Assessment of the Impact of Technology on Public Administration Efficiency: A Case of Tanzania Bureau of Standards

Thomas E. Mwamkinga[1]
Felician Barongo[2]

[1]thomaselisha18@gmail.com
[2]felicianbarongofidelis@yahoo.com

[1,2]Mzumbe University Dar es Salaam Campus College (DCC), Tanzania

…….…

ABSTRACT

This study investigates the impact of technology on public administration efficiency, focusing on the Tanzania Bureau of Standards (TBS). In an era where technological advancements are reshaping organizational operations, understanding their implications for public sector efficiency is crucial. The primary purpose of this research is to assess how technology integration influences the effectiveness of public administration processes within TBS. Employing a case study design, the research utilized a mixed-methods approach, combining qualitative and quantitative data collection techniques. The research was anchored in the theoretical framework of technology in public administration, employed a case study design, targeted all employees of the Tanzania Bureau of Standards (TBS) as the population, utilized a sample size of 45 respondents, and implemented purposive sampling to ensure comprehensive representation from various departments. Data methods were distributed to TBS employees, complemented by in-depth interviews and document analysis. This methodology facilitated a comprehensive exploration of the interplay between technology and organizational dynamics, allowing for a nuanced understanding of employee experiences and perceptions regarding technology's role in enhancing operational efficiency. Data was analyzed using a mixed-methods approach, employing descriptive statistics for quantitative data and narrative analysis for qualitative data to provide a comprehensive understanding of the findings. The findings reveal that technology significantly enhances the efficiency of public administration at TBS by streamlining processes, improving communication, and facilitating better service delivery. Employees reported that adopting technological tools led to faster decision-making and increased productivity. However, the study also identified several challenges associated with technology integration, including resistance to change, inadequate training, and limited resources. These barriers underscore the necessity for a strategic approach to technology implementation that considers the organizational context and employee readiness. In conclusion, this research highlights the critical role of technology in improving public administration efficiency while emphasizing the importance of comprehensive training and support systems to mitigate resistance and ensure successful integration. The study provides valuable insights for policymakers and administrators at TBS, suggesting that a proactive approach to technology adoption could lead to enhanced service delivery and overall organizational performance. Recommendations include the development of targeted training programs, fostering a culture of innovation, and ensuring adequate resource allocation to support technology initiatives. This research contributes to the broader discourse on public administration efficiency and technology integration, offering a framework for future studies in similar contexts.

Keywords: *Efficiency, Mixed-Methods Research, Public Administration, Tanzania Bureau of Standards, Technology*

…….…

1. INTRODUCTION

In recent years, the integration of technology into public administration has emerged as a critical factor in enhancing organizational efficiency and service delivery. As governments worldwide strive to improve their operations, the role of technology in facilitating these changes has garnered significant attention (Mwamkinga, 2023). In the context of developing countries, such as Tanzania, the adoption of technological tools presents both opportunities and challenges that can significantly impact public sector performance.

The Tanzania Bureau of Standards (TBS) serves as a pivotal government agency responsible for developing and promoting standards for goods and services in Tanzania. As a key player in public administration, TBS is tasked with ensuring quality and compliance, which is essential for fostering economic growth and public trust (Choi & Chandler, 2020). However, the agency faces numerous challenges in its operations, including bureaucratic inefficiencies, limited resources, and resistance to change among employees. These issues highlight the need for a thorough investigation into how technology can be leveraged to enhance efficiency within TBS.

The primary variables of this study include technology integration, public administration efficiency, employee perceptions, and organizational challenges. Technology integration refers to the adoption and implementation of digital tools and systems that facilitate improved processes and communication within TBS (Osei & Agyemang, 2021). Public

administration efficiency encompasses the effectiveness and responsiveness of government services, which are critical for meeting the needs of citizens. Employee perceptions play a vital role in the successful implementation of technology, as resistance or acceptance can significantly influence the outcomes of technological initiatives. Lastly, organizational challenges, such as inadequate training and resource constraints, must be addressed to ensure a smooth transition to technology-enhanced operations (Mwamkinga, 2023).

In this study, the independent variables included various technological tools such as information and communication technology (ICT) infrastructure, software applications, and digital platforms, which are believed to influence the efficiency of public administration. These tools are essential for modernizing processes, improving service delivery, and enhancing organizational communication (Heeks, 2019). The dependent variable, public administration efficiency, was measured through indicators like service delivery time, cost reduction, and error rates, reflecting how effectively the organization operates in response to technological integration (Janssen & van der Voort, 2016). Understanding the relationship between these variables is crucial for identifying how technology can be leveraged to improve administrative functions and overall service quality in public sectors.

This study aims to assess the impact of technology on public administration efficiency at TBS, focusing on the specific challenges and opportunities associated with technology integration. By employing a mixed-methods approach, the research seeks to provide empirical evidence that can inform policymakers and practitioners about the effective use of technology in public administration. Ultimately, the findings of this study will contribute to the existing body of literature on e-government and digital transformation, particularly in the context of developing countries, and offer actionable insights for enhancing public sector performance.

1.1 Statement of the Problem

The efficient functioning of public administration is paramount for the delivery of essential services to citizens and the overall development of a nation. Technology has emerged as a potent tool for enhancing public administration efficiency by streamlining processes, improving service delivery, and fostering transparency (Organisation for Economic Co-operation and Development [OECD], 2019). However, the extent to which technology is effectively harnessed to achieve these goals varies across different contexts (Mansour & Alsharif, 2020). In the case of Tanzania, while the government has made strides in integrating ICTs into public administration, the specific impact on agencies like the Tanzania Bureau of Standards (TBS) remains understudied (National Bureau of Statistics, 2023).

Previous studies have primarily focused on general trends in e-government adoption in Tanzania, with limited attention to the challenges and opportunities within specific government agencies (Awuah & Boateng, 2020). Consequently, there is a dearth of empirical evidence on the effectiveness of technology in enhancing efficiency at the operational level of TBS. This gap in knowledge hinders the ability to assess the actual impact of technology investments, identify bottlenecks, and inform evidence-based policymaking to optimize resource allocation and improve service delivery.

If the problem of inefficient technology integration at TBS persists, it could lead to several negative consequences. Firstly, it may hinder the bureau's ability to meet its mandate of ensuring product quality and safety, which could have implications for public health and consumer protection. Secondly, it could result in increased operational costs, bureaucratic delays, and decreased public satisfaction with TBS services. Thirdly, it may limit Tanzania's ability to compete globally in terms of trade and investment, as efficient standards and quality assurance processes are crucial for attracting foreign businesses.

To address this research gap, this study aims to delve deeper into the specific technological tools implemented at TBS, assess their impact on efficiency, and identify the underlying challenges hindering optimal utilization. By doing so, this research contributes to the existing body of knowledge on technology in public administration by providing empirical evidence from a case study perspective.

1.2 Research Objective

The following were Specific Objectives
  i.   To investigate the role of technology on public administration efficiency in the Tanzania Bureau of Standards.
 ii.   To assess the effectiveness of these technological interventions in improving efficiency within public administration processes.
iii.   To identify challenges associated with integrating technology in public administration.

II. LITERATURE REVIEW

2.1 Theoretical Review

The theoretical framework of this study is grounded in the principles of technology adoption and diffusion theories, which explain how new technologies are integrated into organizations. These theories suggest that the successful implementation of technology in public administration depends on various factors, including organizational readiness, employee attitudes, and the perceived benefits of the technology (Rogers, 2018). By applying these theories, the study aims to explore how the Tanzania Bureau of Standards (TBS) can effectively adopt technological tools to enhance its operational efficiency and service delivery.

2.1.1 Title of Theory

One relevant theory in this context is the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness significantly influence users' decisions to accept and use technology (Davis, 1989). This model is particularly applicable to public administration, as it helps to understand the factors that motivate employees at TBS to embrace new technologies. By focusing on these perceptions, the study can identify strategies to improve technology adoption and address any resistance to change among staff, ultimately leading to enhanced efficiency in public service delivery.

2.2 Empirical Review

2.2.1 Role of Technology on Public Administration Efficiency

The role of technology in public administration has been widely explored in the global context. Studies have shown that technology can significantly improve efficiency, transparency, and service delivery. For instance, a study by Lee and Kim (2020) found that e-government adoption can lead to increased efficiency and reduced costs. Similarly, research by Al-Debei (2018) highlighted the potential of technology to enhance public service delivery and citizen satisfaction.

In the African context, the adoption of technology in public administration has been gaining momentum. Countries like South Africa and Kenya have made significant strides in leveraging technology to improve governance. However, challenges such as limited infrastructure, lack of skilled personnel, and corruption hinder the full realization of technology's potential (Rarhoui, 2025). Therefore, research has shown that the adoption of technology can lead to improved efficiency, transparency, and accountability in government organizations (OECD, 2020). However, the extent to which technology has impacted public administration efficiency in developing countries, particularly in Africa, remains a subject of debate.

In the Tanzanian context, studies have explored the potential of technology to transform public administration. For instance, Msuya and Msuya (2019) examined the factors influencing e-government adoption in Tanzania and found that government support, ICT infrastructure, and human capital were critical determinants. Similarly, Mbwambo and Msuya (2021) investigated the challenges and opportunities of e-government implementation in Tanzania, highlighting issues such as limited internet connectivity, lack of skilled personnel, and resistance to change.

Hassan and Nyamba (2020) investigated technological interventions in Tanzanian public institutions, finding that digital systems significantly streamline administrative workflows. Their research demonstrated that technological tools reduce processing times, minimize human error, and enhance overall organizational productivity.

2.2.2 Effectiveness of Technological Interventions

A significant body of research has examined the impact of technology on public administration efficiency globally. For example, a study by Lee and Kim (2020) found that the adoption of e-government services in developed countries led to improved efficiency and service delivery. Similarly, research by Chen and Yang (2019) demonstrated the positive impact of big data analytics on public service delivery in the United States. However, the effectiveness of technology interventions can vary across different contexts and organizational settings.

Studies have demonstrated that the use of e-government services can reduce processing time, lower costs, and enhance citizen satisfaction. However, the effectiveness of technology interventions can vary depending on factors such as the quality of implementation, organizational culture, and user training.

In the context of standards organizations, technology has been used to streamline processes, improve data management, and enhance communication with stakeholders. For example, studies have shown that the implementation of electronic quality management systems can reduce lead times and improve product quality Lee and Kim (2020).

In the context of developing countries, the effectiveness of technological interventions may be influenced by factors such as organizational culture, capacity building, and policy frameworks. Studies by United Nations Economic

Commission for Africa (UNECA, 2021) have highlighted the need for strong institutional frameworks and supportive policies to facilitate the adoption and effective use of technology in public administration.

In Tanzania's context, Mushi and Saria (2022) conducted an in-depth analysis of technological effectiveness in public administration, focusing on performance metrics and operational outcomes. Their study revealed that strategic technological interventions could improve administrative efficiency by approximately 35%, with notable improvements in communication, documentation, and resource management processes.

2.2.3 Challenges in Technology Integration

Numerous studies have identified common challenges associated with technology integration in public administration. These challenges include resistance to change, lack of technical skills, inadequate infrastructure, and cybersecurity threats (Al-Debei, 2018) and are major obstacles to successful technology implementation.

In the African context, additional challenges such as limited access to electricity and internet connectivity can hinder technology adoption and utilization (Awuah & Boateng, 2020). And, OECD (2019)

In the Tanzanian context, specific challenges may include limited access to reliable internet connectivity, inadequate infrastructure, and a shortage of skilled personnel. These factors can hinder the adoption and effective use of technology within public organizations like TBS. Challenges in technological integration remain a significant research focus. Ally and Kisoza (2019) identified multiple barriers, including limited technological infrastructure, insufficient staff training, budgetary constraints, and resistance to organizational change. Their comprehensive research highlighted the need for holistic approaches to technological implementation, emphasizing the importance of comprehensive change management strategies.

III. METHODOLOGY

3.1 Research Design and Methods

This study employed a qualitative case study design to explore the impact of technology on public administration efficiency within the Tanzania Bureau of Standards (TBS). A case study approach is particularly suitable for this research as it allows for an in-depth examination of complex phenomena within their real-life context (Yin, 2018). By focusing on a single organization, the study aims to uncover the specific challenges and opportunities associated with technology integration, providing rich, contextual insights that quantitative methods may overlook (Stake, 2005). The research utilized a mixed-methods approach, combining qualitative and quantitative data to enhance the comprehensiveness of the findings (Creswell, 2014).

3.2 Case Study Location and Target Population

The case study was conducted at the Tanzania Bureau of Standards (TBS), a government agency responsible for developing and promoting standards for goods and services in Tanzania. TBS was selected due to its critical role in public administration and the ongoing efforts to integrate technology into its operations. The target population for this study included employees at various levels within TBS, encompassing different departments that utilize technology in their daily operations. This diverse population provided a broad perspective on the impact of technology on organizational efficiency.

3.3 Data Collection Methods

Data collection for this study involved multiple methods to ensure a comprehensive understanding of the research topic. The primary methods employed were:

Interviews: Semi-structured interviews were conducted with key informants, including managers and staff members from different departments within TBS. This method allowed for open-ended discussions, enabling participants to share their experiences and insights regarding technology integration and its impact on efficiency (Kvale & Brinkmann, 2015).

Documentary Review: A systematic review of relevant documents, such as internal reports, policy documents, and performance evaluations, was conducted to gather additional context and corroborate the findings from interviews (Bowen, 2009). This method provided a deeper understanding of the organizational framework and the specific technologies employed.

3.4 Sampling Technique and Sample Size

A purposive sampling technique was employed to select participants for the study. This approach was chosen to ensure that the sample included individuals with relevant knowledge and experience regarding technology integration within TBS (Palinkas et al., 2015). The sample size consisted of 45 participants, which included 15 managers and 30

staff members from various departments. This size was deemed sufficient to achieve data saturation, where no new information emerged from the interviews (Guest et al., 2006).

Table 1
Shows sample Distribution (N=65)

S/N	Category Respondent (Department Worker)	Number of Respondent	Percentage %
1	Standards Development	9	20
2.	Quality Assurance	6	13
3.	Certification	9	20
4.	Management	7	16
5.	Support Services	14	31
	Total Respondents	45	100

3.5 Ethical Considerations

Ethical considerations were paramount throughout the research process. Before data collection, ethical approval was obtained from the relevant institutional review board. Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. Informed consent was obtained from all participants, ensuring that they understood the nature of their involvement (Creswell, 2014). Additionally, data were anonymized to protect participants' identities, and all findings were reported in aggregate form to maintain confidentiality.

In conclusion, this methodology section outlines the research design, case study location, data collection methods, sampling technique, and ethical considerations that guided this study. By employing a rigorous and systematic approach, the research aims to provide valuable insights into the role of technology in enhancing public administration efficiency within the Tanzania Bureau of Standards.

IV. FINDINGS & DISCUSSION

4.1 The Role of Technology on Public Administration Efficiency in Tanzania Bureau of Standards (TBS)

The role of technology in enhancing public administration efficiency at the Tanzania Bureau of Standards (TBS) is significant and multifaceted. The findings of this study reveal that the integration of technological tools has led to substantial improvements in operational processes, service delivery, and inter-departmental communication. Specifically, the implementation of electronic systems has streamlined workflows, reduced processing times, and facilitated better data management. This aligns with the literature that emphasizes the transformative potential of technology in public administration, particularly in developing countries. For instance, Manda and Backhouse (2016) noted that the adoption of information and communication technology (ICT) in public sector organizations can lead to enhanced service delivery and operational efficiency. The findings from TBS corroborate this assertion, demonstrating that technology not only improves efficiency but also enhances the overall effectiveness of public services.

Moreover, the study identified several challenges associated with technology integration at TBS, including resistance to change, inadequate training, and limited resources. These challenges are consistent with the observations made in the literature, which highlight that many public sector organizations face similar barriers when implementing new technologies. For example, Osei and Agyemang (2021) discussed how employee resistance and lack of proper training can significantly hinder the successful adoption of technological innovations in public administration. The findings from TBS reflect this reality, as employees expressed concerns about the usability of new systems and the need for more comprehensive training programs. This resistance underscores the importance of addressing human factors in technology adoption, as highlighted by Heeks (2019), who argued that successful technology integration requires not only technical solutions but also a focus on organizational culture and employee readiness.

In addition to identifying challenges, the study also explored strategies for enhancing technology adoption at TBS. The findings suggest that fostering a culture of continuous learning and providing targeted training initiatives are essential for overcoming the barriers to technology integration. This approach is supported by the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness are critical determinants of technology adoption (Davis, 1989). The literature indicates that organizations that prioritize employee training and support are more likely to achieve successful technology integration (Rogers, 2018). Therefore, TBS should consider implementing comprehensive training programs that not only enhance technical skills but also address the psychological barriers to change, ultimately leading to improved efficiency in public administration.

In conclusion, the findings of this study highlight the critical role of technology in enhancing public administration efficiency at TBS. The positive impact on service delivery, the challenges related to employee resistance

and training, and the strategies for fostering a supportive organizational culture all contribute to a comprehensive understanding of how technology can be effectively integrated into public sector operations. By addressing these factors, TBS can enhance its operational performance and better serve the needs of its stakeholders in an increasingly digital landscape.

4.2 The Effectiveness of Technological Interventions in Improving Efficiency

The effectiveness of technological interventions in improving efficiency within the Tanzania Bureau of Standards (TBS) is a central theme of this study. The findings indicate that the adoption of various technological tools has led to significant enhancements in operational efficiency, particularly in the areas of process automation, data management, and communication. For instance, the implementation of systems such as PEPMIS and E-OFFICE has streamlined administrative tasks, allowing for quicker decision-making and reduced bureaucratic delays. This aligns with the literature that emphasizes the positive impact of technology on public sector efficiency. According to Kaseya (2018), e-government initiatives in Tanzania have facilitated the increased adoption of ICT tools, which have proven essential for improving service delivery and operational performance in public institutions.

This high level of adoption reflects the findings of Mtebe and Raphael (2022), who noted that effective technological interventions can lead to improved administrative processes and efficiency metrics. The results suggest that when employees are equipped with the right tools, they can perform their tasks more effectively, thereby enhancing overall productivity within the organization.

However, while the findings highlight the effectiveness of these technological interventions, they also underscore the necessity of addressing the challenges that accompany their implementation. The study identified issues such as inadequate training and resistance to change as significant barriers to fully realizing the benefits of technology. This observation is consistent with the literature, which points out that the success of technological interventions is often contingent upon the readiness and adaptability of the workforce (Osei & Agyemang, 2021). The literature suggests that organizations must invest in comprehensive training programs to ensure that employees are not only familiar with the technology but also confident in using it to improve their work processes.

Furthermore, the findings indicate that the effectiveness of technological interventions is enhanced when there is a supportive organizational culture that encourages innovation and continuous learning. This is supported by the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness are critical factors influencing technology adoption (Davis, 1989). The study suggests that TBS could benefit from fostering an environment that promotes experimentation with new technologies and encourages feedback from employees regarding their experiences. By doing so, TBS can create a more conducive atmosphere for technology integration, ultimately leading to improved efficiency in public administration.

In conclusion, the findings of this study affirm the effectiveness of technological interventions in enhancing efficiency at TBS. The positive impact on operational processes, coupled with the challenges of training and resistance, highlights the need for a strategic approach to technology adoption. By addressing these challenges and fostering a culture of innovation, TBS can maximize the benefits of technological interventions, thereby improving its overall efficiency and service delivery.

4.3 The Challenges Associated with Integrating Technology into Public Administration

The challenges associated with integrating technology in public administration, particularly at the Tanzania Bureau of Standards (TBS), are multifaceted and significant. The study identified several key barriers that hinder the effective implementation and utilization of technological interventions. One of the primary challenges reported by all respondents was the prevalence of technical issues, including network instability, system downtime, and software glitches. These technical difficulties not only disrupt daily operations but also diminish employee confidence in the technology being used. This finding aligns with the observations of Mwepu (2017), who noted that inadequate ICT infrastructure remains a significant barrier to e-government implementation in many African countries. The literature emphasizes that without a robust technological foundation, the potential benefits of digital transformation cannot be fully realized.

Another critical challenge highlighted in the study is the resistance to change among employees. Many staff members expressed skepticism towards new technological systems, which is a common phenomenon in public sector organizations. This resistance can stem from a variety of factors, including fear of the unknown, concerns about job security, and a lack of familiarity with new tools. The findings resonate with the work of Choi and Chandler (2020), who argue that organizational inertia and employee skepticism often hinder technology adoption in public sector settings. The literature suggests that effective change management strategies are essential to overcoming these barriers, as they can help to alleviate fears and foster a more positive attitude towards technology integration.

In addition to technical issues and resistance to change, the study also identified inadequate training as a significant challenge. Many employees reported feeling unprepared to use the new technologies effectively, which further exacerbated resistance and led to underutilization of the tools available. This observation is consistent with the findings of Fernandez and Rainey (2016), who emphasize the importance of comprehensive training programs in facilitating successful technology adoption. The literature indicates that organizations must prioritize training and support to ensure that employees possess the necessary skills and confidence to leverage technological tools effectively.

Moreover, the study revealed that limited resources, both financial and human, pose additional challenges to technology integration at TBS. Budget constraints can restrict the ability to invest in necessary infrastructure and training programs, while a lack of skilled personnel can hinder the effective implementation of new systems. This aligns with the broader trends observed in developing countries, where resource limitations often impede the progress of e-government initiatives (Heeks, 2020). The literature suggests that addressing these resource challenges requires strategic planning and prioritization by policymakers to ensure that public institutions can effectively harness technology for improved service delivery.

In conclusion, the findings of this study underscore the various challenges associated with integrating technology into public administration at TBS. Technical issues, resistance to change, inadequate training, and limited resources collectively hinder the effective implementation of technological interventions. Addressing these challenges is crucial for maximizing the benefits of technology in public administration. By investing in infrastructure, fostering a culture of adaptability, and providing comprehensive training, TBS can overcome these barriers and enhance its operational efficiency.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

The research conducted on the impact of technology on public administration efficiency at the Tanzania Bureau of Standards (TBS) yielded significant insights into both the benefits and challenges of technology integration. The findings revealed that technology plays a crucial role in enhancing operational efficiency by streamlining processes, improving communication, and facilitating better service delivery. However, the study also identified several challenges, including technical issues, resistance to change, inadequate training, and limited resources, which hinder the effective implementation of technological interventions. These challenges underscore the complexity of digital transformation in public administration and highlight the need for comprehensive strategies to address them.

5.2 Recommendation

In light of these findings, it is recommended that TBS prioritize the development of a robust ICT infrastructure to mitigate technical issues and ensure reliable system performance. Additionally, implementing effective change management strategies and comprehensive training programs will be essential to foster employee acceptance and proficiency with new technologies. Furthermore, securing adequate resources, both financial and human, will be critical to support ongoing technological initiatives and enhance overall organizational performance. By addressing these areas, TBS can maximize the benefits of technology integration and improve its public administration efficiency.

REFERENCES

Al-Debei, M. (2018). Challenges and opportunities of e-government: A systematic review. *Government Information Quarterly*, 35(1), 101205.

Al-Debei, M. M. (2018). The impact of technology on public administration: A review of the literature. Journal of Public Administration Research and Theory, 28(3), 455-472.

Ally, M., & Kisoza, L. (2019). Technological barriers in public administration: A Tanzanian perspective. *Public Technology Review*, 12(3), 45-62.

Awuah, E., & Boateng, S. (2020). Challenges and opportunities of e-government in Africa: A systematic review. *Journal of Information Technology for Development*.

Awuah, K. G., & Boateng, R. (2020). The role of technology in enhancing public service delivery in developing countries: A case study of Ghana. International Journal of Public Administration, 43(5), 421-431.

Babbie, E. (2013). *The Practice of Social Research* (13th Ed.). New York. Cengage Learning.

Bannister, F., & Connolly, T. (2014). ICT, public administration, and the role of the citizen. *Government Information Quarterly*, 31(3), 345-353.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40.

Bowen, G. A. (2019). Document analysis as a qualitative research method. Qualitative Research Journal, 19(1), 27-40.

Chen, C., & Yang, Y. (2019). The impact of big data analytics on public service delivery: Evidence from the United States. *Government Information Quarterly*, 36(4), 101370.

Choi, S. O., & Chandler, D. (2020). Managing change in public organizations: The role of leadership and employee engagement. Public Administration Review, 80(4), 634-645.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th Ed.). SAGE Publications.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.

Fernandez, S., & Rainey, H. G. (2016). Managing successful organizational change in the public sector. *Public Administration Review, 76*(2), 268-280.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.

Hassan, S., & Nyamba, J. (2020). Digital transformation in Tanzanian public institutions. *International Journal of Public Administration and Technology*, 8(2), 112-129.

Heeks, R. (2006). Implementing and managing eGovernment: A global perspective. *International Journal of Public Sector Management*, 19(4), 301-309.

Heeks, R. (2019). *Information and communication technology for development (ICT4D).* New York. Routledge.

Heeks, R. (2020). Digital transformation in the Global South: Challenges and opportunities. Information Technology for Development, 26(1), 1-20.

Janssen, M., & van der Voort, H. (2016). Adaptive governance: Towards a stable, accountable, and responsive government. Government Information Quarterly, 33(1), 1-5.

Kaseya. (2018). The impact of e-government initiatives on public sector efficiency in Tanzania. *International Journal of Public Administration, 41*(2), 123-135.

Kvale, S., & Brinkmann, S. (2015). *InterViews: Learning the Craft of Qualitative Research Interviewing* (3rd ed.). New York. SAGE Publications.

Lee, J., & Kim, S. (2020). E-government adoption and its impact on public service efficiency: A comparative study of developed countries. *Government Information Quarterly*, 37(1), 101434.

Mwamkinga, T. E. (2023). Research by *Assessment of the Impact of Technology on Public Administration Efficiency: A Case of Tanzania Bureau of Standards*. Mzumbe University.

Manda, M., & Backhouse, J. (2016). The role of technology in enhancing public service delivery in developing countries: A case study of Tanzania. International *Journal of Public Administration*, 39(5), 392-403.

Mansour, A., & Alsharif, M. H. (2020). The impact of technology on public administration: A case study of the public sector in Saudi Arabia. *International Journal of Public Administration*, 43(10), 877-887.

Msuya, AM, & Msuya, EA (2019). Factors influencing the adoption of e-government in Tanzania: A case study of the Ministry of Education, Science, and Technology. *Journal of Information Technology for Development*, 20(2), 145-164.

Mtebe, J. S., & Raphael, C. (2022). Document analysis and its role in understanding organizational technological transformation. *Journal of Public Affairs*, 22(1), 2180-367.

Mushi, R., & Saria, H. (2022). Effectiveness of technological interventions in public administration. *Tanzanian Administrative Technology Quarterly, 9*(1), 22-40.

Mwepu, E. (2017). The role of ICT infrastructure in e-government implementation in Africa. *African Journal of Public Affairs*, 9(1), 1-15.

OECD. (2019). OECD digital government index. OECD Publishing.

Osei, C., & Agyemang, G. (2021). Challenges of technology adoption in public administration: *Evidence from Ghana. Journal of Public Affairs*, 21(3), e2180.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544.

Rarhoui, K. (2025). *E-government in Africa: Challenges and prospects*. Mohammed V University.

Rogers, E. M. (2018). Diffusion of innovations (5th Ed.). Free Press.

Stake, R. E. (2005). *The Art of Case Study Research*. SAGE Publications.

UNECA. (2021). *Africa's Digital Transformation: Shaping the Future*. United Nations Economic Commission for Africa.

Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods* (6th Ed.). SAGE Publications.