



The effectiveness of e-government system in enhancing service delivery in local government authorities in Tanzania: A case of Kinondoni district

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ABSTRACT

This study assessed the effectiveness of e-government systems in enhancing service delivery in Kinondoni District, Tanzania. Specifically, the study examined the effectiveness of e-government implementation, evaluated the extent to which e-government systems improve efficiency in public service delivery, and identified the key challenges affecting their implementation and use. This study was guided by the Social Cognitive Theory and the Technology-Organisation-Environment Theory. A pragmatist research philosophy guided the use of a mixed-methods approach in a descriptive cross-sectional research design. The target population comprised of the management and technical staff involved in the implementation and use of e-government systems in Kinondoni Municipal Council, together with key informants responsible for ICT and public service administration. A total of 92 staff respondents were selected using simple random sampling while 9 key informants were selected purposively for interviews. Primary data were collected through structured questionnaires and semi-structured interviews. Quantitative data were analysed using descriptive and inferential statistics with the aid of SPSS while qualitative data were analysed using thematic analysis. The findings revealed that e-government systems in Kinondoni Municipal Council are moderately implemented. Although the systems are operational and supported by management, gaps remain in staff training, technical support and system integration. The study further found that e-government systems have significantly improved service delivery efficiency by reducing processing time, minimizing paperwork, and enhancing the accuracy of service delivery. However, improvements in service accessibility and citizen satisfaction remain moderate. The study also identified unreliable internet connectivity; system outages and limited Information and communication technology (ICT) skills among staff, insufficient funding, low public awareness and resistance to change as major challenges affecting effective implementation. Regression analysis showed that effective implementation and operational efficiency have a significant positive influence on service delivery, whereas implementation challenges have a significant negative effect. The study concludes that although e-government systems have contributed to improved public service delivery in Kinondoni district, their full potential is hindered by infrastructural, technical and human capacity limitations. The study recommends strengthening ICT infrastructure, enhancing staff capacity through continuous training, increasing financial investment in digital government initiatives and promoting digital literacy among citizens to maximize the benefits of e-government.

Keywords: Challenges, E-Government, Efficiency, Implementation, Kinondoni District, Service Delivery, Tanzania

I. INTRODUCTION

Electronic government (e-government) has become a fundamental component of public sector reform worldwide as governments are increasingly seeking to improve efficiency, transparency, accountability and citizen service delivery. E-government refers to the use of information and communication technologies (ICTs) like the internet-based platforms, mobile applications and integrated information systems to facilitate interactions between government institutions, citizens, businesses and other stakeholders (United Nations, 2022). The adoption of e-government initiatives has been widely promoted as a mechanism for enhancing administrative effectiveness, reducing bureaucratic inefficiencies, improving access to public services and strengthening governance outcomes.

Globally, e-government has transformed the way public institutions operate and deliver services. Countries such as Estonia, Singapore and South Korea have developed highly integrated digital government systems that support online identification, digital payments, electronic health services, and automated administrative processes which are significantly improving service quality and citizen satisfaction (Organisation for Economic Cooperation and Development (OECD), 2020). According to the United Nations (2022) effective implementation of digital government systems contributes to faster service delivery, lower administrative costs, increased transparency and improved public trust. However, the effectiveness of e-government initiatives is influenced by factors such as ICT infrastructure, institutional capacity, governance arrangements, digital literacy and organizational readiness (Heeks, 2018).



In Sub-Saharan Africa, governments have increasingly embraced e-government as a strategy for improving public administration and accelerating socioeconomic development. Countries such as Ghana, Nigeria and South Africa have implemented various digital government initiatives aimed at improving revenue collection, public financial management, service accessibility and administrative efficiency. For instance, Ghana's Ghana.gov platform has streamlined public payments and service transactions while Nigeria has introduced e-taxation systems, digital land administration and online procurement platforms (Afieroho *et al.*, 2023; United Nations Development Programme (UNDP), 2020). Similarly, South Africa has expanded digital public services through e-filing systems, smart identification programs and municipal online service platforms (World Bank, 2021). Despite these advancements, many African countries continue to face challenges such as inadequate ICT infrastructure, unreliable electricity supply, cyber security concerns, limited digital skills and low public awareness of digital services (World Bank, 2021).

In East Africa, e-government has gained prominence as governments seek to improve transparency, accountability and service delivery. Rwanda, Kenya and Uganda have implemented digital platforms that support online licensing, revenue collection, document management and citizen service provision (United Nations, 2022). Kenya's e-Citizen platform for example, provides citizens with online access to a wide range of government services like business registration, immigration services and national identification processes (Republic of Kenya, 2019). In Uganda, initiatives such as the Integrated Financial Management System (IFMS), electronic tax services, and digital land information systems have enhanced public sector efficiency, although challenges related to system reliability, accessibility and digital inclusion remain evident. Existing studies in the region further highlight persistent challenges which are related to interoperability, data management and uneven digital literacy among both public servants and citizens. (Kivunike *et al.*, 2019; NITA-U, 2020).

In Tanzania, e-government has emerged as a key pillar of public sector modernization and administrative reform. The establishment of the E-Government Authority (eGA) in 2012 strengthened institutional coordination and oversight of digital transformation initiatives across the government institutions (URT, 2017). Since then, several digital platforms have been introduced such as the Government Electronic Payment Gateway (GePG), the Local Government Revenue Collection Information System (LGRCIS), the Human Capital Management Information System (HCMIS), the e-Office system and the Tanzania Revenue Authority's electronic filing and payment systems. These initiatives were designed to improve revenue administration, enhance transparency and accountability, reduce corruption opportunities and increase efficiency in public service delivery. Studies suggest that these systems have contributed to improvements in revenue collection and financial accountability in several local government authorities (Mnyandu & Luhanga, 2021). Nevertheless, challenges such as inadequate ICT infrastructure, insufficient technical skills, system interruptions, limited digital literacy and inadequate public awareness continue to hinder their effectiveness (Kuwado & Mnyanyi, 2019).

Kinondoni district which is one of the largest and most populous urban local government authorities in Dar es Salaam represents an important area for examining the effectiveness of e-government systems. The district council has adopted several digital platforms like LGRCIS, GePG and online licensing systems to improve administrative efficiency and service delivery. However, despite these initiatives, concerns persist regarding service delays, system performance, accessibility challenges and user satisfaction (URT, 2021). Given the district's rapid urbanization, growing population and increasing demand for public services, the effectiveness of e-government systems remains a critical issue for local governance and service delivery.

Although previous studies have examined e-government adoption and implementation in Tanzania, much of the existing literature focuses on system adoption, revenue collection and national level initiatives (Lupilya & Jung 2015, Muchunguzi, 2023). Limited studies exist regarding the effectiveness of e-government systems in enhancing service delivery outcomes in the urban local government authorities such as Kinondoni. There remains inadequate understanding of the extent to which e-government systems have improved implementation effectiveness, enhanced service delivery efficiency and addressed challenges affecting their utilization. This knowledge gap limits the implementation of a specific strategy regarding digital governance reforms at the local government level. Therefore, this study assessed the effectiveness of e-government systems in enhancing service delivery in Kinondoni district, Tanzania

1.1 Research Objectives

- i. To assess the effectiveness of e-government systems in improving efficiency and accessibility of public service delivery in Kinondoni District.
- ii. To examine the challenges affecting the effective implementation and use of e-government systems in Kinondoni district.



II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Social Cognitive Theory

Social Cognitive Theory (SCT) was developed by Albert Bandura (1986) and explains human behaviour as the result of a reciprocal interaction among personal factors, environmental conditions and behavioral responses. The theory argues that individuals acquire knowledge and develop behaviours through observation, experience and continuous interaction with their environment. According to Bandura, behaviour is influenced by three interrelated determinants; personal factors such as knowledge, attitudes and self-efficacy; environmental factors such as organizational support, institutional policies, and physical infrastructure and behavioural factors reflected in the actual performance of tasks and adoption of innovations.

In e-government, SCT provides an appropriate framework for understanding how public servants adopt and utilise digital government systems. Personal factors include employees' digital literacy, technical competencies, confidence, and willingness to use ICT-based systems. Environmental factors encompass leadership commitment, organisational culture, ICT infrastructure, technical support, legal frameworks, and availability of financial resources that facilitate or constrain technology utilization. Behavioural factors are reflected in the actual use of e-government systems in delivering public services and the extent to which citizens utilise the available digital platforms (Bandura, 1986; Ndou, 2004).

The theory is particularly relevant to this study because the effectiveness of e-government systems depends not only on the availability of technology but also on employees' capabilities and the organisational environment that supports technology adoption. Well-trained employees operating within supportive institutional environments are more likely to utilize e-government systems effectively resulting in improved efficiency and accessibility of public service delivery. Similarly, inadequate ICT skills, resistance to change, weak management support and poor infrastructure may reduce system utilization and limit service improvement. Although SCT gives a thorough explanation of individual technology adoption, it pays relatively less attention to broader organizational and external environmental factors that influence institutional implementation. Therefore, the theory is complemented by the Technology-Organisation-Environment Framework to give a more comprehensive understanding of e-government implementation.

2.1.2 Technology-Organisation-Environment (TOE) Framework

The Technology-Organisation-Environment (TOE) Framework was developed by Tornatzky and Fleischer (1990) to explain the adoption and implementation of technological innovations within organisations. The framework proposes that technology adoption is determined by three interrelated contexts: the technological context, the organisational context and the external environment. The technological context refers to the characteristics of the technology itself like system quality, compatibility, complexity, reliability and perceived usefulness. In e-government implementation, reliable ICT infrastructure, secure digital platforms and effective system interoperability enhance service delivery and organisational performance. The organisational context includes internal characteristics such as leadership commitment, organisational structure, and availability of financial resources, staff competencies, organisational culture, and management support. Organisations with adequate financial resources, supportive leadership, skilled personnel, and continuous staff training are more likely to implement e-government systems successfully. The environmental context comprises external factors that influence organisational decisions such as government policies, legal and regulatory frameworks, technological development, citizen expectations and pressure from development partners. These external conditions shape the institutional environment in which e-government systems operate.

The TOE Framework is highly relevant to this study because it provides a comprehensive explanation of the factors that determine the effectiveness of e-government implementation in local government authorities. It highlights that successful implementation depends not only on technological readiness but also on organisational capacity and the external policy environment. The framework therefore gives an appropriate basis for examining the effectiveness of e-government systems in improving service efficiency and accessibility while identifying the challenges affecting their implementation and use in Kinondoni district.

2.2 Empirical Review

2.2.1 Effectiveness of E-Government Systems in Improving Efficiency and Accessibility of Public Service Delivery

Empirical evidence consistently illustrates that e-government systems improve the efficiency and accessibility of public service delivery by reducing administrative delays, simplifying service procedures, increasing transparency and expanding citizens' access to government services. In Tanzania, Sausi and Mtebe (2021) found that the Government Electronic Payment Gateway (GePG) significantly improved payment processing efficiency by reducing manual procedures, shortening transaction times and increasing accessibility of government payment services. However, the



study reported intermittent technical failures and weak integration between government systems, limiting the full realization of service improvements.

Similarly, Kapongo and Mutalemwa (2024), investigating the Local Government Revenue Collection Information System (LGRCIS) in Ludewa District Council, reported that system reliability, user-friendly interfaces and institutional support contributed significantly to operational efficiency and accessibility of revenue collection services. Nevertheless, inadequate staff training and unstable internet connectivity limited optimal utilisation of the system. Massawe and Mwanukuzi (2023) further observed that Geospatial Information Technology Systems (GITS) improved operational efficiency in revenue mapping and billing within Ilala and Kinondoni Municipal Councils through enhanced ICT infrastructure and organisational readiness. However, the study focused primarily on revenue performance rather than citizen access to public services.

Amdani (2024) established that computer literacy among public servants positively influenced the utilisation of e-government systems in Kigamboni Municipal Council, thereby indirectly improving service efficiency. Nonetheless, the study concentrated on employee competencies and did not assess service accessibility from the perspective of citizens. Outside Tanzania, Afieroho *et al.* (2023) reported that e-government platforms in Nigeria enhanced service responsiveness and citizens' access to public information, although inadequate infrastructure and weak institutional coordination limited implementation. Similarly, Okeke and Anaekwe (2023) found that digital administrative systems improved workflow efficiency but remained affected by infrastructural and procedural bottlenecks.

Overall, existing studies highlight that e-government systems improve operational efficiency and accessibility of public services. However, most previous studies have focused on national systems, revenue administration and institutional users, with limited attention to citizen measures of service efficiency and accessibility within highly urbanised local government authorities. Consequently, there remains insufficient empirical evidence regarding the effectiveness of e-government systems in improving service delivery in Kinondoni District, which this study seeks to address.

2.2.2 Challenges Affecting the Effective Implementation and Use of E-Government Systems

Although e-government has transformed public administration in many countries, its implementation continues to face numerous technological, organisational, financial, and institutional challenges. Payowela (2024), examining electronic record management in Morogoro Municipal Council, identified unreliable internet connectivity, inadequate management support, limited ICT expertise, staff resistance, and insufficient financial resources as the principal barriers affecting effective implementation. Similarly, Onkoronko and Mutembei (2024) found that stakeholder readiness, system usability, and long-term sustainability challenges constrained adoption of the TAUSI tax collection system in Mbeya City Council despite improvements in revenue collection.

Edmund (2024) demonstrated that reliable ICT infrastructure significantly influenced the effectiveness of electronic revenue collection systems in Korogwe Town Council, while Yusuf and Xiaoyun (2018) reported that organisational weaknesses, inadequate legal frameworks, and limited technical awareness hindered effective implementation of e-government systems in Ilala Municipal Council. Beyond Tanzania, Afieroho *et al.* (2023) identified poor inter-agency coordination, inadequate ICT infrastructure, and weak strategic planning as major constraints affecting successful implementation of e-government initiatives in Nigeria.

The reviewed literature consistently identifies inadequate ICT infrastructure, insufficient financial resources, weak technical capacity, and resistance to organisational change, low digital literacy, and limited management support as major barriers to successful implementation of e-government systems. However, existing studies provide limited evidence regarding the relative importance of these challenges within highly urbanised local government authorities characterised by high service demand and complex administrative environments. Moreover, few studies have comprehensively examined these implementation challenges in Kinondoni District. This study therefore seeks to bridge this gap by examining the challenges affecting the effective implementation and use of e-government systems in Kinondoni District.

III. METHODOLOGY

3.1 Research Design

This study adopted a pragmatist research philosophy, which allows the integration of quantitative and qualitative methods to provide a comprehensive understanding of complex social and administrative phenomena. Pragmatism focuses on addressing research questions using methods that best explain the phenomenon under investigation rather than being restricted to a single methodological approach (Saunders *et al.*, 2019). The choice of this philosophy was appropriate because the effectiveness of e-government systems involves measurable outcomes such as efficiency and accessibility as well as contextual issues such as institutional practices, user experiences, and implementation challenges. The study employed a mixed-methods research approach involving the collection and analysis of both



quantitative and qualitative data. Quantitative data enabled the measurement of the extent to which e-government systems influence public service delivery outcomes, while qualitative data provided information on institutional experiences, challenges and factors affecting implementation. According to Creswell and Creswell (2018), mixed-methods research enhances understanding of research problems by integrating numerical evidence with explanations.

A descriptive cross-sectional research design was adopted. Data were collected from respondents at a single point in time to assess the current status of e-government implementation and its contribution to service delivery in Kinondoni district. The design was appropriate because it enabled the researcher to describe existing conditions and examine relationships between e-government implementation, service delivery efficiency, accessibility and implementation challenges without manipulating study variables (Kothari, 2014).

3.2 Study Area

The study was conducted in Kinondoni District, one of the administrative districts of Dar es Salaam Region, Tanzania. Kinondoni is among the most densely populated and highly urbanized districts in the country, characterized by rapid urban growth and increasing demand for public services. The district was selected because it has adopted various e-government initiatives, including digital revenue collection systems, electronic administrative systems, and online public service platforms aimed at improving efficiency and accessibility of government services. The urban characteristics of Kinondoni and its increasing reliance on digital service delivery provide an appropriate area for examining the effectiveness of e-government systems in local government administration.

3.3 Target Population

The target population consisted of 135 employees of Kinondoni Municipal Council who were directly involved in the implementation, management, and daily use of e-government systems. The population included ICT officers, departmental heads, administrative staff, frontline service providers, and other system users. These categories were selected because they possess practical knowledge and experience regarding the functionality of e-government systems, their contribution to service delivery and the challenges affecting their effective implementation and use.

3.4 Sampling and Sample Size

The sample size was determined using Yamane's (1967) formula for calculating sample size from a known population:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size

e = level of precision (0.05)

Given a population of 135 staff:

$$n = 135 \{1 + 135(0.05)^2\} = 100$$

Therefore, the study involved approximately 100 respondents. The sample distribution was as follows:

Table 1

Sample Size Distribution

Category	Population	Sample Size
ICT Officers	15	10
Departmental Heads	25	18
Administrative Staff	40	30
Frontline Service Providers	30	25
System Users (General Staff)	25	17
Total	135	100

A combination of sampling techniques was used. Stratified sampling was applied to ensure representation of different categories of employees involved in e-government implementation. Simple random sampling was then used to select respondents from each category, giving employees an equal opportunity to participate. Purposive sampling was used to select key informants, including ICT officers and senior administrative officials, due to their specialized knowledge of e-government systems and implementation processes. Approximately 12-15 key informants were targeted for interviews with data collection continuing until information saturation was achieved.



3.5 Data Collection Instruments and Procedures

The study employed questionnaires and semi-structured interviews as the main data collection instruments. Structured questionnaires were administered to 100 sampled employees to collect quantitative data on e-government implementation effectiveness, service efficiency, accessibility, and implementation challenges. The questionnaire consisted mainly of Likert-scale questions that enabled measurement and statistical analysis of the study variables. Semi-structured interviews were conducted with purposively selected key informants to obtain detailed information regarding institutional experiences, system functionality, challenges and strategies for improving e-government implementation. Interviews provided contextual explanations that complemented quantitative findings.

To ensure validity, the research instruments were reviewed by research experts and ICT professionals to establish whether the items adequately captured the study objectives and variables. A pilot test was conducted among 10 respondents who were excluded from the final sample to identify weaknesses in the instruments and improve clarity. Reliability of the questionnaire was assessed using Cronbach's Alpha coefficient, with a value of 0.70 or above considered acceptable for internal consistency (Gliem & Gliem, 2003). The reliability results confirmed that the questionnaire items were sufficiently consistent for data collection.

3.6 Data Analysis

Quantitative data that was collected through questionnaires were coded, entered and analysed using IBM Statistical Package for Social Sciences (SPSS) Version 25. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize respondents' characteristics and perceptions regarding e-government effectiveness and service delivery. Inferential statistics such as Pearson correlation and regression analysis were employed to determine relationships between e-government implementation, service efficiency, accessibility, and implementation challenges. Qualitative data obtained from interviews were analysed using thematic analysis following the approach developed by Braun and Clarke (2006). The analysis involved transcription, coding, categorization of responses, identification of patterns and development of major themes related to e-government implementation and service delivery. Quantitative and qualitative findings were integrated during interpretation to provide a comprehensive understanding of the research problem.

3.7 Ethical Considerations

Ethical principles were observed throughout the research process. Permission to conduct the study was obtained from relevant authorities, including Mzumbe University and Kinondoni Municipal Council. Participation was voluntary and respondents were informed about the purpose of the study before providing informed consent. Confidentiality and anonymity were maintained by ensuring that participants' personal information was not disclosed and that collected data were used solely for academic purposes. The researcher also ensured that participants had the right to withdraw from the study at any stage without negative consequences.

IV. FINDINGS & DISCUSSION

4.1 Response Rate and Characteristics of Respondents

The study targeted a sample of 100 respondents drawn from different categories of staff involved in the implementation and use of e-government systems at Kinondoni District. Out of the 100 questionnaires distributed, 92 were successfully completed and returned, representing a response rate of 92%. The remaining eight questionnaires were not included in the analysis due to non-response. The response rate was considered adequate for statistical analysis because it exceeded the commonly recommended threshold of 70% for social science research (Babbie, 2016). The high response rate was attributed to the relevance of the study topic to respondents, effective coordination during data collection, and the fact that participants were directly involved in e-government implementation and service delivery activities. The respondents included ICT officers, departmental heads, administrative staff, frontline service providers, and other system users. Their involvement ensured that the study captured perspectives from both technical and operational users of e-government platforms. The quantitative findings presented in subsequent sections are therefore based on responses from 92 respondents ($N = 92$), while qualitative information was obtained from 9 key informants who were purposively selected based on their knowledge and experience with e-government systems.

**Table 2***Demographic Characteristics of Respondents Based on Valid Responses (N = 92)*

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	54	58.7
	Female	38	41.3
	Total	92	100
Age Group	18-30	21	22.8
	31-40	34	37.0
	41-50	23	25.0
	51+	14	15.2
	Total	92	100
Position	ICT Officers	18	19.6
	Administrators	26	28.3
	Department Heads	17	18.5
	Service Providers	21	22.8
	Others	10	10.8
	Total	92	100
Work Experience	below 3 years	19	20.7
	3-5 years	27	29.3
	6-10 years	25	27.2
	Above 10 years	21	22.8
	Total	92	100

4.1.1 Effectiveness of E-Government Implementation and Service Delivery

The first objective of the study was to assess the effectiveness of e-government implementation and its contribution to public service delivery in Kinondoni District. The effectiveness of implementation was measured using indicators including system functionality, usability, staff capacity, technical support, system integration and management commitment.

Table 3*Effectiveness of E-Government Implementation Based on Valid Responses (N = 92)*

Implementation Indicators	Mean	Standard Deviation
Systems are operational	3.80	0.90
Systems are user-friendly	3.60	1.00
Staff are adequately trained	2.90	1.10
Technical support is adequate	2.80	1.20
System integration exists	3.10	1.00
Management support is strong	4.00	0.80
Overall Mean	3.37	

The findings in Table 3 indicate that e-government implementation in Kinondoni District was moderately effective, with an overall mean score of 3.37. The results show that most respondents agreed that existing systems are operational (Mean = 3.80) and user-friendly (Mean = 3.60), indicating that the municipality has established functional digital platforms to support administrative activities and service delivery. Management support recorded the highest mean score (Mean = 4.00), demonstrating strong institutional commitment towards digital transformation. This suggests that leadership has played an important role in encouraging the adoption and use of e-government systems through policy direction and administrative support. However, the findings reveal weaknesses in staff capacity and technical support. Staff training (Mean = 2.90) and technical support (Mean = 2.80) received the lowest scores, suggesting that the existence of digital systems alone does not guarantee effective utilization. Limited technical capacity may reduce the ability of employees to maximize the benefits of e-government platforms.

The correlation analysis further showed a significant positive relationship between e-government implementation and service delivery.

Table 4*Correlation between E-Government Implementation and Service Delivery Based on Valid Responses*

Variable	Service Delivery
E-government Implementation	0.62**

$p < 0.05$



The correlation coefficient ($r = 0.62$) indicates that effective implementation of e-government systems is associated with improved service delivery. This implies that improvements in system functionality, usability, technical support and institutional commitment contribute positively to public service performance. Qualitative findings supported the quantitative results. Key informants acknowledged strong leadership commitment but highlighted weaknesses in training and system integration. One ICT officer explained:

“Management is supportive and encourages departments to use digital systems, but continuous training is still needed because some staff struggle with advanced system functions.” (Key Informant 3, March 15, 2026)

Another respondent noted:

“Different departments have their own systems, but they do not communicate effectively. Sometimes we still have to transfer information manually from one office to another.” (Key Informant 6, March 17, 2026).

These findings demonstrate that Kinondoni district has moved beyond the initial stage of digital adoption; however, challenges related to institutional capacity and interoperability continue to limit full effectiveness. The findings support Heeks (2003) e-Government Design-Reality Gap Model which argues that digital transformation initiatives in developing countries often experience implementation gaps when technological solutions are not aligned with organizational culture such as staff skills, infrastructure and administrative processes. The findings support the Technology-Organisation-Environment (TOE) Framework by Tornatzky et al. (1990) which explains that successful technology adoption depends on technological preparedness, organizational capacity and environmental support. In Kinondoni, leadership commitment represents strength whereas limited training and incomplete system integration represent organizational and technological weaknesses.

4.1.2 Contribution of E-Government Systems to Efficiency of Public Service Delivery

Efficiency was assessed using indicators including reduction of service processing time, accuracy, paperwork reduction, service speed, accessibility and customer satisfaction.

Table 5

Contribution of E-Government Systems to Service Efficiency Based on Valid Responses (N = 92)

Efficiency Indicators	Mean	Standard Deviation
Reduced service processing time	4.10	0.70
Improved accuracy of services	3.90	0.80
Improved accessibility	3.50	1.00
Reduced paperwork	4.20	0.60
Faster service delivery	4.00	0.70
Customer satisfaction	3.40	1.10
Overall Mean	3.85	

The findings indicate that e-government systems have significantly improved operational efficiency, with an overall mean score of 3.85. Reduction of paperwork recorded the highest score (Mean = 4.20) indicating that digital platforms have reduced dependence on manual documentation. Similarly, reduced processing time (Mean = 4.10) and faster service delivery (Mean = 4.00) demonstrate that digital systems have improved administrative efficiency. The relationship between efficiency and service delivery was examined using correlation analysis.

Table 6

Correlation between Efficiency and Service Delivery Based on Valid Responses

Variable	Service Delivery
Efficiency	0.71**

$p < 0.05$

The findings show a strong positive relationship ($r = 0.71$) between efficiency and service delivery. This indicates that improvements in processing speed, accuracy and workflow automation significantly contribute to better service delivery outcomes. Interview findings confirmed these results. A departmental officer stated:

“Previously, processing some services required several days because files had to move physically between offices. With the electronic system, the process is much faster because information can be accessed immediately.” (Key Informant 2, March 17, 2026)

Another respondent explained:



“The system has helped us track applications and know where delays occur. We no longer depend entirely on paper files.”(Key Informant 8, March 15, 2026)

However, the findings also indicate that improvements in internal efficiency have not fully translated into citizen satisfaction. Accessibility (Mean = 3.50) and customer satisfaction (Mean = 3.40) recorded lower scores compared with internal efficiency indicators. This suggests that some citizens continue to experience challenges related to internet access, digital skills and awareness of online services. These findings correspond with UN DESA (2022), which highlights that digital government improves administrative efficiency through automation and electronic service platforms. However, citizen-centred benefits often require additional investment in digital inclusion and public awareness.

4.1.3 Combined Effect of E-Government Implementation, Efficiency and on Service Delivery

Multiple regression analysis was conducted to determine the combined influence of implementation effectiveness, efficiency and challenges on service delivery.

Table 7

Regression Model Summary

R	R ²	Adjusted R ²
0.78	0.61	0.58

The findings indicate that the model explains 61% of the variation in service delivery outcomes. This demonstrates that e-government implementation, efficiency improvements and implementation challenges are important predictors of service delivery performance.

Table 8

Regression Coefficients

Predictor Variable	Beta (β)	Significance
E-government implementation	0.32	0.001
Efficiency	0.45	0.000
Challenges	-0.28	0.003

The findings indicate that efficiency had the strongest positive influence on service delivery ($\beta = 0.45$), followed by implementation effectiveness ($\beta = 0.32$). Conversely, challenges negatively influenced service delivery ($\beta = -0.28$). These results confirm that digital transformation requires more than introducing technology. Sustainable improvements require adequate infrastructure, skilled personnel, continuous support and citizen preparedness. Overall, the study demonstrates that e-government systems have improved service delivery in Kinondoni district; however, their full potential remains constrained by technological, organizational and user challenges. Strengthening ICT infrastructure, improving staff capacity, enhancing system integration and promoting citizen digital literacy are necessary for achieving sustainable digital transformation.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study assessed the effectiveness of e-government systems in enhancing service delivery in Kinondoni district. The findings indicate that e-government systems have positively contributed to public service delivery through improved efficiency, shorter processing times, better record management, increased transparency and greater accuracy in administrative operations. The adoption of digital platforms has enabled to modernize service delivery and reduce reliance on manual procedures. Despite these achievements, the effectiveness of e-government systems remains hindered by institutional, technical and infrastructural challenges. Although the district has shown commitment to digital transformation, implementation remains moderately effective due to inadequate staff training, limited technical support, weak system integration, unreliable internet connectivity and insufficient funding. These challenges limit the optimal use of existing systems and reduce their overall impact on service delivery.

The study further concludes that while e-government systems have significantly improved internal administrative efficiency, their influence on citizen outcomes remains moderate. Factors such as limited digital literacy, low public awareness, accessibility barriers and user experience challenges continue to affect citizens' ability to fully utilize electronic services. As a result, Kinondoni district can be regarded as being in a transitional stage of digital governance where notable progress has been made but important gaps still need to be addressed. Overall, the study



concludes that successful e-government implementation requires more than the availability of technology. It also depends on adequate infrastructure, organizational capacity, sufficient financial resources, skilled personnel and active citizen participation. Therefore, sustainable improvements in service delivery require a comprehensive approach that addresses technological, organizational and environmental factors simultaneously.

5.2 Recommendations

Kinondoni district should strengthen its ICT infrastructure by investing in reliable internet connectivity, modern technologies and backup systems to reduce system outage and improve overall system performance. The district council should also implement continuous training and capacity building programs for staff. Enhancing ICT skills will improve system utilization, increase employee confidence and support efficient service delivery. Efforts should be made to improve integration among e-government systems operating across departments. Greater interoperability will facilitate information sharing, reduce duplication of activities and improve organizational coordination and efficiency. Adequate financial resources should be allocated for system maintenance, upgrades and expansion. Sustainable funding is necessary to ensure the long-term effectiveness and reliability of digital systems. The municipality should invest in public awareness campaigns and digital literacy initiatives to encourage greater use of e-government services. These efforts should be complemented by the development of user-friendly platforms that are accessible to diverse groups of citizens. To address resistance to change, the municipality should implement effective change management strategies, including sensitization programs, staff engagement initiatives and leadership support to encourage acceptance and utilization of digital systems.

Finally, future e-government initiatives should adopt a more citizen approach by prioritizing accessibility, inclusiveness and user experience to ensure that digital services effectively meet the needs of all citizens. Future studies should undertake comparative research across different municipalities to identify variations in e-government implementation and service delivery outcomes. Further research should also focus on citizen perspectives, particularly regarding satisfaction, accessibility, trust, and utilization of e-government services. Longitudinal studies are recommended to examine how the effectiveness of e-government systems changes over time and to assess the sustainability of digital transformation initiatives in local governments. Additionally, future research should explore the contribution of emerging technologies such as artificial intelligence, mobile government applications, big data analytics and cloud computing in enhancing public service delivery and strengthening digital governance in Tanzania.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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