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TANGA CAMPUS

RESEARCH REPORT ON

OBSTACLES TO E-GOVERNMENT ADOPTION FOR IMPROVED SERVICE DELIVERY IN TANZANIAN LOCAL GOVERNMENT AUTHORITIES (LGAS): A CASE STUDY OF SELECTED LGAS

RESEARCH TEAM:
Andrew Msagamasi, Yuda Kyara, Zawadi Radhid,
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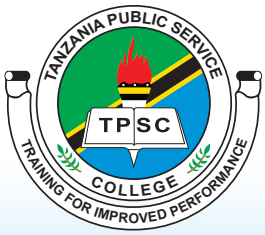

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OCTOBER, 2025

RESEARCH TEAM:
Andrew Msagamasi, Yuda Kyara, Zawadi Radhid,
Josephine C. Ngonyani, Henry Godda and Grace Mushi

Prepared by:
Tanzania Public Service College,
P.O. Box 2574,
Dar es Salaam.

Researchers: Andrew Msagamasi, Yuda Kyara, Zawadi Radhid, Josephine C. Ngonyani, Henry Godda and Grace Mushi.

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LIST OF ABBREVIATIONS

E-government	:	Electronic Government
GAMIS	:	Government Assets Management Information System
GePG	:	Government Electronic Payment Gateway
GOTHOMIS	:	Government of Tanzania Health Operations Management Information System
ICT	:	Information and Communication Technology
LGAs	:	Local Government Authority (Local Government Authorities)
LGRCIS	:	Local Government Revenue Collection Information System
MUSE	:	Government Digital Payment system (Mfumo wa Ulipaji Serikalini)
MNRT	:	Ministry of Natural Resources and Tourism
NITDA	:	National Information Technology Development Agency
NeST	:	National e-Procurement System of Tanzania
NPM	:	New Public Management
OECD	:	Organisation for Economic Cooperation and Development
PEPMIS	:	Public Employee Performance Management System
PLANREP	:	Planning, Budgeting and Reporting System
PReM	:	Primary School Information Management System
URT	:	United Republic of Tanzania

ABSTRACT

This study investigated the obstacles hindering the adoption of e-Government for improved service delivery in Tanzanian Local Government Authorities (LGAs). Specifically, it examined the effectiveness of Information and Communication Technology (ICT) infrastructure in supporting e-Government systems, the competence of local government staff in utilising these systems, stakeholders' perceptions and trust in online services, and the broader challenges affecting successful e-Government implementation. The study was conducted in two regions, namely Kilimanjaro and Tanga. In the Tanga Region, the focus was on the Tanga City Council and the Mkinga District Council. At the same time, in the Kilimanjaro Region, the study covered Moshi Municipal Council, Mwanga District Council, and Same District Council. A descriptive research design was adopted, combining both quantitative and qualitative approaches. Data were collected from 204 respondents using stratified random and purposive sampling. Stratified random sampling was employed to select 179 LGA employees, while 25 key informants were selected purposively. Data were collected through questionnaires, interviews and documentary review. Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) version 26, while qualitative data underwent thematic analysis.

The findings reveal that while some ICT infrastructure exists within LGAs to support e-Government systems, its effectiveness remains limited. Most local government staff possess only basic skills in using e-Government platforms, yet stakeholders generally hold positive perceptions and a reasonable degree of trust in such systems. However, several challenges persist, particularly in rural areas, where ICT infrastructure remains underdeveloped and, in many cases, network connectivity is unreliable. In conclusion, although efforts toward e-Government adoption in Tanzanian LGAs are evident, the current state of implementation requires significant improvement. Addressing the identified barriers will be essential for enhancing effective adoption. The study recommends increased investment in modern ICT infrastructure, particularly in rural areas; the provision of financial support to LGAs; the implementation of targeted training programmes for staff to improve digital competence; and awareness campaigns to build trust and promote the benefits of e-Government services among local communities.

CHAPTER ONE: INTRODUCTION

1.1. Chapter Overview

This chapter provides an introduction crucial to understanding the current study. It begins by providing background information that establishes the research context. Furthermore, the chapter presents the statement of the problem, study objectives, research questions, significance of the study, and the parameters within which the study was carried out. Finally, the chapter concludes by illuminating key terminologies used in the study.

1.2. Background Information

In recent decades, many countries around the world have focused on administrative reforms within public administration, particularly through the application of technology in the public sector. These reforms have aimed to improve service delivery, administrative efficiency, and cost savings, particularly in urban planning and public safety (Pulijala, 2024). The adoption of technology has enabled governments to create better connections with their citizens and enhance service delivery (Heeks, 2020). One of the most significant technological initiatives has been the development of electronic government (e-government) systems, which emerged in the 1990s to modernise government processes and enhance efficiency. E-government, particularly in developing countries like Tanzania, is seen as improving public administration by providing online access to services and information, empowering citizens in the process (Kibira *et al.,* 2024).

Globally, e-government has become a strategic tool for improving service delivery, simplifying administrative processes, and increasing public sector efficiency. Many countries, including China, the United States, and members of the European Union, have implemented e-government systems to streamline operations and better serve their populations (Heeks, 2020; United Nations, 2022). In Africa, nations like Kenya and Nigeria have made significant strides in integrating ICT into public service delivery, resulting in improved governance and increased revenue generation (Kashaija, 2022; NITDA, 2021). However, countries like Zambia and Botswana have struggled due to the lack of formal e-government strategies, hindering their ability to fully realise the benefits of digital government (World Bank, 2024). Conversely, Tanzania has made notable progress in adopting e-government as part of its broader ICT policy reforms. The government has implemented several initiatives, including the creation of the e-Government Authority (eGA) and the development of key infrastructure, including the Government Network and Data Centre (URT, 2022). These initiatives aim to enhance transparency, reduce costs, and improve service delivery.

Despite these achievements, the pace of e-government adoption in Tanzania has been uneven, with urban areas experiencing more significant advancements than rural LGAs, which face challenges such as inadequate infrastructure and limited ICT literacy. Despite the widespread use of ICT tools in Tanzanian LGAs, issues such as a lack of technical skills, poor internet connectivity, and insufficient funding impede effective implementation (TCRA, 2022). Setyawan (2024) highlights additional barriers, including resistance from government officials and the digital divide, which further hinder the adoption of e-government. Nevertheless, some LGAs have successfully integrated e-government into their processes, reducing processing times for services like business permits, health services, and tax payments (Mnyawi & Mrosso, 2021; Nyagawa *et al.,* 2020). This suggests that, while significant challenges remain, e-government holds great potential to improve public service delivery in Tanzania.

Given the progress made in e-government implementation, it is clear that digital transformation in local governments should be prioritised, especially in developing countries like Tanzania. Not only does e-government enhance institutional capacity, but it also offers a pathway to improved service delivery. However, existing studies, particularly case studies on e-government adoption in Tanzanian LGAs, focused on limited aspects of this transformation. For example, Kibira et al. (2024) note that most of the e-government services in Tanzania facilitate government-to-government (G2G) interactions and one-way communication from government to citizens (G2C), with minimal engagement in citizen-to-government (C2G) or business-to-government (B2G) relationships. This indicates a gap in the inclusivity and effectiveness of current e-government services. Therefore, further research is needed to explore the diverse e-government initiatives across different LGAs in Tanzania, examining both the opportunities and challenges of adopting e-government to enhance service delivery.

1.3. Statement of the Problem

The Government of Tanzania has introduced various e-government initiatives such as Employee SelfService Portal, Government Electronic Payment Gateway (GePG), eOffice, Tanzania Government Portal, Government Mobile Platform, and eMrejesho (Citizen Feedback/Complaints & Compliments Platform) that aimed at improving service delivery, enhancing transparency, and increasing citizen participation in governance (World Bank, 2020; URT, 2022). While these efforts have shown promise at the national level, the adoption and effective use of e-government platforms within LGAs remain limited and inconsistent (Bwalya & Mutula, 2014). In particular, LGAs such as Tanga and Kilimanjaro continue to face significant challenges that hinder the full integration of digital systems into their service delivery processes. These challenges include bureaucratic inefficiencies, limited ICT infrastructure, low digital literacy, inadequate technical skills, and poor coordination of e-government initiatives (Nyagawa et al., 2020; Mnyawi & Mrosso, 2021; Ali et al., 2023; Kibira *et al.,* 2024; Hans & Rutenge, 2024).

As a result, many citizens still experience delays, limited access to public information, and a lack of responsiveness from local authorities (Aleisa, 2024). The potential of e-government to transform local service delivery by making it more efficient, transparent, and citizen-focused has yet to be fully realised in these regions (URT, 2022). This situation highlights the need to identify and analyse the specific obstacles to e-government adoption in Moshi Municipal, Mwanga, and Same District Councils in Kilimanjaro, as well as in Tanga City Council and Mkinga District Council in Tanga LGAs. Understanding these barriers is essential to developing practical, context-specific strategies that support the successful implementation of e-government solutions and ultimately improve public service delivery at the local level.

1.4. Study Objectives

1.4.1. General Objective

The general aim of the study was to explore the adoption of e-government towards improved service delivery in Tanzanian LGAs.

1.4.2. Specific Objectives

Specifically, the study intended to:

i. Evaluate the effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs;

ii. Assess the competence of local government staff in utilising e-government systems for enhanced service delivery.in Tanzania;

iii. Determine stakeholders' perceptions and trust in online services and their impact on improving service delivery; and

iv. Identify and analyse key challenges hindering the successful implementation of e-government in Tanzania LGAs.

1.5. Research Questions

This study aimed to respond to the following research questions:

i. How effective is the existing ICT infrastructure in supporting the implementation of e-government in LGAs?

ii. What is the level of competence among local government staff in using e-government systems to enhance service delivery?

iii. How do stakeholders perceive and trust e-government services, and what is the impact of these perceptions on service delivery?

iv. What are the main challenges affecting the successful implementation of e-government initiatives in LGAs?

1.6. Justification of the Study

The adoption of e-government has been extensively investigated globally; however, there is a lack of research specifically examining its adoption and implementation across the diverse categories of LGAs in Tanzania, namely cities, municipalities, town councils, and district councils. The literature predominantly centres on individual LGAs or other institutions, culminating in fragmented insights. This study focused on providing a thorough understanding of the obstacles to the adoption of e-government towards improved service delivery in Tanzanian LGAs. The key research gap lies in the limited empirical studies focusing on e-governments' roles in building transparency and reducing corruption in public services (Mnyawi & Mrosso, 2021). While numerous studies indicate that e-government has the potential to enhance operational efficiency, empirical evidence of its direct effects on specific outcomes in public administration remains inadequately explored (Nyagawa *et al.,* 2020; Setyawan, 2024).

E-government has been recognised as a pivotal mechanism for enhancing governance and service delivery in Tanzania, prompting the integration of e-government into the national ICT policy and various reforms within local governments. The execution of these reforms and initiatives has not achieved uniform success, particularly at the LGA level. By scrutinising the specific challenges and opportunities encountered by LGAs, this study aligns with the national priorities aimed at bolstering accountability, transparency, and efficiency in the provision of public services.

Local governments are the primary providers of services to citizens. Additionally, issues such as delays in service delivery, corruption, and the lack of accountability have drawn criticism towards local government entities. The adoption and implementation of e-government initiatives are anticipated to enhance accessibility, responsiveness, and efficiency, thereby fostering equitable service delivery. Setyawan (2024) emphasised that the use of digital tools constitutes an effective strategy to enhance efficiency, transparency, and accessibility in government services. This necessitates empirical research to investigate the adoption and implementation of e-government at the local level, exploring the prospects and challenges and proposing suitable recommendations to address the identified gaps. The findings of this study can yield actionable insights for policymakers and administrators, thereby facilitating the enhancement of e-government systems and, consequently, improving service delivery.

1.7. Significance of the Study

This study is of considerable significance in various respects, particularly as it serves as an evaluative instrument to assess the current state of e-governance in relation to service delivery systems within a given LGA in Tanzania. The primary emphasis is on addressing the principal challenges associated with inadequate public service delivery. Moreover, it will provide tangible data on strategies to improve the situation and a deeper understanding of how e-government implementers nationwide perceive it.

The study offers evidence-based insights into the present state of e-government adoption, illuminating both achievements and obstacles. Policymakers may leverage these findings to develop more effective frameworks, strategies, and regulations that foster digital transformation across LGAs and other sectors in Tanzania. A thorough understanding of the challenges and opportunities associated with e-government enables policymakers to prioritise investments in critical domains such as ICT infrastructure, capacity building, and cyber security. Setyawan (2024) suggests that e-government can serve as a strategic instrument for public administration reform when supported by infrastructure improvements, human resource development, and increased public digital literacy.

The study's findings will allow public servants to gain practical insights to improve service delivery mechanisms. The study will identify skill and training gaps, facilitating the development of targeted programmes to upskill employees and enhance their efficiency and effectiveness.

The study aims to enhance e-government service accessibility for the general population; citizens are poised to directly benefit from improved efficiency, transparency, and accessibility of public services enabled by e-government implementation within LGAs in Tanzania. By utilising the identified prospects and challenges, the study clarifies how citizens can use digital tools to hold local government officials accountable for their actions.

1.8. Delimitation of the Study

This study focused on two regional administrative areas in Tanzania Mainland: Kilimanjaro and Tanga. In Tanga, LGAs involved were Tanga City Council and Mkinga District Council, while in Kilimanjaro, they were Moshi Municipal, Mwanga and Same District Councils. The selected areas were found to be suitable because they have made progress in utilising e-government systems, thereby assisting in portraying contrasting perspectives on the adoption of e-government in both rural and urban contexts. The study analysed the adoption and implementation of e-government platforms within these LGAs. The targeted population included government employees, particularly those in departments that directly deliver e-government services, such as information technology, administration, human resources, finance, procurement, and service delivery. Additionally, e-government users, including citizens and businesses in those two regions who utilise e-government platforms for accessing public services such as tax payments, business registrations, and public record requests, were considered.

The study assessed both the prospects (opportunities and benefits) and challenges (barriers and limitations) associated with e-government adoption and implementation in the specified LGAs.

The study limited its analysis to key e-government systems and applications implemented by the Tanzanian government in LGAs, including platforms for revenue collection, public service management, and citizen engagement.

1.9. Definition of Key Terms

The following are definitions of important key terms used in this study:

E-Government: The use of digital technologies by government agencies to provide services, engage with citizens, and streamline administrative processes. E-government can potentially simplify government processes, stimulate internal change, and reorganise government. Numerous benefits may accrue from e-government initiatives, including cost savings, improved communications and coordination, expanded citizen participation, and increased government accountability (African Union, 2024).

Digital Literacy: This involves navigating and utilising various digital tools and platforms. This skill is essential as technology becomes increasingly integrated into personal and professional life (Normuratova, 2024). Effective online communication is another vital aspect of digital literacy. This includes understanding how to communicate effectively in digital environments, essential for collaboration and interaction in modern education and workplaces (Normuratova, 2024). Digital literacy also includes the ability to evaluate online information by assessing its relevance, accuracy and reliability based on how it is consistently communicated and shared by people daily.

LGAs: These collectively refer to administrative authorities over areas smaller than a state (Nyagawa *et al.,* 2020). These entities are responsible for providing various services and implementing policies that directly affect the local community. LGAs tend to act within the powers delegated to them by legislation or directives issued by higher levels of government. It is quite clear that each nation has some form of local government that differs from those of other nations (Nyagawa *et al.,* 2020). LGAs in Tanzania are divided into urban and rural authorities. Urban authorities consist of city councils, municipal councils, and town councils, whereas rural authorities include district councils, township councils, and village government authorities.

CHAPTER TWO: LITERATURE REVIEW

2.1. Chapter Overview

This chapter offers a comprehensive review of the pertinent literature on the field of inquiry addressed in this study. It encompasses the concept of e-government and its developmental trajectory, and explains the contemporary global landscape of e-government implementation and adoption. The chapter continues to discuss the effectiveness of ICT infrastructure in the implementation of e-government in LGAs in Tanzania, the competence of local government staff in utilising e-government systems to enhance service delivery, and stakeholders' perceptions and trust in online services and their impact on service delivery. Additionally, the chapter presents the challenges hindering the implementation of e-government in Tanzania LGAs, the empirical review on the adoption of e-government and the synthesised gap. Furthermore, the chapter presents the conceptual framework, clarifying the relationship among variables. The Technology Acceptance Model (TAM) was adopted as a foundational guide for this investigation. Lastly, the chapter presents the theoretical framework.

2.2. E-Government and Its Evolution

E-government refers to the use of ICT to enhance the delivery of government services, engage citizens, improve transparency, and promote efficient governance. It involves integrating digital tools into government functions to streamline operations, improve interaction with the public, and support better decision-making. At its core, e-government can be understood in several dimensions: public service delivery, citizen participation, transparency and accountability, and internal efficiency (OECD, 2020). By leveraging digital platforms, e-government aims to make services more accessible, faster, and of higher quality. It also promotes citizen involvement through online consultations, feedback systems, and e-voting, while improving government transparency and reducing corruption (UN, 2022). Additionally, it enhances internal processes by automating administrative tasks and improving communication across government departments (World Bank, 2021).

The evolution of e-government can be divided into several phases, each marked by technological advancements, shifts in public policy, and changing citizen needs. The early beginnings of e-government in the 1990s and early 2000s coincided with the rise of the internet, as governments launched basic websites to publish information and provide limited online services. During this period, the interaction between citizens and the government was one-way primarily, allowing for access to information but little citizen participation (Gil-Garcia *et al.,* 2020). The period from the mid-2000s to early 2010s marked a shift towards expanding services and enabling two-way communication. Governments began offering more interactive

services, such as online tax filing and permit applications. Additionally, public-private partnerships played a crucial role in developing e-government platforms, and there was an increased emphasis on citizen engagement through public consultations and online feedback systems. This period also saw the early stages of e-democracy, with some governments experimenting with online voting and other forms of digital participation (Carter & Belanger, 2021).

From the 2010s onwards, e-government evolved into a more sophisticated model known as "smart governance". This phase saw the rise of smart cities, where the Internet of Things (IoT) and data analytics were integrated into urban planning and public services (Zhang *et al.,* 2019). Technologies such as cloud computing and big data analytics enable governments to store and process large volumes of data to improve service delivery and decision-making (OECD, 2020). Artificial intelligence (AI) and automation also began playing a larger role, automating routine tasks and providing predictive services. However, as e-government systems became more complex, issues related to cyber security and privacy emerged as central concerns (UN, 2022). The widespread use of mobile devices also led to the growth of mobile government (m-Government), enabling citizens to access services more easily through smartphones (World Bank, 2021).

Despite the significant advancements, e-government faces several challenges in its ongoing development. The digital divide remains a key issue, as not all citizens have equal access to technology or the internet. Governments must ensure that e-Government services are inclusive and accessible to all, including marginalised and rural populations (OECD, 2020). Additionally, concerns around digital literacy, accessibility for people with disabilities, and language barriers need to be addressed. The environmental impact of e-Government infrastructure, such as data centres and electronic waste, also needs to be considered (Gil-Garcia *et al.,* 2020). Looking ahead, technologies like artificial intelligence, blockchain, and further automation have the potential to revolutionise e-Government by making services more secure, transparent, and efficient. However, these technologies also raise ethical concerns about bias, privacy, and the role of human oversight, which must be carefully managed as e-government continues to evolve (Carter & Belanger, 2021).

2.2.1. The Current Global State of e-Government Adoption

The global adoption of e-government and the level of integration differ significantly across regions, with developed countries generally leading the way. In contrast, developing ones face distinct challenges related to infrastructure, digital literacy, and political conditions. This section explores the current state of e-Government adoption across key global regions: Europe, North America, Asia, and Africa, by highlighting both the successes and the obstacles faced by countries at different stages of digital transformation.

Europe remains a leader in e-government adoption, with countries such as Estonia and Denmark pioneering digital governance. According to the European Commission's Digital Economy and Society Index (DESI), Scandinavian countries consistently rank at the top of the e-government development rankings (European Commission, 2023). Estonia is renowned for its e-Residency programme, offering its citizens and residents a wide range of digital services (European Commission, 2023). However, disparities between Western and Eastern European countries remain, with Southern European nations lagging in digital services (European Commission, 2023).

In the U.S., significant advancements have been made in federal e-government services through initiatives such as USA.gov and the U.S. Digital Service (USDS). However, progress varies across states, with some local governments still facing obstacles related to outdated IT systems (GSA, 2024). The Federal Cloud Computing Strategy is an example of the U.S. government's efforts to modernise infrastructure and reduce costs (GSA, 2024).

Countries like Singapore and South Korea are leaders in Asia, with Singapore's Smart Nation initiative and South Korea's e-Government platform providing comprehensive online services (Singapore Government, 2024; OECD, 2023). In India, the Digital India initiative has led to the expansion of mobile-first public services (Indian Ministry of Electronics and IT, 2024). China has also made significant strides in developing smart cities and digitising public services in major urban centres (OECD, 2023).

In Africa, e-Government adoption is progressing unevenly, with some countries taking significant steps towards digital governance, while others face substantial challenges. Countries like Kenya, Rwanda, South Africa, Nigeria, and Zimbabwe are increasingly leveraging digital technologies to improve public service delivery. However, there remains a significant gap between countries with advanced digital initiatives and those still struggling with infrastructure and access issues.

Rwanda has been particularly proactive in its e-government efforts, with its Smart Rwanda Master Plan focusing on digital literacy, e-government, and broadband access. Rwanda's commitment to digital governance is evident in the rollout of services such as e-health and e-taxation, which have enhanced governance and transparency (Rwanda Development Board, 2024). These initiatives demonstrate the country's strategic efforts to build a digitally empowered public sector. South Africa has also made progress in digitising government services through platforms like e-Government Services South Africa, which offers online applications for various government services (South African Government, 2024).

In Nigeria, the government is focusing on digital public services through initiatives such as the National Identity Management Commission (NIMC) and GovTech projects, which aim to digitise governmental operations and improve transparency

(National Identity Management Commission, 2024). The Zimbabwe Government Portal offers access to various online services, and the government is working to expand internet access and promote digital literacy (Zimbabwe Government, 2024).

2.2.2. Adoption of e-Government in Tanzania

Adopting e-government in Tanzania marks a significant step towards enhancing public service delivery, improving government transparency, and fostering economic development. As the world becomes increasingly digital, Tanzania has recognised the importance of utilising ICT to streamline administrative processes, reduce corruption, and provide more efficient services to its citizens (URT, 2022). In Tanzania, the commitment to adopting e-government is reflected in several key actions designed to advance the digitalisation of public services. The Tanzanian Government recognises digital transformation as an effective method for providing services to citizens and businesses (URT, 2022). To facilitate e-government implementation, the government has taken various steps, such as designating the President's Office, Public Service Management and Good Governance (PO-PSMGG) to oversee its rollout, establishing eGA to manage and supervise projects, and ensuring compliance with e-government standards. Additionally, the government has developed relevant policies, including the National ICT Policy of 2003, and strategies such as the e-Government Strategies of 2013 and 2022, as well as laws and regulations. Efforts also include setting up a comprehensive ICT governance structure, streamlining government business processes, deploying application systems to support internal operations, and expanding the e-government infrastructure (URT, 2022).

From 2013 to 2018, Tanzania made substantial progress in e-Government, achieving key milestones such as establishing a strong institutional framework, delivering various training programmes, and developing critical infrastructure, including the Government Network and Data Centre. Other accomplishments include launching government-wide operational support systems, initiating major e-Government service projects, and raising public awareness to improve citizens' understanding of e-Government (URT, 2022).

2.2.3. E-Government Adoption in Tanzanian LGAs

The adoption of e-government in LGAs has significantly transformed service delivery, citizen engagement, and administrative efficiency in Tanzania. Local governments have embraced various e-government initiatives, such as online platforms for tax payments and permit applications, exemplified by the TAUSI portal. The parent ministry, PO-RALG, which is crucial in facilitating digital transformation across LGAs in Tanzania, has been supporting these advancements. E-government initiatives adopted and implemented in Tanzania include the TAUSI portal, which allows citizens to access local government services, enhancing transparency and efficiency in service delivery (Hans & Rutenge, 2024). Another initiative is the online tax

payment system implemented by the local governments. This system allows citizens to pay taxes online, reducing the need for physical visits and streamlining revenue collection (Bayona & Lozada, 2021).

The adoption and implementation of e-government initiatives in LGAs in Tanzania have positively impacted service delivery by improving efficiency. E-government initiatives have led to faster decision-making and improved information flow, thereby enhancing service delivery (Hans & Rutenge, 2024). In addition, e-government initiatives have improved accountability by promoting transparency and allowing citizens to track service requests and government actions (Tano, 2024). While progress in e-government adoption at the LGAs in Tanzania has favourable implications for service delivery, some scholars have identified challenges. These include limited digital infrastructure, as many LGAs struggle with outdated systems and insufficient technological resources, which hinder effective implementation (Hans & Rutenge, 2024). Also, the lack of digital skills among both citizens and local government employees poses a significant barrier to the successful adoption of e-government initiatives (Yigitcanlar *et al.,* 2023).

2.3. Effectiveness of ICT Infrastructure in the Implementation of EGovernment in Tanzanian LGAs

Several studies indicate that ICT infrastructure is improving in Tanzania, with positive effects on e-government implementation, but significant gaps remain in rural areas and across LGAs. For example, the National ICT Broadband Backbone (NICTBB) expansion shows the government investing heavily in fibre infrastructure to connect more districts, with 109 out of 139 districts now reached, for about 78% coverage (NICTBB, 2025). This expansion is a cornerstone of infrastructure supporting e-government services, enabling network connectivity across many local administrative units.

A study of digital health algorithms to guide antibiotic prescribing in pediatric outpatient care found that improved ICT infrastructure (including network reliability, system performance, and data security) significantly enhanced the system's effectiveness (Tan *et al.,* 2023). Delays decreased, operations became more efficient, and processing was more reliable. However, concerns remained about system accessibility (for example, for staff with limited skills) and training needs.

Despite these infrastructural improvements, challenges remain. In Babati Town Council, for example, local officials reported poor access to and connectivity of ICT services in council offices. Furthermore, the literature found that officials/workers were not adequately skilled in ICT, thus limiting their ability to use the infrastructure available (Manda & Mkhai, 2016). The national e-government strategy (2022) acknowledges gaps in infrastructure in rural or underserved areas, digital literacy, cybersecurity, and system interoperability.

2.4. Competence of LGA Staff in Utilising E-Government Systems in Tanzania

Staff competence emerges in several literatures as a critical factor influencing how well e-government systems (or more broadly ICT systems) deliver value in service provision. For example, in Babati Town Council, one significant finding was that local government officials and workers are not adequately knowledgeable or skilled in ICT use. This low level of competence limits uptake of ICT tools even when infrastructure exists (Manda & Mkhai, 2016).

Matimbwa & Kamala (2023) conducted a broader study across 37 LGAs in six regions of Tanzania (Mwanza, Arusha, Dodoma, Morogoro, Iringa, and Kagera). They examined the influence of system users' competencies on the performance of Human Capital Management Information Systems (HCMIS). They found that higher user competency was significantly associated with better performance of these systems.

Another case, in the Chamwino District Council, research on staff technical skills and public procurement found that technical competence among staff had a statistically significant positive effect on procurement performance (Julius, 2025). The gaps in training and technical knowledge hindered optimal performance. Also, the national e-government strategy emphasises digital literacy gaps among both citizens and government staff as a barrier to effective implementation of digital public services. (The national e-government strategy, 2022). These gaps reduce the speed, quality, and reach of service delivery improvements associated with e-government.

2.5. Stakeholders' Perceptions and Trust in Online Services

Trust, perceptions of reliability, transparency, and security are recurrent themes in recent studies of Tanzanian e-government services. These are important because, even with infrastructure and competence, low trust or a negative perception can limit usage, thereby reducing the impact on service delivery. Examining the LUKU mobile government service in Tanzania, Byaro & Kinyondo (2020) compared users of mobile and physical payments. They found that those using mobile payment had significantly higher levels of trust, security perception, and overall satisfaction than users of physical payments. These higher perceptions correlated with greater satisfaction and presumably greater usage (Ishengoma, 2024).

A recent study by Mushi (2023) on "Assessing the Factors Influencing Intention to use E-government in Tanzania: The Perspective of Trust, Participation and Transparency" included trust, participation, and transparency in its model. It found that citizens' perceptions around transparency and trust play a significant role in determining the intention to use e-government platforms.

However, there are concerns among citizens and officials about trust issues, especially regarding privacy, security, the reliability of systems, and whether e-government services will be maintained. Also, in the study by Byaro and Kinyondo (2020) on "Citizens' Trust in Government and Their Greater Willingness to Pay Taxes in Tanzania," qualitative data showed that a lack of electricity, financial constraints, and a lack of trust in e-services are among the hindrances to full implementation and uptake.

Stakeholders' trust and perceptions are strongly linked to the use of e-government services and, in many cases, directly mediate the impact of ICT infrastructure and staff competence on service delivery (Mushi, 2023). When trust is low, users may avoid online services or prefer physical channels, reducing the gains from digitisation.

2.6. Challenges Hindering Implementation of E-Government in Tanzanian LGAs

2.6.1. Infrastructure and Connectivity Limitations

The challenges of e-government adoption differ widely across regions, depending on the level of technological development and infrastructure. Studies indicate that reliable ICT infrastructure remains uneven, especially in rural or underserved LGAs. Problems include unstable broadband or internet connections, frequent power outages, and in some locales, parts remain entirely without electrification. For example, in agricultural wards such as Lumemo, Ngana, and Sumbawanga District, lack of electrification and poor network coverage are major obstacles for accessing e-government or digital services (Mushi *et al.,* 2024). Also, Tanzania's e-Government Strategy (2022) recognises that broadband access remains inadequate in rural areas and that the lack of infrastructure hinders service coverage.

2.6.2. Interoperability, System Fragmentation and Quality Issues

E-government systems are fragmented, with many separate systems performing overlapping roles, which do not "talk to each other." This fragmentation impedes data sharing, increases duplication, and reduces efficiency (Mushi, 2023).

Additionally, issues of system performance, compatibility of different hardware and software, lack of standardised platforms, and the quality of system design (usability, accessibility, and web security vulnerabilities) are noted (Mushi, 2023). For example, web usability and security assessments found that many government websites violated web standards (WCAG), had broken links, long loading times, and serious vulnerabilities (Elisa, 2020).

2.6.3. Digital Literacy, Staff Competence and Resistance to Change

Even when infrastructure is in place, many LGAs lack sufficiently trained or competent personnel. Digital illiteracy among both government staff and citizens limits the adoption of e-government systems. Staff resistance to change traditional (paper-based) workflows is another barrier (Mushi *et al.,* 2024).

2.6.4. Legal, Regulatory, and Institutional Framework Challenges

The lack of comprehensive, enforceable legal or regulatory frameworks that adequately address e-government issues (such as the admissibility of electronic records, data privacy, and cybersecurity) is a recurrent challenge for society (TCRA, 2022). The Tanzania Communication Regulatory Authority (2022) states that institutional fragmentation or a lack of clear roles (concerning who is responsible for which systems, oversight, and maintenance) and weak ICT governance structures exacerbate the inability to control these systems fully.

2.6.5. Financial Constraints and Resource Limitations

Funding limitations affect the procurement of hardware and software, maintenance, hiring or training competent staff, and the rollout of infrastructure, such as rural broadband and reliable power. Also, operational budgets for ICT tend to be modest or inconsistent (Mushi *et al.,* 2024)

2.6.6. Trust, Security, Privacy Concerns

Stakeholders, including citizens and sometimes officials, express concerns about the security of online services, data privacy, service integrity, and the risk of cyber threats. For example, government e-payment systems are found to be vulnerable to cyber privacy threats, partly due to low cyber literacy among staff (Semlambo & Stanslaus, 2024).

2.6.7. Awareness, Accessibility and the Digital Divide

Many citizens in rural, remote, or lower socio-economic areas are unaware of what e-services are, how to access them, or do not have devices or reliable internet connectivity (Elisa, 2020). Language barriers, for example, services or content in languages which are not understood by all, cultural barriers, age, literacy, all these factors limit widespread utilisation of e-government services (Elisa, 2020; Tanzania e-Government Strategy, 2022).

2.6.8. Leadership, Policy Support, Management and Institutional Culture

Commitment from top management and political leadership is sometimes weak or inconsistent regarding the adoption of e-government, which undermines planning, resource allocation, oversight, and incentives for staff. Also, bureaucratic inertia, resistance to change, corruption, and weak accountability are found in several LGAs (TCRA, 2022).

2.6.9. Power supply and physical constraints

The study conducted by Manda and Mkhai (2016) shows that frequent power cuts, or a lack of reliable electricity in many rural LGAs, limit consistent use of ICT systems. Hardware may degrade more quickly under harsh environmental conditions or suffer damage due to insufficient physical protection (ibid.).

2.7. Empirical Review on the Adoption of E-Government

The adoption of e-government technologies has been a key area of research worldwide, as governments seek to enhance service delivery and improve the efficiency of public sector operations. Numerous studies have explored how digital government services can improve the quality, accessibility, and transparency of public services. This section reviews studies investigating the adoption of e-government for improved service delivery in local governments, with a focus on those conducted within and outside Tanzania.

2.7.1. Global Studies on E-Government Adoption

A study by Aravindh (2024) focusing on e-governance applications and their positive effects on public policy found that e-governance applications in local governments have a positive impact on development policy. The study maintains that the e-government applications enhance transparency, increase citizens' engagement in the policy-making process, and improve efficiency by automating routine tasks and providing digital services. They also strengthen accountability through better tracking and reporting mechanisms and transformative potential by integrating technology into public administration (ibid.).

The study by Benosa et al. (2023), focusing on rural areas of Camarines Sur, Philippines, indicates that citizens believe that performance expectancy significantly influences their adoption behaviour, as they perceive that e-government services can enhance efficiency and service delivery. Furthermore, Local government employees emphasised the importance of having the necessary resources and support systems in place, including access to technology and training, which are essential for facilitating e-government services. Regarding the implications for policy and practice, the literature can inform local government practices, suggesting that addressing the identified factors can foster better ICT-enabled governance in both rural and metropolitan areas.

The study by Shahi (2024) focused on e-government for public service delivery, specifically in Nepal and India. It provided a case study examining the implementation and impact of e-government initiatives within the country. The localised approach enabled a detailed analysis of the unique challenges and successes encountered in the Indian context. The case study findings highlight both successes, such as improved service accessibility and increased citizen participation, and challenges, including the digital divide and bureaucratic hurdles. These insights are crucial

for policymakers and stakeholders looking to enhance e-government initiatives in public services.

2.7.2. Studies Conducted in Tanzania

A study by Makame and Sannasai (2024) examined navigating the e-government landscape in Zanzibar and found that individuals with greater digital knowledge are more likely to engage with e-government services, thereby amplifying their efficacy. Strategic financial investments, particularly in training and ICT infrastructure, are shown to significantly enhance the adoption of e-government services. Generally, the study offers a comprehensive view of the factors influencing e-government adoption in Zanzibar, emphasising the importance of resource management, policy frameworks, and technological readiness. The study does not evaluate the status of e-Government implementation in LGAs, specifically its implications for policy implementation. Therefore, the current study was conducted to fill this gap.

The study by Lupilya (2015) focused on e-Government transformation in Tanzania, employing quantitative and qualitative research methods to analyse the statutes, challenges, and opportunities for e-Government transformation. The study utilised the Technological Enactment Theory (TET) and SWOT analysis to explore key challenges and opportunities for the qualitative aspect. The study identified significant challenges hindering e-government transformation, including government parastatal reluctance to achieve transparency and institutional docility. These have led to stagnation in the e-government processes, resulting in increased corruption and conflict of interest. A SWOT analysis revealed that Tanzania has strengths in its existing IT infrastructure, such as the National ICT Broadband Backbone (NICTBB). The findings emphasise the need for virtuous leadership to drive e-government initiatives.

2.8. Synthesis and the Research Gap

Most of the existing literature has focused on the implications of e-government for service delivery, particularly in evaluating how e-government platforms contribute to improved service delivery in local governments in Tanzania. While previous studies have documented the significance and challenges of e-government since its adoption, there remains a noticeable gap in assessing the specific impact of these platforms on local government service delivery. Limited research has comprehensively analysed how e-government strengthens service delivery in this context. Therefore, this study sought to address this gap by providing an in-depth evaluation of the implications of e-government platforms in improving service delivery in Tanzanian LGAs.

2.9. Conceptual Framework of the Study

The extent to which e-government tools, platforms, and systems are implemented and utilised within LGAs is influenced by the availability and reliability of ICT systems, such as the internet, computers, and software (Ali *et al.,* 2023). It is also enhanced by employees' skills and readiness to use e-government tools, policies guiding the adoption and implementation of e-government, and the availability of e-government services to the public (Aleisa, 2024). See Figure 2.1.

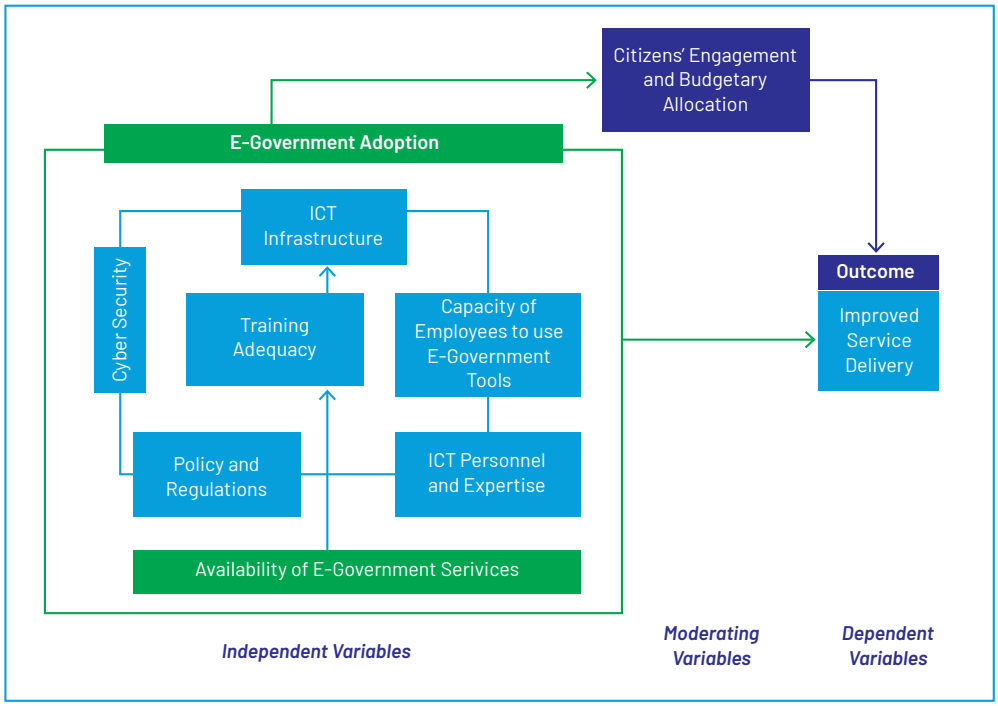

Figure 2.1: The Conceptual Framework of the Study

Source: Own Research (2024)

Recent studies have identified key factors influencing the adoption of e-government in developing countries. Trust, particularly in terms of information security and government transparency, is crucial for the adoption of e-government (Qiyamullaily & Subriadi, 2024; Sabani *et al.,* 2023). Performance expectancy, effort expectancy, and system quality significantly influence citizens' decisions to use e-government services (Sabani *et al.,* 2023). ICT infrastructure, training adequacy, and policy support are also important factors (Ali *et al.,* 2023). Citizen engagement and cultural influences play a substantial role in adoption decisions (Aleisa, 2024). Some studies observe that financial resources allocated to ICT projects within local governments are moderately significant (Ali *et al.,* 2023). Interestingly, ICT literacy was found to be the least significant factor in Indonesia (Sabani *et al.,* 2023). To improve e-government adoption, governments should focus on enhancing technology

infrastructure, implementing supportive policies, providing technology training for personnel, and considering local community conditions (Qiyamullaily & Subriadi, 2024; Ali *et al.,* 2023).

E-government initiatives aim to improve service delivery through ICT but face various challenges in implementation and adoption. Infrastructure barriers, including technological and institutional issues, can hinder the successful implementation of e-government (Wibowo *et al.,* 2021). Key factors influencing e-government effectiveness include digitalisation, utility, reliability, efficiency, user satisfaction, and accessibility (Ameen *et al.,* 2024). Training adequacy and ICT expertise are crucial for staff to effectively use and maintain e-government systems (Rehema & Koech, 2023). Citizen engagement and budget allocation also play moderating roles in the overall success of e-government initiatives (Rehema & Koech, 2023). To improve the adoption rates, e-government services should be designed with user experience in mind, focusing on simplifying interfaces and providing clear instructions (Rehema & Koech, 2023). Additionally, robust cybersecurity measures are essential to safeguard citizens' data (Rehema & Koech, 2023; Tremblay-Cantin *et al.,* 2023).

The reviewed papers highlight key factors in e-government implementation and service delivery. ICT infrastructure, training, and personnel are crucial for effective e-government systems (Chandrachooodan *et al.,* 2022). Also, policy frameworks and regulations provide necessary directives for implementation (Chandrachooodan *et al.,* 2022). Citizen engagement, trust, and funding are identified as moderating factors in service delivery (Wibowo *et al.,* 2021; Mahwai *et al.,* 2023). The relationship between e-governance readiness and service delivery effectiveness is positively correlated, with younger, tech-savvy citizens experiencing more efficient services (Sabani *et al.,* 2023). A conducive environment that supports both online and offline participation platforms is essential for successful e-participation (Mahwai *et al.,* 2023). Project management attributes, critical success factors, and tools influence the development of e-governance services (Chandrachooodan *et al.,* 2022). These findings underscore the importance of a comprehensive approach to e-government implementation, taking into account technological, regulatory, and social factors to enhance public service delivery.

This framework can serve as the theoretical foundation for this study, guiding data collection, analysis, and interpretation. It helps researchers gather the necessary information to test the relationships among the study's variables.

2.10. Theoretical Framework

This study was guided by the Technology Acceptance Model (TAM) developed by Fred Davis in 1989. TAM is widely used to understand and predict users' acceptance of technology, focusing on two primary factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU refers to the belief that using technology will

improve job performance or service delivery, while PEOU is the belief that using the technology will be effort-free. These factors influence Attitude Towards Using (ATU), which, in turn, affects Behavioural Intention (BI) to use the technology and ultimately leads to Actual System Use. TAM has proven effective across various contexts, from the business to the public sectors, by examining the roles of PU and PEOU in technology adoption (Granić & Marangunic, 2019).

TAM offers several advantages, including its simplicity and focus on the key factors of PU and PEOU, making it widely applicable in different settings (Zerbini *et al.,* 2022). The model's strong predictive power and scalability make it particularly useful in fields like e-government and consumer software. Additionally, TAM is flexible enough to be extended with additional variables to accommodate specific contexts better. These extensions allow the model to remain robust across various applications while maintaining its core focus on technology acceptance (Sukacke, 2019). Despite these strengths, TAM has limitations, including its narrow focus on individual perceptions and its failure to account for broader organisational or contextual factors, such as policy or culture. This simplification can overlook complex behaviours and non-linear adoption processes, particularly when external influences, such as costs or structural constraints, are not considered (Tetik *et al.,* 2024).

TAM has been widely applied across diverse sectors, including e-government, e-commerce, healthcare, and education. Research in various countries, including China, Egypt, and Taiwan, has shown that perceived ease of use influences citizens' intention to adopt e-government services (Mensah, 2018; ElKheshin & Saleeb, 2020). Similarly, in the e-commerce sector, TAM has been used to understand consumer adoption, where perceived usefulness and ease of use significantly impact online shopping behaviours (Zerbini *et al.,* 2022; Hossain *et al.,* 2023). The model also helps businesses optimise user experiences by fostering trust and improving the adoption of online platforms. In healthcare, TAM has proven helpful in studying the adoption of health information technologies, such as Electronic Medical Records (EMR), highlighting the roles of ease of use, usefulness, and trust in shaping acceptance (Tao *et al.,* 2020; Tetik *et al.,* 2024). While socio-organisational and cultural factors may limit the model's predictive power in healthcare, TAM remains a valuable tool for improving technology acceptance.

In education, TAM has been successfully used to analyse the adoption of educational technologies. Studies have shown that perceived ease of use and usefulness are key drivers of technology acceptance in educational contexts, with extensions to the model providing deeper insights into technology adoption among teachers and students (Granić & Marangunic, 2019; Sukacke, 2019). A meta-analysis by Scherer et al. (2019) reinforced TAM's effectiveness in explaining technology adoption in education, while challenging some assumptions about external variables. This

flexibility and broad applicability make TAM a practical framework for research on technology adoption in various sectors, including the public sector. For e-government adoption, TAM is beneficial for understanding the factors that influence citizens, businesses, and government employees to adopt digital platforms, as it focuses on the critical elements of perceived usefulness and ease of use (Shania & Paramarta, 2024). By addressing these factors, TAM can guide the development of user-friendly, efficient e-government systems, thereby increasing adoption and improving service delivery.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Chapter Overview

This chapter presents the methodological procedure, which has been used to carry out this study. The chapter starts with the description of the research design of the study. This is followed by the description of the study area, target population, and sampling procedures. Thereafter, the chapter offers methods of data collection, ethical considerations, and methods of data analysis.

3.2. Research Design

The study adopted a descriptive research design and a qualitative and quantitative approach. It utilised this design because it aims at describing and making an analysis of the adoption of e-government for improved service delivery in Tanzanian LGAs and answering research questions, hence achieving the research objectives. This design was blended with a mixed-method approach, whereby quantitative and qualitative data collection methods were employed. The aim was to combine the differing strengths and non-overlapping weaknesses of quantitative data with those of qualitative methods to improve the depth and accuracy of the findings (Creswell, 2013; Kothari & Garg, 2014; Kumar, 2019).

3.3. Description of the Study Area

This study was conducted in two regions, namely Kilimanjaro and Tanga. Tanga Region included Tanga City Council and Mkinga District Council, while Kilimanjaro included Moshi Municipal, Mwanga and Same District Councils. The selected areas assist in portraying contrasting perspectives regarding the adoption of e-government in both rural and urban areas. The study analysed the adoption and implementation of e-government platforms within these LGAs. The targeted population included government employees, particularly those in departments that directly engage with e-government services such as information technology, administration, human resource, finance, procurement and service delivery. Additionally, e-government users, including citizens and businesses in those two regions, utilise e-government platforms for accessing public services such as tax payments, business registrations, and public record requests. These areas were chosen because they had already adopted e-government systems, such as online payment systems for bills (water, electricity, service levies and others) to enhance service delivery. Furthermore, they were considered as potential study areas because they are among the growing and economic hubs in Tanga and Kilimanjaro regions, respectively (National Census, 2022).

3.4. Target Population

In this study, the total population comprised IT personnel, Human resource officers (HRs), procurement officers, registry officers, secretaries, and accountants who interact with e-government systems from the two regions. Stakeholders like citizens and business owners who use e-government platforms were also considered. These groups are relevant to help gather facts to answer research questions, as they are directly involved in implementing or using the e-government platform. The criteria for inclusion would be all those who use the system and implement it and the exclusion criteria would be the opposite; thus, the total population consisted of 487 respondents.

3.5. Sampling Techniques and the Sample Size

3.5.1. Sample Size

The sample size for this study was drawn from the population of 487, comprising procurement staff, IT personnel, HR, registry staff and other stakeholders from the study areas. Therefore, the sample size of the study was 204 respondents. For this study, Taro Yamane's (1967) formula was employed to derive the sample size from the identified population. Thus, the sample size was 204 respondents, 41 from Mkinga District, 46 from Tanga City Council, 35 from Moshi Municipal Council, 39 from Same District, and 43 in Mwanga District, as shown in Table 3.1.

Table 3.1: Sample Size

Employment Position in LGA						
	Study Areas					
Position	**Mkinga District**	**Tanga City Council**	**Moshi Municipal Council**	**Mwanga District Council**	**Same District Council**	**Total**
Cultural Officers	0	3	0	2	1	**6**
Medical Doctors	0	2	0	1	0	**3**
Legal Officers	0	2	0	2	1	**5**
Environmental Officers	0	3	1	3	0	**7**
Natural Resources Officers	2	2	1	2	2	**9**
Registration and Insolvency Officers	2	1	0	2	0	**5**
Internal Auditor	2	2	1	1	2	**8**
Education Officers	2	2	2	5	2	**13**
Trade Officers	3	2	2	1	1	**9**
Accountants	4	1	1	5	6	**17**
Community Development Officers	3	1	5	2	5	**16**
Agriculture Officers	3	4	6	1	4	**18**
Office Secretaries	5	4	2	2	3	**16**
Registry Staff	4	7	3	2	4	**20**
Human Resource Officers	5	5	5	4	2	**21**
Procurement Officers	2	2	3	4	4	**15**
IT Officer	4	3	3	4	2	**16**
Total	41	46	35	43	39	**204**

Source: Research Data, 2025

According to Boyd et al. (1981), significant population representation is achieved when a random sample of at least 5% is taken for study. When Yamane's formula is employed, it indicates that the sample size was not computed correctly.

Look

Yamane's formula is given as:

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

Where:

n = Sample size

N = Total population size

E = Margin error, expressed as 5%, that is 0.05

For the whole area of study

N = 487

e = 0.05

n = 204

n = 164,8021+164, 802 (0.05

3.5.2. Sampling Procedure

The two types of sampling are further elaborated hereunder.

3.5.2.1. Simple Random Sampling Techniques

A simple random sampling was used to select service beneficiaries to complete questionnaires and participate in interviews in the targeted study areas.

3.5.2.2. Stratified Random Sampling Techniques

A stratified random sampling technique was used to obtain the samples, which comprised: procurement staff who are responsible for acquiring goods, services and technologies necessary for e-government operations; IT personnel who oversee systems integration, network security, troubleshooting, and training for government employees to use digital systems effectively; Human resource officer who manage the digital transformation of personal-related services such as online recruitment, payroll management and employee records; and registry staff who handle the management and digitalisation of government records, ensuring that public documents are secured and easily accessible through e-government platforms. Also, other stakeholders involved in the sample size included citizens who are the primary beneficiaries of e-government services, such as online payments, business

registrations, and access to public records; local government officials, like decision makers who support and oversee the implementation of digital governance initiatives and service, including organisations that integrate their services (such as water, electricity, and tax collection) into e-government platforms for streamlined billing and payment processes; development partners like non-government organisations that provide technical and financial support for digital transformation of local government services; and the private sector, such as banks, telecom companies, which facilitate digital payments, internet access and mobile service delivery.

The study used stratified random sampling to improve the representativeness of the sample by ensuring that each subgroup, namely, Mkinga District Council, Tanga Urban Area, Moshi Municipal, Mwanga and Same District Councils, were equally represented. The study used staff lists from the 2024/2025 facts and figures for the study areas, randomly selecting staff who interact with e-government systems, thereby yielding more accurate and reliable results.

3.5.2.3. Purposive Sampling Technique

Purposive sampling was used to select in-depth key informants for interviews, including government officials and decision-makers within LGAs in Tanzania. For instance, the technique was used to select heads of department in the IT, procurement, HR, and registry sections, as well as secretaries. These were the key informants on the adoption of e-Government for service delivery. The use of the purposive sampling technique helped to gain specific information, deepen understanding, and provide balanced, complementary information.

3.6. Methods of Data Collection

This study collected primary and secondary data through primary and secondary sources. Data for this study were collected using a mixed-methods (triangulation) approach, including standardised questionnaires, interviews, and documentary reviews (Kombo & Tromp, 2006).

3.6.1. Questionnaire Survey Method

In this study, 204 respondents were selected from different categories of LGAs in Tanzania, including Tanga City Council and Mkinga District in Tanga Region, as well as Moshi Municipal, Mwanga, and Same District Councils in Kilimanjaro Region. The questionnaires were designed to gather comprehensive information relevant to the study, particularly focusing on the adoption of e-government in service delivery in Tanzanian LGAs and examining the prospects and challenges. The data collected through the questionnaires included demographic information such as age, gender, education level, occupation, years of service experience, and respondents' awareness of using digital platforms to access services. Also, the questionnaires were used to collect information on respondents' perception of the efficiency and accessibility of digital governmental initiatives within the local government context in Tanzania.

This method was used in this study because it allows respondents to complete the questionnaires at their convenience, can be distributed to many people at once, and minimises researcher bias. Kombo and Tromp (2006) highlight the shortcomings of self-administered questionnaires: respondents may easily neglect them, and response rates are low. To mitigate this, the researchers arranged timely follow-ups.

3.6.2. Interview Method

Through interviews, the researcher employed face-to-face and semi-structured interviews with key respondents, including city and town planners, local government officials, such as mayors, councillors, land use and environmental officers, housing and urban development officials, community leaders, public service delivery managers, and legal and compliance officers.

The advantage of the interview method is that it allows the researcher to obtain rich, detailed data from participants' direct words and expressions (Kombo & Tromp, 2006). The disadvantages of this method include its time-consuming nature and bias. To alleviate the shortfall, the researchers arranged time appropriately and avoided asking leading questions.

Furthermore, the structured interview guide was administered to the heads of departments because these informants oversee various activities in their departments. They also monitor policy implementation regarding e-government systems. The face-to-face interviews were conducted with the above respondents, who were responsible for overseeing, running, and implementing e-government systems, with the researchers administering them. Other instruments used during the interviews included pens, notebooks, and audio recorders, with the interviewees' consent to capture detailed, valuable information during data coding.

3.7. Ethical Consideration

This study considered all research ethical principles, including honesty, objectivity, integrity, and respect for intellectual property. Also, research authorisation was obtained before embarking on data collection in the selected LGAs (Kombo & Tromp, 2006). The privacy of respondents was highly prioritised, and the security of research data was observed in accordance with TPSC research ethical guidelines. The following was done to ensure that all ethical standards are met:

Honesty: Honesty was upheld in all aspects of the research, including data collection, analysis, and reporting. The researchers ensured that the findings were presented truthfully, without fabrication, falsification, or data manipulation. Any limitations of the study would be acknowledged to maintain the integrity of the research.

Objectivity: To avoid bias, the study employed a neutral approach in data collection, analysis, and interpretation. The researchers ensured that personal opinions or external influences did not affect the findings. Multiple data sources, including

surveys, interviews, and case studies, were used to provide a balanced perspective on e-Government adoption.

Integrity: The researchers adhered to high ethical standards by consistently following research protocols and maintaining accountability. Any conflicts of interest would be disclosed, and findings were not altered to favour any stakeholders. The study was conducted professionally and transparently.

Respect for Intellectual Property: All sources of information, including previous research, reports, and theoretical frameworks, are appropriately cited to acknowledge the contributions of other scholars. Plagiarism is avoided by paraphrasing, quoting appropriately, and using citation styles such as APA referencing.

Informed Consent: Before they agreed to participate, participants were fully informed about the study'' purpose, methods, and potential risks. Consent forms were provided, allowing respondents to participate voluntarily or withdraw at any time without consequences.

Confidentiality and Anonymity: Responses were anonymised and data were securely stored to protect participants' identities. No personal or sensitive information was disclosed without explicit consent, ensuring that respondents felt safe to provide honest and accurate responses.

Social Responsibility: The research contributed to public knowledge and policy improvement without harming any stakeholders. Findings will be used to enhance e-government adoption and improve service delivery in LGAs, benefiting both LGAs and citizens.

3.8. Data Processing and Analysis

In this study, data analysis used qualitative and quantitative methods. SPSS version 26 was used for the quantitative method and for data coding and the creation of various tables, graphs, and charts (Kombo & Tromp, 2006). The NVIVO software for content analysis was employed for the qualitative data. The researchers first identified codes to develop themes, which were valuable and accurate representations of data. Finally, the data is presented in descriptions and narratives to understand the results of qualitative data. During the presentation, the researchers combined the questionnaire findings with interview results and then concluded.

3.9. Validity and Reliability of the Research Data

The validity of the data was ensured through a well-developed conceptual framework that defined key variables, including e-government adoption, service delivery, challenges, and prospects. Validated survey instruments and interview questions were used, with pilot testing conducted to refine the data collection tools. Triangulation enhanced validity by gathering data from multiple sources,

including surveys, interviews, reports, and case studies. Respondents were selected based on their experience with e-Government adoption. The representative LGA sample ensured generalisability, capturing differences between urban and rural areas, varying levels of technological adoption, and other relevant factors for a comprehensive analysis.

To ensure reliability, the researchers selected a small sample with characteristics similar to those of the study population and administered questionnaires and interviews to assess the reliability of the research instruments. This process helped identify errors and necessary modifications to align with study objectives. Researchers assessed the strengths and weaknesses of the instruments before large-scale deployment. Research assistants were trained to follow standardised survey and interview procedures. Interviews were recorded and transcribed for accuracy. Digital tools minimised manual errors, while statistical software, especially NVivo and SPSS, were systematically used to analyse data. Every data collection step was documented, with biases minimised and research instruments validated before full-scale implementation to ensure credibility.

CHAPTER FOUR: DATA PRESENTATION ANALYSIS AND INTERPRETATION

4.1. Introduction

This chapter presents and analyses the major findings of this study. The general objective of this study was to explore the adoption of e-government in improving service delivery in Tanzanian LGAs. The chapter starts by presenting and interpreting the socio-demographic characteristics of the local government workers in Section 4.2. Specifically, the chapter presents and interprets both quantitative and qualitative research results based on the research objectives, which were to: evaluate the effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs (in Section 4.3); assess the competence of local government staff in utilising e-government systems for enhanced service delivery (in Section 4.4); determine stakeholders' perceptions and trust in online services and their impact on improving service delivery (in Section 4.5); and identify and analyse key challenges hindering the successful implementation of e-government in LGAs (in Section 4.6). In general, quantitative results are presented in tables and figures, while qualitative results are presented in plates and narrative form.

4.2. Respondents' Socio-Demographic Characteristics

The LGAs' staff who took part in this study were asked to provide data that described their socio-demographic characteristics. Specifically, the respondents were asked to indicate their gender, age and employment position. Based on the data provided, 101 (49.5%) respondents were male, while 103 (50.5%) were female. Age-wise, the results indicate that 21 (10.3%) respondents were aged below 25, 67 (32.8%) were aged between 26 and 35, 61 (29.9 %) were between 36 and 45, 45 (22.1%) were between 46 and 55, while 10 (4.9%) were aged over 56. According to these results, among these respondents, 13 (76%) were certificate holders, 32 (16%) diploma holders, 101 (50%) degree holders, 55 (27%) master's holders, and 3 (1%) were PhD holders, as shown in Table 4.1.

Table 4.1: Demographic Characteristics of Respondents

Characteristics (n = 248)		Frequency	Percent
Gender	Male	101	49.5
	Female	103	50.5
Age	25 and below	21	10.3
	26 and 35	67	32.8
	36 and 45	61	29.9
	46 and 55	45	22.1
	>56	10	4.9
Level of Education	Certificate	13	6
	Diploma	32	16
	Degree	101	50
	Masters	55	27
	PhD	3	1

Source: Field Data, 2025

These results indicate that the majority (50.5%) of local government staff who participated in this study were females. At the same time, age-wise, it has been seen that more than two quarters (32.8%) of them belonged to the 26- 35 age group, followed by 29.9% who were between 36 and 45 years, and 4.9% who were over 50 years old; only 10.3% had less than 25 years. In other words, it seems that a significant proportion of LGAs' staff in the study area is made up of young adults and middle-aged people, a group likely to be interested in interacting with new technology gadgets, thereby influencing the adoption of e-government systems. Apart from that, the results suggest that staff from LGAs are represented by members from different cadres, with human resource officers accounting for 10.3% of LGAs' staff in the surveyed areas, while medical officers are the least represented at 1.5%. As such, it can be concluded that most cadres in the surveyed areas had high staff representation, while a few had low representation.

4.2.1. Respondents Distribution in the Selected Regions and District/ Municipal/City Councils

As stated in Chapter Three of this document, this study was conducted in two regions, namely Kilimanjaro and Tanga, involving four district councils and one city council. It is in these district and city councils that the 204 local government staff who took part in this study were selected. Out of these, 35 (17.2%) were from Moshi Municipal, 43 (21.1%) from Mwanga District Council, 39 (19.1%) from Same District Council, 46 (22.5%) from Tanga City Council, followed by 41 (20.1%) from Mkinga District Council, as indicated in Table 4.2.

Table 4.2: Respondents Distribution in Selected Regions and District/Municipal/City Councils

Region (n = 248)	District/Municipal/City Council	Frequency	Percent
Kilimanjaro	Moshi Municipal	35	17.2%
	Mwanga District Council	43	21.1%
	Same District Council	39	19.1%
	Total	**117**	**57.4%**
Tanga	Tanga City Council	46	22.5%
	Mkinga	41	20.1%
	Total	**87**	**42.6%**
Grand Total		**204**	**100**

Source: Field Data, 2025

The results in Table 4.2 show that the majority (22.5%) of the local government staff who participated in this study were from Tanga City Council, while just over a quarter (19.1%) were from Same District Council, and 17.2% were from Moshi Municipal. This composition of the sample was a result of the population sizes of the two regions, with Tanga City Council found to have a larger population than those of the other surveyed district councils (Moshi Municipal, Mwanga, Same, and Mkinga District Councils). Therefore, the Tanga City Council was supposed to contribute a larger sample.

4.3. Availability of ICT Infrastructure to Support E-Government System Adoption

The first objective of this study sought to evaluate the effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs. To understand the ICT infrastructure and e-government systems used in the study areas, the question on the availability of ICT infrastructure and the types of e-government systems used by local government staff in the surveyed district councils was important for increasing understanding of e-government adoption. In addition, local government staff were asked to name the specific systems used in their departments. Regarding the first question, results show that 189 (92.6%) of 204 respondents reported the existence of ICT infrastructure, while 15 (7.4%) claimed that ICT infrastructure did not exist in these study areas, as summarised in Figure 4.1.

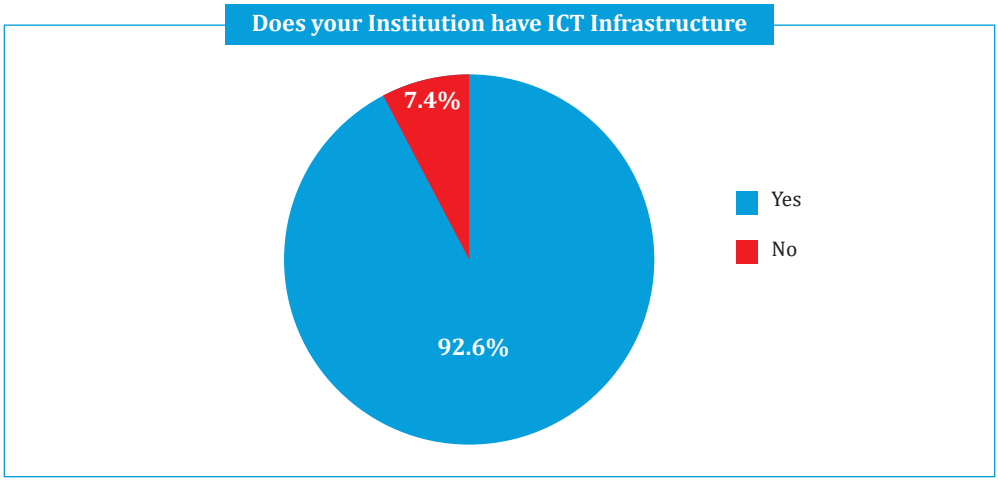

Figure 4.1: Availability of ICT Infrastructure in Local Government Institutions

Source: Field Data, 2025

In addition, the researchers asked respondents to indicate the status of ICT infrastructure in the study areas. Results obtained show that the majority of the respondents, that is, 98 (48.0%) of 204, indicated poor, and 48 (23.5%) indicated good, 45 (22.1%) indicated fair, 10 (4.9%) indicated excellent, while only 3 (1.5%) of them indicated very poor, as revealed in Figure 4.2.

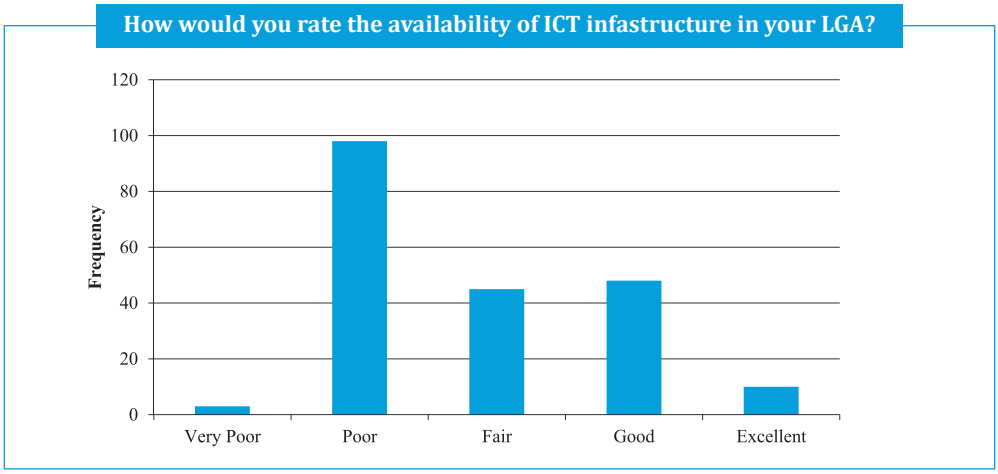

Figure 4.2: Opinion of Respondents on Availability of ICT Infrastructure in Their LGAs

Source: Field Data, 2025

Furthermore, respondents were asked to indicate their level of familiarity with e-government systems in their place. The results show that the majority of respondents, 113 (55.4%) of 204, had come across the concept and know a little about it, 78 (38.2%) were very familiar with e-government systems, 9 (4.4%) had come across the concept but they knew nothing about it, while 4 (2.0%) of them claimed that they had never heard about it before, as summarised in Figure 4.3.

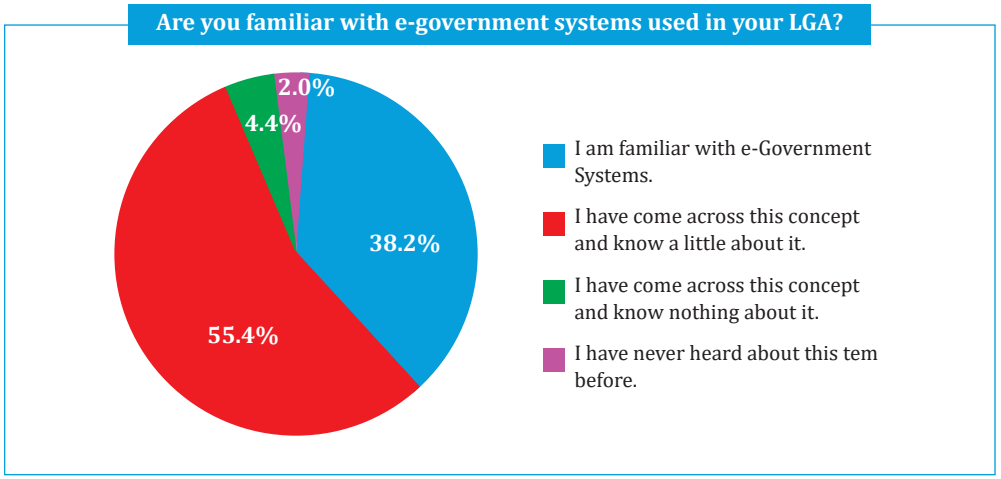

Figure 4.3: Respondents' Familiarity with E-Government Systems Utilised in the LGAs

Source: Field Data, 2025

Respondents were also asked whether they had received adequate training on e-government systems. This question was asked to understand better whether LGAs' staff are provided with sufficient training to interact productively with e-government systems. The results reveal that 115 (56.4%) of 204 respondents indicated they had not been provided with adequate training on e-government systems, 64 (31.4%) indicated that they had been provided with adequate training on e-government systems, while 25 (12.3%) claimed that they did not know anything about e-government training, as summarised in Figure 4.4. Generally, the results indicate a need for further training on e-government systems for LGAs' staff.

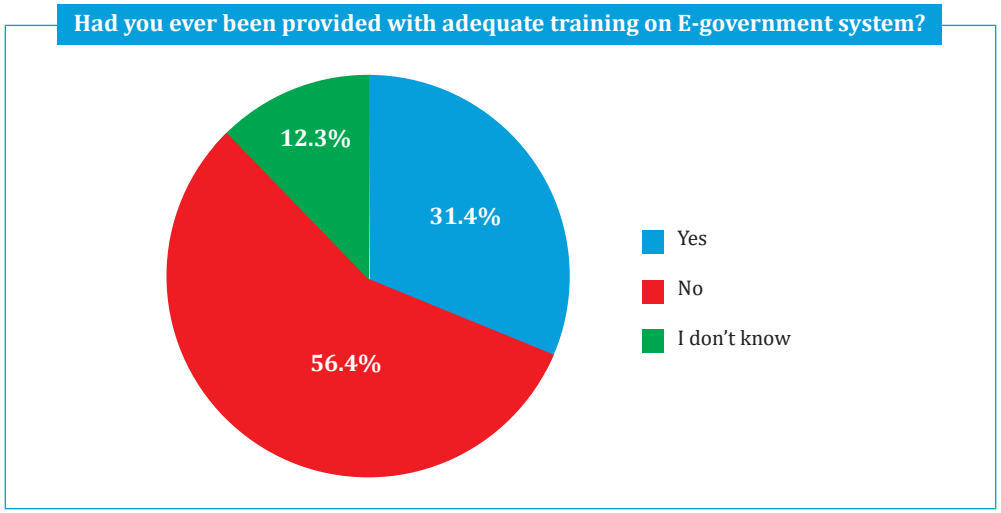

Figure 4.4: LGA Staff Response on Training on E-Government Systems

Source: Field Data, 2025

Furthermore, respondents were asked to identify the e-government systems they used in their departments. This question was asked to identify the types of e-government systems currently used in LGAs. The results indicate that 31 (15.2%) of 204 respondents mentioned e-office, 27 (13.2%) mentioned MUSE, 26 (12.7%) mentioned PEPMIS, and 7 (3.4%) mentioned GePG. Moreover, 16 (7.8%) respondents indicated NeST; eight (3.9%) mentioned e-mrejesho; 15 (7.4%) identified GAMIS; 19 (9.3%) mentioned Kilimo mrejesho; 16 (7.8%) indicated Mkopo mtandaoni; while 13 (6.4%) pointed out Lowson. In addition, eight (3.9%) respondents indicated Sensa elimu msingi, four (2.0%) mentioned MNRT portal, six (2.9%) identified TAUSI, four (2.0%) indicated PLANREP, three (1.5%) mentioned GOTHOMIS, while only one (0.5%) respondent indicated PReM. Generally, the results reveal that there are several e-government systems currently in use across the study areas, as shown in Figure 4.5.

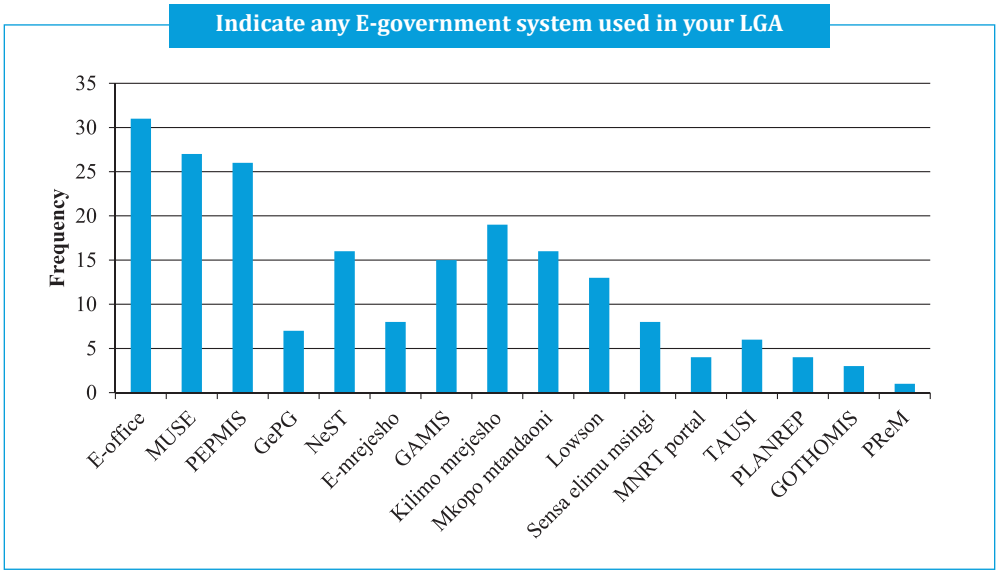

Figure 4.5: E-Government Systems Used in LGAs Institutions

Source: Field Data, 2025

This data aligns well with that from the interviews on the types of e-government systems used in LGAs. During the interview, one respondent reported that:

> *"We use several systems, and I will mention just a few. Among those are NeST, PEPMIS and GOT HOMIS……This is a system used by health facilities, from registering a patient to obtaining their information and providing treatment. Another system is DHIS2 – it is used to submit information from health facilities to the district level. There are also many other systems* (MDO3 MOSHI 2025)."

This quote indicates that several e-government systems already exist in LGAs to facilitate various functions and increase people's involvement in service delivery.

The study also sought to determine the effectiveness of e-government systems in providing services to citizens. The respondents were required to rate the effectiveness of the e-government systems they were using. The respondents made choices from the five-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, 5 = Strongly agree) to assess the strength of these reasons, as presented in Table 4.3.

Table 4.3: Effectiveness of E-Government Systems

Effectiveness of E-Government Systems (n=204)	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Median	Mode
The system is easy to use and navigate.	1 (0.5%)	8 (3.9%)	27 (13.2%)	157(77.0%)	11(5.4%)	4.00	4
The systems have improved service delivery.	2 (1.0%)	10 (4.9%)	23 (11.3%)	159(77.9%)	12(5.9%)	4.00	4
I can access the services I need without visiting a government office.	0 (0%)	168(82.4%)	20 (9.8%)	9(4.4%)	7 (3.4%)	1.898	2.0
The system is reliable and functioning well.	0 (0%)	5 (2.5%)	22 (10.8%)	172(84.3%)	5 (2.4%)	4.00	4
The system is transparent and reduces opportunities for corruption.	0 (0%)	1 (0.5%)	16 (7.8%)	178(87.3%)	9 (4.4%)	4.00	4
I receive prompt feedback when using the system	0 (0%)	4 (2.0%)	15 (7.4%)	180 (88.2%)	5 (2.5%)	4.00	4
I am satisfied with the e-government system I use	0 (0%)	3 (1.5%)	23 (11.3%)	172 (84.3%)	6 (2.9%)	4.00	4

Source: Field Data, 2025

These results reveal that the diverse responses show agreement and disagreement with different statements regarding the effectiveness of e-government systems. 168 (82.4%) of the respondents reported that the systems are easy to use and navigate, 83.8% agreed that the systems have improved service delivery, and 82.4% reported that they could not access the services they needed without visiting a government office. Also, 84.3% indicated that the systems are reliable and function well; 87.3%

reported that the systems are transparent and reduce opportunities for corruption; 88.2% reported receiving prompt feedback when using the system; and 84.3% were satisfied with the e-government system they use. Generally, the results suggest that although the majority of LGAs' staff are satisfied with the e-government systems, some are still obliged to visit government offices in person. This further implies that more improvement is needed so that the system could provide services to customers without them visiting the actual government office.

The trend of e-Government adoption for improved service delivery in Tanzanian LGAs is not as documented in prior studies (Phiri *et al.,* 2019; Ndimbwa *et al.,* 2020; Krel *et al.,* 2020; Ballantyne, 2009; Sarker & Itohara, 2009; Siyao, 2012). ICT infrastructure and e-government systems are well established and accessible to different customers in the study areas. However, despite the presence of ICT infrastructure and various e-government systems, service provision remains problematic, particularly in rural areas (Siyao, 2012; Mtega, 2017; Mwantimwa, 2019). Notable types of e-government systems are not accessible in rural areas due to a lack of ICT infrastructure and internet availability, compared to urban areas, where the situation is relatively good. Furthermore, regarding the availability of ICT infrastructure in LGAs.These findings indicate that different e-government systems are in place and LGAs use them to deliver services to people in the study area.

4.4. Competence for LGAs Staff to Use E-Government Systems

The second objective of this study was to assess the competence of local government staff in utilising e-government systems for enhanced service delivery in the study areas. To understand the competences LGAs' staff should have to use e-government systems, respondents were asked to rate statements that outlined the required competences. The five-point Likert scale (1 = Strongly disagree, 2= Disagree, 3= Not sure, 4 = Agree, 5 = Strongly agree) was used to indicate the required skills in the study areas, as illustrated in Table 4.4.

Table 4.4: Competence Required to Use E-Government Systems

Competence Required to Use E-Government Systems (n=204)	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Median	Mode
LGA staff must have basic computer skills.	4 (2.0%)	2 (1.0%)	14 (6.9%)	172 (84.3%)	12(5.9%)	4.00	4
LGA staff must have internet and email skills.	5 (2.5%)	2 (1.0%)	30 (14.7%)	159 (77.9%)	8 (3.9%)	4.00	4
LGAs staff should receive specific training on the specific e-government system.	3 (1.5%)	1 (0.5%)	22 (10.8%)	170 (83.3%)	8 (3.9%)	4.00	4
Introductory training on data privacy and cybersecurity practices	6 (2.9%)	0 (0%)	19 (9.3%)	169 (82.8%)	10 (4.9%)	4.00	4
Positive attitude towards ICT adoption and innovation in a government setting	4 (2.0%)	1 (0.5%)	26 (12.7%)	162 (79.4%)	11 (5.4%)	4.00	4

Source: Field Data, 2025

Results in Table 4.4 indicate that 172 (90.2%) of respondents agreed that LGAs staff must have basic computer skills, 81.8% acknowledged that LGAs staff should have internet and email skills, 87.2% supported that LGAs staff should receive specific training on the specific e-government system, 87.7% suggested that there should be an introductory training on data privacy and cybersecurity practices. In comparison, 84.8% agreed that it is important to have a positive attitude towards ICT adoption and innovation in a government setting. Generally, the results imply that, in addition to the professional degrees they hold, LGA staff need basic competencies to use e-government systems for effective service delivery.

These results strongly suggest that, beyond formal academic qualifications, LGA staff require practical ICT competencies to operate and support the use of e-Government systems effectively. This is consistent with the findings of Amdani (2024) and Lupilya and Jung (2015), who emphasised that basic ICT literacy is a prerequisite for successful engagement with e-Government platforms. Recent studies further corroborate this position. For example, Msacky and Mwangata (2023) found that user ICT skills significantly influence the adoption of e-recruitment platforms in Dodoma, highlighting a direct correlation between competence and system use. Similarly, Kalinga and Ndibalema (2023) showed that technological skills among secondary school teachers are crucial for integrating ICT into daily tasks, an observation equally relevant to public servants. Additionally, Chasubuta, Ndibalema, and Loisulie (2024) demonstrated that users' digital literacy is essential for navigating and benefiting from online systems in higher education settings. Collectively, these studies underscore the critical role that ICT competence plays across sectors in facilitating the adoption and effective utilisation of digital government systems.

4.5. Stakeholders' Perception and Trust towards E-Government Service Delivery

The third objective of this study was to determine stakeholders' perceptions and trust in online services, and their impact on improving service delivery in their communities. To understand stakeholders' perceptions and trust in e-government systems, respondents were asked whether they owned a business. Of 204 respondents, 76 (37.2%) indicated that they owned businesses, while 105 (51.4%) reported that they did not own any business, and 23 (11.2%) of them did not answer the question, as summarised in Figure 4.6.

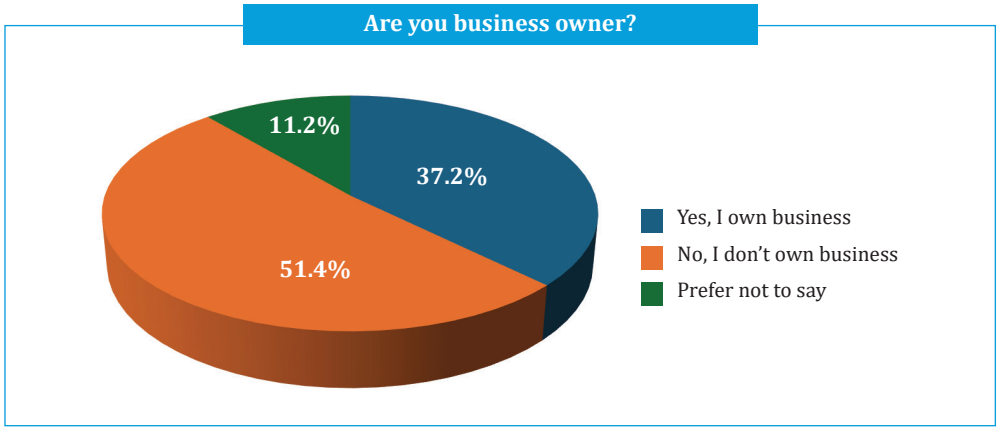

Figure 4.6: Business Ownership

Source: Field Data, 2025

Furthermore, respondents were asked whether they use GePG in their business transactions; the aim was to identify business owners who use e-government payment systems. Also, it was intended to understand their perception of the system. The results disclose that 36 (47.3%) of 76 respondents reported the use of GePG, while 40 (52.6%) claimed that they do not use GePG, as summarised in Figure 4.7.

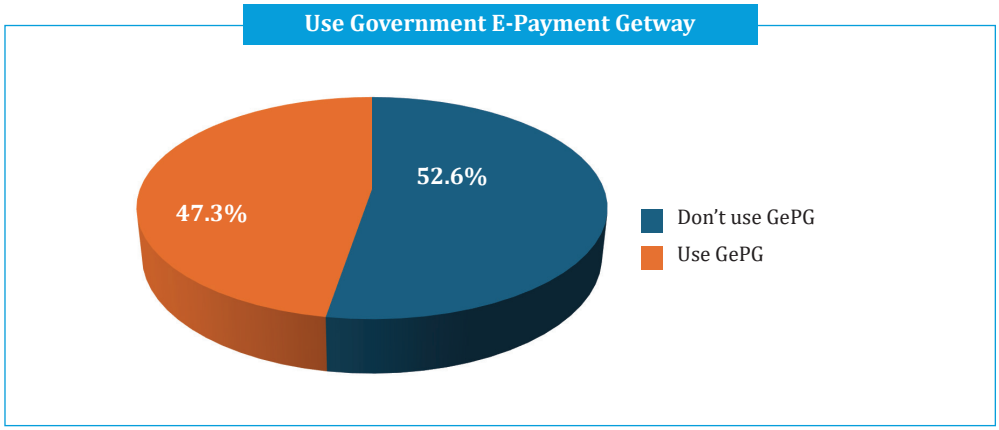

Figure 4.7: Use GePG in Business Transaction

Source: Field Data, 2025

In the same vein, data from open-ended questions corroborate the results in Figure 4.7. One respondent answering the same question indicated owning a business, but further added that:

> *"The e-government payment system is good and saves much trouble, for example, in my shop, I do not have any other helper. Imagine if I had to go to the bank to make a payment; I would have to close my shop for a while, which would inconvenience my customers. However, with this online payment system, I can do all transactions at my fingertips... However, when the network is down, it is even a bigger challenge"* (BO SAM3, 2025).

Adding to that, another respondent reported:

> *"The system is good when the network is working properly, but when there is a network problem, everything stops, and we make losses at this moment... So, I urge the government to ensure the online payment system is stable all the time"* (BO MWAG1, 2025).

Generally, these results indicate a positive attitude towards online government payment systems. However, concerns about network failure are unfounded, and the government should ensure this service is available at all times.

Respondents were also asked to rate the effectiveness of GePG in facilitating their business transactions in the study areas; the aim was to understand business owners' and LGAs' staff's views on the usefulness of the GePG system in their business

transactions and daily workplace routines. The results unveil that the majority of respondents, 138 (67.6%) of 204, indicated that the GePG system is sound, while 3 (1.5%) showed that it is excellent, 30 (14.7) indicated it as fair, 32 (15.7%) showed that it is poor, while only 1 (0.5%) indicated it as very poor (Figure 4.8).

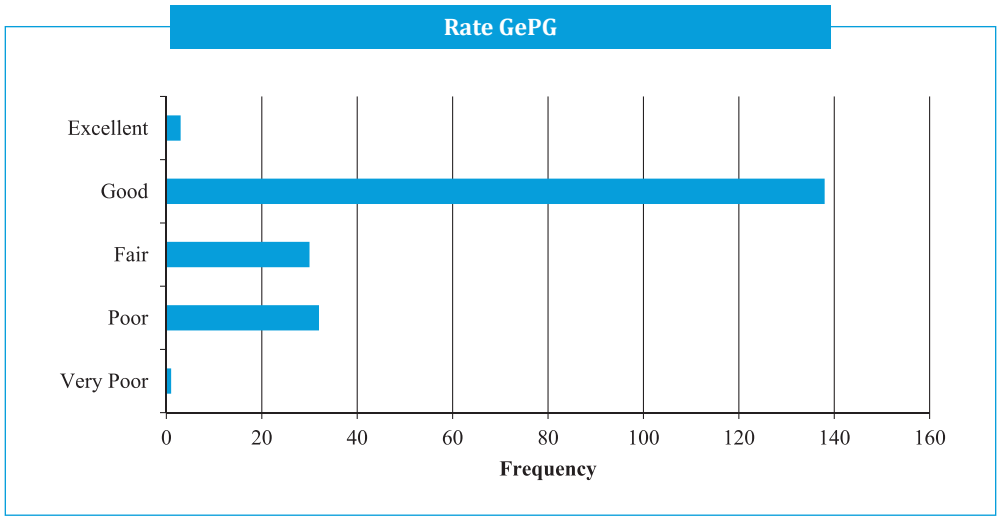

Figure 4.8: Effectiveness of GePG

Source: Field Data, 2025

Regarding how much business owners and LGAs staff trust GePG, the five-point Likert scale (1 = strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, 5 = strongly agree) was used to measure the responses, as shown in Table 4.5.

Table 4.5: Competence Required to Use E-Government Systems

Competence Required to Use E-Government Systems (n = 204)	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Median	Mode
I trust the GePG to handle my personal data securely	3 (1.5%)	10 (4.9%)	19 (9.3%)	169 (82.8%)	3 (1.5%)	4.00	4
I am not confident that the system protects my data from unauthorised access	4 (2.0%)	10 (4.9%)	13 (6.4%)	173 (84.8%)	4 (2.0%)	4.00	4
I trust the GePG services will be available and function well when I need them	4 (2.0%)	5 (2.5%)	13 (6.4%)	176 (86.3%)	6 (2.9)	4.00	4

Source: Field Data, 2025

Results in Table 4.5 Indicate that 172 (84.3%) of respondents reported trusting the GePG to handle their personal data securely, 86.8% indicated they are confident the system protects their data from unauthorised access, and 89.2% indicated they trust the GePG services will be available and function well when they need them. Generally, the results indicate that respondents agreed with the statements about how much they trust the GePG systems to handle personal data and how reliable they are as online payment systems.

Similar challenges in e-Government adoption have been reported across Sub-Saharan Africa, where users frequently cite inadequate digital infrastructure, perceived system complexity, and limited technical support as key barriers to adopting government digital platforms (Wibowo *et al.,* 2021; Rehema & Koech, 2023). In Tanzania's case, these obstacles may continue to limit the effective use of the GePG platform among the intended beneficiaries, despite its availability and potential benefits.

Regarding perceived effectiveness, the majority of respondents in this study indicated that they view the GePG system as effective. However, approximately 30% of users expressed neutral or negative perceptions, indicating significant dissatisfaction. This observation aligns with Mensah (2018), who argued that perceived usefulness and ease of use are critical factors influencing user intention to adopt e-Government services. Therefore, improving the system's usability, interface design, and overall reliability could enhance user satisfaction and promote broader adoption.

Regarding trust in the GePG system, findings from Likert-scale items measuring user confidence in data security, protection from unauthorised access, and system reliability reveal a strong level of trust among stakeholders. The consistently high median and mode values of four (4) across all trust-related indicators suggest that users generally believe the system is secure and dependable. This supports the work of Zerbini et al. (2022) and Hossain et al. (2023), who highlight that trust is fundamental in reducing uncertainty in digital transactions, particularly where sensitive personal and financial data are involved. Compared to other developing nations, where mistrust of digital platforms remains a persistent challenge (Bwalya & Mutula, 2014), these findings are encouraging. They suggest that the Tanzanian government has made commendable progress in establishing a baseline of digital trust, something that remains elusive for many peer countries.

Nonetheless, the relatively low adoption of the GePG system among business owners despite high levels of trust presents an apparent inconsistency. This underscores the argument by Ameen et al. (2024) that trust, while crucial, may not be sufficient on its own to guarantee widespread adoption. Usability, accessibility, and alignment with user needs must also be addressed. These findings are consistent with broader global literature, which emphasises the combined importance of trust, security, and system effectiveness in fostering meaningful engagement with e-Government services (Qiyamullaily & Subriadi, 2024; Sabani *et al.,* 2023).

4.6. Challenges Hindering the Successful Implementation of the E-Government System

The fourth objective of this study was to identify and analyse key challenges hindering the successful implementation of e-government systems in LGAs. To understand the challenges facing business owners and LGA staff in implementing the e-government system in the study areas, respondents were asked to indicate challenges they face when using these systems. The results show that 62 respondents (30.4% of 204) reported problematic use of the systems without assistance. In comparison, 54 (26.5%) reported limited internet bandwidth, 33 (16.2%) reported an inability to troubleshoot the systems, 32 (15.7%) reported a lack of online customers, and 13 (6.4%) reported that the systems are down frequently. In comparison, 10 (4.9%) reported the lack of training on e-government systems. Generally, the results reveal that there are several challenges facing the adoption of e-government systems in the study areas in Tanzania, as shown in Figure 4.9.

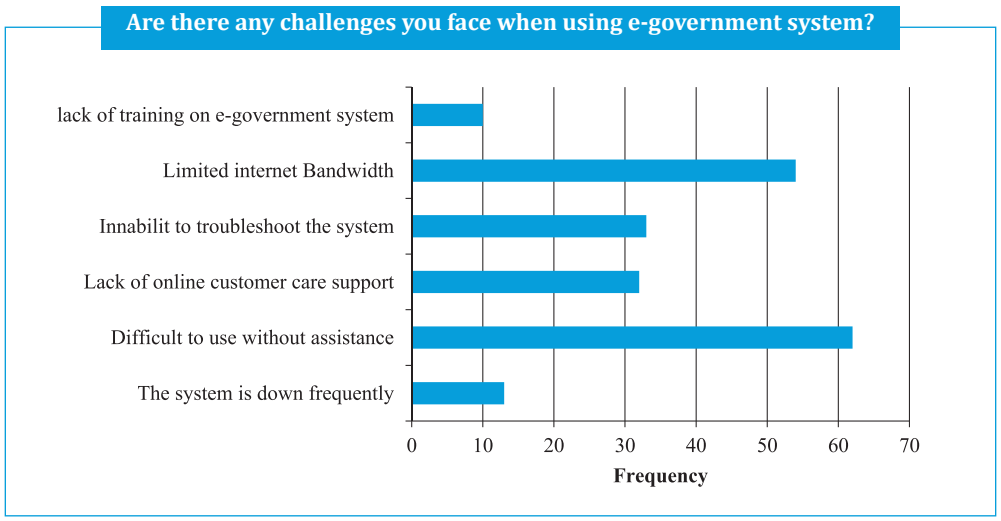

Figure 4.9: Challenges of Using E-Government Systems

Source: Field Data, 2025

Respondents and interviewees were asked to identify other challenges that prevent them from effectively using e-government systems in the study areas. This open-ended question was intended to collect additional information on the challenges of adopting e-government systems. Regarding this, one respondent reported that:

> *"One of the pressing challenges is frequent network breakdown and support delays from the headquarters; this makes work stalemate.... It is difficult to do anything without a network, but incompatible systems that do not communicate well are also a challenge that needs to be resolved sooner. So, sometimes it takes several hours to troubleshoot this kind of problem, and this makes our customers very frustrated"* (HR2 MKINGX, 2025).

This quote indicates that multifaceted challenges are hindering the adoption of e-government systems across study areas and impeding their widespread implementation.

On a similar issue, another interviewee said:

> *"There are many challenges that we currently face, for example, power outage, limited capacity of the mailing server, slow network and sluggish internet speed that cause wastage of time…. These issues have significantly affected how we provide services to our customers… However, we thank our administration; most of the time, they respond to these challenges promptly"* (OFRT TNGCTY, 2025).

In connection with that, another interviewee also noted.

> *"Many staff members lack adequate training on how to use e-government systems... Sometimes we receive this kind of training, but in a very short period. Imagine an officer comes to teach you how to use a particular system for two hours… and then you are supposed to start using it immediately. However, other staff are also technophobic and resistant to change from manual to digital systems, driven by fear. Unfamiliarity is also another challenge we face"* (LO MWANG3, 2025).

In line with that, one respondent added:

> *"Most of our system infrastructure needs to be updated; they do not support newer versions of software, hence, the issue of performance is in question. For example, just loading GAMIS data takes much time; this is an indicator of the infrastructure to handle complex data"* (PMU4 SAMY, 2025).

Generally, the results indicated that the challenges across all study areas are similar, because they are all under LGAs. A centralised mechanism is required to address these challenges to foster public service delivery.

Furthermore, respondents were asked to suggest possible solutions to the challenges highlighted. Regarding this, one respondent said:

> *"I think the government should: invest in reliable internet connectivity, modern ICT infrastructure, especially in rural LGAs; upgrade hardware and software systems to meet the demands of modern e-government services; and ensure power backup solutions (e.g., solar or generators) to mitigate power outages"* (IT6 MOSH6, 2025).

On a similar issue, another interviewee added:

> *"The priority should be to those in rural areas because the situation is even worse there. For example, the ward executive officers compile all the information and submit it manually; this is really tedious for them… So, infrastructure should be*

improved so that we can all access reliable services…. The government should also start considering automatic generators, high-speed internet, backup systems, and increase server capacity, for example, the Mailing system jams; it must be an unlimited server like other countries" (ACNT TNGCTY, 2025).

This quote indicates that, though there are similar challenges across LGAs, other areas need urgent intervention regarding service provision by the e-government system. These quotations show that, due to budgetary constraints, different LGA areas will be facilitated at different paces. Data from both quantitative and qualitative analyses reveal that rural areas need more assistance.

This aligns with recent findings by Mtebe and Raisamo (2022), who emphasised that low ICT skills significantly limit user engagement with digital public services in Tanzania. Additionally, limited internet bandwidth (26.5%) and frequent system downtimes (6.4%) reflect infrastructural weaknesses, consistent with the Rwanda Development Board (2024), which reported similar technical limitations as key barriers to digital government services in Sub-Saharan Africa. The inability to troubleshoot (16.2%) and lack of training (4.9%) further expose the inadequacy of ongoing support and capacity-building programmes. Moreover, the low share of online customers (15.7%) suggests limited public awareness or trust in digital platforms, echoing concerns raised by Ngowi and Lupilya (2021) about citizen readiness and participation in e-government initiatives. These multidimensional challenges suggest the need for a more holistic approach, including improved digital infrastructure, tailored user training programmes, and awareness campaigns to boost public trust and usage.

Generally, the results indicated that the challenges across all study areas are similar. This is because they are all under LGAs. Therefore, there should be a centralised mechanism to address these challenges to foster public service delivery.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

The chapter presents a summary of the study's key findings, its conclusions, recommendations, and areas for further study. Specifically, the study provides summary on effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs, competence of local government staff in utilising e-government systems for enhanced service delivery, stakeholders' perceptions and trust in online services and their impact on improving service delivery, key challenges hindering the successful implementation of e-government in LGAs, and the overall respondents' comments on the adoption of e-government in improving service delivery in Tanzanian LGAs in the study areas.

Based on the surveyed district councils, the findings show that LGAs have ICT infrastructure in place to support e-government systems in Tanzania. Most of these ICT infrastructures are modest; thus, a major upgrade is required, specifically for servers, computers and internet bandwidth to accommodate complex tasks. Furthermore, the study found that the majority of LGA staff are familiar with e-government systems. However, further training is required to fill the gap for those who have moderate knowledge of those systems. Also, the study found that several challenges require government intervention; local governments in rural areas are in a dire situation, with most residents living in areas with no network at all. ICT infrastructure can be a game-changer for them. One of the overall comments from respondents was for the government to address the identified challenges, as they impede the government's efforts to improve service delivery to all citizens in Tanzania.

Finally, the study highlighted several factors that affect the adoption of e-government systems in LGAs across the country. Thus, deliberate action must be taken to improve the situation, from improving sensitisation to providing more training and upgrading ICT systems, as these are major actors in providing services to the people.

5.2. Conclusion of the Study

Weighing between using e-government systems to enhance service delivery and public and manual service provision to the public, the latter appears to be more effective and preferable in the study areas. Their effectiveness and frequency of use make these mechanisms more popular. Some of them, particularly those based on urban areas, are more convenient, easily accessible, and cost-effective. This study noted a digital divide between the studied LGA-urban and LGA-rural areas. This informs the imbalance regarding access and utilisation of e-government systems.

The effectiveness of ICT infrastructure in supporting the implementation of e-government systems in LGAs in the study areas was found to be moderate. This infrastructure needs further improvement to align with the current government's goals. Furthermore, the competence of local government staff in utilising e-government systems for enhanced service delivery needs greater support, through short- and long-term training to address current global technological challenges. There is also a need to improve service delivery to people; this will add value and enhance stakeholders' perceptions and trust in online services and their impact on daily life. The observed challenges hindering the successful implementation of e-government services in LGAs need to be addressed promptly, as they have greatly affected LGAs' staff in rural areas, forcing them to travel to towns or areas with network coverage. The adoption of e-government systems is unavoidable, given the global shift in governance.

5.3. Recommendations

This section presents the authors' views regarding what should be done to improve the situation regarding the adoption of e-government systems, as well as areas for further studies. The first section presents policy recommendations, while the second part focuses on the recommended areas for further study.

5.3.1. Policy Recommendations

The study revealed that improving ICT infrastructure across urban and rural LGAs is essential in fostering the adoption of e-government services in Tanzania. The study recommends rapid improvements in technology infrastructure, such as network coverage, iPad availability, and solar power systems, especially in rural areas. To successfully achieve this, there is a need for well-organised ICT linkages between urban and rural LGAs, effective delivery mechanisms, and government readiness to improve ICT infrastructure. Thus, deliberate efforts should be made by the government, non-governmental organisations, and other stakeholders to enhance the adoption of e-government systems to enable wider access and the provision of services to citizens. Basically, this will also contribute to achieving the nation's primary objectives of fostering ICT and internet connectivity, as well as sustainable and effective public service delivery. Table 5.1 Shows the key findings for each objective and recommendations.

Table 5.1: Specific Findings and their Pertinent Recommendations

Research Objective	Key Findings	Recommendations
i. Evaluate the effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs.	• ICT infrastructure exists in LGAs, but is modest and insufficient for complex tasks. • Urban LGAs have relatively better infrastructure than rural LGAs. • Rural areas suffer from poor or no network coverage.	a) Upgrade ICT infrastructure, including internet bandwidth, servers, and computers. b) Ensure equitable network coverage by investing in connectivity for rural areas. c) Promote ICT infrastructure linkage between rural and urban LGAs. d) Introduce alternative energy sources (e.g., solar power) to support ICT in off-grid areas.
ii. Assess the competence of local government staff in utilising e-government systems for enhanced service delivery.	• Most staff are familiar with e-government systems. • However, knowledge levels vary; some have only moderate or basic ICT competence. • Need for continuous professional development in ICT.	a) Provide both short- and long-term ICT training for LGA staff. b) Introduce specialised training in cyber security, data privacy, and system-specific operations. c) Establish ICT capacity building programs tailored to different competence levels.
iii. Determine stakeholders' perceptions and trust in online services and their impact on improving service delivery.	• Stakeholders generally perceive e-government services positively, especially in urban areas. • High levels of trust in platforms like GePG (regarding data security and reliability). • Some dissatisfaction due to usability issues and network failures. • Digital divide affects perceptions in rural vs. urban areas.	a) Improve usability and accessibility of e-government platforms to enhance user satisfaction. b) Address the digital divide by providing awareness campaigns and digital literacy initiatives in rural LGAs. c) Ensure systems are consistently available and reliable to maintain public trust.
iv. Identify and analyse key challenges hindering the successful implementation of e-government in Tanzania LGAs.	• The digital divide between urban and rural LGAs is significant. • Lack of reliable network, inadequate infrastructure, and insufficient training hinder system adoption. • Staff in rural LGAs sometimes travel to urban centres to access services.	a) Formulate targeted policies to bridge the digital divide. b) Allocate specific funding for rural ICT development. c) Ensure inter-LGA collaboration for experience sharing and infrastructure improvement. d) Enhance government readiness and prioritisation of e-government in national planning.

Source: Field Data, 2025

5.3.3. Areas for Further Research

Given the limitations of this study, several questions could not be answered; future studies can address them. First, there is a need to explore the impact of e-government systems on transparency and corruption. Also, an experimental study should be conducted to determine how many people in rural areas use these systems and what impact they have experienced. In addition, long-term follow-up research is necessary to assess the tangible impact of e-government systems in promoting development.

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APPENDICES

Appendix I: Questionnaire

E-Government Adoption for Improved Service Delivery in Tanzanian Local Government Authorities (LGAs): *A Case Study of Same, Mwanga, Mkinga District Council and Tanga City Council*

Questionnaire for IT, HR, PMU, Registry Staff, Secretaries, and Business People Who Use E-Government Systems

I am a staff member from the Tanzania Public Service College, Tanga Campus. I am conducting research on **"E-Government Adoption for Improved Service Delivery in Tanzanian LGAs".** I kindly request your cooperation, the answers will be treated with high confidentiality and the results will be used for scientific purposes only.

A. Demographic information

1. Age Range (*Please tick the applicable option*)
   i. Below 25 ( )
   ii. 26-35 ( )
   ii. 36-45 ( )
   iv. 46-55 ( )
   v. 56 and above ( )

2. Sex
   i. Male ( )
   ii. Female ( )

3. What is your highest education level?
   i. Certificate
   ii. Diploma
   iii. Degree
   iv. Masters
   v. PhD

4. Institution affiliation, where you are from (*Please tick the applicable option*)

   i. Mkinga District ( )
   ii. Tanga City ( )
   iii. Moshi Municipal ( )
   v. Mwanga District Council ( )
   v. Same District Council ( )

5. Your employment position in local government (*Please tick the applicable option*)

   i. IT officer ( )
   ii. Procurement officer ( )
   ii. Human resource manager ( )
   iv. Registry staff ( )
   v. Office secretary ( )
   vi. Business person ( )

B. Effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs

6. Does your institution have ICT infrastructure?

   i. Yes ( )
   ii. No ( )
   iii. I don't know ( )

7. If the answer is YES, how would you rate the availability of ICT infrastructure in your LGA?

   i. Very Poor ( )
   ii. Poor ( )
   iii. Fair ( )
   iv. Good ( )
   v. Excellent ( )
   v. Other specify _____

8. Are you familiar with "E-government systems" used in your LGA?

   i. Yes ( )
   ii. No ( )
   iii. I don't know ( )

9. What is your level of familiarity with "e-government systems" used in your LGA? (*tick where applicable*)

   i. I am very familiar with e-government systems ( )

   ii. I have come across this concept and know a little about it ( )

   iii. I have come across this concept but know nothing about it ( )

   iv. I have never heard of this term before ( )

10. Have you ever been provided with adequate training on e-government systems? (*tick where applicable*)

   i. Yes ( )

   ii. No ( )

   iii. I don't know ( )

11. Highlight any E-government system you are using in your LGA? (*tick all applicable*)

   i. E-office ( )

   ii. Government e-Payment Gateway (GePG) ( )

   iii. e-Procurement system (TANePS) ( )

   iv. e-Mrejesho ( )

   v. MUSE ( )

   vi. Other specify _____

12. Rate the effectiveness of the e-government system you are using. Please circle the appropriate level to show the extent to which you agree with the statements below. Where 1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Not sure (NS), 4 = Agree (A), and 5 = Strongly agree (SA).

S/N	Effectiveness of the e-government system you are using	SD	D	NS	A	SA
1.	The system is easy to use and navigate	1	2	3	4	5
2.	The system has improved service delivery	1	2	3	4	5
3.	I can access the services I need without visiting a government office	1	2	3	4	5
4.	The system is reliable and functions well	1	2	3	4	5
5.	The system is transparent and reduces opportunities for corruption	1	2	3	4	5
6.	I receive prompt responses or feedback when using the system	1	2	3	4	5
7.	Generally, I am satisfied with e-Government system I use	1	2	3	4	5

C. Competence required for local government staff to use e-government systems for enhanced service delivery

13. Rate the competence you think local government staff need to be able to use the e-government system effectively. Please circle the appropriate level to show the extent to which you agree with statements below. Where 1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Not sure (NS), 4 = Agree (A), and 5 = Strongly agree (SA).

S/N	Competence required for local government staff to use e-government systems	SD	D	NS	A	SA
1.	Local government staff must have basic computer skills	1	2	3	4	5
2.	Local government staff must have internet and email skills for official communication	1	2	3	4	5
3.	Receiving sufficient training on a specific e-government system e.g., GePG	1	2	3	4	5
4.	Introductory training on data privacy and cybersecurity practices	1	2	3	4	5
5.	Positive attitude towards ICT adoption and innovation in government setting	1	2	3	4	5

Specify others _____

D. Stakeholders' perceptions and trust in online services and their impact on improving service delivery

14. Are you a business owner? (*tick where applicable)*

i. Yes ( )

ii. No ( )

15. If the answer is **YES** to the above question, have you ever heard about GePG?

i. Yes ( )

ii. No ( )

Please, explain your answer_____

16. Rate GePG? (*Tick where applicable*)

i. Very Poor ( )

ii. Poor ( )

ii. Fair ( )

iv. Good ( )

v. Excellent ( )

Specify others _____

17. How much do you trust GePG? Please, circle the appropriate level to show the extent to which you agree with the statements below. Where 1 = Strongly disagree (SD), 2= Disagree (D), 3= Not sure (NS), 4 = Agree (A), and 5 = Strongly agree (SA).

S/N	How much do you trust GePG	SD	D	NS	A	SA
1.	I trust GePG to handle my personal data securely	1	2	3	4	5
2.	I am not confident that the system protects my data from unauthorized access	1	2	3	4	5
3.	I trust that GePG service will be available and function well when I need them	1	2	3	4	5
4.	I face different challenges when I use GePG	1	2	3	4	5

E: Challenges hindering the successful implementation of e-government in LGAs

18. What are the challenges you face when you are using e-government systems *(You may tick more than one answer)*

    i. The system is down frequently ( )
    ii. Difficult to use without assistance ( )
    iii. Lack of online customer care support ( )
    iv. Inability to troubleshoot the system ( )
    v. Limited internet bandwidth ( )
    vi. Lack of training on e-government system ( )
    vii. Specify others_____

    Please suggest possible solutions to your answer on question 16

    _____

19. Briefly explain other challenges you face that prevents you from effectively using e-government systems in LGAs _____

    _____

20. Suggest possible solution to such problems _____

    _____

21. What are your general comments with regard to e-Government adoption for improved service delivery in Tanzanian Local Government Authorities?

    _____

    _____

Thank you for your cooperation

Appendix II: Interview Guide

E-Government Adoption for Improved Service Delivery in Tanzanian Local Government Authorities (LGAs): ***A Case Study of Same, Mwanga, Mkinga District Councils and Tanga City Council***

Interview Guide for Heads of Departments

I am a staff member from the Tanzania Public Service College, Tanga campus. I am conducting research on **"E-Government Adoption for Improved Service Delivery in Tanzanian Local Government Authorities (LGAs)".** I kindly request you to participate in this interview, it will roughly take **15 to 20** minutes of your time. The answers will be treated with high confidentiality and the results will be used for scientific purposes only.

Objective I: To evaluate the effectiveness of ICT infrastructure in supporting the implementation of e-government in LGAs

Key Question:	Does your institution have ICT infrastructure?
Probe Question 1:	How effective is your ICT infrastructure?
Probe Question 2:	Which type of e-government systems do you use?
Probe Question 3:	How do you see the effectiveness of your e-government systems?
Probe Question 4:	How do you see the internet speed at your work place?

Objective II: Assessment on required competence of local government staff in using e-government systems for enhanced service delivery (e.g., e-office, GePG, TANePS)

Key Question:	What kind of competence is required for LGAs staff to be able to use e-government systems?
Probe Question 1:	What is the minimum qualification LGAs staff must have to operate e-government systems?
Probe Question 2:	Are there any other specific skills required for LGAs staff to be able to use e-government system?
	Probe Question 3: How do you see the effectiveness of staff in using e-government systems at your work place?

Objective III: To determine stakeholders' perceptions and trust in online services and their impact on improving service delivery

Key Question:	What is your perception of GePG?
Probe Question 1:	Tell me about the functionality of GePG?
Probe Question 2:	Is the GePG system available online?
Probe Question 3:	How much do you trust the GePG system?
Probe Question 4:	Explain other issues you would like the government to improve regarding GePG.

Objective IV: To identify and analyse key challenges hindering the successful implementation of e-government in LGAs

Key Question:	Can you tell me about the factors hindering the successful implementation of e-government in LGAs?
Probe Question 1:	What are specific challenges you face regarding the usage of e-government systems at your work place?
Probe Question 2:	Can you give suggestions on how to solve the issues hindering implementation of e-government in LGAs?
Probe Question 3:	Can you give any general comment regarding the adoption of e-Government for improved service delivery in Tanzanian LGAs?

Thank you for your cooperation

For further details please contact:

Rector and Chief Executive Officer,
Tanzania Public Service College
P.O. Box 2574, Dar es Salaam
Tel: +255 22 2152982,
Fax: +255 22 2152933
Email: info@tpsc.go.tz

TANGA CAMPUS
Campus Director,
Tanzania Public Service College,
P.O. Box 750, Tanga
Email: tanga@tpsc.go.tz
+255 27 2977124