

**ASSESS THE EFFECT OF ELECTRONIC PROCUREMENT ON THE  
PROCUREMENT PERFORMANCE IN PUBLIC ORGANISATION: A CASE OF  
TANESCO HEAD QUARTERS DAR ES SALAAM**

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A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of  
Master of Business Administration in Procurement and Supplies Management of the  
Institute of Accountancy Arusha

**November, 2023**

## DECLARATION

I, **Happiness Henry Marcilianus**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any university for similar or any other degree award.

Signature.....

Date.....

**CERTIFICATION**

I, the undersigned certify that I have read and hereby recommend for acceptance by Institute of Accountancy the dissertation entitled: **“ASSESSMENT OF THE IMPACT OF ELECTRONIC PROCUREMENT ON THE PROCUREMENT PERFORMANCE AT TANESCO HEAD QUARTERS, DAR ES SALAAM”**, in partial fulfillment of the requirements for the degree of Master of Business Administration in Procurement and Supplies Management of the Institute of Accountancy Arusha.

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## **DEDICATION**

With profound gratitude and immeasurable love, I dedicate this dissertation to my beloved husband, Mr. R. Matee, and our cherished children, Rodney and Royden. Their unwavering support, encouragement, and understanding have been the cornerstone of my academic journey. In the tapestry of life's pursuits, they have been the steady anchors, providing solace during challenging times and celebrating triumphs with boundless joy.

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## ABSTRACT

This study sought to assess the impact of e-procurement on the procurement performance at TANESCO HQ Dar es Salaam. Specifically, this study aimed to assess the effect of e-tendering, e-awarding, e-ordering and e-invoicing on procurement performance. Technological acceptance model and the principal-agency theory were employed in this study. The study was conducted at TANESCO as one of the public organizations. A descriptive research design was used. The population of the study comprised of 90 TANESCO employees of the finance and procurement staff where 73 of them were purposely sampled. The study employed questionnaire as a data collection tool and the analysis of the collected data was done through descriptive and multiple linear regression analysis. The study found that e-tendering have a significant improvements in the speed and efficiency of the procurement process, reduced administrative burden, and enhanced transparency. In this study, e-awarding demonstrated positive outcomes in consistency, reliability in vendor selection, and improvements in contract compliance, while reduced time requirements for awarding contracts showed statistical significance. Also, e-ordering unveiled positive effects on reducing processing times, improving accuracy, enhancing communication with suppliers, and increasing stakeholder satisfaction. For e-invoicing, the study found substantial improvements in reducing errors, expediting payments, increasing transparency, and improving overall financial management. The regression model exhibits a strong explanatory capacity for procurement performance at TANESCO, as indicated by a high correlation coefficient of 0.877. The study advises TANESCO to enhance electronic processes, focusing on streamlined administration and increased transparency. It also suggests future research to explore integrating sustainability practices into electronic systems for socially and environmentally compliant procurement.

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## **ABBREVIATIONS AND ACRONYMS**

ANOVA	Analysis of Variance
E-Awarding	Electronic Awarding
E-Invoicing	Electronic Invoicing
E-Ordering	Electronic Ordering
E-Procurement	Electronic Procurement
E-Tendering	Electronic Tendering
PPRA	Public Procurement Regulatory Agency
SD	Standard Deviations
SPSS	Statistical Package for Social Sciences
TANePS	Tanzania electronic Procurement System
TANESCO	Tanzania Electric Supply Company
URT	United Republic of Tanzania

## **CHAPTER ONE**

### **PROBLEM SETTING**

#### **1.1 Introduction**

In this chapter the researcher provides the background information concerning electronic procurement in Tanzania especially on public organization performance. This study seeks to assess the effect of e-procurement on public organizational performance. This first chapter introduces the study by highlighting the background of the study, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study and organization of the proposal.

#### **1.2 Background of the Study**

Information and communication technology in the twenty first century is becoming an enormously vibrant field. This has had a significant effect on the procurement industry. Electronic procurement (E-Procurement) in Tanzania is an evolving practice. Procurement has beneficial and negative effects and implications that individual, working groups, organizations, inter- organizational networks and societies as a whole experience. Information technology is involved in all sectors, both government and private. Understanding the connection between IT and social organization in many disciplinary areas such as procurement is an increasingly significant and urgent social and academic issue (Mrope, 2018).

For all businesses, but especially for those in the public sector, measuring their performance is essential (Muturi & Wanyonyi, 2015). The idea of procurement performance has drawn scholars,

academics, and practitioners' attention since the 1930s (Kakwezi & Nyeko, 2019). The procurement procedure for public sectors around the world is fraught with difficulties, which prevents value for money from being achieved. More than 70% of the government budget is spent on the procurement process, but more than half of this budget is lost because of improper procurement processes, a lack of an appropriate procurement plan, the use of inappropriate standard documents, and the execution of the procurement process's incompetence (Gathima & Njoroge, 2018).

In developing nations like Tanzania, the difficulty of achieving organizational performance is still a serious concern (Banaya, 2020). According to the literature, less than half of public organizations are effectively served by the procurement process, and most projects lack acceptable quality, time, and scope provisions (PPRA, 2018). Governments around the world, including Tanzania, have implemented an e-procurement system to address this issue with the performance of the procurement function.

Over the past few years, automated technology-based procurement systems have evolved into a tool that integrates management of the procurement practice for both the private and public sectors (Lysons, et al., 2003). In order to give their residents, the best and most knowledgeable services possible, many governments throughout the world are striving to understand how to use electronic procurement as a competitive advantage. In order to take advantage of the system, public agencies around the world have made e-procurement a strategic priority and have implemented or are implementing the same (Vaidya, et al., 2006).

E-procurement also helps to shorten lead times, cut costs, and increase transparency. Reduced instances of corruption in public sector procurement are greatly affected by the move of



procurement functions from manual to internet-based processes (Makoba, et al., 2017). Transparency, improved supplier-buyer relations, and a streamlined purchasing process were among the other advantages that formed the basis for implementing e-procurement, but cost-benefit analysis was the primary motivator (Innocent & Kalaskar, 2016).

Tanzania, like every other nation, aims to succeed in the electronic procurement system to increase organizations' efficiency and effectiveness, which will effect transparency, as shown by (Makoba, et al., 2017). As a result, the Tanzanian government launched the Tanzania electronic Procurement System (TANePS) in 2019 for filing and assessing procurement applications in a bid. To increase efficiency and get rid of corruption, this is done. Therefore, it is also an aim to reduce lengthy waits and slow processes. The system is designed to provide users with clear instructions and guidance on how to submit applications for government contracts. By creating a fair playing field for everyone, the approach is anticipated to save government spending (Maagi & Mwakalobo , 2023).

Though, E-procurement is not a latest method but in Tanzania is at newborn stage. The most key challenge for Tanzania to Adopt E-procurement include Policy and Legislative framework, Institutional structures, Procurement processes, ICTs and People. By discussion the main obstacles for underdeveloped countries to engage in electronic procurement are lawful problem, technology problem as well as security issue. It is real that inadequate of completed research and findings on the field of electronic procurement in Tanzania has result the Government of Tanzania to be delayed to engage in electronic procurement and gain the fruits of this new system to the public institution (Public Procurement Regulatory Authority, 2019). Identification of electronic procurement in lately initiated PPA of 2011 is a critical step toward complete employment of e-procurement in

procurement activities. It's recognized in sect 9(j) "determine, develop, introduced and update related system to support public procurement by means of information and communication technology including the use of public electronic procurement". PPRA support the implementation of e-procurement by establish the Procurement Management Information System (PMIS) so as to smooth the communication between PPRA and PE's in term of checking and monitoring all procurement activities, enabling online submission of monthly reports, Annual Procurement Plan (APP) and check list form. Not only that but also some indicators has been used in PPRA website for evaluation of e-procurement such as tender portal where suppliers are capable of viewing all tenders available, and access all information available for contract awarding deferent PE's. Other interventions are <http://www.ppra.go.tz> "website based on sharing of Public Procurement (PP) news and knowledge, special portal for tendering procedures (PPRA, 2018).

However, despite numerous reforms and efforts to improve the performance of the procurement function made by governments of developing nations like Tanzania and development partners like the World Bank, public procurement is still tainted by sloppy contracts and subpar goods and services (Kakwezi & Nyeko, 2019). Therefore, this study sought to assess the effect of e-procurement on the performance of public organizations.

### **1.3 Statement of the Problem**

The Tanzanian government has prioritized electronic procurement as part of its e-Government program. By converting manual procurement processes into an electronic, web-based system, the e-procurement technique enables government contracting bodies to purchase products and services from vendors electronically (Mushi & Nsimbila, 2022).

Despite the introduction of e-procurement in the Tanzanian public sector, studies (Abdul & Lyimo, 2019) and Mboya (2015) have reported on the delay of procurement in the public sector. This raises the question on the effectiveness of e-procurement on enhancing the performance of the procurement function. According to Mwandembwa & Matiku (2022) public procurement is still marred by shoddy contracts, poor quality goods and services.

Previous studies such as Mrope (2018) and Mboya (2015) have overlooked this particular area which is important for ensuring value for money. Most studies such as Makoba et al., (2017) have concentrated on e-procurement practice in the private sector and factors influencing e-procurement adoption. Therefore, the current study assessed the effect of e-procurement on the performance of organizations.

#### **1.4 General Objective**

The general objective of the study was to assess the impact of e-procurement on the procurement performance at TANESCO.

#### **1.5 Specific Objectives**

- i. To assess the effect of electronic tendering on procurement performance at TANESCO HQ Dar es Salaam.
- ii. To examine the effect of electronic awarding on procurement performance at TANESCO HQ Dar es Salaam.
- iii. To evaluate the effect of electronic ordering on procurement performance at TANESCO HQ Dar es Salaam.

- iv. To determine the effect of electronic invoicing on procurement performance at TANESCO HQ Dar es Salaam

### **1.6 Research Questions**

- i. What is the effect of electronic tendering on procurement performance at TANESCO HQ Dar es Salaam?
- ii. What is the effect of electronic awarding on procurement performance at TANESCO HQ Dar es Salaam?
- iii. What is the effect of electronic ordering on procurement performance at TANESCO HQ Dar es Salaam?
- iv. What is the effect of electronic invoicing on procurement performance at TANESCO HQ Dar es Salaam?

### **1.7 Scope of the Study**

The study focused on assessing the impact of e-procurement on organizational performance. Specifically, the study focused on determining the impact of e-procurement elements such as e-tendering, e-awarding, e-ordering and e-invoicing on the performance of an organization. The study was conducted at TANESCO head quarter Dar es Salaam due to the fact that it is a large public procurement entity. Therefore, it can easily represent the public procurement entities. Also, TANESCO has been practicing e-procurement for a while and thus in position to be useful in establishing the extent at which e-procurement has influence the performance of an organization.

### **1.8 Limitations of the Study**

There were difficulties in obtaining respondents for the study. This is from the fact that they were busy with their daily schedules in the office. However, the study used enough time to collect data to make sure all the desired respondents are involved.

Also, respondents were reluctant on providing some information for reasons of confidentiality. However, the researcher explained to them that the information is for academic purposes only and confidentiality and anonymity was guaranteed.

### **1.9 Significance of the Study**

This study has some remarkable significant such that this add knowledge to the existing body of literatures that are related to electronic procurement in Tanzania and the world at large. Also, the study findings can be used by different stakeholders to make decisions on how to improve the online procurement in Tanzania particularly the public institution which are the giant play role in the country.

The study is significant to the public organizations since the impact of e-procurement on the performance of the procurement function was determined. In this sense, all the public organizations are in position to improve the procurement function as far as e-procurement is concerned. The study is also significant for the policy makers, particularly the procurement policies and laws. On this, the findings of the study are useful in enhancing the use of e-procurement in the public sector and inform the policy makers on the best way to execute e-procurement.

### **1.10 Organization of the Study**

The study is organized into five chapters; the first chapter introduces the study by offering the background of the study, the statement of the problem, objectives of the study, research questions, significance, scope and organization of the proposal. The second chapter reviews different literature related to the study; the chapter has theoretical literature review, empirical literature review, research gap and conceptual framework. Chapter three discusses the methodology which was employed in conducting this study; the chapter has research design, research approach, and population of the study, sample size, sampling techniques and data collection methods. Furthermore, the chapter has validity and reliability, data analysis techniques and ethical considerations. Chapter four presents and discusses the findings of the study while chapter five provides the summary, conclusion and recommendations of the study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter entails to discuss the review of literature by starting with definition of key concepts so as to inform readers what is mean by a certain term or concept. Also, the theory that was used in this study which stipulated the relationship exists between theory and the study itself. Apart from that this chapter explains the empirical part of the literature review and the research gap. Finally, the conceptual framework is drawn so as to show the relationship between independent and dependent variables.

#### **2.2 Definition of Key Terms**

##### **2.2.1 Electronic Tendering**

E-tendering encompasses the utilization of digital technologies and online platforms to conduct the various stages of the tendering process. This involves the electronic submission and reception of bids, proposals, and related documents, fostering a transition from traditional paper-based tendering methods to a more streamlined and technologically advanced approach. The overarching aim of e-tendering is to enhance efficiency, transparency, and accessibility in the procurement process by leveraging electronic means for the creation, submission, and evaluation of tender-related information.

### **2.2.2 Electronic Awarding**

In the realm of procurement, e-awarding denotes the digitalized process of evaluating submitted bids or proposals and subsequently granting contracts or awards to suppliers. This electronic awarding process is an integral component of e-procurement systems, where the entire award decision-making phase is executed through digital platforms. By embracing e-awarding, organizations seek to mitigate paperwork, heighten transparency, and expedite the decision-making process associated with the allocation of contracts or awards, ultimately fostering efficiency and accuracy.

### **2.2.3 Electronic Ordering**

E-ordering involves the electronic initiation and management of purchase orders, representing a departure from conventional paper-based ordering methods. Through dedicated electronic systems, organizations can seamlessly generate, authorize, and transmit purchase orders to suppliers. The adoption of e-ordering is geared towards optimizing the efficiency and accuracy of the ordering process, promoting swifter transactional interactions, and instilling enhanced control mechanisms over the entirety of the procurement activities within an organizational framework.

### **2.2.4 Electronic Invoicing**

E-invoicing stands as a paradigm shift from traditional paper-based invoicing, encapsulating the electronic generation, transmission, and processing of invoices in the realm of business transactions. By harnessing digital formats and automated systems, e-invoicing facilitates the creation, sending, receipt, and processing of invoices between business partners. The pivotal objective of e-invoicing is to curtail manual errors, expedite payment procedures, and bolster overall



efficiency in financial transactions, thereby fostering a seamless and technologically driven invoicing environment.

### **2.2.5 Procurement Performance**

Procurement performance constitutes a multifaceted evaluation of an organization's effectiveness in acquiring goods, services, or works. This entails a comprehensive assessment of various dimensions, including but not limited to cost-effectiveness, quality of acquisitions, timeliness in procurement processes, and adherence to pertinent regulations. Procurement performance metrics serve as vital indicators, encompassing factors such as cost savings, the robustness of supplier relationships, punctuality in delivery, and the overall efficiency of the procurement workflow. Continuous monitoring and strategic enhancements in procurement performance are indispensable for organizations aspiring to optimize resource utilization and attain overarching strategic objectives.

## **2.3 Theoretical Literature Review**

The study was guided by the Technological Acceptance Model and the Principal-Agency Theory.

### **2.3.1 Technological Acceptance Model**

Technology Acceptance Model (TAM) was developed validated by (Davis, 1986) to describe the processes through which users' acceptance of new information technology is affected and shaped. Perceived usefulness and perceived ease of use in relation to new information system design features are two distinct variables that, in accordance with TAM, serve as essential influencers of users' attitudes toward adopting information technology and actual system use. Usability is defined as the extent to which a person thinks that using a system improved performance, and usability is defined as the extent to which a user thinks that using a system has more advantages than

disadvantages. Administrators must evaluate employees' attitudes toward the new information technology before implementing e-procurement in order to avoid a failed implementation and resource waste.

The theory is employed in this study to explain the acceptance of e-procurement. Governments must simultaneously lower their budgets while dealing with rising procurement costs. In spite of the strain from scarce resources, administrators must deliver secure and high-quality services. Computers, information systems, and other technologies have permeated public organizations and improved their performance by facilitating better communication, access to knowledge, and efficiency (Dewett & Jones, 2001).

The use of electronic procurement practices in Tanzania is a new technology that is adopted in order to improve procurement performance; as a result, the technology acceptance theory is relevant to the study's objective (e-tendering, e-awarding, e-ordering, and e-invoicing). The technology acceptance theory aids organisations (PEs) and other procurement stakeholders in understanding and adopting the new technology and its effect on procurement performance. The idea aids stakeholders in implementing e-tendering procedures for the acquisition of products, works, and services, which reduces noncompliance systems and needless complaints while saving time. Additionally, the theory aids in staff and stakeholders' comprehension of the value of e-sourcing in the acquisition of goods, works, and services for public procurement.

### **2.3.2 The Principal-Agency Theory**

Based on the agency relationship, Stephen Ross and Barry Mitnick developed the agency theory in 1973. An agency is a relationship formed by two parties' mutual consent in which one party (the

agent) consents to act on behalf of the other party (principal). This theory presupposes that there is a conflict of interest between a corporation's owners (shareholders) and managers (Davis, 1986).

The agent has a duty to maximise the interests of the shareholders, but on the other side, the agent also has a personal incentive to do so. As a result, it is possible that the agent did not always act in the shareholders' best interests (Jensen & Meckling, 1976). Three human character assumptions are made by agency theory: (1) most people prioritise their own interests (self-interest); (2) human perception of the future is constrained by bounded rationality; and (3) people always seek to minimise risks (Jensen & Meckling, 1976).

This theory explains the fundamentals of using electronic procurement as a technical innovation that can help an organisation increase the efficiency of its procurement processes. E-procurement enabled organisations to integrate their procurement activities to a variety of stakeholders because procurement involves more than one stakeholder, as suggested by agency principle. Additionally, this theory enables organisations to strengthen the implementation of all regulatory systems, provide training to staff to increase professionalism, and enhance organisational culture to ensure efficacy. The principal agency theory is connected to the study's goals (e-tendering, e-awarding, e-ordering, and e-invoicing) in a way that the organization's management and other key stakeholders, who are tasked with ensuring that the electronic procurement practises are properly implemented, are given guidelines and procedures.

## **2.4 Empirical Literature Review**

### **2.4.1 The Effect of E-Tendering on Organizational Performance**

In a comprehensive exploration conducted by Gathima and Njoroge (2018), the primary objective was to scrutinize the effect of e-tendering on the operational efficiency of public sector organizations. The study employed both descriptive research design and explanatory design to capture a nuanced understanding of the phenomenon under investigation. Utilizing correlation analysis, the findings illuminated a compelling narrative, revealing a positive and statistically significant association between e-tendering procedures and performance within the Nairobi City County Government. Specifically, the correlation coefficient was identified at 0.307, with a corresponding p-value of 0.041, which falls below the conventional significance threshold of 0.05, affirming the statistical significance of the relationship. This empirical evidence underscores the pivotal role of e-tendering in enhancing the operational efficacy of public entities. Consequently, the study recommends an increased integration and optimization of e-tendering practices within public sector organizations to foster heightened efficiency and performance outcomes.

In the pursuit of understanding the transformative effects of e-tendering on organizational performance, Rasto & Kibet (2018) conducted an evaluation within a select group of Kenyan public hospitals. Employing a descriptive survey methodology, the study encompassed a detailed examination of five hospitals. The findings of the research illuminated a noteworthy effect as e-tendering emerged as a catalyst for heightened competition in the hospital's tendering landscape. This effect was further substantiated through inferential analysis, revealing a statistically significant association with a calculated coefficient ( $r$ ) of 0.369 and a p-value of 0.005. These compelling results not only shed light on the increased competitiveness fostered by e-tendering but also

underscore the statistical significance of this effect, thereby emphasizing its potential role in influencing and enhancing organizational performance. In light of these findings, the study recommends a broader exploration of e-tendering's multifaceted influence on organizational dynamics and advocates for its continued integration as a strategic tool in procurement processes within the healthcare sector.

In the expansive context of Homa-Bay County, Kenya, an in-depth exploration into the supply chain performance of the county government was meticulously undertaken by Odieno et al. (2021). This comprehensive study delved into the intricate dynamics of the county's supply chain, employing a robust methodology to scrutinize various facets. The research revealed that the integration of electronic tendering processes played a pivotal role, showcasing a noteworthy positive and statistically significant effect on the overall supply chain performance. The findings elucidated that electronic tendering not only contributed significantly but also accounted for a substantial variance in the comprehensive evaluation of the county government's supply chain efficacy. Building upon these insightful discoveries, the study strongly recommends further research endeavors to delve deeper into the nuanced interactions within electronic tendering processes, aiming to unravel additional dimensions that can contribute to the optimization of supply chain performance within the county.

#### **2.4.2 The Effect of E-Awarding on Organizational Performance**

In a comprehensive examination conducted by Kweka (2021), the study sought to assess the influence of various e-procurement methodologies on the expeditious acquisition of goods within select Tanzanian public hospitals. Employing a methodologically rigorous approach, the study

delved into the realms of online supplier selection, online bidder evaluation, and online supplier payment, establishing a significant and positive correlation between these e-procurement tools and the punctual procurement of products in a subset of Tanzanian government healthcare facilities. Findings from the investigation not only underscored the pivotal role of online supplier selection, online bidder evaluation, and online supplier payment in the procurement process but also shed light on their profound effect on ensuring the timely acquisition of essential goods. In light of these results, the study recommends a strategic focus on enhancing and integrating these e-procurement tools within the procurement framework of Tanzanian public hospitals to optimize the efficiency and timeliness of their procurement processes.

In his comprehensive study, Osir (2016) examined the intricate dynamics surrounding the effects of e-tendering, e-awarding, e-ordering, and e-invoicing on the efficacy of electronic procurement within the Kenyan context. Through a meticulously crafted research approach encompassing a detailed examination of these electronic processes, Osir sought to unravel the extent to which state enterprises in Kenya have adopted and integrated e-tendering, e-awarding, e-ordering, and e-invoicing into their procurement practices. The study's findings shed light on a discernible trend, indicating that state companies, in their pursuit of enhanced procurement performance, have indeed embraced these electronic modalities to a certain degree. In light of these discoveries, it is recommended that these organizations continue to strategically optimize and refine their utilization of e-tendering, e-awarding, e-ordering, and e-invoicing, with a view to maximizing the potential benefits offered by these electronic procurement processes.

In Eunice's (2015) comprehensive exploration, the Nakuru County Government served as a compelling case study, offering a nuanced understanding of how the e-awarding process profoundly influences the performance of public institutions. The objective of this insightful study was to dissect and analyze the intricate dynamics of the electronic awarding process within the specific context of the Nakuru County Government. Through a meticulous methodology, Eunice delved into the multifaceted facets of the e-awarding process, employing a case study approach to gain a granular perspective on its implications for organizational performance. The findings of this endeavor unveiled a noteworthy correlation, indicating that the infusion of transparency into the electronic awarding process catalyzed a significant enhancement in the overall performance of public organizations. This revelation underscored the pivotal role of transparency in mitigating corruption, thereby fostering an environment conducive to improved organizational efficacy. As a noteworthy recommendation arising from this illuminating study, it is proposed that public institutions consider embracing and fortifying transparency within their electronic awarding processes to not only adhere to ethical standards but also to elevate their overall performance and combat corruption effectively.

#### **2.4.3 The Effect of E-Ordering on Organizational Performance**

In a parallel vein of inquiry, a pertinent study conducted by Moronge and Munyao (2018) delved into the intricate dynamics of e-Procurement Practices and their implications for the performance of procurement within Kenyan public universities. The overarching objective of their research was to scrutinize the multifaceted effect of electronic ordering, sourcing, and tendering on the overall procurement performance landscape. The robust methodology employed in their investigation encompassed comprehensive data collection, employing surveys and interviews to gather insights from key stakeholders involved in the procurement processes at these academic institutions. The

discerning findings of their study revealed a compelling correlation, indicating that electronic ordering, sourcing, and tendering practices exerted a significantly favorable influence on the overall performance of procurement in the context of Kenyan public universities. Consequently, these findings contribute meaningfully to the burgeoning body of knowledge surrounding the pivotal role played by e-Procurement Practices in shaping and optimizing procurement outcomes within academic institutions. In light of these results, it is recommended that similar studies be conducted in other sectors to garner a holistic understanding of the pervasive effect of electronic procurement methodologies, thereby informing tailored strategies and policies to enhance overall procurement performance.

Moreover, in the pursuit of advancing our understanding of e-procurement dimensions, Chepkwony (2017) conducted a comprehensive assessment focusing on the effect of electronic ordering and electronic informing on the efficiency of the supply chain. The objective of the study was to discern the intricate connections between these specific components of e-procurement and their influence on overall supply chain performance. Employing a meticulous methodology that included data collection, analysis, and interpretation, the research unfolded valuable insights. Findings from the study robustly affirm that both e-ordering and e-informing play pivotal roles in enhancing the efficiency of the supply chain. In light of these findings, the recommendation is made for organizations to strategically prioritize and invest in these facets of e-procurement to attain a heightened level of supply chain effectiveness. This nuanced exploration contributes to the broader discourse on e-procurement strategies, emphasizing the nuanced interplay between electronic ordering, informing, and overall supply chain performance.



In the comprehensive exploration conducted by Obunde (2019), the primary objective was to delve into the performance of supply chains within Kenyan county governments concerning the influence of e-procurement. The methodology employed in this research encompassed a rigorous analysis of electronic ordering systems, and the findings revealed a substantial effect on the success of supply chains within these governmental units, as evidenced by a notable correlation coefficient ( $B=0.606$ ,  $p = 0.000$ ). Additionally, the study underscored the pivotal role played by the administration of electronic materials, emphasizing its crucial significance in the operational dynamics of county governments. In light of these compelling findings, it is recommended that county governments prioritize the enhancement of electronic ordering systems to optimize their supply chain performance, thereby fostering efficient and streamlined administrative processes in the management of electronic materials.

#### **2.4.4 The Effect of E-Invoicing on Organizational Performance**

In the dynamic context of the Uasin Gishu county government in Kenya, a comprehensive study was undertaken by Chegugu and Yusuf (2017) to examine the ramifications of employing electronic procurement methods on organizational performance, with a particular focus on public hospitals. The overarching objective of this research was to unravel the multifaceted effects of electronic procurement mechanisms, encompassing e-invoicing and e-payment, on the intricate dynamics of public healthcare institutions. The methodology employed in this investigation comprised a thorough analysis of electronic procurement practices, utilizing both qualitative and quantitative approaches. Findings from the study illuminate the pivotal role of e-invoicing in transparently showcasing fees remitted by customers to suppliers, thereby fostering a more accountable financial ecosystem.

Furthermore, the study unveils the noteworthy cost-reducing effect of e-payment in expeditiously compensating suppliers for promptly delivered supplies, attributed to the diminished fees associated with the seamless transmission of funds through e-banking systems. In light of these findings, the study recommends the continued integration and optimization of electronic procurement practices within public hospitals, emphasizing the potential enhancements in transparency and cost efficiency for sustained organizational performance excellence.

Furthermore, an in-depth exploration into the nexus between e-procurement and organizational performance was meticulously conducted by Chegugu (2018), with a specific focus on the nuances of e-invoicing. The study, encompassing a comprehensive examination of objectives, methodologies, findings, and recommendations, highlighted the strong consensus among the majority of respondents who vehemently endorsed the efficacy of e-tendering, asserting that the hospital's tendering proposals have attained heightened competitiveness. The inferential analysis, a key component of the study's methodology, revealed that e-invoicing exerts a substantial and statistically significant positive effect on organizational performance, as evidenced by the robust beta coefficient of 0.805 at a significance level below 0.05. These findings underscore the pivotal role of e-invoicing in augmenting the overall effectiveness of organizational procurement processes, thereby providing a solid foundation for the study's overarching recommendation to further leverage and optimize e-invoicing strategies within the hospital's procurement framework.

Conducting a comprehensive investigation into the dynamics of e-invoicing and its effect on the operational efficacy of small and medium-sized enterprises (SMEs) within Nairobi City County, Kenya, formed the central focus of a study undertaken by Mutunga & Makhamara (2020). Employing

rigorous research methodologies, the study employed regression and correlation analyses to systematically evaluate the influence of e-invoicing on the performance metrics of the SMEs under consideration. The findings yielded significant insights, revealing a substantial and noteworthy effect of e-invoicing on the overall performance of SMEs within the vibrant business landscape of Nairobi, Kenya. In light of these results, the study posits valuable implications for the broader understanding of how e-invoicing can be a transformative element in enhancing the operational efficiency of SMEs, suggesting that its incorporation could be a pivotal factor in fostering growth and sustainability within this sector.

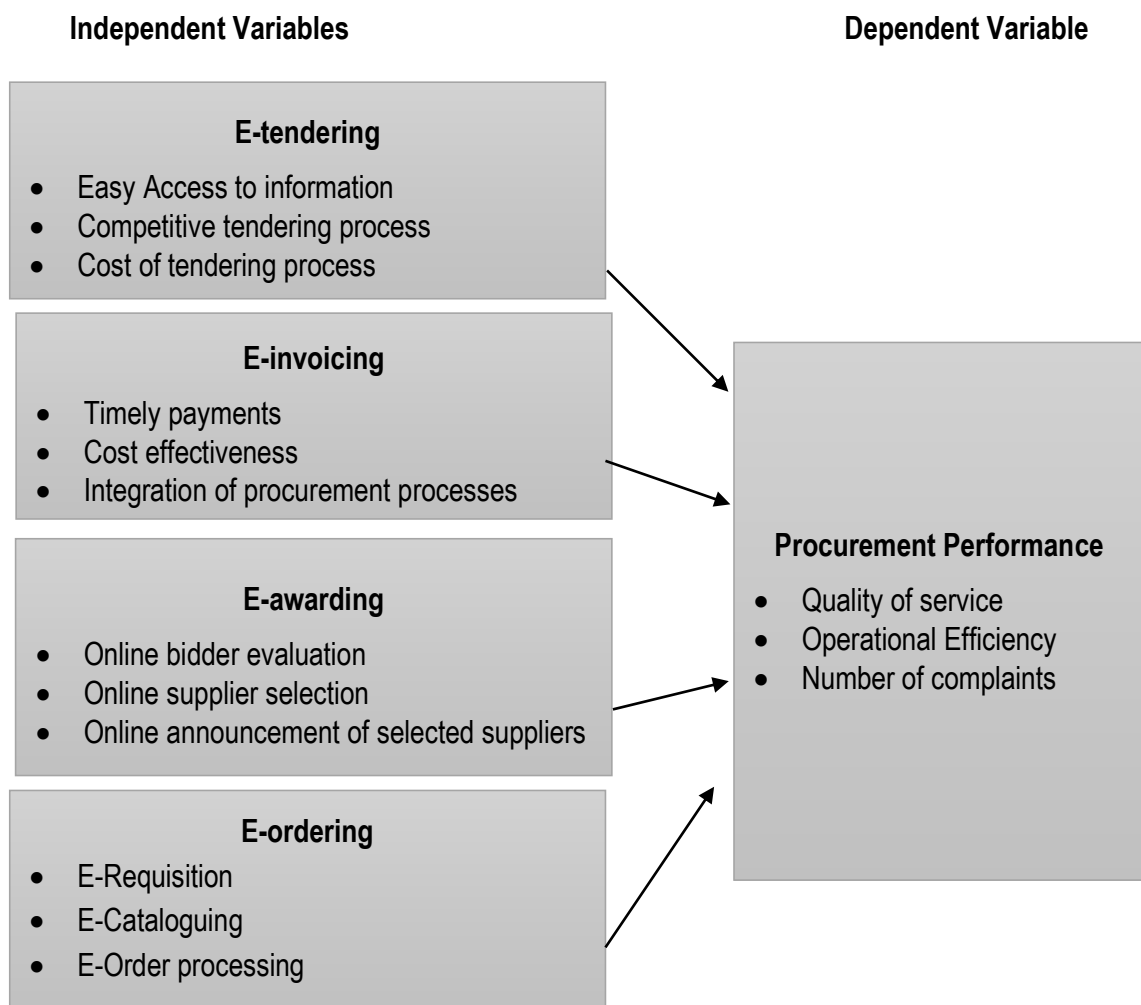
## **2.5 Research Gap**

The research gap in the domain of e-procurement is notable given the extensive global studies conducted on this subject. Despite the wealth of research, a conspicuous absence exists in the Tanzanian context. Notably, previous Tanzanian studies, exemplified by Suleiman (2015) and Mboya (2019), have overlooked a critical facet – the evaluation of e-procurement's effect on ensuring value for money, a paramount consideration in public organizational operations. The existing body of literature primarily concentrates on e-procurement practices within the private sector and delves into the factors influencing its adoption, as evidenced by Jackson (2019). In light of this, the present study assumes significance as it endeavors to bridge this scholarly void by specifically assessing the effect of e-procurement on the performance of public organizations in Tanzania, thereby contributing a novel perspective to the existing body of knowledge.

## 2.6 Conceptual Framework

A conceptual framework explains either graphically or in a narrative form, the main dimensions to be studied, the key factors or variables and the presumed relationships (Maxwell, 2004). The study had four independent variables which are e-tendering, e-awarding, e-ordering and e-invoicing; and the dependent variable procurement performance. The relationship between independent and the dependent variables is shown in figure 2.1 below;

Figure 2.1: The Conceptual Framework



Source: Researcher (2023).

### **2.6.1 Conceptualization of Variables**

In the conceptualization of this study, the independent variables encompass electronic tendering, electronic awarding, electronic ordering, and electronic invoicing, collectively referred to as e-procurement practices. These variables represent distinct facets of the digital procurement process within the organizational framework. The study aims to explore the effect of these e-procurement practices on the dependent variable, procurement performance. Procurement performance is conceptualized as a multifaceted measure that encompasses factors such as efficiency, transparency, accuracy, and overall effectiveness in the acquisition of goods and services. By scrutinizing the relationships between these independent variables and the dependent variable, this research seeks to provide a nuanced understanding of how the adoption of electronic procurement practices influences and shapes the overall performance of the procurement function within the specified organizational context.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provides details of methodology which was used in conducting this study. The chapter explains the research design, research approach, study area, population and sampling, data collection tools, validity and reliability, data analysis procedure and ethical considerations.

#### **3.2 Study Area**

The study was conducted at TANESCO head quarter Dar es Salaam. The choice of the study area is based on the fact that it is a large public procurement entity. Therefore, it can easily represent the public procurement entities. Also, TANESCO has been practicing e-procurement for a while and thus in position to be useful in establishing the extent at which e-procurement has influence the performance of an organization.

#### **3.2 Research Design**

Research design serves as the methodological framework that outlines the chosen research methods and techniques employed by a researcher in conducting a study (Saunders, et al., 2009). In this study, a descriptive research design was adopted. The selection of a descriptive research design stems from the study's objective to ascertain the degree to which each e-procurement element (e-tendering, e-ordering, e-awarding, and e-invoicing) influences organizational performance. This design choice enables a systematic exploration and documentation of the

relationships between the specified e-procurement components and overall organizational effectiveness, providing a comprehensive understanding of their effect.

### **3.2.1 Research Approach**

A research approach is the procedure selected by the researcher to collect, analyze, and interpret data. There are three approaches to research: quantitative, qualitative, and mixed methods (Kothari, 2019). This study employed a quantitative research approach since the approach was useful in establishing the extent at which e-procurement impacts the performance of an organization.

### **3.2.2 Population of the Study**

The population of the study was the TANESCO head quarter staff, particularly the finance and the procurement department who totals to 90 (TANESCO Annual Report, 2022). These were the unit of analysis for the study. The choice of the two departments based on the fact that they deal with the procurement procedures in a daily basis. Therefore, the members of the two departments were in a good position to provide useful findings for the study.

### **3.2.3 Sample Size**

The sample size for the study was derived from the population of the finance and procurement departments at TANESCO HQ. The sample was obtained based on the (Yamane, 1967) sample size formula as follows;

$$n = N / (1 + Ne^2)$$

Where; N = Population Size = 90, n = Sample Size and e = Error term = 5% (0.05)

Substituting in the Formula;  $n = 90 / (1 + 90 \times 0.05^2) = 73$

Therefore, Sample size was all 73 TANESCO staff. This sample size resulted to a confidence interval of 95% and a margin of error of  $\pm 5\%$ .

### **3.2.4 Sampling Techniques**

According to Saunders et al., (2009), sampling techniques refers to the methods used to select a sample from the population. The study employed purposive sampling to select the study organization and stratified random sampling to select respondents for the study.

#### **3.2.4.1 Purposive Sampling Technique**

The study employed a purposive sampling which was used to select the study area, departments and members of the finance and procurement department at TANESCO HQ. A purposive sampling selects respondents based on the desired characteristics they possess for the purpose of the study (Kothari, 2019). Therefore, since the study focuses on public institutions, TANESCO was purposely selected.

#### **3.2.4.2 Stratified Random Sampling Technique**

A stratified random sampling technique was used to select respondents to take part in the study. Therefore, the respondents were subjected into strata (in this case, the departments) then from each department they were randomly selected to be included in the study. Since the study focuses on e-procurement, the finance and procurement departments were purposely selected. Moreover, the 73 members of the staff were randomly selected since.



### **3.2.5 Data Collection Technique**

Since the study was approached quantitatively, then a questionnaire was adopted for collected quantitative data from the selected respondents. A questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent (Mugenda & Mugenda, 2003). Thus, a 5-point likert scale questionnaire was developed to collect data from the selected TANESCO staff. This data collection tool was used to collect data from all the variables of the study.

### **3.3 Pilot Study**

A pilot study was conducted to test the data collection tools to establish the validity of the study. A pilot study was conducted at TANESCO HQ by selecting 10 participants. Therefore, a total of 10 questionnaires were piloted to the respondents for them to provide their opinion for the instruments to be reviewed. The questionnaire had similar questions to see if they are well understood and can be answered to cover the research objectives. The 10 selected respondents were also included in the study since it was easy for them to understand the study. Moreover, the study has a small population therefore excluding them could make it even smaller.

### **3.4 Data Analysis Technique**

The demographic data were analyzed using descriptive statistics. The descriptive statistics was used to analyze the respondents' characteristics such as gender, age, education level and work experience. The same was also be used to present the responses from the questionnaires. The relationship between variables was established through multiple regressions model. SPSS was used to run the analysis. The multiple regression model below was adopted;

$$Y = \alpha + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \epsilon$$

Whereas:

Y = Organizational Performance, B1=e-tendering, B2=e-awarding, B3 = e-ordering, B4 = e-invoicing and  $\epsilon$  = Error Term.

### **3.5 Data Validity and Reliability**

#### **3.5.1 Validity**

Validity relates to the extent at which the survey measures right elements that need to be measured. In simple terms, validity refers to how well an instrument as measures what it is intended to measure. It explains how well the collected data covers the actual area of investigation (Ghuri & Grønhaug, 2005). To determine the study's validity, a pilot study was carried out to evaluate the data collection methods. By choosing 10 participants, a pilot study was carried out at the TANESCO headquarters. In order to get the respondents' feedback on the instruments being reviewed, a total of 10 questionnaires were piloted to them. Similar questions were on the questionnaire to see if the research objectives can be covered and if they can be answered. The study also included the 10 chosen respondents because it was simple for them to understand. Additionally, the study has a small population; excluding them could result in an even smaller study.

#### **3.5.2 Reliability**

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consist result. Reliability is also concerned with repeatability. A reliability analysis using Cronbach's alpha ( $\alpha$ ) was conducted to estimate the reliability of the predictor variables. Cronbach's  $\alpha$  analysis

is a useful way of determining internal consistency and homogeneity of groups of items in tests and questionnaires. The generally agreed upon lower limit for Cronbach's  $\alpha$  is 0.70. therefore, all the variables had a Cronbach's alpha value of 0.7 and above were accepted by the study (Burns & Burns, 2008).

*Table 3.1: Reliability Statistics*

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.729	39

Source: Field Data (2023).

Table 3.1 presents the reliability statistics, revealing a Cronbach's Alpha coefficient of .729. This coefficient serves as a crucial indicator of the internal consistency or reliability of the measurement items within the study. The obtained value of .729 suggests a moderate to good level of internal consistency among the items, indicating that the variables or items in the study are reasonably reliable in measuring the construct under consideration. This reliability statistic adds robustness to the research findings, implying that the measurement instruments employed in the study possess a satisfactory level of reliability in consistently capturing the intended construct.

### **3.6 Ethical Considerations**

The research proposal was submitted to the Institute of Accountancy Arusha for ethical clearance and the study was conducted in manner that abides to all ethical obligation per ethical clearance. Permission to collected data at TANESCO HQ Dar es salaam was sought from the TANESCO management. Consent to voluntary participate in the study was sought from the participants, data collected was protected from an unauthorized access and no identifiable information was collected.

Also, the identities of the respondents was not disclosed and the collected data was used for no other reason than the academic purpose.

### **3.7 Limitations that Influenced the Methodology**

The methodology of the study was influenced by the study area and the nature of the population. This necessitated the choice of the population of the study and the sampling techniques. Also, the data collection tools and the data analysis method were influenced by the nature of the study since it seeks to measure the quantitative relationship existing between the variables.

## **CHAPTER FOUR**

### **FINDINGS AND DISCUSSION**

#### **4.1 Introduction**

This chapter presents findings, discusses and analyses the information collected from TANESCO HQ Dar es Salaam. It tries to scrutinize the data into a critical analysis in order to obtain information that could provide the answers to the questions under study on the impact of e-procurement on the procurement performance at TANESCO.

#### **4.2 Response Rate**

The study successfully distributed 73 questionnaires, and notably, achieved a 100% response rate as all distributed questionnaires were diligently and comprehensively returned for analysis. This high response rate enhances the reliability of the study's findings, as it indicates a robust engagement and willingness of the respondents to contribute to the research objectives. The full participation of all intended participants strengthens the representativeness of the collected data, providing a comprehensive and accurate reflection of the perceptions and experiences of the surveyed individuals.

#### **4.3 Respondents Demographic Characteristics**

Data obtained under the topic of personal information during the questionnaire survey included basic demographic information such as: gender distribution, age distribution, education level and job experience. This was done to demonstrate the distribution of respondents and to assist the

reader understand how relevant information is gathered from the sample in presenting the target population.

### 4.3.1 Gender Distribution

Figure 4.1 illustrates the gender distribution among respondents at TANESCO HQ Dar es Salaam. The data shows that 51 respondents (69.9%) identify as male, while 22 respondents (30.1%) identify as female. This gender distribution implies that the workforce in the context of the study is predominantly male. While this may reflect the current demographic composition at TANESCO, it is essential for the organization to consider gender diversity in its workforce, as it can contribute to varied perspectives and approaches in addressing procurement challenges.

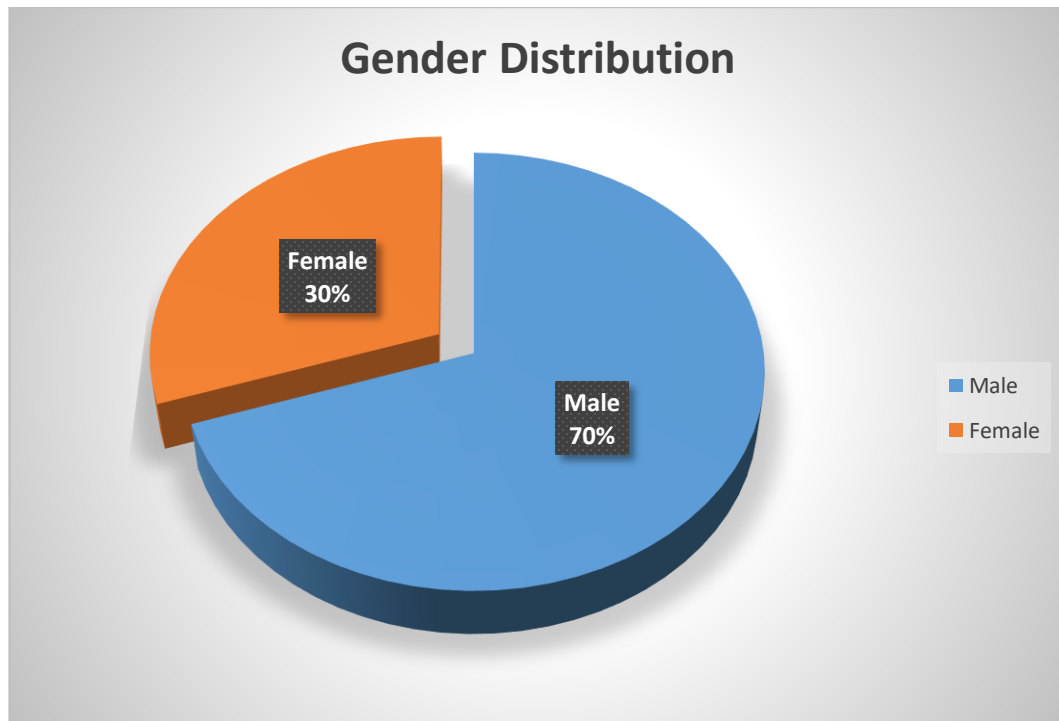


Figure 4.1: Gender Distribution

Source: Field Data (2023).

### 4.3.2 Age Distribution

Figure 4.3 provides a detailed overview of the age distribution among respondents at TANESCO HQ Dar es Salaam. Notably, the majority of participants fall within the 28-37 years age bracket, comprising 45.2% of the respondents. This demographic composition suggests a workforce with a significant proportion of mid-career professionals, bringing a blend of experience and youthful energy to the procurement team. Furthermore, there is representation across various age groups, indicating a diverse workforce. While 17.8% fall within the 18-27 years category, 26.0% are aged 38-47 years, and 11.0% are 48 years and above. This diversity in age ranges offers the potential for a rich exchange of ideas, experiences, and skills within the procurement department, fostering a collaborative and dynamic work environment that can contribute positively to procurement performance and innovation.

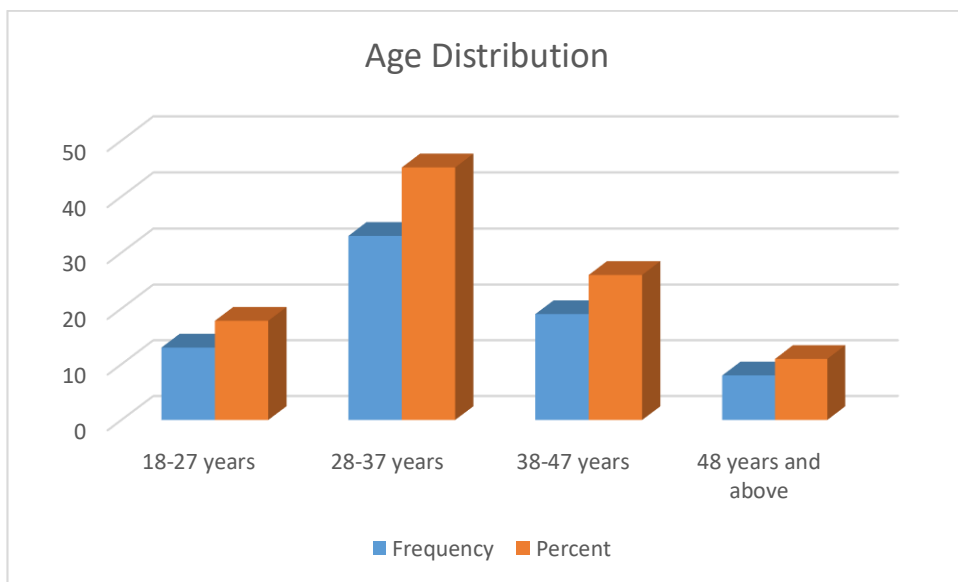


Figure 4.2: Age Distribution

Source: Field Data (2023).

### 4.3.3 Education Level

Figure 4.3 presents a comprehensive overview of the educational background of respondents at TANESCO HQ Dar es Salaam, showcasing a diverse range of qualifications. Notably, the majority of respondents, constituting 41.1%, hold Bachelor's Degrees, signifying a well-educated workforce. Additionally, 24.7% possess Diplomas, 21.9% have attained Master's Degrees and above, and 12.3% have Certificates. This varied educational landscape implies a robust mix of academic qualifications within the procurement team, providing a foundation for diverse perspectives and expertise. TANESCO can leverage this educational diversity by fostering a culture of continuous learning and professional development, ensuring that the procurement team stays abreast of industry advancements and contributes effectively to the organization's strategic goals.

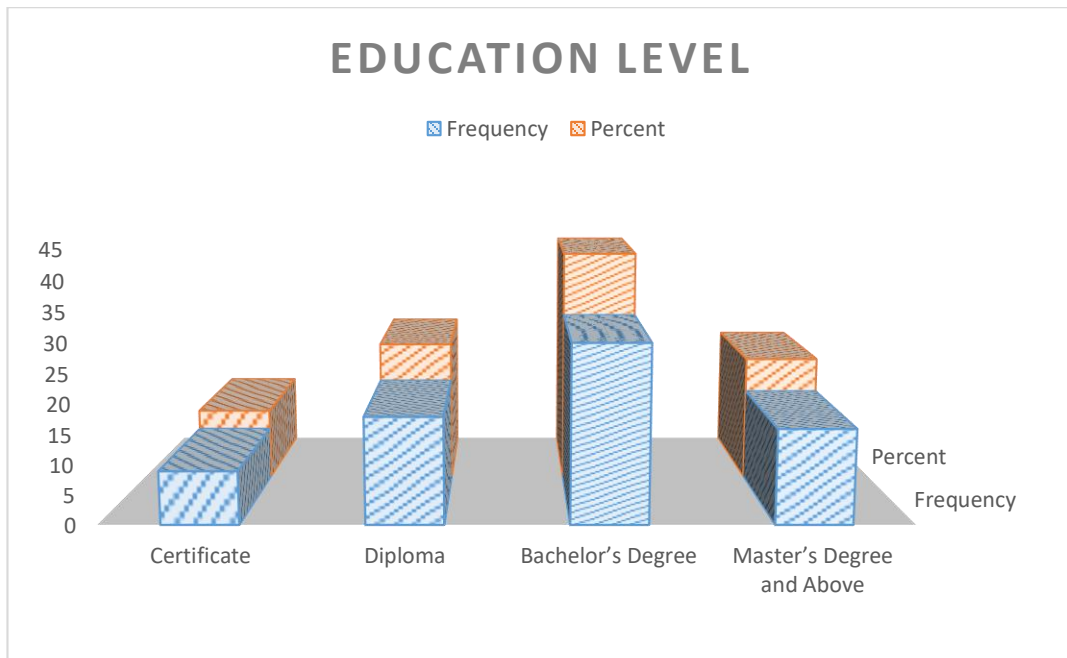


Figure 4.3: Education Level

Source: Field Data (2023).



### 4.3.4 Job Experience

In Figure 4.4, the distribution of respondents based on job experience is presented. The majority of respondents, 32 individuals (43.8%), have 4-6 years of job experience, followed by 20 respondents (27.4%) with 7 years and above. The implication of this finding is that a significant portion of the workforce at TANESCO HQ Dar es Salaam possesses substantial job experience, potentially contributing to a knowledgeable and skilled procurement team. However, attention to professional development and mentorship programs may be valuable, especially for those with less than a year or 1-3 years of experience, to ensure a well-rounded and continuously improving procurement workforce.

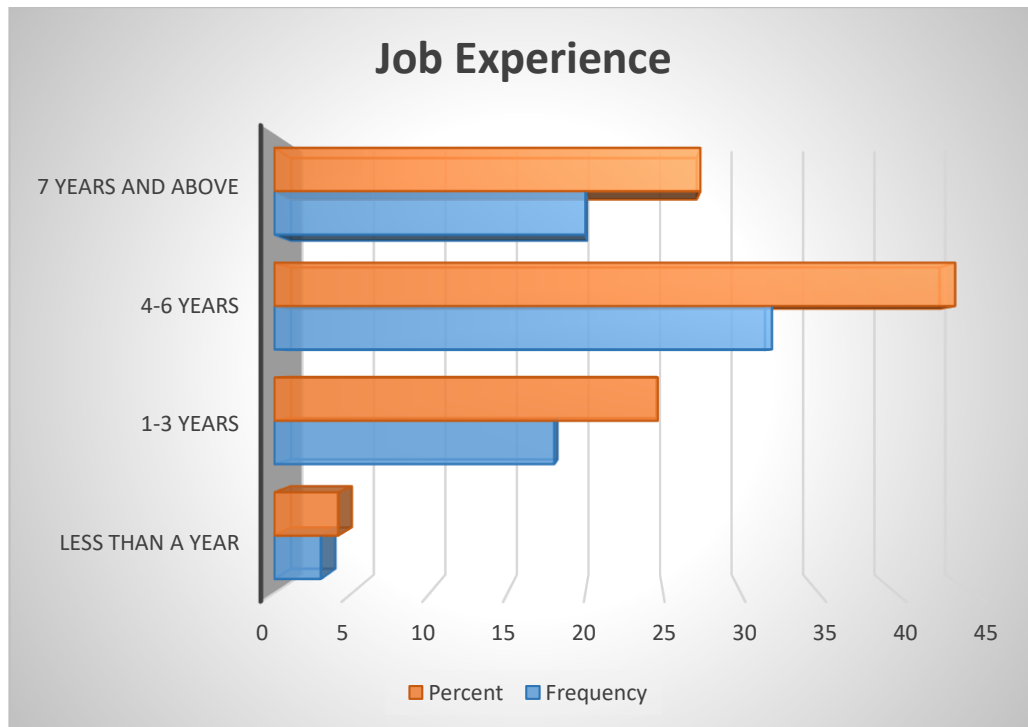


Figure 4.4: Job Experience

Source: Field Data (2023).

#### **4.4 Presentation of Findings**

Based on the mean values, the five-point scale ranges are as follows: mean scores of less than 1.5 = no extent; mean scores of 1.5 but less than 2.5 = little extent; mean scores of 2.5 but less than 3.5 = moderate extent; mean scores of 3.5 but less than 4.5 = large extent; mean scores of 4.5 to 5 = very large extent. Additionally, the standard deviation was considered as a measure of dispersion, with a low value suggesting that the data closely clustered around the mean, and a high value indicating greater dispersion.

##### **4.4.1 Effect of Electronic Tendering on Procurement Performance**

The first objective aimed to assess the effect of electronic tendering on procurement performance at TANESCO HQ Dar es Salaam. Table 4.1 presents the findings regarding the effect of electronic tendering on procurement performance at TANESCO HQ Dar es Salaam.

Table 4.1: Effect of Electronic Tendering on Procurement Performance

Effect of Electronic Tendering on Procurement Performance	Mean	SD	Interpretation
Electronic tendering has improved the speed and efficiency of the procurement process	4.3	0.7	Large Extent
Electronic tendering has enhanced transparency in the selection of vendors and suppliers	3.2	0.7	Moderate Extent
Electronic tendering has reduced the administrative burden in the procurement process	4.3	0.8	Large Extent
Electronic tendering has increased competition among suppliers, leading to cost savings	3.1	1.4	Moderate Extent
Electronic tendering has improved the accuracy of bid submissions	3.3	1.6	Moderate Extent
Electronic tendering has made it easier for vendors to access procurement information and opportunities	3.5	1.2	Large Extent
Electronic tendering has improved the overall quality of procurement documentation	3.0	1.2	Moderate Extent
Electronic tendering has increased stakeholder satisfaction with the procurement process	3.5	1.1	Large Extent
Electronic tendering has reduced errors and discrepancies in procurement activities	3.3	1.4	Moderate Extent
Electronic tendering has improved the tracking and monitoring of procurement activities	3.4	1.1	Moderate Extent

Source: Field Data (2023).

The study found that electronic tendering has significantly improved the speed and efficiency of the procurement process (Mean = 4.3, SD = 0.7), indicating a large extent of improvement. This implies that TANESCO has experienced substantial advancements in the timeliness and overall efficiency of its procurement activities through the adoption of electronic tendering systems.

Findings revealed that electronic tendering has brought about a moderate extent of improvement in transparency in the selection of vendors and suppliers (Mean = 3.2, SD = 0.7). This implies that

while there is progress in making the vendor selection process more transparent, there may be room for further enhancements. TANESCO could potentially focus on refining transparency measures to ensure a more comprehensive and clear vendor selection process.

The study also found that electronic tendering has played a significant role in reducing the administrative burden in the procurement process (Mean = 4.3, SD = 0.8), indicating a large extent of improvement. This suggests that TANESCO has experienced notable efficiency gains by streamlining administrative tasks associated with procurement, potentially allowing for more resources to be allocated to other critical areas.

Findings revealed a moderate extent of improvement in increasing competition among suppliers, resulting in cost savings through electronic tendering (Mean = 3.1, SD = 1.4). This implies that while there is a positive effect on cost savings, there might be opportunities to further leverage electronic tendering to enhance competition among suppliers and drive even greater cost-efficiency.

The study highlights that electronic tendering has led to a moderate extent of improvement in the accuracy of bid submissions (Mean = 3.3, SD = 1.6). This suggests that TANESCO has experienced advancements in ensuring the precision and reliability of bid submissions through the electronic tendering process.

Findings also revealed that electronic tendering has made it easier for vendors to access procurement information and opportunities (Mean = 3.5, SD = 1.2), indicating a large extent of improvement. This implies that TANESCO's efforts in adopting electronic tendering have positively influenced vendor accessibility to procurement-related information and opportunities.

The study indicates a moderate extent of improvement in the overall quality of procurement documentation through electronic tendering (Mean = 3.0, SD = 1.2). This suggests that while there have been advancements, there may be opportunities for further enhancement in ensuring the overall quality and completeness of procurement documentation.

Stakeholder satisfaction with the procurement process has seen a large extent of improvement through electronic tendering (Mean = 3.5, SD = 1.1). This implies that TANESCO's stakeholders are more satisfied with the procurement processes facilitated by electronic tendering, reflecting positively on the overall stakeholder experience.

Findings also revealed that electronic tendering has led to a moderate extent of reduction in errors and discrepancies in procurement activities (Mean = 3.3, SD = 1.4). This suggests that while electronic tendering has contributed to error reduction, there may be potential for further refining processes to minimize errors and discrepancies more effectively.

Moreover, the study found that the tracking and monitoring of procurement activities have improved to a moderate extent through electronic tendering (Mean = 3.4, SD = 1.1). This implies that TANESCO has experienced advancements in the ability to monitor and track procurement activities, contributing to better overall procurement management.

#### **4.4.2 Effect of Electronic Awarding on Procurement Performance**

The second objective sought to examine the effect of electronic awarding on procurement performance at TANESCO HQ Dar es Salaam. Table 4.2 presents the findings regarding the effect of electronic awarding on procurement performance at TANESCO HQ Dar es Salaam.

Table 4.2: Effect of Electronic Awarding on Procurement Performance

Effect of Electronic Awarding on Procurement Performance	Mean	SD	Interpretation
Electronic awarding has improved the consistency in awarding contracts..	3.9	0.8	Large Extent
Electronic awarding has led to more informed and reliable vendor selection	3.6	1.2	Large Extent
Electronic awarding has reduced the time required to award contracts	2.9	1.2	Moderate Extent
Electronic awarding has enhanced the evaluation of vendor proposals	3.7	1.4	Large Extent
Electronic awarding has improved communication with vendors during the awarding process	3.9	0.6	Large Extent
Electronic awarding has increased the fairness and objectivity of contract awards	3.9	0.5	Large Extent
Electronic awarding has resulted in better contract negotiation outcomes	3.3	0.8	Moderate Extent
Electronic awarding has improved contract compliance and performance	4.2	0.4	Large Extent
Electronic awarding has enhanced vendor relationship management	2.5	0.8	Moderate Extent
Electronic awarding has increased stakeholder confidence in the awarding process	2.9	1.2	Moderate Extent

Source: Field Data (2023).

The study found that electronic awarding has significantly improved the consistency in awarding contracts (Mean = 3.9, SD = 0.8), indicating a large extent of improvement. This suggests that TANESCO has experienced notable enhancements in the uniformity of contract awards through the adoption of electronic awarding systems. Findings revealed that electronic awarding has led to more informed and reliable vendor selection (Mean = 3.6, SD = 1.2), indicating a large extent of improvement. This implies that TANESCO has gained a higher level of confidence in the vendor selection process through the adoption of electronic awarding, contributing to more reliable

outcomes. The study also found that electronic awarding has reduced the time required to award contracts (Mean = 2.9, SD = 1.2), indicating a moderate extent of improvement. This suggests that TANESCO has experienced efficiency gains in the contract awarding process, resulting in a more time-effective procedure.

Findings revealed that electronic awarding has enhanced the evaluation of vendor proposals (Mean = 3.7, SD = 1.4), indicating a large extent of improvement. This implies that TANESCO has seen advancements in the assessment of vendor proposals, contributing to a more thorough and informed decision-making process. The study indicates that electronic awarding has improved communication with vendors during the awarding process (Mean = 3.9, SD = 0.6), indicating a large extent of improvement. This suggests that the adoption of electronic awarding systems has facilitated better and more efficient communication channels with vendors throughout the awarding process. Similarly, findings also revealed that electronic awarding has increased the fairness and objectivity of contract awards (Mean = 3.9, SD = 0.5), indicating a large extent of improvement. This implies that TANESCO has made strides in ensuring fairness and objectivity in the contract awarding process through electronic systems.

The study found that electronic awarding has resulted in better contract negotiation outcomes (Mean = 3.3, SD = 0.8), indicating a moderate extent of improvement. This suggests that TANESCO has experienced positive outcomes in contract negotiation processes facilitated by electronic awarding systems. Again, findings indicated that electronic awarding has improved contract compliance and performance (Mean = 4.2, SD = 0.4), indicating a large extent of improvement. This implies that

TANESCO has witnessed significant improvements in ensuring contract compliance and performance through the adoption of electronic awarding.

The study found that electronic awarding has enhanced vendor relationship management (Mean = 2.5, SD = 0.8), indicating a moderate extent of improvement. This suggests that TANESCO has made progress in managing relationships with vendors more effectively through electronic awarding systems. Moreover, findings revealed that electronic awarding has increased stakeholder confidence in the awarding process (Mean = 2.9, SD = 1.2), indicating a moderate extent of improvement. This implies that the adoption of electronic awarding has positively influenced stakeholder confidence in the fairness and reliability of the awarding process.

#### **4.4.3 Effect of Electronic Ordering on Procurement Performance**

The third objective evaluated the effect of electronic ordering on procurement performance at TANESCO HQ Dar es Salaam. Table 4.3 presents the findings regarding the effect of electronic ordering on procurement performance at TANESCO HQ Dar es Salaam.



Table 4.3: Effect of Electronic Ordering on Procurement Performance

Effect of Electronic Ordering on Procurement Performance	Mean	SD	Interpretation
Electronic ordering has reduced the time it takes to process purchase orders.	3.6	1.3	Large Extent
Electronic ordering has improved the accuracy and completeness of purchase orders	3.4	1.1	Moderate Extent
Electronic ordering has improved communication with suppliers regarding order details	3.9	0.8	Large Extent
Electronic ordering has enhanced the tracking and monitoring of order status	3.6	1.2	Large Extent
Electronic ordering has resulted in better inventory management	2.9	1.2	Moderate Extent
Electronic ordering has reduced errors and discrepancies in the ordering process	3.7	1.4	Large Extent
Electronic ordering has reduced lead times for receiving goods and services	3.8	1.2	Large Extent
Electronic ordering has improved the timeliness of order fulfillment	3.7	0.8	Large Extent
Electronic ordering has increased the satisfaction of end-users in the organization	3.7	0.9	Large Extent

Source: Field Data (2023).

The study found that electronic ordering has significantly reduced the time it takes to process purchase orders (Mean = 3.6, SD = 1.3), indicating a large extent of improvement. This suggests that TANESCO has experienced substantial efficiency gains in the processing of purchase orders through the adoption of electronic ordering systems. Also, findings revealed a moderate extent of improvement in the accuracy and completeness of purchase orders through electronic ordering (Mean = 3.4, SD = 1.1). This implies that while there have been advancements, there may be opportunities for further enhancement in ensuring the precision and completeness of purchase orders. The study also found that electronic ordering has significantly improved communication with

suppliers regarding order details (Mean = 3.9, SD = 0.8), indicating a large extent of improvement. This implies that TANESCO's adoption of electronic ordering has positively influenced communication processes with suppliers, contributing to better order detail understanding.

Findings revealed a large extent of improvement in the tracking and monitoring of order status through electronic ordering (Mean = 3.6, SD = 1.2). This suggests that TANESCO has experienced advancements in the ability to track and monitor the status of orders, contributing to improved overall order management. Again, the study indicates a moderate extent of improvement in inventory management through electronic ordering (Mean = 2.9, SD = 1.2). This implies that while there have been positive effects, there may be opportunities for further refinement in electronic ordering processes to optimize inventory management.

Findings also revealed that electronic ordering has significantly reduced errors and discrepancies in the ordering process (Mean = 3.7, SD = 1.4), indicating a large extent of improvement. This implies that TANESCO has experienced substantial advancements in minimizing errors and discrepancies in the ordering process through electronic systems. Moreover, the study found that electronic ordering has significantly reduced lead times for receiving goods and services (Mean = 3.8, SD = 1.2), indicating a large extent of improvement. This suggests that TANESCO has experienced notable efficiency gains in the procurement process, leading to quicker receipt of goods and services through electronic ordering. Findings revealed a large extent of improvement in the timeliness of order fulfillment through electronic ordering (Mean = 3.7, SD = 0.8). This implies that TANESCO has experienced significant advancements in fulfilling orders in a timely manner through the adoption of electronic ordering systems. The study also found that electronic ordering has

significantly increased the satisfaction of end-users in the organization (Mean = 3.7, SD = 0.9), indicating a large extent of improvement. This implies that TANESCO's end-users are more satisfied with the electronic ordering process, reflecting positively on the overall user experience.

#### 4.4.4 Effect of Electronic Invoicing on Procurement Performance

The fourth objective determined the effect of electronic invoicing on procurement performance at TANESCO HQ Dar es Salaam. Table 4.8 below presents the findings.

*Table 4.8: Effect of Electronic Invoicing on Procurement Performance*

<b>Effect of Electronic Invoicing on Procurement Performance</b>	<b>Mean</b>	<b>SD</b>	<b>Interpretation</b>
Electronic invoicing has reduced errors and discrepancies in invoicing and payment.	3.2	0.8	Moderate Extent
Electronic invoicing has improved the accuracy of financial records and reporting	4.4	0.8	Large Extent
Electronic invoicing has expedited the payment process for suppliers	3.3	1.4	Moderate Extent
Electronic invoicing has increased the transparency of financial transactions	3.6	1.4	Large Extent
Electronic invoicing has improved the timeliness of invoice processing	3.4	1.3	Moderate Extent
Electronic invoicing has reduced the administrative burden in handling invoices	2.7	1.3	Moderate Extent
Electronic invoicing has enhanced communication with suppliers regarding invoices	3.4	1.2	Moderate Extent
Electronic invoicing has increased stakeholder satisfaction with the payment process	3.6	1.1	Large Extent
Electronic invoicing has reduced the risk of fraud or invoice manipulation	3.4	1.3	Moderate Extent
Electronic invoicing has improved cost control and financial management	3.9	0.9	Large Extent

Source: Field Data (2023).

Findings found that electronic invoicing has moderately reduced errors and discrepancies in invoicing and payment (Mean = 3.2, SD = 0.8). This implies that the adoption of electronic invoicing at TANESCO has contributed to a notable reduction in errors and discrepancies in the invoicing and payment processes. The study revealed a large extent of improvement in the accuracy of financial records and reporting through electronic invoicing (Mean = 4.4, SD = 0.8). This suggests that TANESCO has experienced substantial enhancements in the precision of financial records and reporting as a result of implementing electronic invoicing systems.

The study also found that electronic invoicing has moderately expedited the payment process for suppliers (Mean = 3.3, SD = 1.4). This implies that TANESCO's adoption of electronic invoicing has positively influenced the speed at which payments are processed, benefiting suppliers in terms of timely payments. Nevertheless, findings revealed a large extent of improvement in increasing the transparency of financial transactions through electronic invoicing (Mean = 3.6, SD = 1.4). This suggests that the implementation of electronic invoicing at TANESCO has positively affected the transparency of financial transactions, contributing to a clearer and more accountable financial process. Similarly, the study found that electronic invoicing has moderately improved the timeliness of invoice processing (Mean = 3.4, SD = 1.3). This implies that TANESCO has experienced positive changes in the promptness of processing invoices through the adoption of electronic invoicing systems. Also, findings revealed a moderate extent of reduction in the administrative burden associated with handling invoices through electronic invoicing (Mean = 2.7, SD = 1.3). This suggests that while there have been improvements, there may be opportunities for further streamlining administrative tasks related to invoice handling.

The study found that electronic invoicing has moderately enhanced communication with suppliers regarding invoices (Mean = 3.4, SD = 1.2). This implies that TANESCO's implementation of electronic invoicing has positively influenced communication processes with suppliers, particularly concerning invoice-related information. Also, findings revealed a large extent of improvement in increasing stakeholder satisfaction with the payment process through electronic invoicing (Mean = 3.6, SD = 1.1). This suggests that stakeholders at TANESCO are more satisfied with the payment process facilitated by electronic invoicing, reflecting positively on the overall stakeholder experience.

The study found that electronic invoicing has moderately reduced the risk of fraud or invoice manipulation (Mean = 3.4, SD = 1.3). This implies that TANESCO's adoption of electronic invoicing has contributed to a reduction in the risk of fraudulent activities or manipulations related to invoices. Additionally, the findings revealed a large extent of improvement in cost control and financial management through electronic invoicing (Mean = 3.9, SD = 0.9). This suggests that TANESCO has experienced substantial enhancements in cost control and financial management as a result of implementing electronic invoicing systems.

## **4.5 Inferential Statistics**

### **4.5.1 Multicollinearity**

Multicollinearity occurs when a set of independent variables displays a strong or nearly perfect linear relationship. Each independent variable is assigned a tolerance score that ranges between 0 and 1. To assess multicollinearity, Variance Inflation Factors (VIF) and tolerance levels are employed. VIF values falling within the range of 1 to 5 suggest a moderate correlation, posing no significant concern. However, VIFs exceeding 5 indicate a critical degree of multicollinearity, leading to poorly

estimated coefficients and questionable p-values. The findings of the Multicollinearity test are detailed in Table 4.5 presented below;

*Table 4.5: Multicollinearity*

<b>Coefficients<sup>a</sup></b>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	E-Tendering	.648	1.544
	E-Awarding	.382	2.621
	E-Ordering	.528	1.895
	E-Invoicing	.432	1.112
a. Dependent Variable: Procurement Performance			

Source: Field Data (2023).

The collinearity statistics for the model assessing the effect of various electronic procurement processes on Procurement Performance reveal moderate levels of multicollinearity. The tolerance values range from 0.382 to 0.648, while the corresponding Variance Inflation Factors (VIF) range from 1.112 to 2.621. The electronic procurement processes, namely E-Tendering, E-Awarding, E-Ordering, and E-Invoicing, exhibit varying degrees of collinearity. E-Awarding has the highest VIF at 2.621, indicating a relatively stronger correlation with other independent variables. These findings suggest a need for careful interpretation of coefficients, as multicollinearity might influence the precision of estimates in the regression model predicting Procurement Performance with the specified electronic procurement variables as predictors.

#### **4.5.2 Regression Analysis**

In pursuit of understanding the dynamics within TANESCO HQ in Dar es Salaam, the study embarked on a multiple linear regression analysis. This analysis aimed to scrutinize the interplay between Invoicing, E-Awarding, E-Tendering and E-Ordering as predictive factors, and their effect on the procurement performance at TANESCO as the dependent variable.

Table 4.6: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 <sup>a</sup>	.768	.755	2.95129
a. Predictors: (Constant), E-Invoicing, E-Awarding, E-Tendering, E-Ordering				

Source: Field Data (2023).

The regression model, incorporating electronic invoicing, electronic awarding, electronic tendering, and electronic ordering as predictors, demonstrates a robust explanatory power for procurement performance at TANESCO. With a high correlation coefficient (R) of 0.877 and an R Square value of 0.768, approximately 76.8% of the variability in procurement performance can be attributed to the collective effect of these e-procurement practices. The Adjusted R Square of 0.755 ensures a reliable fit without overfitting concerns. The standard error of the estimate, at 2.95129, signifies the average variability in actual procurement performance scores around the predicted values.



Table 4.7: Coefficients

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.613	3.689		7.485	.000
	E-Tendering	-.103	.083	.127	1.231	.223
	E-Awarding	-1.346	.138	-1.356	-9.752	.000
	E-Ordering	.879	.132	.984	6.675	.000
	E-Invoicing	.489	.075	.696	6.533	.000

a. Dependent Variable: Procurement Performance

Source: Field Data (2023).

The regression equation representing the relationship between the predictors and Procurement Performance was:

$$\text{Financial Performance} = 2.613 - 0.103X_1 - 1.346X_2 + 0.879X_3 + 0.489X_4$$

The coefficients table provides insights into the effect of each predictor on the dependent variable, Procurement Performance, in the regression model. The constant term is 2.613 ( $p < 0.001$ ), indicating the expected Procurement Performance when all predictors are zero. Regarding individual predictors, Electronic Tendering exhibits a coefficient of -0.103 ( $p = 0.223$ ), suggesting a non-significant negative effect with Procurement Performance. Electronic Awarding shows a substantial negative coefficient of -1.346 ( $p < 0.001$ ), implying a significant negative effect on Procurement Performance. Conversely, Electronic Ordering (coefficient = 0.879,  $p < 0.001$ ) and Electronic Invoicing (coefficient = 0.489,  $p < 0.001$ ) both have positive effect on Procurement Performance.

## **4.6 Discussion of Findings**

### **4.6.1 Effect of Electronic Tendering on Procurement Performance**

The study found that the adoption of electronic tendering at TANESCO has yielded substantial benefits, enhanced both the speed and efficiency of the procurement process while simultaneously promoting transparency in the selection of vendors and suppliers. Notably, the reduction in administrative burdens further underscores the positive effect of electronic tendering on streamlining internal processes. Drawing insights from the Technological Acceptance Model, it is evident that the acceptance and successful utilization of such technology, as observed in the case of electronic tendering, are intricately tied to the perceived ease of use and perceived usefulness. Aligning with prior research by Gathima & Njoroge (2018), the study's findings not only affirm the positive link between e-tendering procedures and performance but also underscore the importance of continued focus on user-friendly interfaces and the practical utility of technological tools for optimal integration and efficiency within TANESCO's procurement framework.

The study observed increase in competition among suppliers, resulting in tangible cost savings, signifies a positive shift toward a more competitive and cost-effective procurement environment. Additionally, the improvement in the accuracy of bid submissions suggests enhanced precision and reliability in the vendor selection process. The facilitation of easier access for vendors to procurement information and opportunities not only streamlines the process but also fosters a more inclusive and dynamic vendor pool. These outcomes align with the findings of Rasto & Kibet (2018), reinforcing the notion that electronic tendering not only boosts competition but also contributes to heightened stakeholder satisfaction, marking a significant advancement in TANESCO's procurement practices. This shift towards efficiency and satisfaction holds the potential to position

TANESCO as a more attractive partner for suppliers while optimizing resource allocation and ensuring a robust and competitive procurement framework.

Findings indicated that electronic tendering has improved the overall quality of procurement documentation, increased stakeholder satisfaction, reduced errors and discrepancies hence improved the tracking and monitoring of procurement activities. The results align with the research by Odieno et al. (2021), reinforcing the broader effect of electronic tendering on supply chain performance. The parallel positive findings in both studies emphasize the pivotal role electronic tendering plays in optimizing various facets of the procurement process. TANESCO stands to benefit significantly from the observed improvements, fostering a streamlined and error-minimized procurement environment that not only satisfies stakeholders but also aligns with contemporary best practices, ultimately contributing to a more efficient and effective procurement landscape.

#### **4.6.2 Effect of Electronic Awarding on Procurement Performance**

The findings of the study revealed that the electronic awarding has improved the consistency in awarding contracts, led to more informed and reliable vendor selection and reduced the time required to award contracts. These improvements align with the core tenets of Principal-Agency Theory, which emphasizes the alignment of interests and the reduction of information asymmetry in organizational relationships. Notably, the adoption of electronic awarding mechanisms corresponds with Eunice's (2015) findings, highlighting improved transparency as a catalyst for enhanced performance in public organizations. TANESCO stands to benefit significantly from these outcomes, as streamlined and transparent awarding processes not only contribute to organizational efficiency but also foster trust and accountability in the procurement system, ultimately positively effecting overall organizational performance.

The study that electronic awarding at TANESCO has brought about substantial enhancements in the evaluation of vendor proposals and communication with vendors. Moreover, it has contributed to an increased perception of fairness and objectivity in the contract award process, ultimately yielding more favorable outcomes in contract negotiations. Kweka's (2021) conclusion further supports the significance of electronic awarding as a crucial e-procurement tool, emphasizing its positive effect on expediting the timely procurement of goods. The findings suggest that TANESCO's adoption of electronic awarding not only streamlines the vendor proposal evaluation process but also fosters transparency, fairness, and efficiency in the overall procurement workflow, ultimately leading to more successful contract negotiations and timely acquisition of goods.

The study establishes that the adoption of electronic awarding at TANESCO has yielded substantial benefits, notably in the realms of contract compliance, overall performance, vendor relationship management, and stakeholder confidence in the awarding process. The findings underscore the positive effect of electronic awarding on ensuring that contracts are adhered to with a heightened level of compliance, ultimately contributing to improve overall performance outcomes. Moreover, the enhanced management of vendor relationships signifies a strategic advantage, fostering collaboration and reliability among suppliers. Additionally, the bolstered confidence of stakeholders in the awarding process implies a heightened level of transparency and efficiency. It is noteworthy, however, that Osir's (2016) assertion regarding the positive influence of e-tendering on procurement performance introduces a broader perspective, suggesting that multiple facets of the e-procurement process may collectively contribute to an even more comprehensive enhancement of TANESCO's procurement practices.

#### **4.6.3 Effect of Electronic Ordering on Procurement Performance**

The study revealed that electronic ordering has reduced the time it takes to process purchase orders, improved the accuracy and completeness as well as communication with suppliers regarding order details. This aligns with the principles of the Technological Acceptance Model, emphasizing that users' perceptions of ease of use and perceived usefulness play pivotal roles in the successful implementation of electronic systems. TANESCO's embrace of electronic ordering reflects a positive step towards optimizing procurement performance, a notion reinforced by the findings of Moronge & Munyao (2018), who demonstrated that electronic ordering significantly and favorably influences overall procurement performance. The convergence of these insights highlights the strategic importance of electronic ordering for TANESCO, not only in terms of efficiency gains but also in fostering positive user perceptions and contributing to overarching procurement success. Findings depicted that electronic ordering has significantly improved the tracking and monitoring of order status, leading to a consequential enhancement in inventory management and a noteworthy reduction in errors and discrepancies throughout the ordering process. This aligns with the insights offered by Chepkwony (2017), who asserts that e-ordering has a conclusive effect on improving the overall performance of the supply chain. The observed advancements in tracking, inventory management, and error reduction not only reflect the operational efficiency gained through electronic ordering but also underscore the potential for broader supply chain improvements, positioning TANESCO to cultivate a more streamlined and effective procurement ecosystem.

The study found a substantial positive effect of electronic ordering on TANESCO's procurement performance. The reduction in lead times for receiving goods and services not only streamlines the procurement process but also contributes to enhanced efficiency and responsiveness. The

improvement in the timeliness of order fulfillment reflects positively on TANESCO's ability to meet operational demands promptly. Furthermore, the heightened satisfaction of end-users within the organization suggests that electronic ordering has positively influenced the user experience, fostering a more content and engaged workforce. Aligning with Obunde's (2019) findings, the demonstrated significant effect of electronic ordering on supply chain success underscores the strategic importance of adopting electronic solutions in procurement processes, emphasizing the potential for sustained improvements in operational effectiveness and overall organizational performance at TANESCO.

#### **4.6.4 Effect of Electronic Invoicing on Procurement Performance**

The study found that electronic invoicing has reduced errors and discrepancies, improve the accuracy, expedited the payment process for suppliers while increased the transparency of financial transactions these outcomes resonate with Principal-Agent Theory, emphasizing the alignment of interests between the organization and its suppliers. In this context, TANESCO acts as the principal, aiming to synchronize the objectives with its suppliers, the agents, through the efficient adoption of electronic invoicing. Furthermore, as Chegugu & Yusuf (2017) point out, the use of e-payment methods further complements this scenario by reducing the cost associated with immediate payment to suppliers, potentially leading to cost savings for TANESCO.

Findings revealed that electronic invoicing has led to a marked improvement in the timeliness of invoice processing, streamlining the financial workflow and contributing to a more efficient procurement system. Additionally, the reduced administrative burden associated with handling invoices signifies a noteworthy enhancement in operational efficiency, allowing resources to be redirected towards more strategic endeavors. Moreover, the finding that electronic invoicing has

enhanced communication with suppliers regarding invoices implies strengthened partnerships and clearer information exchange, fostering a more collaborative and transparent supplier relationship. These outcomes resonate with Chegugu's (2018) findings, affirming the positive effect of E-invoicing on organizational performance. Consequently, for TANESCO, the integration of electronic invoicing not only optimizes internal processes but also aligns with broader organizational performance objectives, potentially leading to more streamlined financial management and improved supplier relationships.

The study showed a positive effects of electronic invoicing at TANESCO, with notable enhancements in stakeholder satisfaction, decreased vulnerability to fraud or invoice manipulation, and advancements in cost control and financial management. The heightened stakeholder satisfaction implies that the adoption of electronic invoicing has not only streamlined internal processes but has also resonated positively with those engaged in or affected by these processes. The reduced risk of fraudulent activities points towards a strengthened financial integrity brought about by the digitalization of invoicing. Additionally, the improvements in cost control and financial management suggest that TANESCO has experienced operational efficiencies that can contribute to more judicious financial practices. These findings align with the broader perspective presented by Mutunga and Makhamara (2020), reinforcing the notion that the integration of e-invoicing can significantly influence organizational performance, a noteworthy consideration for TANESCO's continued operational and financial optimization.

According to the findings, electronic tendering was identified as contributing positively to procurement performance, aligning with the findings of Odieno et al. (2021), who emphasized the

significant effect of electronic tendering on supply chain performance. Similarly, electronic awarding was associated with enhanced procurement performance, with insights from Eunice (2015) supporting this link by indicating that transparency, particularly in the electronic awarding process, reduces corruption and improves performance in public organizations. Electronic ordering was also revealed to have a positive relationship with procurement performance, resonating with Obunde's (2019) demonstration that the success of supply chains is notably influenced by the adoption of electronic ordering systems. Likewise, the study established that electronic invoicing positively correlates with procurement performance, a finding congruent with Mutunga and Makhamara's (2020) discovery that e-invoicing significantly affects overall procurement performance. These results suggest that leveraging electronic systems across various procurement stages can be instrumental in enhancing TANESCO's overall procurement effectiveness and aligning with broader supply chain performance trends in the literature.



## **CHAPTER FIVE**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter encapsulates the essence of the study on the effect of e-procurement on the procurement performance at TANESCO HQ Dar es Salaam. It offers a concise summary of findings, draws conclusion, and provide recommendations. These recommendations include practical steps for implementation as well as areas for further studies.

#### **5.2 Summary of the Findings**

##### **5.2.1 Effect of Electronic Tendering on Procurement Performance**

The first objective aimed to assess the effect of electronic tendering on procurement performance at TANESCO HQ Dar es Salaam. The study found that electronic tendering significantly improves the speed and efficiency of the procurement process. The streamlined electronic tendering procedures have demonstrated a large positive effect on expediting procurement activities, contributing to operational efficiency. Findings revealed that the adoption of electronic tendering practices has a substantial positive effect on reducing the administrative burden associated with procurement activities. Additionally, the study showed that electronic tendering has a moderate positive effect on enhancing transparency in the selection of vendors and suppliers. Moreover, electronic tendering was found to moderately improve the accuracy of bid submissions, emphasizing the importance of ongoing efforts to enhance precision in the bidding process. The findings also indicated that electronic tendering makes it easier for vendors to access procurement information and opportunities, contributing to a more inclusive and accessible procurement environment. Also, the study found that electronic tendering has a moderate positive effect on

improving the overall quality of procurement documentation, emphasizing the need for continued emphasis on document quality assurance measures within TANESCO's procurement processes.

### **5.2.2 Effect of Electronic Awarding on Procurement Performance**

The second objective sought to examine the effect of electronic awarding on procurement performance at TANESCO HQ Dar es Salaam. The findings of the study revealed that the implementation of electronic awarding practices has significantly improved the consistency in awarding contracts, indicating a positive effect on the standardization of contract award procedures. The study also found that electronic awarding contributes to more informed and reliable vendor selection, demonstrating a large positive effect. However, it was observed that the time required to award contracts has a non-significant negative effect on procurement performance, suggesting potential areas for optimization in the time efficiency of awarding processes. Electronic awarding was shown to have a moderate positive effect on enhancing the evaluation of vendor proposals, emphasizing the importance of ongoing efforts to refine and standardize evaluation criteria. Furthermore, the study revealed that electronic awarding has a substantial positive effect on improving communication with vendors during the awarding process, which can contribute to smoother and more transparent interactions. It was also found that electronic awarding significantly increases the fairness and objectivity of contract awards, showcasing the importance of maintaining equitable practices in procurement. However, the study identified that improvements are needed in vendor relationship management, as electronic awarding has a non-significant negative effect on this aspect of procurement performance.

### **5.2.3 Effect of Electronic Ordering on Procurement Performance**

The third objective evaluated the effect of electronic ordering on procurement performance at TANESCO HQ Dar es Salaam. The study revealed that electronic ordering has a notable positive effect on reducing the time required to process purchase orders. The adoption of electronic ordering practices has led to a substantial decrease in processing times, highlighting its efficiency in expediting procurement workflows. Findings also showed that electronic ordering significantly improves the accuracy and completeness of purchase orders. This implies that TANESCO can benefit from further emphasis on electronic ordering mechanisms to enhance precision in purchase order generation. Moreover, the study demonstrated that electronic ordering enhances communication with suppliers regarding order details, indicating the potential for improved collaboration and information exchange. The positive effect of electronic ordering on tracking and monitoring order status was highlighted, emphasizing its contribution to real-time visibility into procurement activities. However, the study indicated that electronic ordering resulted in a moderate reduction in lead times for receiving goods and services, suggesting potential areas for further optimization. Furthermore, electronic ordering exhibited a substantial positive effect on improving the timeliness of order fulfillment and increasing end-user satisfaction within the organization.

### **5.2.4 Effect of Electronic Invoicing on Procurement Performance**

The fourth objective determined the effect of electronic invoicing on procurement performance at TANESCO HQ Dar es Salaam. The study found that electronic invoicing significantly reduces errors and discrepancies in invoicing and payment processes, indicating a substantial positive effect on financial accuracy and transaction reliability. The implementation of electronic invoicing has shown a very large positive effect on improving the accuracy of financial records and reporting,

emphasizing its importance in maintaining precise financial documentation. Moreover, findings revealed that electronic invoicing moderately expedites the payment process for suppliers, contributing to more timely and efficient financial transactions. The study showed that electronic invoicing has a moderate positive effect on increasing the transparency of financial transactions, underscoring the importance of transparent financial processes within TANESCO's procurement activities. Electronic invoicing was also found to moderately improve the timeliness of invoice processing while reducing the administrative burden associated with handling invoices. Additionally, electronic invoicing was found to enhance communication with suppliers regarding invoices to a moderate extent. Moreover, electronic invoicing has a moderate positive effect on increasing stakeholder satisfaction with the payment process hence reducing the risk of fraud or invoice manipulation and improving cost control and financial management.

### **5.3 Conclusions**

The study concludes that electronic tendering has a significantly positive effect on procurement performance at TANESCO HQ Dar es Salaam. The findings indicate that electronic tendering practices, including improved speed, transparency, and reduced administrative burden, contribute to enhanced efficiency and effectiveness in the procurement process.

Moreover, the study concludes that electronic awarding plays a crucial role in influencing procurement performance at TANESCO HQ Dar es Salaam. Despite the mixed findings on the relationship between electronic awarding and procurement performance, the overall assessment emphasizes the importance of transparent, fair, and objective contract awarding processes for optimal procurement outcomes.

Also, the study concludes that electronic ordering is a key factor in positively influencing procurement performance at TANESCO HQ Dar es Salaam. The identified improvements in time efficiency, accuracy, and communication with suppliers through electronic ordering contribute to overall enhancements in procurement processes.

Furthermore, the study concludes that electronic invoicing has a substantial positive effect on procurement performance at TANESCO HQ Dar es Salaam. The streamlined invoicing processes lead to reduced errors, improved financial accuracy, and enhanced stakeholder satisfaction, emphasizing the significance of electronic invoicing in elevating the overall effectiveness of procurement activities.

#### **5.4 Implication of the Study**

The findings of this study hold significant policy implications for TANESCO's procurement practices and broader organizational efficiency. The positive effect of electronic tendering on procurement performance underscores the importance of prioritizing and further investing in digital tendering systems. TANESCO should consider policies that promote the widespread adoption of electronic tendering platforms, emphasizing efficiency, transparency, and reduced administrative burdens. This may involve providing training programs to enhance the digital skills of procurement personnel and stakeholders, ensuring a seamless transition to electronic tendering processes.

The study's insights into the influence of electronic awarding on procurement performance suggest the need for policy adjustments to enhance fairness and transparency in contract awarding. TANESCO should consider implementing policies that ensure standardized evaluation criteria, increased communication with vendors, and continuous monitoring of the awarding process. This

might involve the development of guidelines and training programs to promote fair and objective decision-making, ultimately fostering a procurement environment that is trusted by both internal and external stakeholders.

Also, the study's emphasis on the positive effects of electronic ordering and invoicing calls for policies that encourage the widespread adoption of these practices. TANESCO should consider formulating and implementing policies that incentivize the use of electronic ordering and invoicing systems, promoting efficient communication with suppliers, reducing lead times, and enhancing overall procurement efficiency. This may involve financial incentives, capacity-building programs, and regulatory frameworks that support the integration of these electronic procurement practices into daily operations.

## **5.5 Recommendations**

Based on the findings and conclusion of this study, the researcher proposed the following recommendations:

- i. The study suggests TANESCO to further optimize and streamline its electronic tendering processes. This includes investing in user-friendly interfaces and training programs to enhance the efficiency of the procurement team in utilizing electronic tendering platforms. Additionally, regular assessments and updates to the electronic tendering system can ensure it aligns with evolving industry standards, fostering a competitive and agile procurement environment.

- ii. Moreover, TANESCO should focus on refining its electronic awarding mechanisms to address any identified inefficiencies. This may involve implementing comprehensive training programs for staff involved in the awarding process, emphasizing transparency and fairness. Regular evaluations and updates to the electronic awarding system can enhance its reliability and contribute to more informed and reliable vendor selection, thereby improving overall procurement performance.
- iii. Also, TANESCO needs to prioritize enhancements in its electronic ordering processes. This could involve investing in advanced inventory management systems, improving communication channels with suppliers, and conducting regular assessments of the ordering system's effectiveness. Furthermore, promoting collaboration between different departments involved in the ordering process can contribute to a more synchronized and efficient procurement workflow.
- iv. The study recommends TANESCO to prioritize the optimization of electronic invoicing practices. This involves implementing measures to reduce errors and discrepancies, expediting the payment process for suppliers, and ensuring the accuracy of financial records. Enhancing communication with suppliers regarding invoices, coupled with regular training programs for staff involved in invoicing, can contribute to increased transparency and stakeholder satisfaction. Additionally, leveraging technology to mitigate the risk of fraud or invoice manipulation is crucial for fostering a secure and efficient invoicing process, ultimately improving overall procurement performance.

## **5.6 Recommendations for Further Studies**

TANESCO can benefit greatly from a variety of focused future research endeavors as it navigates the constantly changing world of e-procurement. Examining the complexities of change management and human factors during the implementation of electronic procurement systems holds the potential to shed light on employee attitudes, corporate culture, and successful integration techniques. Concurrently, an investigation of the legal and regulatory structures that oversee e-procurement in Tanzania and other regions will guarantee that TANESCO's procedures conform to compliance standards and can withstand future legal disputes. Furthermore, looking into how sustainability practices are incorporated into electronic systems provides a way to make procurement procedures compliant with social and environmental obligations. Understanding stakeholder perceptions and experiences can be achieved through surveys and interviews, providing a qualitative dimension to the effect of e-procurement initiatives. Similarly, considering longitudinal studies on e-procurement implementation will afford TANESCO a comprehensive view of the sustainability and evolving challenges or benefits associated with its electronic procurement endeavors over time.



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## APPENDICES

### Appendix I: Questionnaire for TANESCO Staff

Dear Respondent,

My name is **Happiness Henry Marcilianus**, pursuing a **Master of Business Administration in Procurement and Supplies Management of the Institute of Accountancy Arusha**. I'm conducting research on the **"THE EFFECT OF ELECTRONIC PROCUREMENT ON THE PROCUREMENT PERFORMANCE AT TANESCO HEAD QUARTERS DAR ES SALAAM"**. I respectfully call for your cooperation in answering the questions herewith. Your commitment as well as your time in filling this questionnaire will be highly appreciated. Be assured that all the information you provide will be treated as confidential and will be used for this study only. Thank you

#### **Section A: Respondents Demographic Information**

**Please circle the correct answer**

1. What is your Gender?

a) Male

b) Female

2. What is your age range?

18-27 years

28-37 years

38-47 years

48 years and above

3. What is your education level?
- a) Certificate
  - b) Diploma
  - c) Bachelor's Degree
  - d) Master's Degree and Above
4. How long have/were you been working for TANESCO?
- a) Less than a year
  - b) 1-3 years
  - c) 4-6 years
  - d) 7 years and above

**PART TWO: ACADEMIC RESEARCH QUESTIONS** (Tick the appropriate answer)

1=No Extent; 2= Little Extent; 3=Moderate Extent; 4=Large Extent 5= Very Large Extent

Effect of E-Tendering on procurement performance	Options				
	1	2	3	4	5
Electronic tendering has improved the speed and efficiency of the procurement process					
Electronic tendering has enhanced transparency in the selection of vendors and suppliers					
Electronic tendering has reduced the administrative burden in the procurement process					
Electronic tendering has increased competition among suppliers, leading to cost savings					
Electronic tendering has improved the accuracy of bid submissions					
Electronic tendering has made it easier for vendors to access procurement information and opportunities					
Electronic tendering has improved the overall quality of procurement documentation					
Electronic tendering has increased stakeholder satisfaction with the procurement process					



Electronic tendering has reduced errors and discrepancies in procurement activities					
Electronic tendering has improved the tracking and monitoring of procurement activities					
<b>Effect of E-Awarding on procurement performance</b>					
Electronic awarding has improved the consistency in awarding contracts..					
Electronic awarding has led to more informed and reliable vendor selection					
Electronic awarding has reduced the time required to award contracts					
Electronic awarding has enhanced the evaluation of vendor proposals					
Electronic awarding has improved communication with vendors during the awarding process					
Electronic awarding has increased the fairness and objectivity of contract awards					
Electronic awarding has resulted in better contract negotiation outcomes					
Electronic awarding has improved contract compliance and performance					
Electronic awarding has enhanced vendor relationship management					
Electronic awarding has increased stakeholder confidence in the awarding process					
<b>Effect of E-Ordering on Procurement Performance</b>					
Electronic ordering has reduced the time it takes to process purchase orders.					
Electronic ordering has improved the accuracy and completeness of purchase orders					
Electronic ordering has improved communication with suppliers regarding order details					
Electronic ordering has enhanced the tracking and monitoring of order status					
Electronic ordering has resulted in better inventory management					
Electronic ordering has reduced errors and discrepancies in the ordering process					
Electronic ordering has reduced lead times for receiving goods and services					
Electronic ordering has improved the timeliness of order fulfillment					
Electronic ordering has increased the satisfaction of end-users in the organization					
Electronic ordering has improved the overall efficiency of the procurement process					

<b>Effect of E-Invoicing on procurement performance</b>					
Electronic invoicing has reduced errors and discrepancies in invoicing and payment.					
Electronic invoicing has improved the accuracy of financial records and reporting					
Electronic invoicing has expedited the payment process for suppliers					
Electronic invoicing has increased the transparency of financial transactions					
Electronic invoicing has improved the timeliness of invoice processing					
Electronic invoicing has reduced the administrative burden in handling invoices					
Electronic invoicing has enhanced communication with suppliers regarding invoices					
Electronic invoicing has increased stakeholder satisfaction with the payment process					
Electronic invoicing has reduced the risk of fraud or invoice manipulation					
Electronic invoicing has improved cost control and financial management					

**Thank You!**

## Appendix II: Data Collection Letter



### Institute of Accountancy Arusha

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Ref. No.: **MPSM-002-0047-2022**

**3<sup>rd</sup> October 2023**

.....  
P.O.BOX.....  
.....

Dear Sir/Madam,

**RE : REQUEST FOR DATA COLLECTION**

The purpose of this letter is to introduce to you **Ms. Happiness Henry Marcilianus** who is our student pursuing Masters of Business Administration in Procurement and Supplies Management with registration number (MPSM-002-0047-2022). Currently, the aforementioned student is conducting a study on "The Impact of Electronic Procurement on the Procurement Performance in Public Organisations: A Case of Tanesco Head Quarters Dar Es Salaam." We would like to highlight here that this study is part of the requirement for the award of the above mentioned programme of study.

We therefore request you to extend to the above-mentioned student of our Institute any help that may facilitate him to achieve study objectives. We further request permission for him to see and talk to the staff of your Institution in connection to his study. The period for this request is granted from October to end of December 2023.

Thank you for your continuing support.

Yours Sincerely,  
**INSTITUTE OF ACCOUNTANCY ARUSHA**

Germanus Chole  
FOR: RECTOR



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