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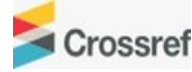
**Challenges Facing Procurement Processes Digitalization:
A Case of Tanzania Electric Supply Company Limited -
Dar es Salaam**

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Challenges Facing Procurement Processes Digitalization: A Case of Tanzania Electric Supply Company Limited - Dar es Salaam

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Abstract

Purpose: This study aimed to assess challenges facing digitalization of procurement processes at Tanzania Electric Supply Company Limited (TANESCO) in Dar es Salaam.

Materials and Methods: Technology Acceptance Model was utilized in this study. This research utilized a mixed research approach, combining quantitative and qualitative methods, targeting all 408 employees across various Tanesco departments. Sampling techniques included simple random and purposive sampling, with data collected through questionnaires, interviews, and documentary review. Descriptive statistics, facilitated by SPSS version 26, were employed for quantitative data analysis, while content analysis was utilized to analyse the qualitative data obtained from interviews.

Findings: The challenges identified in this study, include concerns about limited vendor relationship improvements and the need for enhanced transparency. Based on the findings, it is recommended that TANESCO continues to embrace digitalization in its procurement processes but focuses on addressing challenges to maximize its benefits.

Implication to Theory, Practice and Policy: Future research should examine employee attitudes and the effectiveness of change management strategies in the context of digital procurement could contribute to a comprehensive understanding of the human dimension in the digitalization journey.

Keywords: *Digitalization, Procurement, Automation, Data Accessibility, Electricity*

1.0 INTRODUCTION

Globally, the digitalization of procurement processes has become increasingly important in today's business environment. With the advent of new technologies and advancements in digital platforms, organizations are adopting digital procurement processes to streamline their procurement operations, increase efficiency, and reduce costs (United Nations Development Programme 2020). Many countries around the world are already implementing digital procurement processes. For example, in the United States, the federal government has launched the Federal Marketplace Strategy, which aims to improve procurement processes by leveraging digital technologies (United States General Services Administration 2020).

The strategy includes the development of a unified procurement platform, a digital assistant, and increased use of data analytics. In the United Kingdom, the government has launched the Crown Commercial Service, which provides a centralized procurement platform for government agencies. The platform aims to streamline the procurement process, reduce costs, and increase transparency (Chen & Liu 2022). Similarly, in Singapore, the government has implemented the GeBIZ platform, which is a one-stop procurement portal that allows businesses to bid for government contracts online (Ministry of Finance Singapore 2020). The platform has simplified the procurement process, reduced paperwork, and increased transparency.

In Africa, the digital transformation of procurement processes is becoming increasingly important due to its potential to increase efficiency, transparency, and accountability in public procurement. Several countries in Africa have already implemented digital procurement systems to improve the efficiency of their procurement processes and reduce corruption. For example, Kenya's government launched the Integrated Financial Management Information System (IFMIS) in 2014, which enabled automation of procurement processes and improved transparency and accountability in the procurement system (Kipyegon, 2018). Similarly, in Uganda, the government launched the e-Government Procurement (e-GP) system in 2018, which provided a platform for public procurement processes to be conducted electronically, thereby increasing efficiency and reducing corruption (Muhumuza & Otim 2019).

Other countries like South Africa, Rwanda, and Nigeria have also implemented digital procurement systems to improve their procurement processes. The South African government launched the Central Supplier Database (CSD) in 2015, which streamlined the supplier registration process and reduced the administrative burden on suppliers (National Treasury of South Africa 2020). Rwanda launched the Integrated Electronic Procurement (e-Procurement) System in 2017, which enabled electronic procurement processes and improved transparency and accountability in the procurement system (Republic of Rwanda 2017). Nigeria launched the National e-Procurement Project in 2017, which aims to automate the entire procurement process and improve transparency and accountability in public procurement (Lawal & Aiyetan 2018). However, despite the potential benefits of digital procurement systems, several challenges still exist in Africa, including inadequate infrastructure, limited technical expertise, and resistance to change from procurement officials.

The digitization of procurement processes in Tanzania has been recognized as a potential solution to improve efficiency and transparency in public procurement (Ngowi & Mwakatumbula 2019). The country's procurement processes have faced several challenges in the past, such as lack of transparency, corruption, and inefficiency, which have led to poor service delivery and hindered

economic growth. In recent years, the Tanzanian government has implemented several initiatives to promote digital procurement systems and improve the efficiency of public procurement processes (Kimaryo 2020). For instance, in 2013, the government launched the Government Electronic Payment Gateway (GePG), which aimed to improve transparency and reduce the potential for fraud and corruption in payment processes (Ministry of Finance and Planning 2014). The system provides a centralized platform for processing government payments, including payments for procurement transactions. Moreover, the government has established the Public Procurement Regulatory Authority (PPRA), which oversees public procurement and promotes the adoption of best practices in procurement processes (Munisi 2018). PPRA has also developed an electronic procurement system called Tanzania Integrated Procurement Management System (TIPMS), which aims to enhance the efficiency, transparency, and accountability of procurement processes (Government of Tanzania 2021). However, despite these efforts, there are still challenges to the adoption and implementation of digital procurement systems in Tanzania particularly Tanzania Electric Supply Company Limited (TANESCO), such as limited technical expertise and resistance to change from procurement officials. Addressing these challenges was crucial to ensure the successful implementation and adoption of digital procurement systems and to improve the efficiency and transparency of public procurement processes in Tanzania.

Statement of the Problem

The procurement processes digitalization in Tanzania have been a persistent challenge for many years, plagued by inefficiency, a lack of transparency, and corruption. These issues have resulted in poor service delivery, mismanagement of public funds, and eroded public trust in government entities. Despite efforts to improve procurement processes, previous studies have yielded inconsistent findings, making it challenging to gain a comprehensive understanding of the situation in the Tanzanian public sector. For instance, a study by Mafukata and Mapuva (2020) found that digital procurement technologies could reduce transaction costs and increase transparency, thereby enhancing the efficiency of procurement processes.

Similarly, Emwamu and Walusimbi (2020) found that digital procurement technologies could enhance the competitiveness and efficiency of procurement processes in developing countries. Additionally, Ayoade and Adegbile (2021) reported that procurement processes digitalization could significantly improve the procurement process by reducing procurement cycle times, enhancing transparency, and improving data management. On the other hand, Mhlanga and Kumar (2021) found that the adoption of procurement processes digitalization faced significant challenges, such as a lack of infrastructure and resources, resistance to change, and inadequate technical skills among procurement staff. Furthermore, Longe and Tella (2021) found that procurement processes digitalization could lead to an increase in cybercrime and fraud.

However, while these studies provide some insights into the impact of procurement processes digitalization, they focused on other countries, leaving a gap in knowledge on the relevance of procurement processes digitalization in developing countries like Tanzania. Therefore, this study focused on TANESCO in Dar es Salaam and assess the challenges facing procurement processes digitalization.

2.0 MATERIALS AND METHODS

This research employed a descriptive research design, providing a comprehensive understanding of the impact of digitalization on procurement processes and organizational performance at TANESCO - Dar es Salaam. The design allowed for the collection of both qualitative and quantitative data to describe the digitalization's effects, challenges, and performance impact. It enabled the identification of trends and relationships among variables, aiding in recommendations for process enhancement. The study focused on TANESCO due to its significance in the energy sector and prior procurement process changes, offering insights into sector practices and the transition to digital procurement, potentially generalizable to other public entities in Tanzania. The target population included all 408 workers from various departments within TANESCO, while the sample size of 202 officials was calculated using Yamane (1967) formula. This sample size was considered adequate to represent the population of officials and ensure the reliability and validity of the study results.

$$n = \frac{N}{1+N.e^2} = \frac{408}{1+408.0.05^2} = 202$$

Where n is the sample size, N = population, e = level of accuracy of 5%.

Utilizing a mixed research approach with structured questionnaires and qualitative interviews enhanced the study's validity and reliability. Primary data was collected through surveys, interviews, and a documentary review, facilitating a comprehensive analysis through descriptive statistics and content analysis to unveil the impact of digitalization on organizational performance at TANESCO.

3.0 FINDINGS

Out of the 202 questionnaires distributed to respondents for the study, 190 were successfully completed and returned, resulting in an impressive response rate of approximately 94.06%. The researcher utilized a five-point scale, and the assessment of this scale relied on calculating the mean values. The mean values ranges were as follows:

Table 1: Mean Values Interpretation

Weight	Mean Value	Interpretation	Colour
5	4.5 – 5.0	Very Large Extent	
4	3.5 – 4.4	Large Extent	
3	2.5 – 3.4	Moderate Extent	
2	1.5- 2.4	Little Extent	
1	1-1.4	No Extent	

Source: Researcher (2023).

The standard deviation (SD) also served as a measure of data dispersion. An SD of 1 or lower indicated that the data points clustered closely around the mean, while a standard deviation greater than 1 signified a higher degree of data spread. Also, content analysis was employed to analyse qualitative data. This method allowed for the extraction of valuable insights gathered from interviews conducted with 30 officers from Tanzania Electric Supply Company Limited - Dar es Salaam.

Challenges Facing Procurement Processes Digitalization

The study sought to evaluate the challenges associated with the procurement processes digitalization at TANESCO. The findings regarding challenges associated with procurement digitalization at TANESCO are presented in the Table 2.

Table 2: Challenges Associated with the Procurement Processes Digitalization

Challenges	Mean	SD	Interpretation
The digitalization of procurement processes presents significant challenges	2.8	0.8	Moderate Extent
Implementing digital procurement processes requires substantial financial investment and resources.	3.5	1.2	Large Extent
Procurement process digitalization often encounters resistance and reluctance from employees.	3.9	1.2	Large Extent
Integrating digital technologies into procurement processes poses technical complexities and infrastructure requirements.	3.6	1.5	Large Extent
The transition to digital procurement processes involves a steep learning curve for employees.	3.8	0.6	Large Extent
Procurement process digitalization may result in initial disruptions to existing workflows and procedures.	3.9	0.4	Large Extent
Ensuring data security and privacy in digital procurement systems is a major challenge.	3.2	0.7	Moderate Extent
Maintaining effective communication and collaboration with suppliers and vendors becomes more challenging	3.1	0.3	Moderate Extent
The continuous evolution of digital technologies necessitates ongoing adaptation and updates to procurement systems.	3.6	0.7	Large Extent
Monitoring and managing the performance of digital procurement processes pose unique challenges.	3.0	1.3	Moderate Extent

Source: Field Data (2023).

The findings presented in the table 2 highlighted that, to a moderate extent the digitalization of procurement processes presents significant challenges to organizations (Mean = 2.8, SD = 0.8) and implementing digital procurement processes require substantial financial investment and resources (Mean = 3.5, SD = 1.2). During the interview, interviewees added that: “Digitalizing procurement has challenges, including the substantial initial investment required for software, hardware, and staff training. Integrating digital systems with existing processes can disrupt operations and meet staff resistance” Said Officer 11, interviewed on September 25th 2023.

Ongoing maintenance and software updates require dedicated budgets. Skilled IT personnel are necessary for system management. Workflow and process changes may require extra resources. While promising, it's crucial to plan for these resource implications” Said Officer 12, interviewed on September 25th 2023. This implies that TANESCO, in its digitalization efforts, should be ready to confront significant hurdles that may affect the success of these initiatives and necessitate comprehensive strategies and resources for mitigation. Allocating substantial financial and human

resources is imperative for the effective implementation and sustainability of digital procurement systems, with the financial commitment being a key consideration for decision-makers.

Procurement process digitalization was shown to often encounter resistance and reluctance from employees (Mean = 3.9, SD = 1.2), pose technical complexities and infrastructure requirements (Mean = 3.6, SD = 1.5) and the transition to digital procurement processes was found to involve a steep learning curve for employees (Mean = 3.8, SD = 0.6). During the interview, interviewees claimed that:

"Indeed, the journey towards procurement process digitalization often faces resistance and reluctance from employees. Change are met with skepticism, and some fear job displacement or struggle to adapt to new technologies. Moreover, technical complexities and infrastructure requirements are substantial hurdles in the digitalization process. Implementing and maintaining the necessary digital tools and systems is also resource-intensive" Said Officer 13, interviewed on September 25th 2023. "It's true that digitalizing procurement processes can encounter resistance within the organization. Most of the employees are comfortable with traditional methods and resist change" Said Officer 14, interviewed on September 25th 2023.

"The transition to digital procurement often demands a significant learning curve for employees who are not tech-savvy. Providing proper training and support is essential to help them navigate this transformation successfully" Said Officer 15, interviewed on September 25th 2023. "While the benefits of procurement process digitalization are evident, it's important to acknowledge the potential challenges. Resistance from employees is not uncommon as people resist change, fearing it disrupts their familiar routines. Additionally, the transition to digital procurement processes is quite a leap for employees accustomed to traditional methods, necessitating adequate training and support to facilitate the learning curve and ensure a smoother transition" Said Officer 16, interviewed on September 25th 2023.

This highlights the importance of employee buy-in, change management strategies, and addressing resistance through training, communication, and engagement efforts when transitioning to digital procurement processes. It also underscores the need for TANESCO to be prepared to tackle technical challenges and invest in the required infrastructure for effective digitalization initiatives, emphasizing the essential role of training and education programs to facilitate employee adaptation to digital tools and processes efficiently.

To a large extent, findings revealed that procurement process digitalization may result in initial disruptions to existing workflows and procedures (Mean = 3.9, SD = 0.4). This highlights the need for careful planning and change management to minimize disruptions and ensure a smooth transition to digital processes. Also, to a moderate extent, ensuring data security and privacy in digital procurement systems was identified as a major challenge (Mean = 3.2, SD = 0.7). This underscores the importance of robust cybersecurity measures and data protection strategies to safeguard sensitive information.

The findings indicated that maintaining effective communication and collaboration with suppliers and vendors (Mean = 3.1, SD = 0.3), the continuous evolution of digital technologies (Mean = 3.6, SD = 0.7) and monitoring and managing the performance of digital procurement processes were identified as posing unique challenges (Mean = 3.0, SD = 1.3). On the interview, interviewees asserted that: "While digitalization offers new communication channels, it also requires adapting

to different tools and platforms, which sometimes lead to miscommunication or inefficiencies in collaboration" Said Officer 17, interviewed on September 25th 2023.

"The continuous evolution of digital technologies presents its own set of challenges. Staying up-to-date with the latest advancements and ensuring that our procurement processes are aligned with these technologies is demanding. It requires ongoing training and investment in IT infrastructure. Moreover, the rapid pace of change makes it challenging to establish long-term technology strategies, as what's cutting-edge today may become outdated tomorrow" Said Officer 18, interviewed on September 25th 2023.

Another interviewee added that: "Monitoring and managing the performance of digital procurement processes is critical, but it's not without its challenges. One major issue is the need for robust analytics and reporting tools to track and evaluate the performance accurately. It's essential to strike a balance between data-driven decision-making and human expertise to ensure effective management in a digital procurement environment" Said Officer 19, interviewed on September 25th 2023.

This implies that TANESCO must develop strategies for fostering strong digital relationships and collaboration with external partners, adopt a forward-looking approach to remain agile in response to evolving technology trends, and acquire specialized tools and expertise to effectively evaluate and optimize digital procurement systems for improved performance.

Discussion of Findings

The findings revealed that digitalization of procurement processes presents significant challenges to organizations as implementing digital procurement processes require substantial financial investment and resources. This observation closely echoes the insights offered by Emwamu & Walusimbi (2019), who similarly identified inadequacies in infrastructure, financial constraints, and a shortage of technical expertise as the principal obstacles hindering the widespread adoption of e-procurement. These common findings underscore the importance of acknowledging and addressing these challenges proactively within the context of TANESCO. Thus, recognizing these impediments as inherent aspects of digital transformation, TANESCO can develop robust strategies to secure the necessary resources, foster the acquisition of technical expertise, and establish a resilient infrastructure, ultimately ensuring the successful implementation of digital procurement processes while mitigating potential setbacks.

Procurement process digitalization was shown to often encounter resistance and reluctance from employees. On the same line, Owusu-Agyei & Aidoo (2017) indicate that lack of awareness and resistance to change are significant challenges to e-procurement adoption. Furthermore, the Technology Acceptance Model's perspective provides valuable insights, suggesting that employees' perceptions play a pivotal role in their willingness to embrace digital procurement processes. If employees perceive these processes as cumbersome or irrelevant to their work, it may dampen their enthusiasm for adoption. Consequently, TANESCO should prioritize change management strategies and employee engagement to foster a culture of acceptance and readiness for digital procurement processes.

Findings indicated that integrating digital technologies into procurement processes pose technical complexities and infrastructure requirements and the transition to digital procurement processes was found to involve a steep learning curve for employees. These findings closely mirror the insights presented by Longe & Tella (2019), who identified inadequate infrastructure, resistance

to change, and a lack of awareness as key impediments to e-procurement adoption, reinforcing the notion that these challenges are pervasive in such endeavors. Additionally, the study revealed that the initial stages of procurement process digitalization often result in disruptions to existing workflows and procedures, underscoring the need for careful change management. In line with these observations, Mhlanga & Kumar (2021) recommend providing comprehensive training to effectively manage the transition and optimize digital procurement workflows and procedures. Therefore, addressing these technical, organizational, and learning curve challenges while prioritizing employee training and support, TANESCO can navigate the complexities of procurement process digitalization more effectively, ultimately leading to a smoother and more successful transition.

Findings showed that ensuring data security and privacy, maintaining effective communication and collaboration with suppliers and vendors is more challenging in digitalized procurement. This was also observed by Mwafy & Oduor (2020) who identified several barriers to e-procurement adoption, including data security and privacy, lack of awareness of e-procurement and limited access to the internet. TANESCO should proactively address these challenges through the implementation of comprehensive security measures, clear communication strategies, and measures to enhance awareness and accessibility, thus fortifying the organization's digital procurement endeavors.

Findings depicted that the continuous evolution of digital technologies and monitoring and managing the performance of digital procurement processes were identified as posing unique challenges. In line with these findings, Mafukata & Mapuva (2020) offer valuable recommendations that emphasize the importance of investment in infrastructure, training, and awareness-building. To address the challenges posed by the ever-changing digital landscape, TANESCO should consider investing in robust and adaptable infrastructure capable of accommodating technological advancements. Furthermore, providing comprehensive training programs for employees can empower them with the necessary skills to navigate evolving digital tools and processes effectively. Additionally, creating awareness within the organization about the significance of staying current with digital technologies can foster a culture of continuous improvement and innovation.

4.0 CONCLUSION AND RECOMMENDATIONS

The study concluded that while the benefits of digital procurement processes are substantial, they are accompanied by notable challenges at TANESCO. These challenges encompass resistance from employees, complex technical implementations, and the critical need for ensuring data security. Addressing these challenges is imperative to ensure the successful implementation and sustainability of digitalization initiatives within the organization. The study recommends TANESCO to proactively address employee resistance and reluctance by implementing change management programs. These programs should focus on communication, training, and involving employees in the digitalization process. Furthermore, TANESCO should allocate resources for technical support and infrastructure enhancements to overcome technical complexities associated with digital procurement systems. Regularly soliciting feedback from employees and stakeholders can help identify and mitigate challenges as they arise.

Acknowledgement and Conflict of Interest

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