ngai, 2018; Oyeyemi et al., 2023).

Studies in developing countries demonstrated that user readiness positively affects the sustainability of e-procurement system (Basheka & Bisangabasaija, 2019; Asogwa, 2020). For instance, Mutua et al. (2024) found that officers with high optimism and innovativeness perceived e-procurement as useful and easy to use, showing the conceptual linkage between TRI and the Technology Acceptance Model (TAM) (Davis, 1989). However, challenges such as inadequate ICT capabilities, inadequate digital training and limited management support continue to constrain adoption (Gichuki & Were, 2023). These barriers highlight the need to assess the joint contribution of behavioral readiness and preparedness of institutional actors in explaining e-procurement adoption.

#### 2.1.2 Dimensions of Technology Readiness

*Optimism and E-Procurement Adoption:* Optimism refers to a positive belief that technology enhances efficiency, productivity and service delivery (Parasuraman, 2000). Optimistic employees view e-procurement as a valuable innovative tool that can reduce corruption and improve transparency. Studies confirms that optimism assert positive effect on technology acceptance (Aboelmaged, 2010; Croom & Brandon-Jones, 2017). At ZPPRA, optimism encourages proactive system utilization, fostering confidence and trust in the E-ProZ system.

*Innovativeness and E-Procurement Adoption:* Innovativeness explains the individual's willingness to adopt and experiment with new technologies (Parasuraman & Colby, 2015). Innovative officers are typically identified as early adopters who encourage peers to embrace digital change. Studies by Gunasekaran and Ngai (2018) and Mutua et al. (2024) found that innovativeness supports experimentation and knowledge sharing. Within ZPPRA, innovativeness reflects readiness to champion E-ProZ usage and align with modern ICT-driven reforms.

*Discomfort and E-Procurement Adoption:* Discomfort denotes perceived lack of control or anxiety when using technology (Parasuraman, 2000). Officers who find digital systems complex may revert to manual processes. Studies by Asogwa (2020) and Vaidya et al. (2016) indicate that discomfort reduces system utilization. In Zanzibar, limited ICT literacy, unreliable internet, and inadequate training increase discomfort, discouraging full E-ProZ adoption.

*Insecurity and E-Procurement Adoption:*Insecurity reflects fear of data loss, privacy breaches or system unreliability (Parasuraman & Colby, 2015). Users skeptical of system security are less likely to engage with e-procurement platforms. Aboelmaged (2010) and Ismail & Harun (2021) found that insecurity erodes user confidence in digital systems. Within ZPPRA, insecurity manifests as mistrust in E-ProZ data protection, constraining adoption.

*Contextual Challenges of the E-ProZ System in Zanzibar:* The implementation of the Electronic Procurement Zanzibar (E-ProZ) marked a milestone in promoting procurement efficiency and transparency. However, its rollout has faced major institutional and governance inconsistencies with the Public Procurement and Disposal of Public Assets Act of 2016. Legally, ZPPRA was mandated to manage and control the system, but operational control was outsourced to e-Government Agency of Zanzibar (eGAZ), creating overlapping mandates and declining accountability.

The E-ProZ development was managed under a Public - Private Partnership (PPP) with OZON International (Oman), of which was influenced by political aspects, deviating from alignment of Zanzibar's legal procurement framework. Consequently, compliance gap and recurring costs (registration and commission fees) emerged, which in turn increased financial burdens for procuring entities. The Methodology for assessing procurement systems (MAPS) report (2023) had also cited issues associated with governance misalignments that weakens regulatory oversight

The practical transfer of operational control from ZPPRA to eGAZ had reduced transparency and curtailed regulatory independence. Since political interference prioritized centralized control over professional autonomy, issues like accountability and value for money principles were undermined. Thus, e-ProZ encountered technical issues, extending into government, legal and institutional domain. In doing so, addressing these issues requires capacity strengthening, legal realignment and restoration of regulatory authority to uphold good governance and system sustainability.

**2.2 Empirical Review**

The evidences outlined in various empirical review shows that, optimism is a vital indicator in encouraging public officers to adopt e-procurement platforms. Studies conducted in Kenya and Nigeria's public entities found that, employees with positive attitudes towards digitalized platforms are more likely to perceive the systems as a tool for improving accountability, efficiency and transparency (Aboelmaged, 2010; Mutua et al., 2024). In similar vein, a study conducted in Uganda and Tanzania revealed that, in using digital systems, optimism enhances confidence and motivates users toward exploring the full potential of system (Basheka & Bisangabasaija, 2019; Bakar et al., 2020).

In relation to innovativeness, prior studies highlighted that, innovative officers tend to drive technological changes within their organizations. For instance, the study by Gunasekaran and Ngai (2018) and Hassan and Mungai (2022) observed that, innovative employees helps to sustain e-procurement usage through sharing knowledge and physical experiment and experience with the systems features. Therefore, innovativeness acts as a catalyst for institutional digital transformation.

Conversely, discomfort has been reported as a hindrance toward effective e-procurement usage. The study by Asogwa (2020) and Vaidya et al. (2016) indicated that, when the system make user's being overwhelmed, nervousness, uncertain or technically unprepared, they tend to revert to manual procurement methods. Such issues are often created by the limited ICT literate rate, unreliable internet and system connectivity or inadequate technical support. These factors are still visible in many public institutions in Africa.

Similarly, insecurity has been also identified as the behavioral inhibitor in adopting e-technologies. Users who are concerned about potential data loss, exposure of confidential information or system manipulation are less likely to trust and use e-procurement platforms effectively (Ismail & Harun, 2021; Tsourela & Giaglis, 2022). Studies have emphasized that, improving cyber-security mechanisms and data assurance can help in confidence building and increase system usage among public servants.

In summary, from most reviewed sources, the results confirmed that, optimism and innovativeness are key enablers, while discomfort and insecurity served as barriers to e-procurement adoption. However, few studies have outlined the relationship within Zanzibar's contexts. This study therefore suggest that, there is a need for empirical validation of how these technology readiness dimensions jointly influence the E-ProZ adoption at ZPPRA.

**2.2.1 Measurement and Operationalization of Variables**

The Technology Readiness Index (TRI) and e-procurement adoption model constructs were quantified in this study using standardized measuring scales. A five-point Likert scale, with 1 denoting strongly disagree and 5 denoting strongly agree, was used to measure each concept. To guarantee dependability and content validity, the measurement items were modified from approved tools utilized in earlier empirical research.

Four dimensions - optimism, inventiveness, discomfort, and insecurity - were used to operationalize technology readiness as an independent variable (Parasuraman, 2000). Additionally, the degree of system utilization, integration, compliance, and confidence was reflected in the operationalization of e-procurement adoption, a dependent variable

(Vaidya et al., 2016; Asogwa, 2020). Each factor assessed how well institutions use, integrate, and adhere to the E-ProZ system while upholding transparency and confidence in their digital procurement processes.

Before analysis, the measurement scales were subjected to validity and reliability testing using Confirmatory Factor Analysis (CFA) in AMOS and internal consistency tests in SPSS. Only items with standardized loadings ≥ 0.50 and Cronbach's Alpha ≥ 0.70 were retained, ensuring robust measurement quality consistent with recommendations by Hair et al. (2021) and Kline (2016).

**Table 1**

*Measurement and Operationalization of Variables*

| Variable | Dimensions | Measurement Focus | Scale | Sources |
|---|---|---|---|---|
| Technology Readiness (Independent Variable) | Optimism | Belief that E-ProZ improves efficiency and accountability (e.g., "Using the E-ProZ system enhances my work performance and decision-making.") | 5-point Likert scale | Parasuraman (2000); Bakar et al. (2020) |
| | Innovativeness | Willingness to experiment with new system features (e.g., "I like exploring new functions of the E-ProZ system.") | 5-point Likert scale | Parasuraman & Colby (2014); Rahayu & Day (2017 |
| | Discomfort | Perceived difficulty or anxiety using the system (e.g., "I feel stressed when using E-ProZ without assistance.") | 5-point Likert scale | Parasuraman (2000) |
| | Insecurity | Fear of data loss or unauthorized access (e.g., "I am concerned about the confidentiality of data submitted through E-ProZ.") | 5-point Likert scale | Parasuraman & Colby (2014); |
| E-Procurement Adoption (Dependent Variable) | System Usage | Frequency and consistency of using E-ProZ for procurement functions | 5-point Likert scale | Gunasekaran & Ngai (2018); Mutua et al. (2024) |
| | System Integration | Degree of linkage between E-ProZ and other financial/audit systems | 5-point Likert scale | Vaidya et al. (2016); Oyeyemi et al. (2023) |
| | Compliance | Adherence to procurement laws and procedures through E-ProZ | 5-point Likert scale | Bakar et al. (2020) |
| | Trust and Transparency | Confidence in system integrity and fairness of transactions. | 5-point Likert scale | Croom & Brandon-Jones (2017); Asogwa (2020) |

## III. METHODOLOGY

### 3.1 Research Design

The study employed a descriptive cross-sectional research design. A descriptive design was chosen because it allows for the systematic collection of quantitative data, to describe characteristics and relationships among variables without manipulation. The cross-sectional approach was appropriate since data were collected at a single snapshot from employees of the Zanzibar Public Procurement Regulatory Authority (ZPPRA) to examine the relationships between *Technology Readiness* dimensions and *E-Procurement Adoption.*

### 3.2 Target Population and Sample Size

The target population comprised 567 employees of ZPPRA across different departments and units such as Procurement, ICT, Finance, Legal, Human Resources and Monitoring and evaluation units. The sample size was determined using Yamane's formula, at a 90% confidence level and a 10% margin of error:

$$n=N/1+N\ (e)^2$$

Where;

$n$ = required sample size, $N$ = population size (567), $e$ = margin of error (0.10)

The calculated sample size was approximately to 85 respondents, which was proportionately distributed among the key departments to ensure fair representation of E-ProZ users.

### 3.3 Data Collection Instrument

Structure questionnaire was used to collect primary data, upon which the questionnaires were divided into three sections, namely; Demographic Informations (e.g. age, gender, education, work experience). Technology Readiness Dimensions i.e. optimism, innovativeness, discomfort and insecurity (adapted from Parasuraman, 2000; Parasuraman & Colby, 2015). E-Procurement Adoption: items derived from validated scales in prior e-procurement studies (e.g., Aboelmaged, 2010; Gunasekaran & Ngai, 2018). All items were on a five-point Likert scale measurements, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

### 3.4 Data Analysis Techniques

Data analysis involved both descriptive and inferential statistics using SPSS version 28 and AMOS version 26.

### 3.5 Descriptive Analysis

Frequencies, means, percentages and standard deviations were used to summarize respondent's demographic characteristics and the distribution of study variables.

#### 3.5.1 Inferential Analysis (SEM Approach)

Structural Equation Modeling (SEM) was applied to test the hypothesized relationships among the variables. The analysis followed the two-step approaches, as recommended by Hair et al. (2021) and Kline (2016):

#### 3.5.2 Measurement Model (Confirmatory Factor Analysis - CFA)

Reliability and validity was tested using Cronbach's Alpha (α), Composite Reliability (CR) and Average Variance Extracted (AVE). Model-fit indices used were $\chi^2/df \leq 3.0$, CFI ≥ 0.90, TLI ≥ 0.90, and RMSEA ≤ 0.08.

#### 3.5.3 Structural Model

Examined the direct effects of all independent variables to a dependent variable; To ensure data quality, Common Method Bias (CMB) was checked using Harman's single-factor test (Podsakoff et al., 2003), and multicollinearity was assessed through the Variance Inflation Factor (VIF < 3.3) as recommended by Kock (2015).

#### 3.5.4 Data Screening and Respondent Profile

Data were collected from 85 valid responses out of a population of 567 ZPPRA employees. Screening procedures confirmed that, the dataset met the assumptions for SEM analysis. Missing data below 5% were replaced using mean substitution, and no severe outliers were detected ($p < 0.001$, Mahalanobis distance). All skewness and kurtosis values fell within the acceptable range of −2 to +2, indicating normality (Kline, 2016). Respondents were mainly professionals working in procurement and ICT departments, aged between 30 and 49 years, and holding bachelor's or postgraduate degrees. This composition indicated a qualified and experienced sample that accurately represents E-ProZ system users within ZPPRA.

### 3.6 Reliability and Validity of Constructs

Reliability and validity tests were conducted to confirm measurement consistency and construct adequacy. Cronbach's Alpha (α) and Composite Reliability (CR) values for all constructs exceeded the recommended threshold of 0.70, confirming internal consistency (Nunnally & Bernstein, 1994). The Average Variance Extracted (AVE) for all constructs was greater than 0.50, indicating sufficient convergent validity (Fornell & Larcker, 1981).

**Table 2**

*Reliability and Validity of Constructs*

| Construct | Cronbach's Alpha | CR | AVE |
|---|---|---|---|
| Optimism | 0.812 | 0.846 | 0.582 |
| Innovativeness | 0.798 | 0.831 | 0.559 |
| Discomfort | 0.751 | 0.784 | 0.519 |
| Insecurity | 0.767 | 0.805 | 0.541 |
| E-Procurement Adoption | 0.884 | 0.902 | 0.655 |

All tests met the minimum acceptable criteria, confirming that the measurement items were reliable and valid indicators of their respective constructs. Discriminant validity was also established using the Fornell–Larcker criterion, as the square roots of each construct's AVE exceeded the corresponding inter-construct correlations.

#### 3.6.1 Model Fit Evaluation (CFA Results)

Confirmatory Factor Analysis (CFA) was performed to verify the overall measurement model. The results demonstrated an acceptable model fit, satisfying the standard indices recommended by Hair et al. (2021) and Kline (2016);

**$\chi^2/df = 2.13$**, **CFI = 0.93**, **TLI = 0.91**, and **RMSEA = 0.07**.

These values confirm that, the model adequately represents the relationships between the observed indicators and their underlying latent constructs, providing a sound basis for further structural analysis.

### 3.6.2 Diagnostic Tests for Common Method Bias and Multicollinearity

Diagnostic checks were carried out because the study used self-reported data. Common technique bias was not a problem, according to Harman's single-factor test, which showed that only 38.7% of the total variance was explained by the first factor, below the 50% threshold (Podsakoff et al., 2003). The lack of multicollinearity was confirmed by Variance Inflation Factor (VIF) values, which varied from 1.21 to 2.76 and were below the crucial value of 3.3 (Kock, 2015).

### 3.7 Structural Model Results

After validating the measurement model, the structural model was estimated to test the hypothesized relationships between Technology Readiness dimensions (optimism, innovativeness, discomfort, and insecurity) and E-Procurement Adoption. The model achieved acceptable fit indices ($\chi^2/df = 2.29$, CFI = 0.93, TLI = 0.91, RMSEA = 0.074), confirming that the proposed model provided a good representation of the observed data.

**Table 3**

*Structural Model Results and Hypothesis Testing*

| Hypothesis | Relationship | Estimate (β) | p-value | Decision |
|---|---|---|---|---|
| H1 | Optimism - E-Procurement Adoption | 0.312 | 0.012 | Supported |
| H2 | Innovativeness - E-Procurement Adoption | 0.284 | 0.021 | Supported |
| H3 | Discomfort - E-Procurement Adoption | –0.261 | 0.037 | Supported |
| H4 | Insecurity - E-Procurement Adoption | –0.239 | 0.045 | Supported |

The model supported all four hypotheses ($p < 0.05$). The results suggested that, there is positive influence of optimism and innovativeness to E-ProZ system adoption, while discomfort and insecurity influenced adoption negatively. These findings provide empirical validation for the proposed theoretical model and form the basis for the ensuing discussion.

### 3.6 Ethical Considerations

Ethical clearance was obtained from relevant institutional authority. Respondents were informed about the purpose of the research, assured confidentiality and participation was strictly voluntary. No identifying information was collected and the data were used solely for academic purposes.

## IV. FINDINGS & DISCUSSION

### 4.1 Findings

This section presents the study findings on the influence of technology readiness and its dimensions in e-procurement adoption at ZPPRA. The presented results followed the study's objectives, and is divided into two parts i.e. descriptive statistics which summarize respondents view per each construct and inferential statistics that test the hypothesized relationship between variables

### 4.1 Descriptive Statistics

The descriptive results summarized the respondents' perceptions of optimism, innovativeness, discomfort, insecurity, and overall e-procurement adoption, as shown in Table 4**.**

**Table 4**

*Descriptive Statistics*

| Variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Optimism | 70 | 2.10 | 5.00 | 3.94 | 0.71 |
| Innovativeness | 70 | 2.30 | 5.00 | 3.81 | 0.68 |
| Discomfort | 70 | 1.30 | 4.10 | 2.56 | 0.73 |
| Insecurity | 70 | 1.20 | 4.30 | 2.78 | 0.80 |
| E-Procurement Adoption | 70 | 2.20 | 4.90 | 3.87 | 0.65 |

As indicated in Table 4, optimism showed a mean score of (M = 3.94, SD = 0.71) and innovativeness (M = 3.81, SD = 0.68) of which were relatively high, suggesting that, most ZPPRA staff are willing to explore and utilize the E-ProZ system. Conversely, the mean scores for discomfort (M = 2.56, SD = 0.73) and insecurity (M = 2.78, SD = 0.80)

were moderate, meaning that although some employees experience anxiety and uncertainty when using the system, these challenges are not significant.

Overall, the descriptive results indicate a generally favorable level of technology readiness among ZPPRA employees. The findings suggest that most users are confident and open to e-procurement adoption, although a small proportion still exhibit cautious attitudes due to limited ICT skills and perceived system risks.

### 4.2 Inferential Statistics

Inferential statistical analysis was conducted to test the hypothesized relationship between technology readiness dimensions and e-procurement adoption. The regression results illustrate the individual and collective effects of optimism, innovativeness, discomfort, and insecurity on E-ProZ system adoption, as summarized in Table 5.

**Table 5**

*Inferential Statistics*

| Model | R | $R^2$ | Adjusted $R^2$ | Sts.Error | F-Statistic | Sign. |
|---|---|---|---|---|---|---|
| Technology Readiness Dimensions – E-Procurement Adoption | 0.79 | 0.63 | 0.6 | 0.41 | 22.84 | 0 |

Overall, the model explains 63% ($R^2 = 0.63$) of the variance in e-procurement adoption, indicating that the four technology readiness dimensions collectively contribute significantly to the effective use of the E-ProZ system ($F = 22.84$, $p < 0.001$).This confirms that users' behavioral readiness is a key determinant of successful digital transformation within ZPPRA.

### 4.3 Discussion

The results of this study confirm that human readiness significantly influences the success of e-procurement adoption. High levels of optimism and innovativeness among employees indicate that users who are confident and open to new technologies are more likely to embrace the E-ProZ system. This is consistent with the findings of Aboelmaged (2010), Gunasekaran and Ngai (2018), and Mutua et al. (2024), who found that positive attitudes and creative behaviors promote technology adoption in public organizations.

Conversely, discomfort and insecurity were identified as factors that adversely impact the adoption of e-procurement. This indicates that when employees experience anxiety, lack skills, or feel uncertain about data security, they are likely to hesitate in fully utilizing the system. Similar observations have been made by Asogwa (2020), Ismail and Harun (2021), and Tsourela and Giaglis (2022), who highlighted that psychological obstacles and concerns about trust can diminish the utilization of technology in public procurement.

Overall, these results suggest that the achievement of e-procurement reform in Zanzibar relies not solely on the caliber of the technology but also on the readiness of users to interact with it. Thus, organizations ought to concentrate equally on skill enhancement, managerial transition, and belief cultivation among personnel to facilitate the lasting uptake of the E-ProZ system.

## V. CONCLUSION & RECOMMENDATION

### 5.1 Conclusion

Using the E-ProZ system as a case study, this study investigated the impact of Technology Readiness on E-Procurement Adoption at the Zanzibar Public Procurement Regulatory Authority (ZPPRA). The study was bolstered by Technology Readiness Index (TRI) and Technology-Organization-Environment (TOE) framework, which sought to ascertain how readiness dimensions of innovativeness, optimism, discomfort and insecurity affects the decision of adopting e-procurement systems. Additionally, Structural Equation Modeling (SEM) results showed a positive and significant influence of innovativeness and optimism to e-procurement adoption, while discomfort and insecurity exhibited negative-significant outcomes. Clearly, these results supported the theoretical premise of TRI model that adoption behavior is influenced by psychological preparedness. Furthermore, by connecting institutional and environmental factors that either support or obstruct digital transformation with person readiness, the integration of TRI and TOE frameworks offered a thorough explanation.

The study concluded that, when there is strong base of institutional and human readiness factors, technological reforms in public procurement can succeed. While sophisticated systems like E-ProZ can improve accountability, transparency and efficiency, their advantages can only be realized when institutions have robust enabling policies, regulatory authority, and infrastructure, as well as when users are self-assured, creative, and well-trained. This study offered empirical proof that technology adoption in Zanzibar is a behavioral and organizational issue in addition to a

technical one. From a practical standpoint, it illustrates how the viability of e-procurement reforms in Zanzibar is determined by a combination of user views, institutional commitment and environmental constraints.

### 5.2 Recommendations

Based on the study's findings, number of suggestions are put forth to improve the Zanzibar Public Procurement Regulatory Authority (ZPPRA) and the public sector's overall adoption and use of e-procurement technologies. These suggestions fall into two categories i.e. policy-level recommendations and institutional and management recommendations. It is advised that, ZPPRA should strengthen capacity building programs and training especially ICT's at both institutional and managerial levels. Also, to increase the employee's digital literacy, self awareness and familiarity with E-ProZ system in keeping pace with ongoing trainings are crucial. In addition to enhancing technical proficiency, regular refresher training and on-the-job mentoring can help users who might find it difficult to use new technologies feel less uneasy and insecure.

Additionally, management must to encourage an innovative culture within the company. A more encouraging environment for digital transformation can be created by encouraging staff members to try out new system features, exchange success stories and participate in innovation-driven forums. Greater levels of technology adoption and continuing development will result from commending and acknowledging inventive personnel for their favorable perspectives toward system utilization, particularly optimism and innovativeness.

ZPPRA should also prioritize and support system stability, reducing operational frustration by lessening operational frustration demands technological advancements like sustaining a dependable internet link, updating systems on a timetable, and establishing an around-the-clock support desk. These efforts will ensure seamless, continuous acquisition streams and diminish buyer frustration. Data assurance and system protections also warrant keen attention. ZPPRA ought to implement enhanced network defense measures, such as tiered authentication, secure information storage techniques, and regular platform assessments, to alleviate customer concerns regarding data security and confidentiality. By alleviating worries and increasing buyer confidence, these measures will ultimately enhance trust in the e-procurement system. The Zanzibar administration should ensure that institutional readiness and digital monitoring protocols are aligned at the policy level. Adequate staff capability, robust ICT infrastructure and comprehensive transition management systems for e-procurement's successful implementation must drive technology investment. The benefits of digital progress may not be realized without such alignment. Furthermore, policymakers should develop incentive mechanisms to support the adoption and utilization of e-procurement tools. These structures could involve performance-based recognition, dedicated funding for ICT improvements, or linking platform usage to evaluation systems. These actions will not only encourage entities to fully embrace e-procurement but will also foster a climate of continuous improvement, transparency, and innovation in public procurement across Zanzibar.

## REFERENCES


Aboelmaged, M. G. (2010). Predicting e-procurement adoption in a developing country: An empirical integration of technology acceptance model and theory of planned behavior. *Industrial Management & Data Systems, 110*(3), 392–414. https://doi.org/10.1108/02635571011030042

Asogwa, B. E. (2020). Electronic government in developing countries: Development and diffusion of e-government applications in Nigeria. *Government Information Quarterly, 37*(2), 1–10. https://doi.org/10.1016/j.giq.2019.101432

Bakar, N. A., Omar, S. S., & Nurdin, N. (2020). E-procurement adoption and implementation in developing countries: A case of Tanzania. *International Journal of Public Sector Management, 33*(4), 389–408. https://doi.org/10.1108/IJPSM-07-2019-0186

Basheka, B. C., & Bisangabasaija, E. (2019). Determinants of adoption of e-procurement practices in public sector: Evidence from Uganda. *Journal of Public Procurement, 19*(3), 231–252. https://doi.org/10.1108/JOPP-12-2018-0062

CAG. (2023). *Report of the Controller and Auditor General on public procurement for FY 2022/2023*. Government of Zanzibar.

Croom, S., & Brandon-Jones, A. (2017). Key issues in e-procurement: Procurement transformation and e-business. *Journal of Purchasing and Supply Management, 23*(4), 203–210. https://doi.org/10.1016/j.pursup.2017.08.002

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Gichuki, C., & Were, S. (2023). Barriers to successful e-procurement implementation in Sub-Saharan Africa: A systematic review. *African Journal of Management Research, 15*(2), 44–59.

Gunasekaran, A., & Ngai, E. W. T. (2018). Adoption of e-procurement in the public sector: An empirical study. *International Journal of Production Economics, 200*, 83–95. https://doi.org/10.1016/j.ijpe.2018.03.007

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2021). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hassan, M., & Mungai, P. (2022). Organizational and technological determinants of e-procurement adoption among state agencies in Kenya. *African Journal of Business Management, 16*(6), 119–131.

Ismail, Z., & Harun, M. (2021). Contextualizing e-procurement frameworks for developing countries: Lessons from Malaysia. *Asian Journal of Technology Innovation, 29*(3), 385–403. https://doi.org/10.1080/19761597.2021.1959421

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). The Guilford Press.

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

Mambo, P., & Muriithi, S. (2020). Barriers to e-procurement implementation in Sub-Saharan Africa: A systematic perspective. *International Journal of Production Economics, 150*, 95.

MAPS. (2023). *Zanzibar public procurement system assessment: Methodology for assessing procurement systems (MAPS) report 2023*. World Bank Group & Government of Zanzibar.

Mlinga, R., & Lameck, W. (2021). Public procurement reforms and e-procurement adoption in Tanzania: Progress and challenges. *Journal of Marketing Research, 19*(1), 39–40.

Moshi, E., & Komba, H. (2023). Evaluating the effectiveness of electronic procurement systems in Zanzibar public institutions. *African Journal of Management and Governance, 11*(1), 33–48.

Msuya, M., & Malongo, J. (2022). Assessing the challenges of e-procurement implementation in public institutions in Tanzania. *International Journal of Public Administration and Management Research, 8*(2), 45–59.

Mutua, J. K., Mwangi, M., & Wambugu, G. (2024). Technological readiness and digital transformation in public procurement: Evidence from Kenya. *Journal of African Digital Economy, 3*(1), 67–82.

Neupane, A., Soar, J., & Vaidya, K. (2012). Evaluating the anti-corruption capabilities of public e-procurement in a developing country. *The Electronic Journal of Information Systems in Developing Countries, 55*(1), 1–17. https://doi.org/10.1002/j.1681-4835.2012.tb00373.x

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

OECD. (2016). *OECD recommendations on public procurement*. Organisation for Economic Co-operation and Development. https://doi.org/10.1787/9789264264026-en

Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at firm level. *The Electronic Journal Information Systems Evaluation, 14*(1), 110–121.

Oyeyemi, T. A., Lawal, A. M., & Ajayi, A. O. (2023). E-procurement readiness and institutional performance in Sub-Saharan Africa: A behavioral perspective. *Journal of African Governance and Development, 9*(2), 77–91.

Parasuraman, A. (2000). Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research, 2*(4), 307–320. https://doi.org/10.1177/109467050024001

Parasuraman, A., & Colby, C. L. (2015). An updated and streamlined technology readiness index: TRI 2.0. *Journal of Service Research, 18*(1), 59–74. https://doi.org/10.1177/1094670514539730

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Rahayu, R., & Day, J. (2017). E-commerce adoption by SMEs in developing countries: Evidence from Indonesia. *Eurasian Business Review, 7*(1), 25–41. https://doi.org/10.1007/s40821-016-0044-6

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.

Tsourela, M., & Giaglis, G. M. (2022). Assessing technology readiness in public organizations: Antecedents and consequences. *Government Information Quarterly, 39*(2), 101625. https://doi.org/10.1016/j.giq.2021.101625

UNCTAD. (2020). *E-government survey 2020: Digital government in the decade of action for sustainable development*. United Nations Conference on Trade and Development.

URT. (2020). *The Zanzibar Public Procurement and Disposal of Public Assets Act, No. 11 of 2025*. Government Printer.

Vaidya, K., Sajeev, A. S. M., & Callender, G. (2016). Critical factors influencing e-procurement adoption in the public sector. *Journal of Public Procurement, 16*(3), 254–278. https://doi.org/10.1108/JOPP-03-2015-0012

World Bank. (2021). *Tanzania: Enhancing public procurement performance through e-procurement reform*. https://doi.org/10.1596/978-1-4648-1712-0

ZPPRA. (2020). *The Zanzibar Public Procurement and Disposal of Public Assets Regulations, 2020*. Zanzibar Public Procurement Regulatory Authority.

ZPPRA. (2024). *Annual procurement report 2023/2024*. Zanzibar Public Procurement Regulatory Authority.