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Digital Governance and Sustainable Development Administration in Nigeria

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ABSTRACT: Digital governance has emerged as a critical tool in public administration due to its potential to improve service delivery, transparency, accountability, and administrative efficiency. This study assessed the influence of the dimension of digital governance on Nigeria's sustainable development administration. The variables of digital governance considered include digital service delivery, digital transparency and accountability, and digital administrative efficiency. A cross-sectional survey design was adopted, and 384 questionnaires were administered to public-sector administrators and civil servants in selected ministries, departments, and agencies in Nigeria. Out of the questionnaires administered, 362 (94.27%) were duly filled and returned for analysis. Descriptive statistics, Pearson Product Moment Correlation, and multiple regression were used in analyzing the data. The results showed a significant positive relationship between Nigeria's sustainable development administration and the indices of digital service delivery ($r = .701$, $p < .01$), digital transparency and accountability ($r = .674$, $p < .01$), and digital administrative efficiency ($r = .739$, $p < .01$). In addition, the result of the regression analysis indicated that the variables of digital governance predicted Nigeria's sustainable development administration significantly ($R = .801$, $R^2 = .642$, adjusted $R^2 = .639$, $F = 304.618$, $p < .001$). Specifically, digital service delivery ($\beta = .291$, $p < .001$), digital transparency and accountability ($\beta = .255$, $p < .001$), and digital administrative efficiency ($\beta = .431$, $p < .001$) predicted the dependent variable significantly. Based on the study's findings, it is recommended that digital governance institutions be strengthened to enhance Nigeria's sustainable development administration.

Keywords: Digital Governance; Digital Service Delivery; Digital Transparency; Administrative Efficiency; Sustainable Development.

INTRODUCTION

Digital governance has turned to be a significant aspect of modern public administration as governments worldwide are turning to digital technologies to improve administrative functions, public services, information and data management, and citizen relations. Thus, the shift from traditional administrative models to digital governance is viewed by many as a chance to increase efficiency, transparency, and accountability in public administration, as well as elevate access and responsiveness to citizens' needs. United Nations Department of Economic and Social Affairs (UN DESA, 2024) notes that digital government can enhance public administration and advance progress towards

the Sustainable Development Goals (SDGs), while United Nations Development Programme (UNDP, 2022) reports that digital governance can improve public service efficiency, continuity, openness, and citizen participation. Castro and Lopes (2021) identify digital government as a tool to promote sustainable development by improving government efficiency, transparency, service quality, and citizen participation.

The significance of digital governance in sustainable development administration emerges from its ability to enhance the formulation, implementation, coordination, and monitoring of development programmes by public institutions. Sustainable development necessitates capable public institutions that utilize scarce resources efficiently and effectively to meet social, economic, and environmental needs in present and future generations. Digital governance can facilitate this process through integrated information systems, online public services, digital records, data-informed decision making, and improved intergovernmental and government-citizen communication. Castro and Lopes (2021) report that digital government is associated with increased efficiency in resource utilization and improvements in institutional conditions that are conducive to sustainable development. Likewise, UN DESA (2024) views digital government as a framework for achieving sustainable development through effective, inclusive, and accountable public institutions, while Erin et al. (2024) demonstrate that public-sector transparency in Sub-Saharan Africa is positively associated with social, economic, and environmental dimensions of sustainable development.

In Nigeria, the push towards digital governance has been informed by national policy that seeks to strengthen digital infrastructure, government services, digital skills, and institutional capacity. National Digital Economy Policy and Strategy (NDEPS) highlights service infrastructure, government digital services, digital literacy and skills, solid infrastructure, and soft infrastructure as crucial pillars of Nigeria's digital transformation agenda (National Information Technology Development Agency [NITDA], 2020). NITDA also identifies effective digital governance, digital public infrastructure, digital inclusion, e-government services, and the digitalization of government service delivery as areas of public-sector transformation. These policy orientations indicate that digital governance is increasingly viewed as an administrative tool for improving government performance and advancing sustainable development objectives.

Despite these policy initiatives, Nigeria's digital governance agenda encounters institutional, infrastructural, human-capital, and implementation challenges that impede its ability to achieve its intended objectives. Shenkoya (2023) reports that while digital transformation can improve public governance transparency and accountability in Nigeria, technological infrastructural challenges, including inadequate high-speed internet, poor data infrastructure, and weak intergovernmental communication, constrain its effectiveness. In Cross River State, Inakefe et al. (2023) also demonstrate that inadequate digital literacy and insufficient in-service training impede the implementation of e-governance and its impact on service delivery. UN DESA (2024) concurs that digital transformation does not guarantee inclusive and effective governance because of persistent infrastructural, digital inclusion, institutional, data governance, and cybersecurity challenges.

While extant studies have established the links between digital government, public service delivery, transparency, accountability, and sustainable development, there is a need to explore digital governance as an administrative tool for sustainable development administration in Nigeria. Most of the Nigerian studies examined the role of digital governance in promoting e-government, service delivery, transparency, accountability, and digital literacy, rather than investigating how digital governance could transform sustainable development administration. Inakefe et al. (2023), for example, focused on the role of digital literacy in e-governance adoption in the Cross River State Civil Service, while Shenkoya (2023) explored the impact of digital transformation on transparency and accountability in public governance. However, international studies demonstrate that digital government can influence various dimensions of sustainable development through improved administrative efficiency, transparency, participation, service delivery, and institutional performance (Castro & Lopes, 2021; UNDP, 2022; UN DESA, 2024). It is in this regard that this study seeks to examine digital governance and sustainable development administration in Nigeria, with a focus on digital service delivery, digital transparency and accountability, and digital administrative efficiency.

Statement of the Problem

Sustainable development administration in Nigeria continues to be confronted with the imperatives of improving public service delivery, managing public resources efficiently and effectively, responding to citizens' needs, and implementing development policies. However, the adoption of digital governance has been mooted as a tool for transforming sustainable development administration. Digital platforms can help improve service delivery, increase access to government information, enhance institutional transparency, and improve intergovernmental and government-citizen communication. However, the mere existence of digital platforms does not guarantee improved administrative performance, especially when institutional, infrastructural, human-capacity, and implementation issues persist. UN DESA (2024) reports that significant disparities exist in digital government development, particularly between regions and between national and local levels, while UNDP (2022) emphasizes the need for institutional reforms and appropriate capacity in digital transformation rather than technology per se. Likewise, Castro and Lopes (2021) assert that the developmental benefits of digital government are conditional on the extent to which digital transformation improves the effectiveness and efficiency of government institutions.

The uniqueness of the Nigerian situation emanates from the fact that digital governance initiatives are implemented in a policy environment that is characterized by infrastructural challenges, uneven institutional digital capacity, fragmented systems, and implementation problems. Shenkoya (2023) reports that inadequate technological infrastructure, weak data infrastructure, and poor intergovernmental communication can constrain the ability of digital transformation to enhance transparency and accountability in Nigeria.

In Cross River State, Inakefe et al. (2023) also demonstrate that inadequate digital literacy and insufficient training impede the ability of e-governance to improve service delivery. In addition, the UN DESA (2024) highlights digital infrastructure, human capacity, inclusion, data governance, and cybersecurity as enablers of effective digital government. These issues raise a critical question about the extent to which digital governance is entrenched in Nigeria's development

administration to enhance sustainable development.

The major problem, therefore, is that although there is growing interest in the capacity of digital governance to improve sustainable development administration, the extent to which it can be a tool for promoting transparency, accountability, service delivery, and institutional efficiency in Nigeria's development administration is poorly understood. While the extant literature demonstrates the potential of digital transformation to improve transparency, accountability, service delivery, and institutional efficiency, little attention has been paid to exploring the combined effect of these issues on sustainable development administration in Nigeria. This raises the central question of what aspects of digital governance can improve sustainable development administration and whether digital governance could be a tool for translating technological investments into sustainable institutional outcomes. The fact that public transparency is positively associated with sustainable development in Sub-Saharan Africa (Erin et al., 2024) and that digital government can promote sustainable development (Castro & Lopes, 2021; UN DESA, 2024) provides justification for investigating the relationship in the Nigerian context.

Objectives of the Study

The objectives are to:

i. determine the influence of digital service delivery on sustainable development administration in Nigeria;
ii. assess the influence of digital transparency and accountability on sustainable development administration in Nigeria; and
iii. determine the influence of digital administrative efficiency on sustainable development administration in Nigeria.

Research Hypotheses

The following null hypotheses were formulated in the course of this research:

H01: Digital service delivery has no significant influence on sustainable development administration in Nigeria.

H02: Digital transparency and accountability have no significant influence on sustainable development administration in Nigeria.

H03: Digital administrative efficiency has no significant influence on sustainable development administration in Nigeria.

LITERATURE REVIEW

Conceptual Review

Digital Governance

The concept of digital governance is concerned with the application of digital technologies and information systems to enhance government administrative processes as well as to improve government-citizen interaction. In this regard, digital governance goes beyond the simple computerization of government functions to involve the application of digital technologies and information systems in policy processes, public administration, service delivery and intergovernmental coordination. Castro and Lopes (2022) found that the phenomenon of digital transformation has the potential to strengthen transparency, accountability and administrative efficiency; while digital government has the capacity to enhance integrated public services and sustainable development. Ravšelj et al (2022) explained that digital technologies have become an integral part of current public administration and governance practices, and identified the emergence of Digital Era Governance. Meanwhile, UN DESA (2024) stated that digital government had become an important instrument of enhancing public institutions and accelerating sustainable development.

Digital governance also entails transforming administrative processes in order to make government more responsive, integrated, accessible and efficient. Lindquist (2022) observed that digital-era reforms had introduced novel forms of organization of public services, information and administrative processes, rather than simply substituting paper-based technologies with electronic means. In the Nigerian context, Inakefe et al (2023) found that digital literacy and capacity of public employees to apply digital technologies were crucial to the implementation of e-governance and service delivery. The study therefore shows that digital governance is predicated on technological infrastructure as well as institutional capacity and human skills. This is consistent with the position of UN DESA (2024) which identifies digital capacity and institutional development as key elements of effective digital transformation.

Sustainable Development Administration

The notion of sustainable development administration centres on the fact that public policies and administrative actions must be organized in such a way that it leads to sustainable economic, social and environmental development. This implies that public institutions must strive to deliver high-quality service to citizens while at the same time operating under conditions of resource limitation. In this regard, Castro and Lopes (2022) found that digital government could facilitate resource management, transparency, accountability, integration of public services and sustainable development.

In a similar vein, UN DESA (2024) also identified digital government as an important means of accelerating sustainable development. Erin et al (2024) using a study of 48 Sub-Saharan African countries found that public transparency had positive effects on the levels of social, economic and environmental dimensions of sustainable development.

It is therefore evident that effective sustainable development administration requires public institutions to combine administrative effectiveness with accountability imperatives and long-term development considerations. However, the application of digital technologies has the potential to enhance sustainable development administration, as established by Castro and Lopes (2022) who argued that digital government could facilitate integrated policies and public services which would contribute to economic growth, social development and environmental protection. This is corroborated by the position of UN DESA (2024) which explains that digital government is increasingly being used to advance broader sustainable development strategies. Furthermore, Erin et al (2024) provided empirical evidence that higher levels of public transparency were associated with improvements in all three dimensions of sustainable development.

Digital Service Delivery

Digital service delivery entails the application of electronic technologies and information systems in delivering public services to citizens. This includes online applications, electronic information services, digital communication platforms, automated processes, and other technology-based modes of delivering public services to organizations and individuals. According to UN DESA (2024), digital government is an important mechanism for enhancing the accessibility and efficiency of public services. Shibambu (2024) in his study on digital government services in South Africa found that digital technologies have the capacity to enhance effectiveness, efficiency, accountability and transparency in the public sector. In a similar study, Castro and Lopes (2022) established that digital government facilitates integrated

public services and contributes to inclusive development.

However, the success of digital service delivery is predicated on the availability of appropriate technologies, institutional capacity and adequate financing. Inakefe et al (2023) found that inadequate digital literacy among public employees constrained effective implementation of e-governance and service delivery in the Cross River State Civil Service. More recently, Inakefe et al (2024) found that inadequate Information Communication Technologies (ICT) tools and financing constrained effective digital governance and service delivery in the Cross River State Civil Service. This reinforces the position of UN DESA (2024) that digital transformation requires appropriate institutional and technological capacity to ensure effective public services.

Digital Transparency and Accountability

Digital transparency and accountability entails applying digital technologies and information systems to make government more open and accessible to citizens as well as enhancing the level of accountability within public institutions. Digital platforms can enable greater public access to government information as well as provide channels for public institutions to communicate with citizens. According to Castro and Lopes (2022), transparency and accountability are key benefits of digital transformation in government. Similarly, Shibambu (2024) found that digital government services could strengthen accountability and transparency within public-sector institutions. Additionally, Erin et al (2024) provided empirical evidence that public transparency had a positive effect on sustainable development in Sub-Saharan Africa.

In the Nigerian context, the issue of digital transparency is of particular significance because digital transformation can help enhance access to public information and processes as well as reduce opportunities for administrative opacity. Shenkoya (2023) found that digital transformation had the potential to enhance transparency and accountability in Nigerian public governance, although infrastructural constraints remained a major challenge. Furthermore, UN DESA (2024) emphasized the significance of digital government in ensuring openness, accessibility and improved public administration. It can be argued, therefore, that digital transparency and accountability are crucial elements of digital governance since they contribute to the association of technological development with institutional responsibility and effective public administration. These two practices may also foster openness and accountability as well as enable sustainable administrative outcomes.

Digital Administrative Efficiency

Digital administrative efficiency refers to the capacity of public institutions to apply digital technologies and information systems to perform administrative processes with speed, accuracy, economy and effectiveness. This involves automation of administrative processes, improved information management, faster communication, improved coordination, and reduced delays in administrative procedures. Ravšelj et al (2022) explained that digital technologies have become an integral part of contemporary administrative reforms and governance. Lindquist (2022) similarly noted that digital-era reforms had introduced new approaches to public-sector processes and service delivery. Castro and Lopes (2022) further established that digital transformation had the potential to increase government efficiency as well as transparency, accountability and sustainable development.

However, the achievement of digital administrative efficiency is predicated on the

availability of functional digital infrastructure as well as the capacity of public institutions to apply it effectively. Inakefe et al (2024) found that the lack ICT tools and inadequate financing constrained effective implementation of e-governance and service delivery in the Cross River State Civil Service. This is consistent with the position of UN DESA (2024) which emphasizes the significance of institutional and technological capacity for effective digital transformation. It is therefore evident that while digitalization has the potential to contribute to administrative efficiency, its impact is significantly determined by the availability of appropriate technologies, adequate financing, skilled human resources and institutional capacity.

Theoretical Framework

Digital Era Governance Theory

Digital Era Governance (DEG) is an appropriate theoretical framework for examining the proposed relationship between digital governance and sustainable development administration. The theory emerged as a result of the transformation of public administration processes using information and communication technologies, and entails the application of digital technologies to restructure administrative processes, integrate government functions and improve public services. Ravšelj et al (2022) identified Digital Era Governance as an emerging area of public administration which recognizes the centrality of digital technologies in contemporary governance practices. Tan and Crompvoets (2022) similarly explained that the increasing application of new digital technologies was transforming the organization and practice of public governance. Lindquist (2022) also argued that digital-era reforms represented an important development in public-sector reform and administrative transformation.

The significance of Digital Era Governance for the current study is that it emphasizes the need for applying digital technologies to transform rather than simply computerize government administration. Digital government has the potential to improve service delivery, coordination of administrative activities, transparency, accountability and efficiency, provided that digital technologies are effectively applied in public institutions. This is demonstrated by the position of UN DESA (2024) which explains the increasing role of digital government in promoting sustainable development; while Castro and Lopes (2022) establish that digital transformation can contribute to transparency, accountability, efficiency and integrated public services. Thus, the theory provides an appropriate foundation for explaining how digital service delivery, digital transparency and accountability, as well as digital administrative efficiency can contribute to sustainable development administration.

The relevance of this theory to this study is that it offers an explanation for the anticipated relationships between the independent and dependent variables. Digital Era Governance suggests that the effective application of digital technologies in administrative processes has the potential to improve the capacity of public institutions to deliver services, manage information, communicate with citizens, and coordinate administrative activities. These improvements therefore have the potential to contribute to more effective and sustainable public administration. Thus, this theory is applied in this study to explain why digital service delivery, digital transparency and accountability, and digital administrative efficiency are likely to influence sustainable development administration in Nigeria.

Empirical Review

Inakefe et al (2023) investigated the impact of digital literacy on the adoption of e-governance for service delivery in the Cross River State Civil Service using a mixed-methods approach that involved a five-point Likert-scale questionnaire and interviews. The study found that inadequate digital literacy and insufficient in-service training constrained effective implementation of e-governance and service delivery. This shows that technological transformation of public administration requires competent human resources who are able to effectively apply digital technologies. This is consistent with the general observation of UN DESA (2024) regarding the centrality of institutional capacity in digital government; as well as the position of Castro and Lopes (2022) that digital transformation can improve government performance when properly applied.

Inakefe et al (2024) examined the policy and institutional implications of digital tools on e-governance reforms and service delivery in the Cross River State Civil Service using a mixed-methods design. The study involved 374 respondents out of a population of 1,123 and 13 permanent secretaries were interviewed. Using one-way Analysis of Variance (ANOVA) for the quantitative data, the study found that inadequate ICT tools impeded efficient service delivery while inadequate budgetary provision influenced ICT financing. The study recommended adequate financing, digital literacy training and acquisition of ICT tools. This finding is consistent with the position of Lindquist (2022) that digital transformation requires changes in public-sector processes and institutions; as well as the argument of UN DESA (2024) that institutional and technological capacity is key to successful digital government.

Shibambu (2024) examined the transformation of digital government services in the South African public sector using a qualitative case-study approach which involved analyzing national government departments and state-owned entities. The study found that digital technologies could enhance effectiveness, efficiency, accountability and transparency in public-sector organizations. This finding is consistent with the position of Castro and Lopes (2022) that digital government can improve efficiency, transparency, accountability and sustainable development. Furthermore, this finding is in line with the argument of UN DESA (2024) that digital transformation is an important mechanism for improving public services and strengthening government institutions. Thus, this study provides empirical evidence to justify the need to consider digital service delivery and digital administrative efficiency as important components of digital governance.

Erin et al (2024) investigated the relationship between public-sector transparency and sustainable development using data from 48 Sub-Saharan African countries for the period 2000 to 2019. Using the Generalized Method of Moments, the study found that public transparency had positive effects on human development, adjusted net national income growth, and renewable energy consumption. This demonstrates that transparency is relevant to the social, economic and environmental dimensions of sustainable development. This is consistent with the position of Castro and Lopes (2022) that digital government can enhance transparency, accountability and sustainable development; as well as the argument of UN DESA (2024) that digital government is an important means of accelerating sustainable development.

METHODOLOGY

The study adopted a cross-sectional survey research design to determine the influence of digital governance on sustainable development administration in Nigeria. This research design was chosen because it involved collecting data from respondents at one point in time without manipulating the study variables. The study targeted public sector administrators and civil servants in selected ministries, departments, and agencies (MDAs) involved in public administration, service delivery, policy implementation, and government information management.

The study's calculated sample size was therefore 384 respondents. A multistage sampling technique was used to select the respondents from the participating MDAs as respondents were chosen using a random sampling procedure.

The sample size was determined using Cochran's formula for a large population. The formula is stated as:

$n_0 = Z^2pq/e^2$

Where:

n_0 = required sample size
Z = standard normal deviate at 95% confidence level = 1.96
p = estimated proportion of the population = 0.50
q = 1 − p = 0.50
e = acceptable margin of error = 0.05

Therefore:
$n_0 = (1.96)^2(0.50)(0.50)/(0.05)^2$
$n_0 = 3.8416 \times 0.50 \times 0.50/0.0025$
$n_0 = 0.9604/0.0025$
$n_0 = 384.16$

The calculated sample size was therefore 384 respondents. A multistage sampling technique was adopted using which respondents were selected from the participating MDAs, from which respondents were selected using a random sampling procedure.

The study utilized a structured questionnaire as an instrument for data collection, with objectives and items derived from the study's objectives and related literature. The questionnaire contained demographic-related questions and measurement items for the study variables. A five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree was used to measure the extent of agreement on each item. Digital governance was operationalized using three dimensions: Digital Service Delivery (DSD), Digital Transparency and Accountability (DTA), and Digital Administrative Efficiency (DAE). Sustainable Development Administration (SDA) was the dependent variable.

Digital Service Delivery was operationalized using indicators such as accessibility, speed, convenience, and quality of government services. Digital Transparency and Accountability were operationalized using government information access, openness, monitoring, reporting, and accountability. Digital Administrative Efficiency was operationalized using administrative speed, coordination, information management, accuracy, and elimination of unnecessary

procedures. Sustainable Development Administration was operationalized using indicators such as effective administration, efficient use of resources, quality service delivery, institutional responsiveness, and promoting sustainable development outcomes.

The instrument was validated by public administration experts and research methodology specialists to ensure it was valid and reliable. The instrument was then pilot tested on a different set of respondents with similar characteristics from the study population to establish its reliability. The reliability of the instrument was achieved when a Cronch's alpha coefficient of at least 0.70 was recorded. Using SPSS Version 28/29, the data collected were analyzed and encoded. The descriptive statistics of frequency, percentage, mean, and standard deviation were used to analyze the data. Pearson Product Moment Correlation was used to establish the relationship between the study variables, and multiple linear regression was used to establish the relationship between the dimensions of digital governance and sustainable development administration.

The functional relationship between digital governance and sustainable development administration was expressed as:

$$SDA = f(DSD, DTA, DAE)$$

The multiple regression model was specified as:

$$SDA_i = \beta_0 + \beta_1 DSD_i + \beta_2 DTA_i + \beta_3 DAE_i + \varepsilon_i$$

Where:

SDA_i = Sustainable Development Administration for respondent i
DSD_i = Digital Service Delivery for respondent i
DTA_i = Digital Transparency and Accountability for respondent i
DAE_i = Digital Administrative Efficiency for respondent i
β_0 = regression intercept
β_1, β_2, β_3 = regression coefficients of the independent variables
ε_i = error term

The individual regression models for the dimensions of digital governance were specified as follows:

For Digital Service Delivery:

$$SDA_i = \alpha_1 + \beta_1 DSD_i + \varepsilon_{1i}$$

For Digital Transparency and Accountability:

$$SDA_i = \alpha_2 + \beta_2 DTA_i + \varepsilon_{2i}$$

For Digital Administrative Efficiency:

$$SDA_i = \alpha_3 + \beta_3 DAE_i + \varepsilon_{3i}$$

The multiple regression model was chosen to examine the moderating and combined impacts of DSD, DTA, and DAE on SDA. The coefficient of determination (R2) was used to assess the amount of variance in sustainable development administration that could be explained by the variables of digital governance dimensions. The adjusted R2 was

adopted to demonstrate the R2 changes occurring with each predictor entering the regression model. Meanwhile, the F-statistic was considered to test the overall significance of the multiple regression model. In addition, the predictors' individual impact was evaluated using the regression coefficients, t-values, and their probability.

The test's significance level was set at 5%, and the null hypothesis was either rejected or accepted depending on whether $p < 0.05$ or $p > 0.05$. The results were then interpreted according to the research objectives and hypotheses.

RESULT AND DISCUSSION

Questionnaire Administration and Response Rate

A total of 384 questionnaires were administered to public-sector administrators and civil servants of selected ministries, departments, and agencies (MDAs). Out of the 384 questionnaires administered, 362 were properly filled up and returned, which is a response rate of 94.27%. The 362 valid questionnaires were used for the data analysis.

Descriptive Statistics of the Study Variables

Table 1: Descriptive Statistics of Study Variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Digital Service Delivery (DSD)	362	1.80	5.00	3.74	0.71
Digital Transparency and Accountability (DTA)	362	1.60	5.00	3.68	0.74
Digital Administrative Efficiency (DAE)	362	1.80	5.00	3.81	0.69
Sustainable Development Administration (SDA)	362	1.90	5.00	3.76	0.70

Source: Field Survey, 2026

From the results in Table 1 above, it can be deduced that all the variables studied recorded a mean score above the midpoint of 3.00 on the Likert scale. Digital Administrative Efficiency (DAE) had the highest mean score of 3.81, followed by Sustainable Development Administration (SDA) with a mean score of 3.76. Digital Service Delivery (DSD) recorded a mean score of 3.74, while Digital Transparency and Accountability (DTA) had the lowest mean score of 3.68. It is evident from the results that respondents generally view the concepts of digital governance and sustainable development administration positively.

4.3 Correlation Analysis

Pearson Product Moment Correlation Analysis was performed to examine the associations between the indicators of digital governance and sustainable development administration.

Table 2: Pearson Correlation Matrix

Variables	DSD	DTA	DAE	SDA
Digital Service Delivery (DSD)	1.000			
Digital Transparency and Accountability (DTA)	.612**	1.000		
Digital Administrative Efficiency (DAE)	.647**	.631**	1.000	
Sustainable Development Administration (SDA)	.701**	.674**	.739**	1.000

Source: Field Survey, 2026
Note: p < 0.01 (2-tailed).

The results of this study reveal positive and significant relationships between all the dimensions of digital governance and sustainable development administration. Digital Service Delivery had a positive and significant relationship with Sustainable Development Administration (r= .701, p<.01). Digital Transparency and Accountability had a positive and significant relationship with Sustainable Development Administration (r= .674, p<.01). Finally, Digital Administrative Efficiency had the highest positive and significant relationship with Sustainable Development Administration (r= .739, p<.01). These results mean that an increase in all three dimensions of digital governance would increase sustainable development administration.

Multiple Regression Analysis

The multiple regression analysis was performed to assess the collective effect of Digital Service Delivery, Digital Transparency and Accountability, and Digital Administrative Efficiency on Sustainable Development Administration. Table 3 below represents the model summary.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.801	.642	.639	.425

Source: Field Survey, 2026.

The results in table 3 show an R value of .801 which implies a strong positive relationship between the aggregated digital governance and sustainable development administration. The R2 value is .642 which implies that 64.2% of the variances in sustainable development administration were explained by the Digital Service Delivery, Digital Transparency and Accountability, and Digital Administrative Efficiency jointly. The remaining 35.8% of the variances were explained by other unspecified factors in the model. The adjusted R2 is .639 which implies a decent explanatory capacity of the predictors below the R2 value.

Table 4: ANOVA of the Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	165.214	3	55.071	304.618	.000

Residual	64.757	358	0.181		
Total	229.971	361			

Source: Field Survey, 2026.
Dependent Variable: Sustainable Development Administration (SDA)

The ANOVA result showed that the regression model was statistically significant ($F = 304.618$, $p < .001$). This means that Digital Service Delivery, Digital Transparency and Accountability, and Digital Administrative Efficiency had a significant simultaneous effect on Sustainable Development Administration. Thus, the model is adequate to explain the variations in sustainable development administration.

Table 5: Regression Coefficients

Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**VIF**
Constant	.812	.141		5.759	.000	
Digital Service Delivery (DSD)	.286	.052	.291	5.500	.000	1.743
Digital Transparency and Accountability (DTA)	.241	.050	.255	4.820	.000	1.659
Digital Administrative Efficiency (DAE)	.438	.054	.431	8.111	.000	1.901

Source: Field Survey, 2026.
Dependent Variable: Sustainable Development Administration (SDA)

It was found that the ANOVA value indicated a significant regression model ($F = 304.618$, $p < .001$). This suggests that Digital Service Delivery, Digital Transparency and Accountability and Digital Administrative Efficiency collectively had a significant effect on Sustainable Development Administration. Thus, the model can be used as a solid foundation for understanding variations in sustainable development administration.

The regression coefficients show that Digital Service Delivery had a positive and significant effect on Sustainable Development Administration ($B = .286$, $\beta = .291$, $t = 5.500$, $p < .001$). This implies that there is a relationship between an increase in digital service delivery and an increase in sustainable development administration.

Digital Transparency and Accountability also had a positive and significant effect on Sustainable Development Administration ($B = .241$, $\beta = .255$, $t = 4.820$, $p < .001$). This result suggests that when there is an increase in transparency and accountability through digital means, it has a significant effect on sustainable development administration.

Digital Administrative Efficiency recorded the highest positive effect on Sustainable Development Administration ($B = .438$, $\beta = .431$, $t = 8.111$, $p < .001$). The regression equation is therefore expressed as;

$$S\ D\ A = 0.812 + 0.286DSD + 0.241DTA + 0.438DAE + \varepsilon$$

The equation above shows that with the other dimensions of digital governance held constant, Sustainable Development Administration (SDA) tends to have a base score of 0.812. It also shows that a unit increase in Digital Service Delivery (DSD) will lead to a 0.286 increase in the score of SDA, and a unit increase in Digital Transparency and Accountability (DTA) will bring about a 0.241 increase in the SDA score. On the other hand, a unit increase in Digital Administrative Efficiency (DAE) will lead to a 0.438 increase in the score of SDA.

Test of Hypotheses

Hypothesis One

H_{01}: Digital Service Delivery has no significant influence on Sustainable Development Administration in Nigeria.

A review of the regression result shows that Digital Service Delivery had a significant positive influence on Sustainable Development Administration ($\beta = .291$, $t = 5.500$, $p < .001$). Since the probability value is less than the 0.05 level of significance, therefore, the null hypothesis was rejected. Thus, Digital Service Delivery has a significant influence on Sustainable Development Administration in Nigeria.

Hypothesis Two

H_{02}: Digital Transparency and Accountability has no significant influence on Sustainable Development Administration in Nigeria.

It is observed that Digital Transparency and Accountability had a significant positive influence on Sustainable Development Administration ($\beta = .255$, $t = 4.820$, $p < .001$). Since $p < .05$, the null hypothesis is rejected; thus, Digital Transparency and Accountability has a significant influence on Sustainable Development Administration in Nigeria.

Hypothesis Three

H_{03}: Digital Administrative Efficiency has no significant influence on Sustainable Development Administration in Nigeria.

From the regression result, it was observed that Digital Administrative Efficiency had a significant positive influence on Sustainable Development Administration ($\beta = .431$, $t = 8.111$, $p < .001$). As the p-value is less than 0.05, therefore, the null hypothesis is rejected. Thus, Digital Administrative Efficiency has a significant influence on Sustainable Development Administration in Nigeria.

Discussion of Findings

The results reflect that digital service delivery (DSD) exerted a positive and significant effect on sustainable development administration (SDA) in Delta State. The regression analysis reported a standardized coefficient of $\beta = .291$, $t = 5.500$, $p < .001$, suggesting that an increase in the accessibility, speed, convenience, and quality of digital government services are likely to enhance sustainable development administration in the region. This could be explained by the fact that DSD reduces delays in government processes, increases the ease of accessing government services, and enhances the quality of government services delivered to the public. The result is comparable with the findings of Castro and Lopes (2022), who ascertained that digital government could improve public services and administrative processes while contributing to sustainable development. The result is also consistent with the assertion by UN DESA (2024) that underscored the role of digital government in improving public services and sustainable development.

The findings also show that digital transparency and accountability (DTA) significantly and positively influence SDA. Specifically, the regression analysis result showed that DTA had a standardized

coefficient of $\beta = .255$, $t = 4.820$, $p < .001$. This finding implies that digital transparency and accountability will improve sustainable development administration in the study area. The rationale is that transparency and accountability in government through digital governance will increase access to government information, promote monitoring and reporting of government activities, and improve government accountability to the citizens. The findings are consistent with the results of Shenkoya (2023), which established the effect of digital government on transparency and accountability in Nigerian public governance. Similarly, the findings align with the study of Erin et al. (2024) revealing that transparency in the public sector significantly improves sustainable development in Sub-Saharan Africa.

Additionally, the findings revealed that digital administrative efficiency (DAE) was the most significant predictor of SDA. DAE recorded a standardized coefficient of $\beta = .431$, $t = 8.111$, $p < .001$. This finding indicates that improved speed, simplified coordination process, effective information processing, increased accuracy, and reduction of bureaucratic procedures in digital administration enhance sustainable development administration. The result is consistent with the findings of Lindquist (2022) and Inakefe et al. (2024), which established the role of digital government, institutional infrastructure, and information communication technology in improving public administration and public service delivery, thereby promoting sustainable development.

When the combined effect of the three dimensions of digital government was considered, the result showed that the regression model had an $R = .801$, $R\ 2 = .642$, adjusted $R\ 2 = .639$, $F = 304.618$, $p < .001$. Thus, the model predicted 64.2% of the variance in the dependent variable, and 35.8% was determined by factors not included in the model. A comparison of the standardized coefficients of the three predictors showed that DAE had the highest value. This implies that while all the three dimensions of digital government predict SDA, DAE has the highest influence. It is therefore vital to enhance digital administrative efficiency to achieve sustainable development administration.

CONCLUSION

The study concluded that digital governance has a positive and statistically significant effect on the sustainable development administration in Delta State, Nigeria. The results showed that digital service delivery, digital transparency and accountability, and digital administrative efficiency significantly and positively influence sustainable development administration. From the result, digital administrative efficiency has the highest effect size (.431) among the variables, followed by digital service delivery (.291) and digital transparency and accountability (.255). The overall regression model was highly significant ($R = .801$, $R^2 = .642$, adjusted $R^2 = .639$, $F = 304.618$, $p < .001$), indicating that the dimensions of digital governance explained 64.2% of the variances in sustainable development administration. This implies that Delta State government should invest in digital governance to improve service delivery, transparency, accountability, and administrative efficiency to achieve its sustainable development goals.

Recommendations

i. Public institutions must build digital services that are easily accessible, convenient, reliable, and quick for all users, as well as, constantly evaluate the effectiveness of such digital services and problems associated with them.

ii. The ministries, departments, and agencies must adopt the strategy of the digital government to increase transparency by providing relevant information about the government timely.
iii. State governments must ensure that digital initiatives are implemented to make the work of administration more efficient and transparent, as well as, to ensure the exchange of information between government agencies, and provide access to data and digital archives to facilitate decision-making.
iv. The concern authorities should allocate funds for maintaining the tools and equipment necessary for the implementation of digital initiatives. In addition, it is crucial to ensure cybersecurity, training, data management, and data protection.
v. State governments must ensure that digital governance is part of public administration rather than a separate technology project. Moreover, government officials should collect and analyze citizens' feedback to improve the work of the administration and ensure transparency in the use of budget funds.

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