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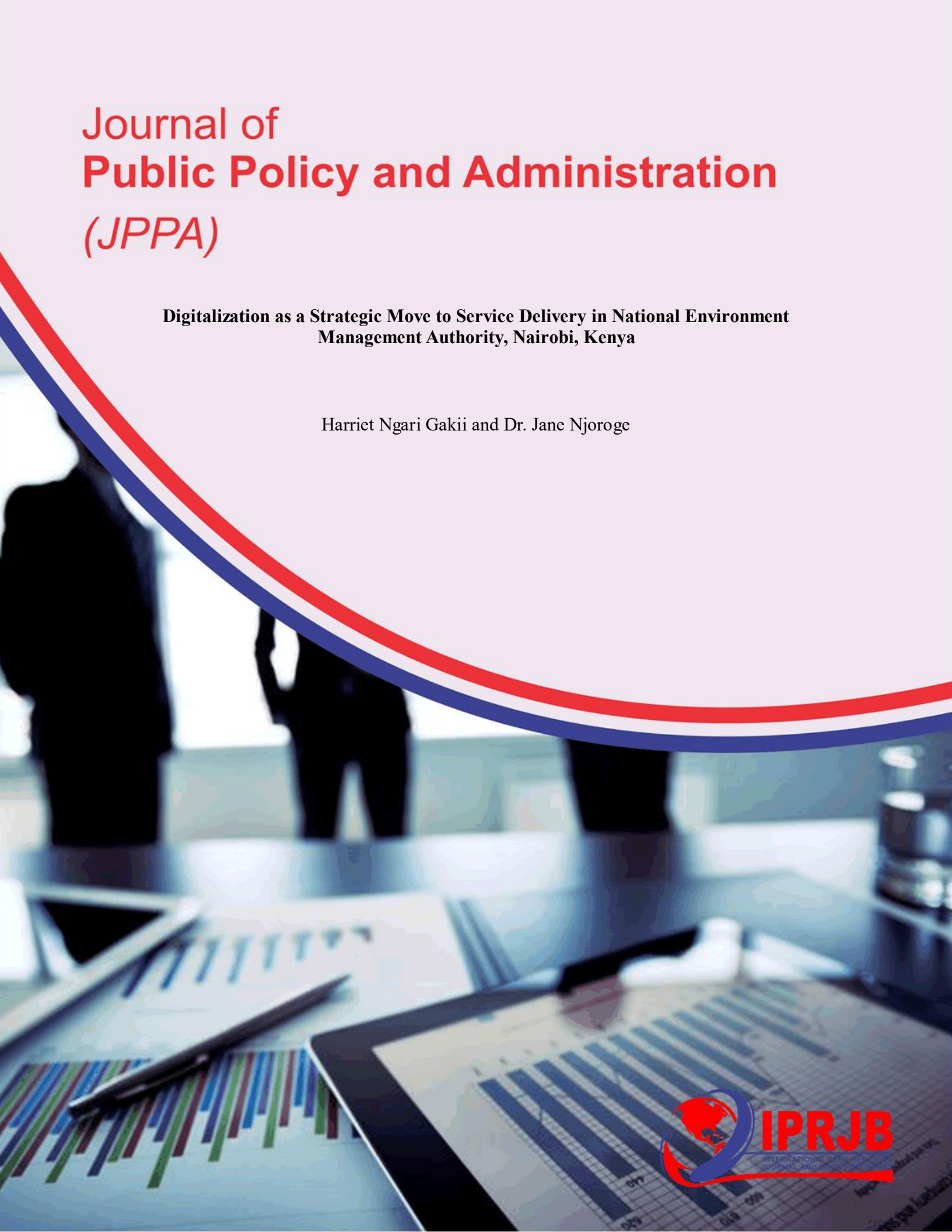

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Digitalization as a Strategic Move to Service Delivery in National Environment Management Authority, Nairobi, Kenya

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Abstract

Purpose: The study investigated the effect of digitalization on service delivery at the National Environment Management Authority (NEMA) in Nairobi, Kenya. Specifically, it examined how the adoption of digital tools, capacity building, accessibility of online platforms, responsiveness to public queries, and reliability of systems shape the effectiveness, accountability, and citizen satisfaction in environmental service provision.

Methodology: The study employed a descriptive research design targeting NEMA staff across key departments. A census approach was used, with 76 questionnaires distributed and all returned, representing a 100% response rate. Data were collected using structured questionnaires, and the reliability of instruments was confirmed (Cronbach's alpha > 0.7). Quantitative data were analyzed using SPSS version 25 through descriptive statistics, Pearson correlation, and multiple regression.

Findings: The findings showed that digitalization is moderately adopted at NEMA, with strengths in employee training and information dissemination but notable weaknesses in system reliability, timeliness, and responsiveness to public queries. Perceptions of service delivery were generally neutral, with gaps in professionalism, timeliness, and complaint resolution. Correlation analysis revealed a significant positive relationship between digitalization and service delivery ($r = 0.565$, $p < 0.001$). Regression results confirmed digitalization as a significant predictor ($\beta = 0.565$, $p < 0.001$), explaining 32% of the variance in service delivery.

Unique Contribution to Theory, Practice, and Policy: The study contributes to technology adoption theory and digital governance literature by providing empirical evidence that digitalization directly enhances efficiency, accountability, and citizen engagement in public service delivery. Practically, it highlights the importance of user-centered digital platforms, continuous staff capacity building, and transparent e-governance systems. Policy-wise, it provides insights for strengthening ICT infrastructure, improving responsiveness, and institutionalizing monitoring and evaluation frameworks to ensure sustainable digital transformation in public agencies.

Keywords: *Digitalization, Service Delivery, Environmental Governance, National Environment Management Authority*

JEL Codes: *O33, I38, Q58, H83, D73*

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INTRODUCTION

Effective service delivery remains a central mandate of public administration, encompassing the efficient, timely, transparent, and citizen-responsive provision of essential public services. In the contemporary digital age, digitization has emerged as a critical enabler of reform in the public sector, reshaping how services are conceptualized, implemented, and delivered to the public. In this context, service delivery refers specifically to the improvement of procedural efficiency, timeliness in public responses, administrative transparency, and citizen engagement in government operations.

Globally, countries such as Sweden, Estonia, and Canada have demonstrated the strategic potential of digital transformation in enhancing public sector performance. With the help of efficient e-government platforms, these countries have managed to cut down on red tape a great deal, and simultaneously they have also been able to make the agencies more transparent, and, in the long run, enhance citizen participation through critical public sectors like health, taxation, and the environment (Lindgren, Melin, & Sæbø, 2021; Haug, 2024). The countries that have taken these steps have seen the upshot in real-time service delivery, where the users' needs were taken more into account by the government.

On the other hand, there are African countries like Nigeria, Ghana, South Africa, and Uganda that face persistent challenges that hinder effective digital integration. Limited ICT infrastructure, digital illiteracy, corruption, and fragmented institutional frameworks are some of the structural challenges that prevent the public sector from transforming digitally (Akhakpe, 2019; Kyei, 2021; Shibambu, 2024). The recent literature in East Africa has recognized that the use of digital tools can be beneficial in enhancing service delivery, but at the same time, they have also pointed out that the weak implementation structure and poor inter-agency system interoperability have not allowed the digital tools to have the full intended effect (Ugwu et al., 2024).

In the case of the Kenyan public sector, it is evident that digitalization has gradually become means of improving service delivery. It will be an ambition that will be underpinned by Vision 2030 and the National Digital Master Plan. The work done by eCitizen, Huduma Centres, and online licensing platforms has been an eye-opener regarding the dedication of the country to the transformation of the state-citizen relationship (Murigu, 2020; Cherono, Nyang'au, & Mwalili, 2024). Nevertheless, there is still a long way to go as far as the governmental institutions' efficiency is concerned, and the problems are particularly visible in regulators such as the NEMA. It has been observed with NEMA that some of its important functions, such as issuing EIA approvals and toughening up and simplifying compliance, have been done away with to some extent by delays in following the proper procedures, lack of clarity, and lack of strong enforcement (Transparency International Kenya, 2022; EACC, 2021).

The study presented serves as a potential point of digitalization, being a strategic tool to enhance the quality of service provision at NEMA, with a twist of how procedural efficiency, transparency, and stakeholder responsiveness can be achieved. This way, the research aspires to contribute to the discussion on digital governance and institutional performance in the public sector of Kenya, in a more general way.

Statement of the Problem

NEMA holds the mandate for the regulation and supervision of environmental governance in Kenya. However, the Nairobi office, as its headquarters has been the place where it is situated, is facing quite a number of service provision problems. They are quite frustrating and persistent issues like very long EIA approval processes, ineffective pollution monitoring, complaints from the public that remain unsolved, and corruption rumors that periodically arise around the licensing process of the NEMA (NEMA, 2023; EACC, 2021). In case we provide more specific instances, performances of the last few months show that more than 40% of building projects in Na irobi were delayed due to EIA approval process, while 35% of pollution-related complaints were still pending beyond their deadlines. Apart from that, both businesses and individuals are not happy about the enforcement of compliance; there are very few, if any, willing to do smoke testing, which they say is not clear-cut and is tedious (Transparency International Kenya, 2022).

Even though the existing researches have explored the governance aspects like the participation of stakeholders, accountability, and lack of resources as the main factors in the slow public service delivery, few if any have investigated the dynamics of the intersection between digitalization and the service delivery in the environmental regulatory bodies. Most of the studies on the digital governance of Kenya are carried out in reference to the national system with key projects in the major sectors and pointing to the citizenry online networks like the Ecitizen and Huduma Centers (Sangwa & Mutabazi, 2025). As a result, with a little scientific investigation, the question of how digital tools can be strategically applied to improve service delivery at the NEMA still remains very vital.

The situation created by the knowledge gap is extremely critical when viewed from a New Public Management (NPM) theory angle, as it places top priority on efficiency, performance measurement, responsiveness, and bringing in private-sector practices like technology integration into state bureaucracy. Through the prism of NPM, the use of digital tools is seen not only as an upgrade from current technologies but rather a reform meant to open up the system, reduce the existing red tape, and consequently, make the people happy. Nevertheless, notwithstanding the increasing general global public service enterprise transformation through at least the digital way, there has been no single specific and focused empirical investigation into the strategic use of digitalization in the service delivery framework of NEMA in Nairobi.

To bridge the digital divide, this research is aimed at investigating the effect of digitalization on service delivery at NEMA with special reference to the NPM's principal. The findings are hoped to put forward research-based insights to transform the institutional environment and guide the process of digital governance reforms in the environmental sector in Kenya.

LITERATURE REVIEW

This section reviews empirical studies, theoretical foundations, and the conceptual framework of the study. It focuses on how digitalization has been applied in public administration and its effect on service delivery, while also identifying gaps that justify the current research.

Theoretical Framework

This research is based on two symmetrical theories, which define technology adoption by public service organizations: the Technology Acceptance Model (TAM) and the Diffusion of Innovation (DOI) Theory. The primary goal of the study is to show how digital transformation can be embedded within environmental regulatory agencies, like NEMA, with the help of these concepts. The TAM theory was constructed by Davis (1989) with the main focus of technological adoption at the personal level. It claims that the decision to use a new technology is influenced by two main factors: 'perceived usefulness', or the level of an individual's belief that technology is enhancing job performance, and 'perceived ease of use', the extent to which the technology is free of effort. In the NEMA context, TAM gives a cue to how the use and perception of e-tools and digital tools like e-licensing systems, online EIA platforms, or digital complaint resolution portals by employees and clients are interrelated. Service improvements in terms of efficiency, timeliness, and responsiveness are possible as a consequence of the usage of the systems if they are both seen as highly useful and very easy to learn. On the other hand, highly complex or unreliable technologies will provoke the employees' negative resistance, which will then affect the service quality.

The DOI theory, innovated by Rogers (2003), studies how new technologies and ideas are carried and absorbed by a social or organizational system. The core of the theory is the five innovation attributes that are playing a major role in the adoption process: relative advantage, compatibility, complexity, trialability, and observability. Within NEMA, DOI theory is instrumental in explaining why certain digital innovations, such as Geographic Information Systems (GIS) for pollution tracking, remote sensing tools for environmental compliance, or real-time environmental monitoring dashboards, gain traction, while others stagnate. Innovations that are perceived to offer clear advantages, align with existing operational practices, and are demonstrably effective are more likely to be integrated across departments. For example, automated air quality monitoring tools may be more readily adopted than complex predictive modeling software if they are easier to trial and generate clear, immediate benefits for staff and stakeholders.

Together, TAM and DOI offer a comprehensive analytical framework. While TAM emphasizes individual acceptance based on usability and perceived benefits, DOI contextualizes these choices within broader organizational dynamics and environmental governance structures. Constructs such as perceived usefulness from the TAM and relative advantage from the DOI theory both address how digital systems can improve regulatory efficiency, whereas ease of use and complexity overlap in their focus on minimizing technical barriers to adoption. DOI also extends TAM by introducing trialability and observability, which help reduce uncertainty and support the gradual acceptance of innovations. Moreover, compatibility in DOI reinforces ease of use in TAM by lowering resistance where digital tools align with existing workflows.

For clarity, this study defines digitalization as the strategic integration of digital technologies, systems, and data-driven processes, including platforms such as GIS, online licensing portals, mobile applications, and real-time monitoring systems into public service operations to improve efficiency, transparency, responsiveness, and citizen engagement. This encompasses not only the technical systems but also the enabling infrastructure, institutional readiness, and user culture necessary to sustain digital transformation in environmental governance.

Although extensive research exists on digital governance and service delivery in health, finance, and education sectors in Kenya, limited attention has been paid to how digitalization operates within environmental regulatory frameworks, particularly at the agency level. Moreover, existing studies rarely apply TAM or DOI in combination to understand both the individual acceptance and organizational diffusion levels of digital transformation in the public sector. Specifically, there is a lack of empirical work examining the adoption and diffusion of tools such as GIS, real-time environmental monitoring, and online compliance systems in agencies like NEMA.

This study addresses that gap by applying TAM and DOI to analyze how digitalization affects service delivery in the environmental regulatory context. In doing so, it contributes a theoretically grounded and empirically informed understanding of how digital systems can be harnessed to strengthen institutional performance and accountability in environmental governance.

Empirical Review

Digitalization and Service Delivery

Meru and Kinoti (2022) examined digitalization in Kenya's public sector, highlighting the transformative role of digital platforms in service delivery across health, tax administration, and land services. Their descriptive study revealed that digital tools help reduce procedural delays and enhance operational efficiency. However, the study adopted a broad national focus and did not assess specific public institutions like the NEMA, limiting its direct applicability to regulatory agencies managing environmental compliance.

Kemboi (2022) focused on the insurance sector in Kenya, using a descriptive survey of 56 insurance firms to assess the impact of automation on service delivery. The study found that digital tools significantly improved efficiency, although many firms still depended on manual systems. While the findings underscore the benefits of digitization in streamlining operations, the study centers on private-sector dynamics, presenting a contextual gap in understanding how digitalization influences performance in public-sector regulatory bodies.

At the international level, Filgueiras, Flavio, and Palotti (2019) conducted a large-scale analysis of Brazil's federal government involving over 1,700 services. Their mixed-methods approach concluded that digital transformation led to improved responsiveness and administrative efficiency, primarily due to institutional restructuring and technological integration. Although relevant, the study's non-African context limits its applicability to the Kenyan institutional and policy environment.

Xavier (2021) explored digitalization in Malaysia's public sector and reported that over 90 percent of government services had migrated online, largely due to alignment with national development agendas and investment in ICT infrastructure. Governance frameworks were identified as critical success factors. However, the study relied exclusively on secondary data, reducing its empirical validity in agency-specific contexts such as environmental regulation, where localized primary evidence is essential for policy relevance.

From the above analysis, it is evident that digitalization is widely recognized as a strategic enabler of improved service delivery, particularly in terms of enhancing efficiency, transparency, and responsiveness. Nonetheless, most existing studies suffer from either a sectoral or contextual gap.

Specifically, there remains a lack of empirical research on how digital technologies influence service delivery within environmental regulatory institutions in Nairobi. While sectors such as health, education, and finance have been extensively studied, environmental governance remains underexplored, particularly in agencies like NEMA that handle highly technical, compliance-oriented services.

Another critical gap lies in understanding the internal institutional dynamics that affect the success or failure of digitalization initiatives. Future studies should explore how factors such as staff perceptions, organizational readiness, and resistance to technological change influence digital adoption and service delivery outcomes. Such research would offer valuable insights into the human and institutional dimensions of digital transformation areas that are often overlooked in technologically focused studies. The current study addresses these gaps by focusing specifically on digitalization within NEMA and by examining both the technological tools and the institutional context that shape their adoption.

Conceptual Framework

This study conceptualizes digitalization as the independent variable, operationalized through indicators such as technology adoption, online service accessibility, and the effectiveness of digital communication. These dimensions reflect the extent to which digital tools and platforms are integrated into NEMA's operations. Service delivery is the dependent variable, examined through measures of service quality, operational efficiency, and the handling of public complaints. The framework assumes that increased digitalization leads to improvements in these key aspects of service delivery at NEMA in Nairobi.

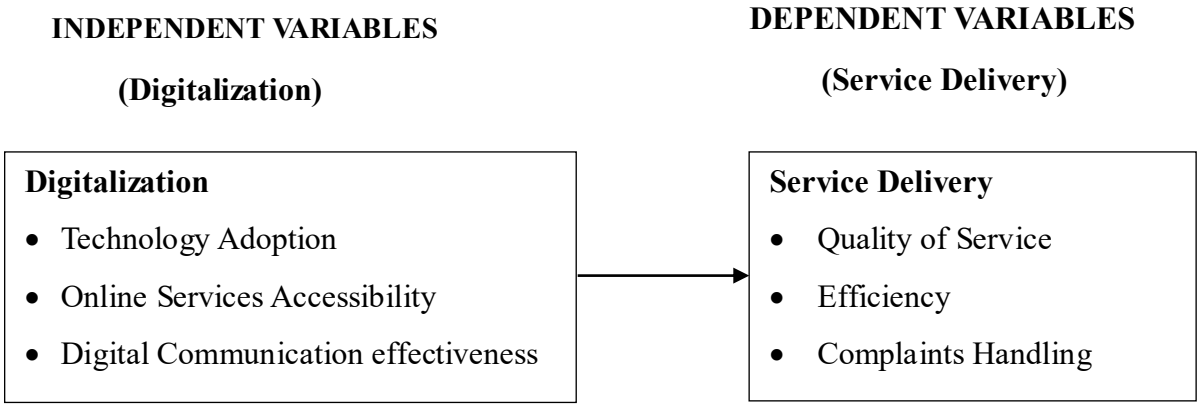

Figure 1: Conceptual Framework

METHODOLOGY

The study adopted a descriptive survey design, which is appropriate for collecting data on perceptions, attitudes, and behaviors without manipulating variables. This design enabled the researcher to assess the relationship between digitalization and service delivery using both descriptive and inferential statistics. As noted by Mugenda and Mugenda (2009) and Creswell (2014), descriptive surveys are particularly effective in social science research for exploring how governance practices influence institutional performance.

A target population of 250 workers at NEMA from departments engaged in the actual service delivery was selected. These departments included Legal Services, Environmental Enforcement, Environmental Compliance, Environmental Services, Corporate Strategy and Planning, Corporate Services, Supply Chain Management, and the Internal Audit Unit (NEMA, 2023). Stratified random sampling was adopted to achieve representativeness. Each department served as a stratum, and 30% of staff were randomly selected from each stratum. This method of sampling reduces bias while ensuring a proportional representation of persons in each department. Following Mugenda and Mugenda's (2003) recommendation of a 10–30% sample for populations under 10,000, the study applied the upper threshold of 30%, resulting in a total sample size of 76 respondents.

Primary data was collected using semi-structured questionnaires divided into demographic information, digitalization indicators, and service delivery variables. Responses were measured using a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), allowing for standardized quantitative analysis.

A pilot study was conducted with 15 NEMA staff based in Kiambu County to test the questionnaire's clarity and reliability. Feedback from the pilot led to revisions that improved question wording and eliminated redundancy.

The validation of the content was carried out through expert reviews. Construct validity was addressed by aligning items in the questionnaire with theoretical constructs. To test the reliability of the instrument, Cronbach's Alpha was used. All constructs returned coefficients above the 0.70 threshold, confirming strong internal consistency across the measurement items. The quantitative data was subjected to statistical analysis using SPSS Version 26. Descriptive statistics, namely means, frequencies, and standard deviations, were performed to summarize the data. Inferential statistics, including Pearson correlation and multiple regression analysis, were employed to test relationships and determine the predictive power of digitalization on service delivery. Open-ended responses were thematically analyzed to complement the quantitative findings.

The relationship between digitalization and service delivery was modeled using the following multiple regression equation:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon \quad \text{[Equation 1]}$$

Where:

- **Y** = Service Delivery (dependent variable)
- $\mathbf{X_1}$ = Digitalization (independent variable)
- $\boldsymbol{\beta_0}$ = Constant
- $\boldsymbol{\beta_1}$ = Coefficient measuring the effect of digitalization
- $\boldsymbol{\varepsilon}$ = Error term

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RESULTS AND DISCUSSION

The study assessed the role of digitalization in shaping service delivery at NEMA in Nairobi. Respondents indicated their level of agreement with various statements on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Digitalization and Service Delivery

The objective of the study was to examine the effect of digitalization on service delivery within NEMA. Respondents were asked to rate statements on adoption, capacity, access, responsiveness, and system reliability. The results are presented in Table 1.

Table 1: Descriptive Statistics on Digitalization and Service Delivery

Statement	Mean	SD
NEMA has adopted modern digital tools to support environmental governance.	2.95	1.45
Employees are regularly trained on the use of new digital systems.	3.08	1.38
Environmental services are accessible through online platforms.	2.95	1.54
The organization effectively uses digital platforms to disseminate information.	3.04	1.39
Public queries through digital channels receive timely and appropriate responses.	2.82	1.50
The online systems are user-friendly and available without frequent downtimes.	2.97	1.46
Overall Mean and SD	**2.97**	**1.45**

The mean score for employee training on the use of new digital systems was 3.08 with a SD of 1.38, while effective use of digital platforms to disseminate information recorded a mean of 3.04 with a SD of 1.39. Adoption of modern digital tools to support environmental governance had a mean of 2.95 with a SD of 1.45, while accessibility of environmental services through online platforms also scored a mean of 2.95 with a SD of 1.54. Public queries through digital channels received the lowest rating, with a mean of 2.82 and a SD of 1.50, while the user-friendliness and reliability of online systems scored 2.97 with a SD of 1.46. The overall average for the construct was 2.97 with a SD of 1.45, indicating a neutral to moderately positive perception of digitalization at NEMA. These findings are consistent with those of Haug (2024), who noted that digitalization enhances internal communication and coordination within public institutions, though such benefits are often limited by infrastructural and connectivity challenges. Similarly, Madaki, Kamsuriah, and Singh (2025) emphasized that poor user-centered design and limited ICT infrastructure continue to hinder the successful adoption of digital reforms in public sector agencies in developing countries.

Service Delivery

Service delivery was assessed through perceptions of satisfaction, professionalism, timeliness, de-bureaucratization, complaint handling, and accessibility of grievance mechanisms. The findings are provided in Table 2.

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Table 2: Descriptive Statistics on Service Delivery

Statements	Mean	SD
The public is generally satisfied with the quality of environmental services provided by NEMA.	3.01	1.42
Clients are satisfied with the professionalism of service delivery.	2.88	1.40
Services are delivered within a reasonable time frame.	2.79	1.37
NEMA works to reduce bureaucratic delays in delivering services.	2.82	1.59
Complaints related to environmental services are addressed promptly.	2.80	1.49
There is a clear and accessible mechanism for lodging and tracking complaints.	3.01	1.24
Overall Mean and SD	**2.89**	**1.42**

The mean score for public satisfaction with the quality of services was 3.01 with a SD of 1.42, while clear mechanisms for lodging and tracking complaints also scored 3.01 with a SD of 1.24. Client satisfaction with professionalism recorded a mean of 2.88 with a SD of 1.40, while prompt handling of complaints had a mean of 2.80 with a SD of 1.49. Timeliness of service delivery was rated lowest, with a mean of 2.79 and a SD of 1.37, while efforts to reduce bureaucratic delays scored 2.82 with a SD of 1.59. The overall average for the construct was 2.89 with a SD of 1.42, indicating generally neutral perceptions of service delivery. These findings echo those of Anguche, Kimani, and Ndururi (2024), who observed that although Nairobi's e-government services improved accessibility and complaint resolution, challenges in professionalism and timeliness persisted. In addition, bureaucratic inefficiencies remain a documented barrier to effective governance, especially in resource-constrained settings (Beevers, Douven, & Leentvaar, 2020).

Correlation Analysis

To test the relationship between digitalization and service delivery, Pearson correlation analysis was conducted, and the findings are indicated in Table 3.

Table 3: Correlation between Digitalization and Service Delivery

Variable	Service Delivery	Digitalization
Service Delivery	1	
Digitalization	0.565*	1

*Correlation is significant at $p < 0.01$ (2-tailed).

Digitalization and service delivery were positively and significantly correlated ($r = 0.565$, $p < .001$). This suggests that increased adoption of digital tools is associated with improved service delivery. This result corresponds with findings by Ibrahim (2025), who reported a moderate positive correlation ($r \approx 0.556$, $p < .001$) between digital technology adoption and service quality in Ghana's public sector (Ibrahim, 2025).

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Multiple Regression Analysis

This section summarizes the regression results showing how digitalization predicts service delivery at NEMA. It covers the model's overall fit, statistical significance, and the strength and direction of the effect, with each table followed by interpretation supported by recent empirical studies.

Table 4. Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.565	0.320	0.311	0.628

The model's $R^2 = 0.320$ indicates that 32.0% of the variance in service delivery is explained by digitalization. In public sector research, this proportion is meaningful given that outcomes are influenced by multiple factors, including institutional capacity, human resources, and policy frameworks. This result aligns with Ibrahim (2025), who found that digital technology adoption significantly predicted service quality in Ghana's public sector, with a beta coefficient of $\beta = 0.315$ ($p < 0.001$). Similarly, Wandabwa (2025) reported that e-government adoption, particularly through digital licensing and application systems, significantly predicted performance outcomes in Kenya's public service institutions.

Analysis of Variance

ANOVA was employed to test whether the regression model provides a better fit than a null model with no predictors.

Table 5: ANOVA for Digitalization and Service Delivery

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.400	1	22.400	56.870	0.000
	Residual	47.599	74	0.643		
	Total	**69.999**	**75**			

The model was highly significant ($F = 56.870$, $p < .001$), confirming that digitalization reliably predicts service delivery. This is consistent with findings by Shibambu (2024), who showed that digital transformation in South Africa promotes effectiveness, accountability, and transparency in public services when supported by institutional frameworks. However, Mbae, Dick-Sagoe, & Odoom (2025) cautioned that even though statistical associations are strong, e-service initiatives in Botswana suffer from infrastructural weaknesses and interoperability limitations that may slow their practical impact (Mbae, Dick-Sagoe, & Odoom, 2025).

Regression Coefficients

Coefficients quantify the direction and magnitude of the predictor's effect on service delivery.

Table 6: Regression Coefficient for Digitalization

Predictor	B	Std. Error	β	t	Sig.
Constant	1.845	0.227	–	8.130	0.000
Digitalization	0.411	0.054	0.565	7.542	0.000

The standardized coefficient ($\beta = 0.565$, $p < .001$) indicates that a one-standard-deviation increase in digitalization results in a 0.565 standard deviation increase in service delivery. This demonstrates that digitalization is a strong lever for improving service performance at NEMA. This direction and significance echo the findings of Ibrahim (2025), who reported a significant positive influence of digital technology adoption on service delivery in Ghana's public sector ($\beta = 0.315$, $p < .001$).

Regression equation model:

$Y=1.845+0.411X_3+\varepsilon$……..[Equation 2]

Discussion

The findings reveal that while NEMA has begun integrating digital tools, adoption remains partial and uneven. Training and information dissemination scored higher, reflecting progress in internal capacity building. However, responsiveness to public queries and the online accessibility of services remain weak spots. The positive and significant correlation ($r = 0.565$) and regression coefficient ($\beta = 0.565$, $p < .001$) affirm that digitalization enhances efficiency, accountability, and citizen satisfaction. These results are consistent with Ugwu et al. (2024), who documented how digital governance reforms in East Africa improved performance outcomes such as transparency and service responsiveness in public sector agencies. Concurrently, the neutral perceptions regarding timeliness, user-friendliness, and system reliability point to persisting systemic gaps. In their review of smart city governance, Tan and Taeihagh (2020) argued that digital reforms in developing countries often face infrastructural, regulatory, and usability barriers, underscoring the need for stronger ICT investments and institutional reforms.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study examined the effect of digitalization on service delivery at NEMA, Nairobi. Results indicated moderate adoption of digital practices, with strengths in staff training and information sharing but weaknesses in timeliness, responsiveness, and user-friendliness (overall mean = 2.97, SD = 1.45). Service delivery was perceived as generally neutral (overall mean = 2.89, SD = 1.42), with gaps in professionalism and complaint resolution. Correlation results showed a significant positive association between digitalization and service delivery ($r = 0.565$, $p < .001$). Regression analysis confirmed digitalization as a significant predictor ($\beta = 0.565$, $p < .001$), explaining 32% of the variance in service delivery.

Conclusion

The study concludes that digitalization has a positive and significant effect on service delivery at NEMA. Adoption of online platforms, training programs, and digital communication tools enhances efficiency, accountability, and public trust. However, weaknesses in user-friendliness, system reliability, and responsiveness limit the effectiveness of digital governance. Overall,

digitalization emerges as a strategic governance mechanism for improving accountability, inclusivity, and citizen engagement.

Recommendations

Based on the findings, the study recommends strengthening ICT infrastructure by upgrading and expanding digital systems to ensure real-time service delivery, minimize downtime, and improve system reliability. Continuous staff training should be institutionalized through digital literacy programs to enhance competence and adaptability to evolving technologies. To improve user experience, NEMA should redesign online platforms with user-centered approaches that enhance accessibility, usability, and inclusivity for diverse citizen groups. Responsiveness to public queries can be improved by establishing clear service timelines and incorporating interactive tools such as FAQs, automated chatbots, and mobile applications. In addition, transparency should be promoted through mechanisms for publishing compliance, enforcement, and service data online to enhance accountability and public trust. Finally, integrating monitoring and evaluation (M&E) systems is essential for tracking system performance, user satisfaction, and service outcomes, thereby ensuring continuous improvement of digital platforms.

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