



Enhancing Green Public Administration in Nigeria through Digital Governance: Policy Frameworks and Implementation Challenges

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Abstract

Green Public Administration has emerged as a critical component of sustainable governance, with the goal of incorporating environmental issues into public-sector decisions. However, Nigeria confronts substantial hurdles in attaining effective GPA because to inadequate institutional frameworks, policy inconsistency, and poor technology integration. Digital governance provides creative solutions by integrating emerging technologies like big data, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) to improve environmental monitoring, policy enforcement, and sustainable urban design. Despite these prospects, Nigeria's green public administration is nevertheless limited by digital infrastructure gaps, financial limits, and bureaucratic reluctance. This paper investigates the role of digital governance in improving Green Public Administration in Nigeria, with a focus on legislative frameworks, implementation issues, and strategic options. The study takes a qualitative approach and draws on secondary data sources such as government papers, policy documents, journal publications, and worldwide best practices. The findings show that, while Nigeria has implemented various measures to promote digital governance and sustainability, insufficient enforcement mechanisms and fragmented cooperation across regulatory authorities limit their efficacy. Furthermore, security issues and insufficient public-private collaborations hinder the full potential of digital solutions for environmental regulation. The report suggests that building institutional frameworks, investing in digital infrastructure, and developing public-private partnerships are critical for advancing Nigeria's green public administration. Key recommendations include improved policy coordination, capacity training for public officials, the use of AI and IoT in environmental monitoring, and citizen involvement via e-governance platforms. A strong digital governance framework would help Nigeria move towards a more sustainable and digitally driven public administration.

Keywords: Digital Governance, Green Public Administration, Sustainability, Policy Frameworks, Environmental Governance.

Introduction

The twenty-first century has confronted public administration with a paradox, the very institutions created to manage growth and development are now expected to restrain the environmental costs of that growth. As climate change, resource depletion, and ecological degradation escalate from scientific concern to governance emergency, public administration can no longer treat environmental stewardship as a peripheral function. It has become an organizing logic of how governments plan, regulate, and deliver services. This imperative has given rise to Green Public Administration (GPA), a governance model that embeds environmental considerations into policymaking, service delivery, and regulatory enforcement rather than treating them as an afterthought to conventional bureaucratic practice (Meijer & Bolívar, 2016). This has reshaped public administration worldwide through the shift toward digital governance.

Advanced economies, such as, the European Union, Canada, Singapore, and others have integrated big data analytics, artificial intelligence, blockchain, and the Internet of Things (IoT) into environmental governance, using these tools to track carbon emissions, model climate risk, and enforce environmental legislation with a precision that manual, paper-based administration cannot match (United Nations E-Government Survey, 2022). Digital governance platforms extend this precision to the citizen interface as well, enabling real-time environmental monitoring, predictive climate-adaptation analytics, and interactive public engagement that collectively deepen the sustainability function of the modern administrative state (Mora et al., 2021). The convergence of these two movements, green governance



and digital governance is no longer incidental. Increasingly, one is the enabling infrastructure for the other: digital tools make ambitious environmental administration operationally possible, while environmental mandates give digital governance investment a clear public purpose.

Nigeria's experience, however, illustrates how unevenly this global convergence has taken hold. Despite growing rhetorical commitment to sustainability, the country's environmental governance remains constrained by weak institutional frameworks, inconsistent policy enforcement, and fragmented inter-agency coordination, deficiencies that manifest visibly in accelerating deforestation, desertification, air and water pollution, and chronically inefficient waste management systems (Adejuwon, 2022). These are not merely technical failures; they are governance failures, rooted in an administrative architecture that has yet to internalize digital tools as core instruments of environmental management.

Nigeria has not been without policy ambition. The National Digital Economy Policy and Strategy (NDEPS) 2020–2030 and the Climate Change Act 2021 both signal recognitions, at the highest policy levels, that digital transformation and environmental sustainability must advance together. Yet the practical influence of both instruments has been blunted by regulatory fragmentation, inadequate digital infrastructure, and the persistent absence of coordinated implementation across the ministries, departments, and agencies (MDAs) charged with executing them (Federal Ministry of Environment, 2021). The result is a widening gap between policy intent and administrative capability, this is precisely the gap this study interrogates. This study addresses that gap by examining the intersection of digital governance and Green Public Administration in Nigeria. The study contributes both a diagnostic account of where Nigeria's green digital governance architecture currently stands and a set of actionable pathways for closing the gap between policy design and administrative delivery.

Statement of the Problem

Nigeria's public administration confronts a structural contradiction that lies at the heart of this study. The country has articulated the policy document of both green governance and digital transformation yet has struggled to convert that document into administrative practice capable of delivering measurable environmental outcomes. The Climate Change Act 2021 establishes a national framework for emissions reduction and climate resilience, and the NDEPS 2020 –2030 sets out an ambitious agenda for digital economic transformation. On paper, these instruments position Nigeria to pursue exactly the kind of digitally enabled environmental governance that advanced economies have already begun to institutionalize. In practice, however, the machinery required to translate these policies into coordinated, technology-driven administrative action remains largely absent.

Several interwoven deficiencies sustain this gap between policy design and implementation. First, Nigeria's environmental governance architecture is institutionally fragmented: regulatory responsibility for environmental monitoring and enforcement is dispersed across federal, state, and local agencies whose mandates frequently overlap, conflict, or leave critical functions unattended, with little digital infrastructure to support the data-sharing and coordination that effective enforcement would require (Federal Ministry of Environment, 2021). Second, the digital infrastructure necessary to operationalize technologies such as big data analytics, AI-driven monitoring, and IoT-enabled sensing remains inadequate, unevenly distributed, and concentrated in a handful of urban centers, leaving most of the country's environmental governance still dependent on manual, paper-based processes (Onyewuchi, Saheed, Ijeoma, & Dominic, 2026). Third, chronic financial constraints limit MDAs' capacity to invest in the hardware, software, and technical personnel that digital environmental governance demands, forcing agencies to prioritize immediate operational costs over longer-term technological capacity building. Fourth, bureaucratic resistance and a persistent digital skills deficit among public officials slow the adoption of new administrative technologies even where infrastructure and funding are available, reflecting a broader institutional culture in which digital tools are treated as auxiliary rather than central to core regulatory functions.

In addition to these institutional and infrastructural constraints is a governance dimension that has received comparatively little scholarly attention. The near-absence of structured public-private partnerships and citizen-facing digital platforms in Nigeria's environmental administration. Where advanced economies have leveraged private-sector technological capacity and civic digital engagement to extend the reach of environmental monitoring and enforcement, Nigeria's environmental governance



remains predominantly state-centric, under-resourced, and largely closed to the collaborative digital ecosystems that make green digital governance financially and technically sustainable elsewhere (Mora et al., 2021). Security and data-governance concerns further complicate this picture, constraining the extent to which government agencies are willing to open environmental data systems to external partners or the public.

The consequence of these compounding deficiencies is not merely slower progress toward stated policy goals, but a form of governance in which environmental degradation continues largely unabated despite the existence of formal legal and policy commitments to address it. Deforestation, desertification, air and water pollution, and inefficient waste management persist not because Nigeria lacks environmental policy, but because the administrative and technological infrastructure required to enforce that policy has not kept pace with the scale of the problem (African Development bank Group, 2025). This is, at its core, an implementation problem masquerading as a policy problem, and it is precisely this distinction that existing scholarship on Nigerian environmental governance has tended to under-examine, often focusing on policy content and legislative adequacy while paying insufficient attention to the digital-administrative capacity required to give that policy effect.

It is against this backdrop that the present study is situated. Without a clear understanding of how digital governance mechanisms could be systematically integrated into Nigeria's Green Public Administration and without a rigorous account of the institutional, infrastructural, financial, and collaborative barriers currently preventing that integration, policy prescriptions in this space risk remaining aspirational rather than actionable. This study therefore interrogates not whether Nigeria's environmental and digital governance policies are well-intentioned, but why their translation into effective, technology-enabled administrative practice has stalled, and what combination of institutional reform, infrastructural investment, and partnership models could realistically close that gap.

Conceptual Framework

Green Public Administration: Public administration is present in all countries, regardless of their political structure. It has been viewed as a subset of the larger subject of cooperative human acts distinguished by their public purposes. Public administration integrates the three branches of government: legislative, executive, and judicial (Nchuchuwe and Adejuwon, 2015). As an entity that interacts with the general public, public administration is part of the political process and hence contributes to policy formulation through a feedback mechanism (Fatile, Majekodunmi, Oni, and Adejuwon, 2013).

Green Public Administration (GPA) has evolved as a critical component of governance, emphasising the need of sustainability in public sector operations. Green Public Administration is the integration of environmentally friendly policies, sustainable resource management, and climate-conscious decision-making into public administration (OECD, 2021). It aims to decrease the environmental impact of government operations by fostering paperless governance, green procurement, and environmentally friendly infrastructure (UNDP, 2022). However, building an effective green public administration system necessitates technical innovation, and digital governance plays a revolutionary role.

Digital Governance: Digital governance is a wide term that refers to all interactions and exchanges between the government and the governed (Lawan & Muhammad, 2018). Digital governance is the application of information and communication technologies (ICTs) to improve public service delivery, governance transparency, and policy execution (Adejuwon, 2023). Digital governance is the use of information and communication technology by the government to provide quality information and services to citizens, businesses, voluntary organisations, and other government agencies in an efficient, cost-effective, and convenient manner, as well as to increase transparency and accountability in government operations to strengthen democracy (Ehiane et al. 2019).

Digital governance offers prospects for combining e-government technologies, AI-driven environmental monitoring, and smart city projects to promote sustainable governance (Adejuwon, 2025). It has grown into a viable approach of resolving development challenges and difficulties because citizens are empowered via access to information (Adejuwon, 2015). The connection between digital governance and green public administration is based on the notion that technology may improve efficiency, lower carbon footprints, and promote ecologically responsible governance.

Theoretical Framework

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Technology Acceptance Model (TAM): The Technology Acceptance Model is a well-known paradigm for understanding how people and organisations accept and use new technology. TAM, invented by Fred Davis (1989), has been widely used in a variety of sectors, including e-governance, environmental management, and digital public administration. According to the theory, Perceived Utility (PU) and Perceived Ease of Use (PEoU) are the two most important factors determining whether people embrace or reject a technological breakthrough. In the context of digital governance for green public administration in Nigeria, TAM provides a theoretical framework for assessing public institutions' readiness to incorporate digital solutions into environmental governance.

Scholars like as Heeks (2020) and Adejuwon, Amodu and Majekodunmi (2024) used TAM to examine how digital tools might improve policy efficiency, environmental sustainability, and governance transparency. They suggest that in order for digital governance to effectively promote green public administration, authorities must guarantee that digital platforms are both user-friendly and regarded as useful by public sector personnel. One of its key tenets is that user adoption of technology is driven by rational decision-making, people consider whether a technology is beneficial and easy to use before opting to include it into their job. This assumption implies that Nigerian public sector personnel would only use digital governance technologies if they see them as useful for their administrative and environmental obligations.

Despite its widespread use, TAM has been critiqued for oversimplifying the technology adoption process, especially in complex governance situations like Nigeria. One important flaw is its lack of attention for organisational and cultural variables. While PU and PEoU are significant, technology adoption in public administration is also impacted by institutional inertia, reluctance to change, political meddling, and bureaucratic inefficiencies—all of which TAM does not address (Venkatesh & Bala, 2008). Also, TAM assumes users make logical decisions based simply on perceived utility and simplicity of use.

Despite its limitations, TAM is critical to Nigeria's efforts to incorporate digital governance into environmental management and public administration. It offers a systematic method to examining the elements that impact government agencies' readiness to use digital tools for environmental governance. TAM may assist policymakers in identifying adoption hurdles by determining if civil servants find digital governance systems beneficial and simple to use. TAM encourages the creation of user-centred digital governance methods (Adejuwon, Amodu & Majekodunmi, 2024). Lastly, the use of TAM can strengthen public-private partnerships in Nigeria's environmental governance sector.

The Current State of Green Public Administration in Nigeria

Nigeria, Africa's largest economy, has substantial environmental difficulties such as deforestation, air pollution, inadequate waste management, desertification, and climate change effects. To address these concerns, the government has adopted a number of environmental policies and legal frameworks over time. The National Policy on the Environment (1989, amended in 2016) serves as a comprehensive framework for Nigeria's environmental protection and sustainable development. Furthermore, the Climate Change Act (2021) established the National Council on Climate Change (NCCC) to monitor the execution of Nigeria's climate action plans (Nwoko et al., 2022).

Nigeria has also signed significant international environmental accords, such as the Paris Agreement on Climate Change, the Convention on Biological Diversity (CBD), and the United Nations Sustainable Development Goals (SDGs) (UN, 2015). These agreements impacted national policies such as Nigeria's National Adaptation Plan (NAP) and Renewable Energy Master Plan (REMP), both of which aim to transition the country to a greener economy. Despite these regulations, operational gaps, lax regulatory enforcement, and insufficient financing continue to impede environmental governance initiatives.

The Nigerian government has made a variety of initiatives to incorporate environmental sustainability into public management. One such project is green budgeting, which includes allocating funding to climate mitigation and adaptation activities. For example, the 2023 national budget contained funding for renewable energy projects, afforestation initiatives, and sustainable transportation (Federal Ministry of Finance, 2023). The government has also introduced carbon taxation laws and environmental levies to limit carbon emissions from industries and transportation. Furthermore, several ministries and organisations, including the Federal Ministry of Environment, the National Environmental Standards and Regulations Enforcement Agency (NESREA), and the Energy Commission of Nigeria (ECN), play critical roles in developing Nigeria's green



policies. These organisations are responsible for enforcing environmental legislation, promoting renewable energy, and overseeing waste.

In addition, Nigeria has made strides in environmentally friendly policies such as the Plastic Waste Control Regulation (2020), which aims to reduce plastic pollution, and the Renewable Energy Feed-in Tariff (REFIT) policy, which encourages private-sector investment in renewable energy (Akinyemi & Olagunju, 2021). Despite these attempts, inadequate policy coordination, bureaucratic inefficiencies, and a lack of public awareness continue to pose substantial problems.

Several government-led projects in Nigeria show the country's dedication to green public administration. One prominent example is the Nigeria Erosion and Watershed Management Project (NEWMAP), which began in 2012 with World Bank funding. The initiative intends to tackle land degradation, deforestation, and gully erosion in various states, including Anambra, Edo, and Ebonyi (World Bank, 2022). NEWMAP has effectively restored damaged landscapes, repaired drainage systems, and encouraged community-led afforestation activities.

Another notable project is the Rural Electrification Fund (REF), which encourages the adoption of solar mini-grids and off-grid renewable energy alternatives in rural communities. The government, in partnership with private sector partners, has installed solar-powered streetlights and mini-grid systems in various areas, decreasing reliance on fossil fuels (Energy Commission of Nigeria, 2023). Furthermore, the Great Green Wall Project, an African Union-backed program, seeks to address desertification and land degradation in Nigeria's northern area. The initiative prioritises tree planting, sustainable agriculture, and water conservation in order to repair damaged land and enhance rural lives (Federal Ministry of Environment, 2023). Despite initial progress, the effort has encountered financing limits, logistical problems, and sluggish implementation.

While Nigeria has achieved significant progress in green public administration, a number of deficiencies undermine the efficiency of its environmental governance structure. One significant difficulty is a lack of policy enforcement. Many environmental regulations exist on paper, but are not properly enforced due to insufficient institutional capacity, corruption, and political involvement (Ogunbode et al., 2021). Furthermore, digital governance technologies for environmental management are still underutilised. Smart waste management solutions, AI-driven environmental monitoring, and blockchain-based carbon tracking remain underutilised due to poor digital literacy, a lack of infrastructure, and public administration aversion to technology adoption (Adejuwon, 2023).

Nigeria has achieved significant progress in green public administration through a variety of laws, budgetary measures, and government-led programs. However, disparities in enforcement, finance, public awareness, and digital governance adoption continue to impede progress. Strengthening institutional capacity, boosting environmental financing, utilising digital technology, and encouraging public-private collaborations are crucial steps towards creating a more sustainable and eco-friendly public administration in Nigeria.

Role of Digital Governance in Enhancing Green Public Administration

Digital governance has emerged as a significant instrument for increasing public administration efficiency, openness, and accountability, particularly in the context of environmental sustainability efforts. Digital technologies provide transformational answers to Nigeria's environmental governance concerns, such as poor enforcement mechanisms, bureaucratic inefficiencies, and corruption. Big data analytics, artificial intelligence (AI), blockchain, and e-government platforms can help the government execute and monitor green programs more efficiently. Furthermore, smart city efforts and digital technologies for sustainable urban planning help to create environmentally friendly and resilient urban environments.

One of the primary benefits of digital governance for green public administration is increased efficiency in policy implementation and monitoring. Traditional environmental governance in Nigeria frequently includes laborious data gathering, paper-based reporting, and delayed decision-making procedures, which cause delays in reacting to environmental concerns (Adejuwon, 2023). However, digital tools such as geographic mapping, cloud computing, and mobile applications allow for real-time data collecting and analysis, which improves the speed and accuracy of environmental decisions. For example, digital platforms make it easier for authorities like the National Environmental Standards and Regulations Enforcement Agency (NESREA) to monitor industrial emissions and track environmental compliance.



Transparency is another significant advantage of digital governance. By digitising environmental data, the government may make climate reports, pollution levels, and deforestation rates more accessible to the public, keeping residents and stakeholders informed. In Nigeria, open data platforms and environmental monitoring websites might be used to hold businesses accountable for their environmental effect. Furthermore, blockchain technology can improve transparency by establishing tamper-proof records for climate financing transactions, carbon credit trading, and environmental compliance reporting (Adebayo & Olaniyi, 2022). This guarantees that monies given for sustainability initiatives are properly used and that regulatory authorities act with integrity.

Along with efficiency and openness, digital governance improves accountability. AI-powered surveillance systems and Internet of Things (IoT) sensors allow for automatic environmental monitoring, lowering the danger of human meddling and corruption. For example, AI may be used to detect illicit logging in forests, identify industrial pollutants, and verify that green rules are followed (Nwoko, Uchenna, & Adeyemi, 2022). These technologies improve policy enforcement and regulatory supervision, ensuring that sustainability initiatives provide actual outcomes.

The Nigerian government has implemented e-government systems to digitalise public administration, particularly environmental governance. These technologies allow for real-time monitoring, public involvement, and digital compliance tracking, making environmental management more efficient and inclusive. For example, the NESREA Online Compliance Portal enables businesses to submit environmental impact reports, monitor pollution breaches, and get digital certifications for environmentally friendly operations (NESREA, 2022). Similarly, the Nigeria Meteorological Agency's (NiMet) Digital Weather Forecasting System delivers real-time climate data and disaster alerts to farmers, urban planners, and emergency response teams. E-waste management technologies also allow for digital tracking of hazardous waste disposal, which ensures compliance with environmental safety requirements (Federal Ministry of Environment, 2023). Despite these developments, barriers such as low internet penetration, insufficient technical competence, and inadequate digital infrastructure impede the full application of e-government solutions in environmental management. Addressing these difficulties would necessitate investments in digital infrastructure, public-private partnerships, and digital literacy initiatives to improve Nigerian digital governance.

Policy Frameworks Supporting Digital Governance for Green Administration in Nigeria

Integrating digital governance into green public administration in Nigeria requires a robust policy framework. The government has adopted various regulations to improve environmental sustainability and digital transformation, but obstacles persist in implementation and enforcement. To attain a genuinely technologically advanced and environmentally friendly public administration, Nigeria must connect its policies with worldwide best practices while improving institutional and regulatory frameworks to assure compliance and effectiveness.

Another important policy is the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act, which provides legal support for implementing environmental protection regulations in Nigeria. However, the Act lacks a significant digital component, restricting the use of technology in compliance monitoring and enforcement (NESREA, 2019). The Nigeria Climate Change Act 2021 similarly establishes a framework for climate action, but it does not completely integrate digital instruments for measuring sustainability, such as AI-powered monitoring systems, smart sensors, and e-governance platforms.

Furthermore, the E-Government Master Plan (2019) encourages digital transformation in public administration, with the goal of improving transparency, efficiency, and service delivery (NITDA, 2019). Although this strategy promotes digital governance, it makes no specific relationship between e-government policies and environmental management, suggesting a policy integration gap. The Renewable Energy Master Plan promises to expand Nigeria's reliance on renewable energy sources, although digital advancements like smart grid technologies and AI-powered energy management systems have yet to be completely implemented (Energy Commission of Nigeria, 2022).

Despite these efforts, there is a significant lack of coordination between digital governance regulations and environmental sustainability policies. Integrating ICT-driven solutions into environmental



management necessitates improved policy coherence as well as a more robust implementation framework to enable proper execution and monitoring.

Government organisations and regulatory agencies play critical roles in developing and enforcing policies that integrate digital governance with green public administration. The National Information Technology Development Agency (NITDA) is in charge of ICT policy implementation, ensuring that digital transformation corresponds with government goals (NITDA, 2021). However, closer coordination between NITDA and environmental authorities is required to properly integrate digital technologies into environmental governance. The Federal Ministry of Environment oversees Nigeria's climate change policy, waste management rules, and sustainability programs. However, the ministry has been reluctant to implement e-governance technologies for environmental monitoring, resulting in inadequate regulatory enforcement (FGN, 2021). Enhancing inter-agency engagement with NITDA, NESREA, and the Federal Ministry of Communications and Digital Economy might help to accelerate the digitalisation of green public administration.

Nigeria has made tremendous progress in formulating regulations for digital governance and environmental sustainability, but there are still gaps in ensuring their effective implementation. While frameworks such as the National Digital Economy Policy and Strategy (NDEPS), Climate Change Act, and E-Government Master Plan lay the groundwork for green public administration through digital transformation, coordination issues, ineffective enforcement mechanisms, and out-of-date legal frameworks impede progress.

To fully realise the benefits of digital governance in green administration, government institutions and regulatory agencies must work together to incorporate emerging technology into environmental governance rules. Updating regulatory frameworks to meet the use of AI, blockchain, and IoT in environmental monitoring is also critical. Strengthening policy coherence, inter-agency cooperation, and digital infrastructure will ensure that Nigeria takes advantage of digital advances to improve and maintain public administration.

Implementation Challenges of Digital Governance for Green Public Administration in Nigeria

The integration of digital governance with green public administration in Nigeria has obvious advantages, but it also confronts substantial implementation obstacles. These obstacles are caused by technological, legislative, financial, institutional, and cybersecurity limits, as well as ineffective public-private collaborations. Addressing these constraints is critical to ensure that digital technologies promote sustainability initiatives in Nigerian public administration.

The absence of suitable digital infrastructure is a significant barrier to establishing digital governance for green public administration in Nigeria. Many government organisations in charge of environmental governance lack access to high-speed internet, cloud computing, and modern digital technologies required for effective environmental data collecting and analysis (NITDA, 2021). Rural areas, in particular, have limited network access, making it challenging to implement smart environmental monitoring systems like IoT-based air quality sensors or AI-powered waste management platforms (FMCDE, 2020). The usefulness of e-governance platforms for environmental sustainability is restricted in the absence of widespread broadband penetration and a dependable electrical supply.

Despite Nigeria's extensive digital and environmental legislation, there is a lack of policy consistency in incorporating digital solutions into environmental governance. For example, the National Digital Economy Policy and Strategy (NDEPS) encourages digital transformation but does not expressly include environmental sustainability measures (FMCDE, 2020). Similarly, environmental laws such as the Climate Change Act 2021 and the NESREA Act rely on old regulatory procedures rather than developing digital solutions such as blockchain-based carbon tracking or AI-powered deforestation monitoring (FGN, 2021). The lack of a consistent legal framework leads to uncertainty in implementation, which reduces the efficacy of green digital governance projects.

Another significant barrier is the high cost of deploying digital solutions for green public administration. Many government departments cannot afford the current digital tools, software licenses, and capacity-building programs required to enable e-governance for environmental sustainability. Without enough financial resources, green digital governance efforts are mostly experimental projects rather than fully operational programs.

Institutional inertia and aversion to change are another significant impediment to implementing digital governance in green public administration. Many Nigerian government agencies still use manual procedures and paper-based paperwork, making it challenging to move to AI-powered environmental monitoring,



blockchain-based data management, and cloud-based sustainability reporting (FMCDE, 2020). Resistance to digital transformation is frequently caused by a lack of digital literacy among public officials, fears about job displacement, and bureaucratic inefficiencies that hinder technology implementation (NITDA, 2021). Without strong leadership commitment and digital upskilling initiatives, government institutions may continue to fall behind in embracing digital technologies for sustainable environmental governance.

Strategies for Overcoming Challenges in Digital Governance for Green Public Administration in Nigeria

Addressing the barriers to digital governance for green public administration in Nigeria necessitates a multidimensional strategy that combines legislative changes, technology improvements, capacity building, public-private partnerships, and digital innovations. These initiatives will not only help with environmental sustainability, but will also increase the efficiency, openness, and accountability of public administration. Improving policy coordination and institutional frameworks is a significant step towards addressing issues in digital green governance. The existing fragmented policy landscape must be harmonised to guarantee that digital governance policies and environmental sustainability initiatives work together. To lay the groundwork for green public administration, the government should include digital governance ideas into Nigeria's Climate Change Act, the National Digital Economy Policy, and the Environmental Management Framework (FGN, 2021). Furthermore, establishing a centralised regulatory agency to supervise the nexus of digital transformation and environmental governance will improve policy consistency and institutional accountability.

A strong digital infrastructure is required for the effective implementation of smart environmental policy. The Nigerian government must prioritise investments in internet expansion, cloud computing, and data centres to support AI-driven climate monitoring, IoT-based pollution tracking, and digital sustainability reporting (NITDA, 2021). Public agencies should update their IT infrastructure and create smart urban planning tools like GIS-based environmental mapping and blockchain-powered carbon footprint monitoring (NESREA, 2019). Additionally, using renewable energy sources to power smart city programs will help to integrate digital investments with environmental aims.

One of the most significant barriers to digital transformation in environmental governance is a lack of digital literacy among public authorities (FMCDE, 2020). To solve this, comprehensive capacity-building programs should be implemented to provide policymakers and administrators with technical knowledge of AI, IoT, blockchain, and data analytics for sustainability management (NITDA, 2019). These training programs should be included into civil service curriculum, with an emphasis on digital public administration, environmental data management, and cybersecurity best practices. International collaborations with strong digital governance organisations may also provide benchmarking and knowledge exchange programs for Nigerian public authorities.

Public-private partnerships are a feasible option for filling financial and technological gaps in Nigeria's green digital governance projects. The government should develop incentive-based policies to stimulate private sector participation in digital sustainability initiatives (NESREA, 2019). Technology businesses, startups, and financial institutions may work with governments to create AI-powered climate risk assessment tools, blockchain-based carbon credit systems, and IoT-enabled waste management solutions (European Commission, 2022). Successful models from Estonia and Singapore, where the private sector has advanced smart environmental solutions, can be applied to Nigeria's local governance institutions.

The use of developing digital technology can considerably improve the efficiency and efficacy of green public administration. Artificial intelligence (AI) may be used to forecast environmental threats, optimise energy efficiency, and analyse climate trends, while Internet of Things (IoT) devices can track air pollution, water quality, and deforestation in real time (NITDA, 2021). Blockchain technology can also improve environmental reporting transparency by providing tamper-proof tracking of carbon emissions, waste disposal, and sustainable resource management (NDPB, 2022). By incorporating these technologies into Nigeria's digital governance structure, the government can improve data-driven decision-making and promote environmental sustainability.

Overcoming the problems of digital governance for green public administration in Nigeria necessitates a comprehensive strategy that includes strong policy coordination, digital infrastructure investments, capacity-building programs, public-private collaborations, and improved technological adoption. By



integrating digital governance initiatives with environmental regulations, Nigeria may build a more resilient, transparent, and sustainable public administration system. Prioritising AI, IoT, and blockchain-based technologies would help Nigeria expedite its transformation to a digitally empowered green economy, assuring long-term environmental sustainability and effective governance.

Conclusion

Integrating digital governance into green public administration is a vital gateway for Nigeria to improve environmental sustainability, policy implementation efficiency, and governance transparency. As the country faces the issues of climate change, pollution, deforestation, and ineffective environmental management, digital technologies provide new ways to revolutionise public administration and promote sustainable development. Artificial intelligence (AI), blockchain, big data analytics, and the Internet of Things (IoT) have the potential to enhance environmental monitoring, resource allocation, and regulatory compliance, resulting in a more effective and responsible governance framework.

Despite the potential benefits, various impediments prevent Nigerians from seamlessly adopting digital governance for green public administration. These include technology restrictions, ineffective policy coordination, budgetary constraints, institutional opposition, and cybersecurity threats. Nigeria has created regulations such as the Climate Change Act (2021), the National Digital Economy Policy and Strategy (NDEPS), and several environmental protection frameworks, but execution is fragmented and underfunded. Without clear policy direction, suitable digital infrastructure, and institutional commitment, the shift to a digitally driven environmental governance system will be slow.

To solve these problems, Nigeria must implement a comprehensive plan that includes robust policy changes, investments in digital infrastructure, capacity-building initiatives, public-private partnerships, and the use of new technology. Nigeria should position itself as an African digital environmental governance leader by utilising global best practices and encouraging multi-sectoral collaboration. The ideas below explain critical techniques for accelerating this shift.

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