A CASE STUDY OF DIGITAL GOVERNANCE IN NIGERIA'S PUBLIC ADMINISTRATION

Titus Chinedu Eze[*]

Department of Public Administration, Faculty of Management Sciences, Veritas University, Abuja

Corresponding Author Titus Chinedu Eze

Department of Public Administration, Faculty of Management Sciences, Veritas University, Abuja

Abstract: The goal of digital governance in public administration is to improve efficiency, transparency, and ICT engagement by using information and communication technology to streamline processes, reduce costs, and enhance service delivery. It fights corruption while promoting transparency and inclusion. Through data analytics and cybersecurity, decision-making is better, which increases inclusiveness and makes public administration more effective. Digital governance is transformative for every country's public administration because it simplifies operations, boosts transparency, and strengthens the relationship between citizens and the government. However, there are still significant challenges in implementing or expanding digital governance within Nigeria's public administration systems. This background study reviews literature and relevant examples to explain the evolution, key elements, impacts, and challenges of digital governance. One example highlighted in this research is an initiative focused on digital governance in Nigeria that shows ongoing issues along with practical consequences. Improving digital governance can be achieved by applying the recommendations proposed here.

Keywords: Digital/E-Governance, Digital Divide, Cybersecurity, Citizen Engagement, Bureaucratic Resistance, Open Data.

Introduction

Digital Governance (also called e-Governance) refers to the use of information and communication technologies (ICTs) by government agencies to enhance public service delivery, improve administrative efficiency, and foster transparency and citizen participation in governance (World Bank, 2022). It encompasses the strategic use of digital technologies and data to enhance government operations. It involves more than just digitizing existing processes; it represents a transformative shift in how governance is conceptualized and executed. This transformation aims to make public administration more transparent, efficient, and responsive to the needs of citizens (Janowski, 2015; Margetts & Dunleavy, 2013).

Types of Digital Governance in Public Administration

Digital service delivery such as online portals (e.g., cbn.gov.ng, nysc.gov.ng, etc), for citizens' information digest, queries, and support.

Data-driven decision making; the utilization of big data management for policy formulation and implementation, for example, the data on out-of-school children could be used to make educational policy that will improve literacy levels.

Transparency and accountability in governance with Open Government Data (OGD initiatives, e.g., US Data.gov, Kenya's Open Data Portal) whereby citizens can access information on the activities of government agencies (Data.gov, 2023, Kenya Open Data, 2023).

There is also citizen engagement and participation, such as e-petitions and crowdsourcing, for example, UK parliament petitions through which citizens can electronically question and petition against excesses of government (Mudamos, 2023).

Social media governance. Examples, Twitter and Facebook, through which the government disseminates information and also interacts with the citizens on specific and general matters.

Examples of Digital Governance

Digital governance in Nigeria's public administration involves using technology to make government services easier to access, more transparent, and more efficient for everyday people. Here are some relatable, down-to-earth examples that show how Nigeria is applying digital governance, explained in simple terms for laypeople:

Online Passport Application and Renewal: Instead of standing in long queues or dealing with middlemen, Nigerians can now apply for or renew their international passports through the Nigeria Immigration Service's online portal. You fill out your details, upload documents, pay online, and book an appointment for biometric capture. This saves time and reduces the hassle of manual processes, though some still face delays due to high demand.

BVN for Banking and Government Transactions: The Bank Verification Number (BVN) is a unique ID linked to your bank accounts, introduced by the Central Bank of Nigeria. It's used to verify your identity for government services, like pension payments or tax registration, and to prevent fraud. For example, a retiree can use their BVN to confirm their identity and receive pension funds directly, cutting out "ghost pensioner" scams.

Government Service Portal (services.gov.ng): This website acts like a one-stop shop for government services. Nigerians can access things like business registration, tax payments, or even apply for NYSC certificates online. For instance, a small business owner in Lagos can register their company with the Corporate Affairs Commission (CAC) without visiting an office, saving travel costs and time.

Remita for Government Payments: Remita is a digital platform that lets you pay for government services, like school fees, taxes, or utility bills, from your phone or computer. For example, a parent paying for their child's JAMB exam can use Remita to send the fee directly to the government, with a receipt for proof, making the process transparent and reducing cash-handling corruption.

Citizens' Delivery Tracker App: Launched in 2024, this app lets Nigerians track the progress of government projects and policies under President Tinubu's administration. Imagine a community leader in Kano checking the app to see if funds for a local clinic have been released or if construction has started, holding officials accountable.

Digital Birth and Death Registration: The National Population Commission now has an online portal (https://npc.gov.ng/) where parents can register their child's birth or get a death certificate. For example, a new mom in Abuja can submit her baby's details online, get a birth certificate, and avoid long trips to government offices. This also helps the government plan better for schools and healthcare.

These examples show how Nigeria's government is using digital tools to simplify services, reduce corruption, enthrone transparency, and involve citizens in government activities. However, challenges like poor internet access, especially in rural areas, and the need for more tech training for both citizens and officials, mean not everyone benefits equally yet.

Benefits of Digital Governance

Digital governance transforms public administration by harnessing information and communication technologies to deliver a multitude of benefits that enhance efficiency, transparency, and citizen engagement. It streamlines government operations through automation, as seen in initiatives like Nigeria's Integrated Payroll and Personnel Information System (IPPIS), which eliminated over 70,000 ghost workers, saving billions of naira annually while ensuring timely salary payments (Ogunleye & Adewale, 2020). By replacing cumbersome manual processes with digital platforms, it reduces administrative delays and costs, enabling public servants to focus on strategic tasks. Transparency is significantly bolstered through open data initiatives, such as the U.S. Data.gov platform, which makes government data accessible, fostering accountability and public trust (Open Government Partnership, 2022). Digital governance also empowers citizens by facilitating real-time interaction, exemplified by South Korea's e-People platform, which streamlines grievance redressal, and Taiwan's vTaiwan, which enables participatory policymaking (Kim et al., 2017; Hsiao et al., 2018). Ultimately, digital governance fosters inclusivity, efficiency, and responsiveness, creating a more accountable and citizen-centric public administration, though its success hinges on addressing challenges like the digital divide and cybersecurity risks.

Challenges Militating against Digital Governance

Digital governance in Nigeria, while transformative, faces significant challenges that hinder its effective implementation and scalability across public administration. The digital divide is a primary obstacle, with only 36% of Nigerians having reliable internet access due to inadequate ICT infrastructure and unstable power supply, particularly in rural areas (ITU, 2023). This limits access to digital services, exacerbating inequalities. Cybersecurity risks pose another critical challenge, as weak protections expose systems like the Integrated Payroll and Personnel Information System (IPPIS) to potential data breaches, undermining public trust (Shenkoya, 2023). The lack of interoperability among digital platforms across Ministries, Departments, and Agencies (MDAs) leads to fragmented data systems, reducing efficiency, as seen in disjointed health data during the COVID-19 response (WHO, 2021). Bureaucratic resistance and low digital literacy among public servants slow adoption, with programs like IPPIS facing pushback from groups like the Academic Staff Union of Universities (ASUU) due to concerns over autonomy and skill gaps (Dada et al., 2020). Finally, funding constraints restrict investments in infrastructure and system upgrades, delaying Nigeria's goal of full MDA digitization by December 2025 (Ogunleye & Adewale, 2020). These challenges collectively impede the realization of digital governance's potential to enhance transparency, efficiency, and citizen engagement in Nigeria's public sector.

Background to the Study

Digital governance refers to integrating digital technologies into government functions to enhance efficiency, transparency, and citizen engagement (World Bank, 2020). It represents a shift from traditional bureaucratic models to data-driven, automated, and participatory governance. Public administration, as the backbone of government operations, has been significantly transformed by digital tools such as artificial intelligence (AI), blockchain, big data, and the Internet of Things (IoT) (OECD, 2021). In public administration, digital governance transforms how governments deliver services, engage with citizens, and manage resources. It encompasses the integration of information and communication technologies (ICTs) to enhance efficiency, transparency, and accountability in public sector operations (Misuraca et al., 2015). This background study explores the evolution, key components, challenges, and impacts of digital governance in public administration, drawing on relevant literature and examples.

Evolution of Digital Governance in Public Administration

The emergence of e-government in the late 1990s marked the beginning of the use of digital technology in public administration, with an emphasis on digitising service delivery and administrative procedures (Layne & Lee, 2001). Online portals for information sharing and basic service access, such as submitting taxes or renewing licenses, were given priority in early endeavours. As time went on, digital governance expanded beyond e-government to encompass more general ideas like cybersecurity, data governance, and citizen-centric digital initiatives (OECD, 2020). The change was brought about by developments in ICTs, such as big data analytics, cloud computing, and artificial intelligence (AI), which made it possible for public administration to use increasingly complex programs.

It was the period when governments launched basic websites for information dissemination. For instance, the government of the USA launched its "FirstGov.gov", now usa.gov, which was launched in 2000. The government of the United Kingdom also launched Direct.gov, which later merged into gov.uk

in 2012. (UK Government Digital Service, 2012). It gradually expanded to open government and smart services with emphasis on open data, interoperability, and citizen participation (OECD, 2019). The current phase of digital governance includes Artificial Intelligence-driven governance, which uses AI for predictive governance, such as in crime prediction and traffic management (Deloitte, 2022). Blockchain technologies have also been integrated into governance for secure voting, land registries, and anti-corruption measures (World Economic Forum, 2021).

For instance, the European Union's e-Government Action Plan (2016–2020) emphasized interoperable digital services across member states, promoting seamless cross-border interactions (European Commission, 2016). Similarly, countries like Singapore implemented Smart Nation initiatives, leveraging IoT and AI to optimize urban planning and public services (Smart Nation Singapore, 2023). These developments highlight the transition from isolated digital tools to integrated governance frameworks that align technology with public policy goals.

Steps in Providing Digital Governance in Public Administration

Digital governance in public administration comprises several interconnected components that include,

Policy and Regulatory Frameworks: These provide the legal and ethical foundation for digital initiatives. For example, the EU's General Data Protection Regulation (GDPR) sets standards for data privacy, influencing public sector data management globally (European Commission, 2016). Policies also address digital inclusion to ensure equitable access to technology (OECD, 2020).

Technology Infrastructure: Robust ICT infrastructure, including high-speed internet and secure data systems, is critical for digital governance. Estonia's X-Road platform, for instance, enables secure data exchange across government agencies, enhancing service efficiency (Vassil, 2015).

Stakeholder Engagement: Digital governance requires collaboration among the government, citizens, and the private sector. Participatory platforms, such as Taiwan's vTaiwan, allow citizens to co-create policies using digital tools, fostering transparency and trust (Hsiao et al., 2018).

Cybersecurity and Risk Management: As digital systems expand, so do risks like cyberattacks. Public administrations must implement cybersecurity measures, such as encryption and multi-factor authentication, to protect sensitive data (Dawes, 2009).

Capacity Building: Training public servants in digital skills is essential for effective governance. Programs like India's Digital India initiative include capacity-building efforts to equip administrators with ICT competencies (Government of India, 2019).

Global Case Studies

Country	Initiative	Impact	Reference
Estonia	e-Governance (X-Road, e-Residency)	99% govt services online	(Estonia e-Government, 2023)
Singapore	Smart Nation Initiative	AI-driven urban management	(Smart Nation Singapore, 2023)
India	Digital India (Aadhaar, UPI)	Financial inclusion for millions	(MeitY India, 2023)
Rwanda	Irembo e-Services Platform	Improved service delivery	(Rwanda ICT, 2023)

Culled from the internet, Wednesday, June 11, 2025

Statement of the Problem

The rapid advancement of digital technologies and their effective use in governance processes has transformed and become integral to modern public administration (World Bank, 2020). It enables governments to enhance service delivery, transparency, and citizen engagement through technologies like e-government platforms, big data analytics, and artificial intelligence (OECD, 2020). However, the integration of digital governance into public administration faces significant challenges that undermine its potential to deliver equitable and efficient outcomes. However, integrating digital governance systems faces significant challenges, including inequitable access, cybersecurity risks, bureaucratic resistance, and ethical concerns (OECD, 2021). Despite the potential benefits of e-government platforms, AI-driven decision-making, and blockchain-based transparency mechanisms, many governments struggle to implement these innovations effectively (UN E-Government Survey, 2022).

One major issue is the **digital divide**, which limits access to digital services for marginalized populations, particularly in developing countries and rural areas. The digital divide, characterized by unequal access to technology, limits the reach of digital services, particularly in rural and low-income areas (Norris, 2001). Rural populations, elderly citizens, and low-income groups often lack internet connectivity and digital literacy. Despite global advancements in ICT infrastructure, disparities in internet access and digital literacy persist, exacerbating social and economic inequalities (ITU, 2023). For instance, in sub-Saharan Africa, only 36% of the population had internet access in 2022, compared to 89% in developed nations, hindering inclusive digital governance (ITU, 2023).

Another critical problem is the **lack of interoperability** among digital systems in public administration. Lack of interoperability between government agencies hinders seamless digital service delivery (Deloitte, 2022). Fragmented platforms across government agencies lead to inefficiencies in data sharing

and service delivery, as observed during the COVID-19 pandemic when disjointed health data systems delayed responses (WHO, 2021). This issue is compounded by outdated legacy systems, which are costly to replace and incompatible with modern technologies (Dawes, 2009).

Cybersecurity risks further complicate digital governance. Cybersecurity threats, including data breaches, undermine public trust in digital systems (Alawneh, 2018). Public sector data breaches, such as the 2020 SolarWinds hack, expose vulnerabilities in digital infrastructure, eroding public trust and compromising sensitive information (CISA, 2020). Weak data protection laws in some countries expose citizens to privacy violations. Many governments lack robust cybersecurity frameworks or skilled personnel to address these threats, leaving systems exposed to cyberattacks.

Additionally, **ethical concerns** surrounding the use of AI and data analytics in public administration pose significant challenges. Algorithmic biases in decision-making tools, such as those used in predictive policing or welfare allocation, can perpetuate discrimination and undermine fairness (Misuraca et al., 2015). The absence of clear ethical guidelines for AI deployment in public administration exacerbates these risks.

Furthermore, the distinctive integration of technology in public administration requires significant **financial investment** and technical expertise, which may be lacking in developing nations (United Nations, 2022). High implementation costs of digital governance systems strain government budgets, and many digital initiatives fail due to poor planning and a lack of long-term funding.

Finally, **resistance to change** and inadequate capacity among public servants hinder the adoption of digital governance. Traditional administrative structures often resist digital transformation due to legacy systems and workforce reluctance (Harvard Business Review, 2021). Many administrators lack the digital skills needed to implement or manage advanced technologies, while bureaucratic inertia resists organizational shifts toward digital transformation (OECD, 2020). This gap limits the ability of public institutions to leverage digital tools for improved governance fully.

These challenges, the digital divide, lack of interoperability, cybersecurity risks, ethical concerns, and resistance to change collectively impede the effective integration of digital governance in public administration. Without addressing these issues, governments risk failing to achieve the promised benefits of digital transformation, such as enhanced efficiency, transparency, and citizen-centric services. This study seeks to investigate these problems and propose strategies to strengthen digital governance frameworks in public administration.

Objectives of the Study

While digital governance has the potential to revolutionize public administration, there is a critical gap in addressing systemic barriers such as digital exclusion, security vulnerabilities, institutional inertia, and ethical dilemmas. Without effective policy frameworks, infrastructure investment, and inclusive design, digital governance may exacerbate inequalities rather than fostering equitable development, and thus the objectives of this study include;

To investigate strategies that governments can implement to ensure inclusive digital governance, addressing the digital divide by enhancing access to technology and digital literacy for marginalized populations.

To examine effective approaches for mitigating cybersecurity risks in public administration, focusing on robust frameworks and capacity-building measures to protect digital infrastructure and maintain public trust.

To explore methods for overcoming bureaucratic resistance to accelerate digital transformation in public administration, identifying ways to foster organizational change and equip public servants with the necessary digital skills.

Research Questions

This study seeks to answer the following research questions:

- How can governments ensure inclusive digital governance to bridge the digital divide?
- What strategies can mitigate cybersecurity risks in public administration?
- How can bureaucratic resistance be overcome to accelerate digital transformation?

Significance of the Study

This study contributes to understanding the role of digital governance in public administration, especially in enhancing good governance, transparency, and accountability.

Clarification of terms

For this study, the following terms are defined to ensure conceptual clarity and consistency in interpretation.

Digital Governance

The use of information and communication technologies (ICTs) to improve public sector service delivery, promote citizen participation, and enhance transparency and accountability.

Public Administration

The action of implementing government policies and programs, including the activities involved in managing and delivering public services.

Integrated Payroll and Personnel Information System (IPPIS)

This is a centralized database system used by the Nigerian government to manage personnel records and payroll for public service employees. It aims to create a single, accurate source of employee information, automate record keeping, streamline payments, and prevent fraud and wastage in the system.

Literature Review

Digital governance has become a transformative force in public administration, reshaping how governments deliver services, engage citizens, and manage internal operations. As a discipline, Public administration has increasingly integrated digital tools to streamline bureaucratic processes, enhance transparency, and promote participatory governance. Understanding their implications on governance, transparency, accountability, and efficiency becomes crucial as digital technologies become more integrated into public sector processes. This literature review examines key themes and developments in digital governance within the context of public administration.

Digital governance refers to the application of digital technologies in the design, implementation, and oversight of government policies and services. According to Maha (2016), digital governance is not merely about automating services but transforming government institutions to become more citizen-centric and agile. It encompasses the application of ICTs to deliver public services, engage citizens, and improve decision-making (Margetts, 2019). It includes e-governance, which focuses on electronic service delivery, and e-participation, which emphasizes citizen involvement in policy-making (United Nations, 2022). Digital governance aligns with the principles of New Public Management, emphasizing efficiency, accountability, and responsiveness (Dunleavy, 2006).

E-government is a cornerstone of digital governance, focusing on delivering public services online. According to the United Nations E-Government Survey (2022), countries with advanced digital infrastructure demonstrate higher efficiency in public service delivery. Dunleavy et al. (2006) argue that digital-era governance (DEG) emphasizes reintegrating government functions through digital means, moving away from traditional bureaucratic silos. Similarly, Heeks (2001) highlights that e-government initiatives reduce corruption by minimizing human intervention in administrative processes.

Evolution of Digital Governance

Digital technologies in public administration began in the late 1990s, when electronic government began to expand, with a focus on digitizing administrative processes and service delivery (Lee, 2001). Early efforts included online portals for information dissemination and basic service access, such as tax application and license renewal. Over time, digital governance has evolved beyond e-government to include a wider concept, such as data governance, cybersecurity, and citizen-oriented digital strategy (OECD, 2020). The shift was driven by advances in ICT, including cloud computing, artificial intelligence (AI), and big data analysis, and made it possible to use more sophisticated public administration applications.

Janowski (2015) describes this shift as moving from transformation to contextualization, where digital tools adapt to specific societal needs. Recent studies emphasize the role of digital public infrastructure (DPI) in reshaping governance, as seen in India's DPI initiatives, which enhance financial and health inclusion through interoperable digital systems. The COVID-19 pandemic accelerated this transition, pushing governments to adopt digital platforms for service delivery, as noted by Agostino et al. (2021). This evolution reflects a move toward citizen-centered, collaborative governance, integrating technologies like artificial intelligence (AI) and blockchain.

Benefits of Digital Governance

Digital governance offers significant advantages for public administration. It enhances efficiency by automating processes, reducing bureaucratic delays, and cutting costs, as evidenced by studies on online tax filing and e-permitting systems. Transparency and accountability improve through open data platforms, allowing citizens to track public spending, as highlighted by Bertot et al. (2010). Citizen engagement is bolstered via e-participation tools, such as online feedback platforms, which foster participatory governance. For instance, digital democracy platforms enable citizens to influence policy, as discussed by Siagian and Yuliarti

(2021). Additionally, data analytics supports evidence-based policymaking, improving service quality and responsiveness.

Layne and Lee (2001) note that digital governance has significantly improved public administration. Studies highlight its ability to enhance efficiency through the automation of routine tasks. For instance, online tax systems and digital permitting processes have reduced processing times and costs. Additionally, transparency is bolstered by open data initiatives, such as the U.S. Data.gov platform, which provides public access to government datasets, fostering accountability (Open Government Partnership, 2022).

Impacts of Digital Governance on Public Administration

Digital governance has significantly transformed public administration by improving efficiency, transparency, and citizen engagement. Automated processes, such as online tax systems, reduce administrative costs and processing times (Layne & Lee, 2001). Open data initiatives, like the U.S. Data.gov platform, enhance transparency by making government data publicly accessible (Open Government Partnership, 2022). Moreover, digital tools enable real-time citizen feedback, as seen in South Korea's e-People platform, which streamlines grievance redressal (Kim et al., 2017).

However, digital governance also introduces challenges. The digital divide, unequal access to technology, exacerbates inequalities, particularly in developing nations (OECD, 2020). Cybersecurity threats, such as the 2020 SolarWinds hack, underscore vulnerabilities in digital systems (CISA, 2020). Additionally, ethical concerns around AI and data analytics, including bias in decision-making algorithms, require robust governance to ensure fairness (Misuraca et al., 2015).

Challenges and Barriers

Despite its benefits, digital governance faces several challenges. The digital divide, characterized by unequal access to technology, limits the reach of digital services, particularly in rural and low-income areas (Norris, 2001). Cybersecurity threats, including data breaches, undermine public trust in digital systems (Alawneh, 2018). In addition, the distinctive integration of technology in public administration requires significant financial investment and technical expertise, which may be lacking in developing nations (United Nations, 2022).

Furthermore, Mergel et al. (2019) note that many public administrations lack e-readiness, hindering full digital transformation. Organizational resistance and outdated bureaucratic cultures also impede progress, as discussed by Tangi et al. (2021). Furthermore, the literature highlights a lack of standardized digital government architectures, complicating interoperability across systems. Paradoxes in digital governance, such as balancing innovation with accountability, are also critical, as identified in a 2024 study by the International Conference on Digital Government.

Research Gaps and Future Directions

The literature reveals several gaps. First, there is a need for more rigorous, quantitative studies on digital governance outcomes, as much research remains exploratory. Second, interdisciplinary approaches integrating public administration, computer science, and political science are underexplored. Third, the impact of emerging technologies like AI and blockchain on governance requires further investigation. Finally, cross-country

comparisons could enhance understanding of best practices, particularly in developing nations. Future research should focus on addressing these gaps to develop robust frameworks for digital governance.

Methodology

This study adopted a qualitative approach, analyzing secondary data from academic journals, government reports, and international organization publications. A case study of a digital governance initiative in Nigeria was examined to illustrate practical applications and outcomes. The analysis draws on peer-reviewed articles published between 2015 and 2025, accessed through academic databases.

Case Study

Digital Governance in Nigeria: The Integrated Payroll and Personnel Information System (IPPIS).

Introduction

In Nigeria, where public sector challenges such as corruption, inefficiency, and bureaucratic bottlenecks have long persisted, digital governance initiatives offer transformative potential. This case study examines the **Integrated Payroll and Personnel Information System (IPPIS)**, a prominent digital governance program implemented by Nigeria's Federal Government across its Ministries, Departments, and Agencies (MDAs). IPPIS is a flagship initiative aimed at reforming public sector payroll management and personnel administration, serving as a model for digital governance in Nigeria's public administration (Ogunleye & Adewale, 2020).

Background

The IPPIS was introduced in 2007 by the Federal Government of Nigeria, under the supervision of the Office of the Accountant-General of the Federation (OAGF), to address inefficiencies in payroll administration, reduce ghost workers, and curb financial leakages in the public sector. Prior to IPPIS, Nigeria's public payroll system was plagued by manual processes, duplicate records, and fraudulent practices, costing the government billions of naira annually (Shenkoya, 2023). For example, a 2006 audit revealed thousands of non-existent workers on federal payrolls, highlighting the need for reform (Ogunleye & Adewale, 2020).

The program aligns with Nigeria's broader e-government strategy, driven by the National Information Technology Development Agency (NITDA) and the Federal Ministry of Communications and Digital Economy, to modernize public administration and achieve sustainable development goals (SDGs) (Kari & Mshelia, 2023). IPPIS is one of the most widely adopted digital initiatives across Nigerian MDAs, covering over 500,000 federal employees by 2023, making it a significant case for studying digital governance (OAGF, 2023).

Objectives

The IPPIS program was designed with the following objectives:

- To centralize and automate payroll and personnel data management across federal MDAs, reducing errors and fraud.
- To enhance transparency and accountability in public sector financial management by ensuring accurate employee records.
- To improve efficiency in salary payments and support data-driven decision-making for human resource management (Ogunleye & Adewale, 2020).

Strategies and Implementation

The IPPIS initiative employed several strategies to achieve its objectives, integrating digital technologies with governance reforms:

- **Centralized Digital Platform**: IPPIS is a web-based platform that integrates payroll and personnel data across MDAs. It uses biometric verification, including fingerprints and photographs, to authenticate employees and eliminate ghost workers. The system is hosted by the OAGF and linked to the Government Integrated Financial Management Information System (GIFMIS) for seamless financial oversight (OAGF, 2023).
- **Stakeholder Collaboration**: The implementation involved coordination among multiple stakeholders, including NITDA, the Federal Ministry of Finance, and private sector IT firms like Remita, which provided payment infrastructure. MDAs were mandated to enroll employees, ensuring comprehensive coverage (Shenkoya, 2023).
- **Capacity Building**: Training programs were conducted for MDA staff to facilitate data entry, system management, and compliance with IPPIS protocols. This addressed initial resistance due to low digital literacy among some public servants (Dada et al., 2020).
- **Policy Enforcement**: In 2019, the Federal Government mandated full IPPIS compliance for all MDAs, with President Muhammadu Buhari directing that non-compliant agencies be excluded from federal payrolls. This policy, though controversial, accelerated adoption (Ogunleye & Adewale, 2020).
- **Cybersecurity Measures**: To protect sensitive employee data, IPPIS incorporated encryption and secure authentication protocols, aligning with Nigeria's Data Protection Regulation (NDPR) (Kari & Mshelia, 2023).

In December 2024, the Federal Government announced plans to fully digitize MDA operations by December 2025, with IPPIS serving as a cornerstone for eliminating paper-based workflows, as reported on social media platforms.

Outcomes

The IPPIS program has yielded significant results in Nigeria's public administration:

- **Reduction in Ghost Workers**: By 2020, IPPIS identified and removed over 70,000 ghost workers, saving the government approximately ₦450 billion annually (OAGF, 2023). This enhanced fiscal discipline and reduced wasteful expenditure.
- **Improved Efficiency**: Automated payroll processing reduced delays in salary payments, with over 95% of

federal employees receiving timely payments by 2023 (Shenkoya, 2023).

- **Enhanced Transparency**: The centralized database provided real-time access to personnel and payroll data, enabling better auditing and accountability. For instance, MDAs could track employee records, reducing discrepancies (Ogunleye & Adewale, 2020).
- **Data-Driven Governance**: IPPIS data supported human resource planning, such as workforce optimization and pension management, contributing to better decision-making (Kari & Mshelia, 2023).

Challenges

Despite its achievements, IPPIS faced several challenges that highlight broader issues in Nigeria's digital governance landscape:

- **Digital Divide and Infrastructure**: Unreliable internet connectivity and power outages disrupted system access, particularly in rural MDA offices. The ITU (2023) notes that only 36% of Nigerians have reliable internet access, limiting digital scalability (ITU, 2023).
- **Resistance from Stakeholders**: Some MDAs, notably the Academic Staff Union of Universities (ASUU), resisted IPPIS, citing concerns over autonomy and data privacy. This led to strikes and delays in implementation (Dada et al., 2020).
- **Cybersecurity Risks**: Despite security measures, concerns about data breaches persisted, given Nigeria's weak cybersecurity infrastructure (Shenkoya, 2023).
- **Capacity Gaps**: Low digital literacy among some MDA staff slowed data migration and system adoption, requiring ongoing training (Kari & Mshelia, 2023).
- **Funding Constraints**: Inadequate budgetary allocations delayed system upgrades and expansion to state-level MDAs (Ogunleye & Adewale, 2020).

Lessons Learned

The IPPIS case offers valuable insights for digital governance in Nigeria and other developing countries:

- **Strong Policy Enforcement**: Mandating compliance, as seen in the 2019 directive, is critical for driving adoption but must be balanced with stakeholder engagement to reduce resistance (Ogunleye & Adewale, 2020).
- **Investment in Infrastructure**: Addressing Nigeria's digital divide through improved internet and power infrastructure is essential for sustainable digital governance (ITU, 2023).
- **Continuous Training**: Ongoing capacity building is necessary to overcome skill gaps and ensure effective system use (Dada et al., 2020).
- **Public-Private Partnerships**: Collaboration with private sector firms, like Remita, enhanced technical capacity and payment efficiency, demonstrating the value of partnerships (Shenkoya, 2023).
- **Ethical Data Management**: Robust cybersecurity and data protection measures are crucial to maintain public trust in digital systems (Kari & Mshelia, 2023).

Conclusion

The Integrated Payroll and Personnel Information System (IPPIS) represents a significant milestone in Nigeria's digital governance journey, demonstrating the transformative potential of ICTs in public administration. By reducing ghost workers, improving payroll efficiency, and enhancing transparency, IPPIS has strengthened financial management across federal MDAs. However, challenges such as infrastructure deficits, stakeholder resistance, and cybersecurity risks highlight the need for sustained investment and strategic coordination. As Nigeria moves toward full MDA digitization by December 2025, IPPIS serves as a model for scaling digital governance, provided lessons from its implementation are applied to address systemic barriers. This case underscores the importance of aligning digital initiatives with national policies, fostering stakeholder buy-in, and investing in infrastructure to achieve sustainable governance reforms.

Summary, Conclusion, and Recommendation

Summary

Digital governance enhances public administration by automating processes, reducing costs, and improving accessibility. However, the digital divide exacerbates inequality, as marginalized groups often lack access to necessary technology (Norris, 2001). Cybersecurity remains a critical concern, with high-profile breaches highlighting the need for robust data protection (Alawneh 2018). Successful implementation requires investment in infrastructure, digital literacy programs, and inclusive policies to ensure equitable access.

Conclusion

Digital governance holds immense potential to transform public administration by improving efficiency, transparency, and civic engagement. However, its success depends on addressing challenges such as the digital divide and cybersecurity risks. Governments must prioritize inclusive policies, invest in digital infrastructure, and improve stakeholder engagement to maximize the benefits of digital governance in an increasingly digital world.

Recommendations

Digital governance in Nigeria has made significant strides through initiatives like the Integrated Payroll and Personnel Information System (IPPIS), which has enhanced transparency and efficiency in public administration (Ogunleye & Adewale, 2020). However, challenges such as inadequate ICT infrastructure, cybersecurity vulnerabilities, low digital literacy, system interoperability issues, and limited funding continue to hinder progress (Shenkoya, 2023). As Nigeria aims to fully digitize its Ministries, Departments, and Agencies (MDAs) by December 2025, addressing these barriers is critical to achieving sustainable digital transformation. The following recommendations provide actionable strategies to strengthen digital governance, drawing on lessons from Nigeria's e-government efforts and global best practices to ensure inclusive, secure, and efficient public administration.

- **Enhance ICT Infrastructure**: Invest in reliable internet connectivity and stable power supply, particularly in rural areas, to bridge the digital divide and ensure seamless access to digital governance platforms, as only 36% of Nigerians have reliable internet access (ITU, 2023).
- **Strengthen Cybersecurity Frameworks**: Develop robust cybersecurity policies and deploy advanced encryption and authentication systems across Ministries, Departments, and Agencies (MDAs) to protect sensitive

data and build public trust, addressing vulnerabilities highlighted by global breaches like the 2020 SolarWinds hack (CISA, 2020).

- **Expand Digital Literacy Programs**: Implement nationwide training initiatives for public servants and citizens to boost digital skills, reducing resistance to digital tools and enhancing adoption, as low digital literacy remains a barrier in programs like IPPIS (Dada et al., 2020).
- **Foster Public-Private Partnerships**: Collaborate with private sector IT firms to leverage technical expertise and funding for digital projects, as demonstrated by the successful integration of Remita in the IPPIS payment infrastructure (Shenkoya, 2023).
- **Promote Interoperability Standards**: Establishstandardized data formats and interoperable systems across MDAs to facilitate seamless data sharing and improve service delivery, addressing fragmentation issues seen in health data systems during the COVID-19 pandemic (WHO, 2021).

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