



EXPLORING THE LINK BETWEEN DIGITAL INNOVATION AND PUBLIC ACCOUNTABILITY IN NIGERIA'S GOVERNMENT INSTITUTIONS

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Abstract: This study empirically investigated the effect of digital transformation on public sector accountability and transparency in Nigeria. The study is vital as it portrays the extent to which digital transformation ensures transparency and accountability in the Nigeria public sector organizations using federal government MDAs in Anambra State as a reference point. Two hypotheses were formulated to guide the investigation and the statistical test of parameter estimates was conducted using Friedman's 2WaysANOVA. The study anchored on the Institutional Theory of Modernization adopted a Survey Design and Hence, data were collected using questionnaire survey administered to the targeted audience. Thus, the empirical analysis of the study indicates that IPPIS adoption and TSA adoption has positive and significant effect on accountability and transparency in the federal government MDAs in Nigeria at 5% level of significant. The study therefore concludes that the adoption of IPPIS has reduced the financial irregularities in the federal government payroll system in Nigeria. Thus, transparency has been entrenched in the Nigerian public sector financial records. Also, the TSA adoption has also ensured transparency in the Nigerian public sector organizations. Thus, the study recommends that Government should enforce the adoption of IPPIS and TSA and make it mandatory for all the MDAs and parastatals to adhere to since its adoption has significantly ensured transparency in the federal government ministries, departments and agencies in Nigeria. There is also a need for the IPPIS legislation to cover the states and local government level since the policy in question only covered the federal level.

Keywords: Digital Transformation, Public Sector Accountability; Transparency; IPPIS; TSA

1.0 Introduction

Digital is shaking up the status quo. New technologies have permitted, changing the essence of business. There is a clear choice, innovate or fall behind. The advent of the digital revolution has profoundly impacted several industries, and accounting is no exception. Integrating digital technologies into accounting processes has revolutionized how businesses manage and analyze finance. (RosniAbWahid, 2021). E-government is a concept

that has its etiology in the nineteenth century. It refers to the Use of information and communication technology (ICT) to promote more efficient and cost effective government, facilitate more convenient government services, allow greater government access to information, and make government more accountable to the citizens. E-government is the use of ICT by government agencies to transform relations with citizens. (Johnson&Martin, 2023) Nigeria's e-governance initiatives have positively impacted governance at different levels. These e-governance initiatives have contributed to the overall fight against corruption. One of such initiatives is the Integrated Personnel Payroll (IPPIS). One of the significant challenges in the Nigerian public sector has been the presence of "ghost workers"—fictitious or non-existent employees who are included in the payroll system to embezzle funds. The IPPIS helps address this issue by providing a centralized database of government employees with biometric verification. By verifying the Identity of each employee, the system helps to identify and remove ghost workers from the payroll, reducing the opportunity for corruption and saving significant public fund (Jayeola&Musumhi, 2023). Yet, another mile stone of Nigeria government in achieving accountability and transparency in the public sector is the National Open Data Portal which represents a central gate to different public data relating to various public structures. This portal aims at reinforcing transparency and accountability, and on the other hand facilitating free and open access to information, which can later be reused to create added-value in the form of Mobile applications or online services. Furthermore, National Information Technology Development Agency(NITDA) which was created in April, 2001 to implement the Nigerian Information Technology Policy and co-ordinate general IT development in the country was framework created for planning research, development, standardization, coordination, monitoring, evaluation and regulating of information, it centers around : Fostering digital literacy and Cultivating talent; building a robust technology; strengthening policy implementations; promoting inclusive access to digital infrastructure and services government strengthening cyber security digital technologies; nurturing an Innovative; forging strategic partner and collaboration. Cultivating a vibrant organizational culture and an agile workforce (Inuwa, 2023). Digital transformation in government involves the utilization of innovative technologies in order to deliver more transparent, cost-effective, and customer-focused services to citizens at both national and local level (Tamara&Kucherenko, 2021) Digital transformation has significantly impacted the public sector in several ways: Improved Service Delivery. Digital tools and platforms have streamlined processes, making easy for customers access to services. Online portals for applying for permits, paying taxes, or accessing healthcare services, have also enhanced convenience and efficiency For instance, the Treasury Single Account, the TSA is a centralized bank account that consolidates all government revenue and ensures that funds are managed in a transparent and accountable manner. The Treasury Single Account helps to minimize opportunities for corruption by centralizing government funds, promoting transparency and accountability, mitigating, improving cash management, and facilitating effective oversight (OAGF, 2023) Accounting for public services, digitalization is a significant trend, and its influence is anticipated to continue increasing in the years to come. Organizations and practitioners will need to develop strategies. For effectively managing this rapidly changing the landscape once they have a solid understanding of digitalization potential benefits and challenges. It will be vital for them to understand both the potential benefits and challenges of digitalization. (Omar et al, 2024) Digital technologies are continuously transforming public services and the way through which Governments leverage digital innovation to manage public service performance. From e- Government to e-governance and digital technologies, there is increasing diffusion of interest, in leveraging, information and communication technologies (ICT) to create public value

(Agostino et al, 2022). Digital government does not only enhance stakeholder's contribution to national and community Development, but has also deepened on the process of governance and improves efficiency and effectiveness of service delivery in the public sector (Cole, 2020). Another area in which digital transformation can be seen is the introduction of Biometric Verification Number (BVN): The BVN is a unique identification number assigned to individuals in Nigeria based on their biometric data, such as finger prints and facial recognition. The BVN has exposed hidden bank accounts used for tax evasion, money laundering, and concealing illicit wealth .(Jaiyeola&Musumhi,2023) Furthermore, the Nigeria government has taken a step further in enhancing accountability and transparency by initiating Government Integrated Financial and Management Information System (GIFMIS). This is an integrated software platform used by governments to enhance financial management, budgeting, and reporting. By providing a centralized platform for managing procurement activities, the system promotes fair competition, reduces the risk of corruption in the procurement process, and ensures better value for public funds .It enables transparency in vendor selection, bidding processes, and contract management. While the benefits of a digital and contract. While the benefits of digital transformation strategy are compelling, organizations are navigating a landscape filled with challenges and risks. For instance, as businesses become increasingly reliant on digital tech neologies, the risk of cyber security threats amplifies. The interconnected nature of digital system, the rise of remote work, and the sheer volume of sensitive data being processed make organizations vulnerable to cyber-attacks. Also, integrating digital technology with existing systems and infrastructure poses a significant challenge for organizations. System may not not seamlessly align with modern an applications, leading to compatibility issues and disruptions. It is based on these challenges that the study to addresses a significant gap in literature by surveying the perspectives of staff from federal ministries, departments, and agencies (MDAs) located in Anambra State, Nigeria. This will be achieved by examining the degree of relationship between adoption of IPPIS and TSA and public sector transparency also the relationship between implementation digital platforms for monitoring of public projects and accountability.

1.1 Objectives of the study

The main objective of the study is the effect of digital transformation on public sector accountability and transparency in Nigeria. Specific Objectives are:

1. To examine the effect of adoption of IPPIS on public sector transparency
2. To ascertain the effect of TSA adoption on public sector transparency.

H₀₁: There is no significant effect of adoption of IPPIS on public sector transparency.

H₀₂: There is no significant effect of TSA adoption on public sector transparency

2.0 Literature Review

2.1 Conceptual Review

Accountability refers to the mechanisms and processes through which individuals or organizations are held responsible for their actions, particularly in relation to their performance behavior, and adherence to standards or regulations. It encompasses several dimensions including transparency, answerability, and responsibility (Bovens, 2021). Digital Accountability: The rise of digital has transformed accountability practices, particularly concerning data privacy and cyber security, Organizations are increasingly held accountable for the (Miller Fox, 2023). IPPIS stands for the Integrated Personnel and Payroll Information System. It is digital platform used by the Nigerian government to manage and streamline the payroll system for federal employees. The system aims to improve efficiency, transparency, and accountability in the management of personnel records and salaries. The

IPPIS is an IT enabled facility being put in place to establish a reliable and comprehensive database for the public service, facilitate manpower planning, eliminate record and payroll fraud, facilitate easy storage, update and retrieval of personnel records for administrative and pension processes and staff remuneration payment with minimal wastages and leakages (Enakirerhi&Temile,2017).Also,(Aganga,2017), viewed Integrated Personnel and Payroll information System (IPPIS) as one of the Federal Government reforms initiative conceived to transform the Nigerian Public Service and make it more efficient and effective in service delivery. TSA, or the Treasury Single Account is a financial management system implemented by the Nigerian government to centralize all government revenues into a single account or a set of accounts managed by (CBN). The TSA aims to enhance transparency, and efficiency in the management of government funds, reduce the incidence of corruption, and improve the overall financial management of public resources (OAGF, 2023).

Theoretical Framework

2.2Theoretical Framework

Institutional Theory propounded by Selznick, (1957) and was expanded by Scout (2001).Examine how organizations are influenced by the institutional environments and how they conform institutional norms, rules and values. The theory posits that organizations adopt certain structures and practices to gain legitimacy, stability, and resources by aligning with the expectations and pressures of their institutional context. Institutional Theory explains how pressures, from Regulatory bodies, public expectations, and technological advancements drive public sector organizations to adopt digital tools. For instance, government policies or public demand for greater transparency, may push agencies to implement digital systems. The theory helps analyze how digital transformation aligns with existing norms and values relate to transparency and accountability. It looks at how these digital changes are integrated into the existing practices of public sector organizations and whether they reinforce or challenge current norms. Institutional Theory provides insights into how organizations adapt to digital transformation. It examine show new digital practices become institutionalized with in public sector agencies and how they reshape organizational routines and structures. This theory is relevant to study of effect of digital transformation on public sector accountability and transparency in Anambra State, Nigeria, because, it offers a framework to understand how institutional pressures influence the adoption of digital technologies, the alignment of digital practices with established norms and values in public administration and the process through which digital tools become embedded in organizational practices and contribute to changes in accountability and transparency

2.3EmpiricalReview

Ofoma (2022), examined the digital technologies and tools used by various Ministries, Departments and Agencies of Nigeria in delivering services to the citizens. The study used secondary data sourced through different means such as government MDAs and published articles/works.The data were analyzed using analytical method and found very relevant to the study. The findings of the paper revealed that prior to the introduction of digital technologies in Nigeria public service, service delivery to the citizens was very poor, ineffective and inefficient. It was therefore conclusively stated that the digitalization driven processes in the public services should be sustained but there is need to policies that would ensure the installation and expansion of conte nt on wired and wireless public networks across the country; and adoption of publicprivate partnership model aimed at training the Citizens, especially rural dwellers on the use Of digital technology. Similarly, Cinjel and Chujor(2024),examined the impact of digital government on Productivity in the Nigerian Public Sector. The study

gives much accentuation to the practice in INEC and FRSC. The study used non-experimental research and as such, Mixed Method Research Design was employed. Krejcie and Morgan Table was used to determine the sample size of the study. The data of the study were generated from array of both published and unpublished documents (Textbooks, Newspaper, Magazines, internet materials, etc.). The study found that digital technology has significant benefits in the Nigerian Public Service. The study also found that factors such as insufficient tools, poor usage, maintenance, network, among others affect the application of digital technology in Nigerian Public Sector. The study recommends that Nigerian government, INEC and FRSC precisely need to adequately train all workers on how to use technologies and know the need for the sufficiency and maintenance of the tools, among many others. Furthermore, Enitan et al (2024) review strategic for project management in digital transformations within public sector education systems. The framework, stakeholder engagement, project planning, change management system and Digital inclusion initiatives, risk management, project execution, and outcome evaluation., including implementing a learning management system and Digital inclusion initiatives, demonstrate the framework's application in real-world scenarios. The research contributes to the field by providing a comprehensive guide for decision-making and project planning, emphasizing the importance of maximizing impact and efficiency in digital transformation projects. The implications of the search findings for practitioners and policy makers are discussed, high lighting the framework's potential to drive successful digital Transformation initiatives. Recommendations for future research include long-term impact Assessment, change management strategies, scalability and sustainability, ethical and privacy Considerations, hybrid learning environments, and teacher professional developmental (2023) explores the impact of digitalization on accounting practices, highlighting the benefits, challenges, and implications for businesses. Additionally, it offers insights into adopting digital accounting technologies in different industrial sectors. The sample were collected from 140 accounting experts among 14 districts in Kerala through the convenience sampling method. Digital accounting technologies have revolutionized the accounting landscape, offering numerous benefits and opportunities for organizations. These technologies can transform traditional accounting practices, improve efficiency, accuracy, and decision-making capabilities, and enhance financial Management. The findings contribute to understanding how digitalization reshapes the accounting landscape and Provide recommendations for organizations seeking to leverage these technologies effectively. Similarly, Ningsih (2023), analyze the importance of IT-based public accounting transformation in order to support the digitalization of good governance. The existence of a negative stigma that states that one day the role of accountants will be replaced by technological innovation products demands the Role of public accounting to answer these challenges, the study reviewed 15 journals from previous research and official data and government publications between 2019 and 2023. The study chooses literature review as a methodology in writing this article through a descriptive qualitative approach. The results of the reviewed 15 journals show that IT-based public accounting transformation is needed in the implementation of digitalization of good governance. The adaptability of public accounting to the changes in this very dynamic era is considered capable of maintaining its existence in the midst of the digitalization storm. In relation to good governance, the application of IT-based public accounting can help accelerate the optimization of good governance if implemented consistently and sustainably. Digital track records that are difficult to eliminate can serve as a constant data base for various public purposes. Umo-Udo and Washington (2021) examined the impact of TSA policy on public sector management in Nigeria. New Public Management theory was adopted as the theoretical framework of the study. The method adopted for eliciting data in this work was historical and

descriptive. The study among others revealed that the TSA policy is a veritable tool for enhancing effective and efficient financial management in Nigeria. However, the successful implementation of the policy has been challenged by the Unwillingness of some MDAs to comply with the TSA policy monitoring of the TSA account to ensure due process in its management. Also, Nasiru et al (2020), investigated the effect of Integrated Personnel and Payroll Information System (IPPIS) on transparency in Government Payroll Administration in Nigerian civil service. A descriptive cross-sectional survey research design was used in form of questionnaire administered to illicit information, which provides generalized opinions/statistics from the number of individual cases. The population of the study covers 100 Treasury Staff of the Office of Accountant General of The Federation Working at Federal Pay Office, Sokoto and Federal Pay Office Birnin Kebbi. Census was adopted, and as such sampling represents the population. Data was collected and analyzed using descriptive and inferential statistics with the aid of Statistical Package for the Social Sciences (SPSS) Version 21. The findings from test of hypothesis of this paper revealed a significant moderate positive relationship between IPPIS, Transparency and Accountability. Hence, the null hypothesis which states that there is no significant relationship between IPPIS transparency in government payroll administration in Federal Civil Service in Nigeria is rejected and the alternate hypothesis is accepted. The paper recommends that Government should strengthen the internal control mechanism of IPPIS so as to continuously detect and block any loopholes that will give room for fraud as well as carrying out routine Audit and Inspection of the program so as to ensure strict compliance with laid down rules and regulations governing the operation of IPPIS, coupled with compliance with the provisions of Financial Regulations and the Civil Service Rules

3.0 Methodology

This study employs across-sectional survey design to examine the effect of digital transformation on the accountability and transparency of Nigerian public sector. This design is chosen because it is not geographically, that is, it uses data from large number of objects (Ofor, 2022). Cross-sectional, so insights from this type of research are a snapshot of a particular moment (Cheery, 2024), the cross-sectional survey provides a comprehensive understanding of how digitization influences transparency and accountability on public sector. It enables the examination of degree of association between digitization and accountability and transparency offering insights into the effectiveness of all the digital platforms and identifying areas for improvement without the extended time and resource demands of longitudinal studies. The population for this study consists of 6185 staff from federal ministries, departments, and agencies (MDAs), located in Anambra State, Nigeria. The focus is on management personnel and supervisors who are actively involved in financial reporting and oversight.

A sample of 123 staff members from the population of 6185 was determined using the Taro Yamane formula for sample size calculation. The sample was selected through a non-probability sampling technique, which involves randomly choosing participants from the defined population. The formula used is

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

n = Sample size

N = Population of the study

e = Level of significance @ 5%

Therefore, sample size for the study is determined as thus:

$n = \frac{6185}{1 + 6185(0.05)^2} \approx 123.43658632$ approximately, sample size = 123 staff. Primary data for this study were collected through a structured questionnaire designed to capture detailed information on digital transformation on public sector

accountability and transparency in Nigeria. The questionnaire utilized a Likert scale to guide respondents' levels of agreement with various statements, providing nuanced insights into their perceptions and experiences referred to as: (1) To a very high extent (THE), (2) To High Extent (HE), (3) Neutral (N), (4) To a Very Low Extent (TLE) and (5) To a Low

Extent (LE) tested using Friedman's 2-

Way ANOVA operated with SPSS Version 20 at 5% level of significance

4.0 Data Presentations and Analysis

Table 1: The Mean Value on the Effect of Adoption of IPPIS on Public Sector Transparency in Nigeria

Questions	TVHE	THE	N	TVLE	TLE
1	2.70	2.31	1.98	1.00	2.01
2	2.04	2.91	2.01	1.20	1.00
3	2.82	2.23	2.00	0.98	1.05
4	2.90	2.99	1.90	1.10	2.02
5	2.93	2.30	2.45	1.17	2.32

Source: Field Survey (2024).

For the test of hypothesis 1, the study used the data as explicated on table 1 above. The outcome of the test using Friedman's 2-Way ANOVA IS SHOWN ON TABLE 2 BELOW

Table 2: Result on Respondents Distribution on Table 1

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distributions of SS, MC, JU and OSS are the same.	Related-Samples Friedman's Two-Way Analysis of Variance by Ranks	.011	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Table 3: The Mean Value on the Effect of TSA Adoption on Public Sector Transparency in Nigeria

Questions	TVHE	THE	N	TVLE	TLE
1	3.00	2.50	1.86	1.90	2.10
2	1.90	2.50	2.08	1.38	1.95
3	2.50	2.30	1.98	1.04	1.02
4	2.45	2.22	1.76	1.00	1.34
5	2.08	3.00	0.19	1.10	1.98

Source: Field Survey (2024).

For the test of hypothesis 2, the study used the data as explicated on table 3 above. The outcome of the test using Friedman's 2-Way ANOVA is shown on table 4 below:

Table 4: Result on Respondents Distribution on Table 3

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distributions of SS, MC, JU and OSS are the same.	Related-Samples Friedman's Two-Way Analysis of Variance by Ranks	.019	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.2: Discussion of Findings

The result of the analysis of the study using Friedman's 2-Way ANOVA is expressed as follows:

H₀₁: There is no significant effect of adoption of IPPIS on public sector transparency.

In view of analysis as shown on Table 2, relationship between the adoption of IPPIS and public sector transparency in Nigeria. The Friedman's 2-Way ANOVA test as shown on table 2 show sap value of 0.011. This probability value is statistically significant at 5% level. Thus, the null hypothesis was rejected as suggested by the decision rule shown in Table 2 and alternate hypothesis was accepted which contends that there is a significant effect of adoption of IPPIS on public sector transparency in Nigeria.

H₀₂: There is no significant effect of

In view of the show on Table 4, the result shows that there is a significant and positive relationship between the adoption of TSA and public sector transparency in Nigeria. The Friedman's 2-Way ANOVA test as shown on table 4 show sap-value of 0.019. This probability value is statistically significant at 5% level. The null hypothesis was rejected as suggested by the decision rule shown in Table 4 and alternate hypothesis accepted which contends that there is a significant effect of TSA adoption on public sector transparency in Nigeria

5.1 Conclusion and Recommendation

The study concludes that the adoption of IPPIS has reduced the financial irregularities in the federal government payroll system in Nigeria. Thus, transparency has been entrenched in the Nigerian public sector financial records. Also, the TSA adoption has also ensured transparency in the Nigerian public sector organizations. Thus, the study recommends that Government should enforce the adoption of IPPIS and TSA and make it mandatory for all the MDAs and parastatals to adhere to since its adoption has significantly ensured transparency in the federal government ministries, agencies in Nigeria. There is also a need for the IPPIS legislation to cover the states and local government level since the policy in question only covered the federal level.

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