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IMPACT OF DIGITAL TOOLS ON TRANSPARENCY AND EFFICIENCY IN PUBLIC SECTOR ACCOUNTING PRACTICES IN NIGERIA

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ABSTRACT

The global shift towards digitalization presents a transformative opportunity for public financial management. In Nigeria, decades of documented inefficiency, corruption, and lack of transparency in the public sector have spurred calls for the integration of digital tools into government accounting. However, the extent to which these tools have been adopted and their actual impact on accountability mechanisms remains empirically under-explored. This study assesses the impact of specific digital tools (Integrated Financial Management Information Systems (IFMIS), E-Payment Platforms, and E-Accrual Accounting Systems) on the transparency and operational efficiency of public sector accounting in Nigeria. The study employed a cross-sectional survey design, collecting primary data through structured questionnaires from 180 accounting and finance officers across 60 Federal and State Ministries, Departments, and Agencies (MDAs) in Nigeria. Data were analyzed using descriptive statistics and multiple regression analysis. Findings indicate a moderate level of digital tool adoption, with E-

Payment platforms being the most prevalent. Regression analysis revealed that IFMIS and E-Accrual Accounting Systems have a significant positive relationship with both transparency and efficiency. E-Payment platforms showed a significant positive relationship with efficiency but an insignificant relationship with transparency. The study concludes that the adoption of core digital accounting tools, particularly IFMIS and systems that enable better accrual-based reporting, is a critical driver of both transparency and efficiency in the Nigerian public sector. While E-Payments enhance transaction speed, they do not automatically guarantee transparency without complementary systems. The study advocates for a holistic digital transformation strategy anchored on integrated systems.

Keywords: Digital Tools, Public Sector Accounting, Transparency, Efficiency, IFMIS, E-Payment, E-Accrual

INTRODUCTION

The management of public funds is a cornerstone of good governance and socio-economic development. In Nigeria, however, the public sector has been persistently plagued by challenges of financial leakages, opaque accounting practices, and inefficient resource utilization, leading to a significant trust deficit between the government and the citizenry (Okoye & Ezejiofor, 2018). The traditional, manual-based accounting systems, characterized by paper-heavy processes and fragmented records, have been identified as a major enabler of these malpractices, as they impede real-time monitoring, facilitate data manipulation, and slow down the pace of public service delivery.

In response to these challenges, the Nigerian government, like many others, has embarked on various public financial management (PFM) reforms, with digitalization at their core. Initiatives such as the Government Integrated Financial Management Information System (GIFMIS), the Treasury Single Account (TSA), and the Integrated Personnel and Payroll Information System (IPPIS) represent a paradigm shift from analog to digital governance. These tools are theoretically designed to automate processes, integrate financial data, and minimize human interface in financial transactions, thereby reducing opportunities for fraud and enhancing operational efficiency (World Bank, 2019).

The adoption of digital tools In public sector accounting is not merely a technical upgrade but a fundamental restructuring of financial control and information flow. It promises a transition from cash-based to accrual-based accounting, as encouraged by the International Public Sector Accounting Standards (IPSAS), providing a more accurate picture of the government's financial position. Despite these potential benefits, the journey towards full digitalization has been fraught with implementation challenges, including institutional resistance, inadequate infrastructure, and skills gaps (Okafor & Mbanugo, 2020).

Despite the substantial investments in digital PFM reforms, high-profile cases of financial misappropriation and inefficiency within Nigerian MDAs continue to surface in reports from the Office of the Auditor-General for the Federation and public accounts committees. This suggests a potential disconnect between the implementation of digital tools and the achievement of their core objectives: enhanced transparency and operational efficiency.

A critical problem is the lack of empirical evidence pinpointing which digital tools have the most significant impact and how they influence specific accountability outcomes. Are these tools being used to their full potential, or are they merely digitizing existing flawed processes? While policy documents champion digitalization, there is a scarcity of research that systematically investigates the relationship between the adoption of specific digital accounting tools (e.g., IFMIS, E-Payment, E-Accrual Systems) and measurable improvements in transparency and efficiency within Nigerian MDAs. This study, therefore, addresses this gap by investigating the pivotal question: To what extent does the adoption of specific digital accounting tools influence transparency and operational efficiency in the Nigerian public sector?. in view of the above question the study aimed to evaluate the impact of digital tools on the accounting practices of selected Nigerian public sector entities.

LITERATURE REVIEW

Theoretical Underpinning

This study is anchored in the Institutional Theory and the Technology-Organization-Environment (TOE) Framework. Institutional Theory (DiMaggio & Powell, 1983) explains how organizations adopt structures and technologies (like digital tools) in response to coercive pressures from regulators (e.g., FRCN's IPSAS adoption mandate) and normative pressures to appear modern and legitimate. The TOE framework (Tornatzky & Fleischer, 1990) posits that technology adoption is influenced by the technological context (available tools), organizational context (MDA's readiness), and environmental context (government policy, public pressure). This study focuses on the technological context (the digital tools) and its effect on organizational outcomes (transparency and efficiency), while controlling for organizational factors.

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Conceptual Framework

In line with the institutional theory above, the conceptual framework for this study posits that the adoption of digital tools (Integrated Financial Management Information System which is an automated system that integrates budget planning, execution, accounting, and reporting; E-Payment Platforms a systems that facilitate electronic transactions, including funds transfer and payments to suppliers and employees, reducing cash handling and E-Accrual Accounting Systems a software that enables the recording of revenues when earned and expenses when incurred, in line with IPSAS, providing a complete financial picture.) acts as the independent variable that directly influences the dependent variables of transparency and efficiency in public sector accounting (Transparency (TRANS) which is the extent to which financial information is readily available, accessible, and understandable to stakeholders, measured by the perceived quality and timeliness of financial reporting and Operational Efficiency (EFFCY) that concerns the optimization of resources in financial processes, measured by the perceived reduction in transaction processing time, cost per transaction, and error rates).

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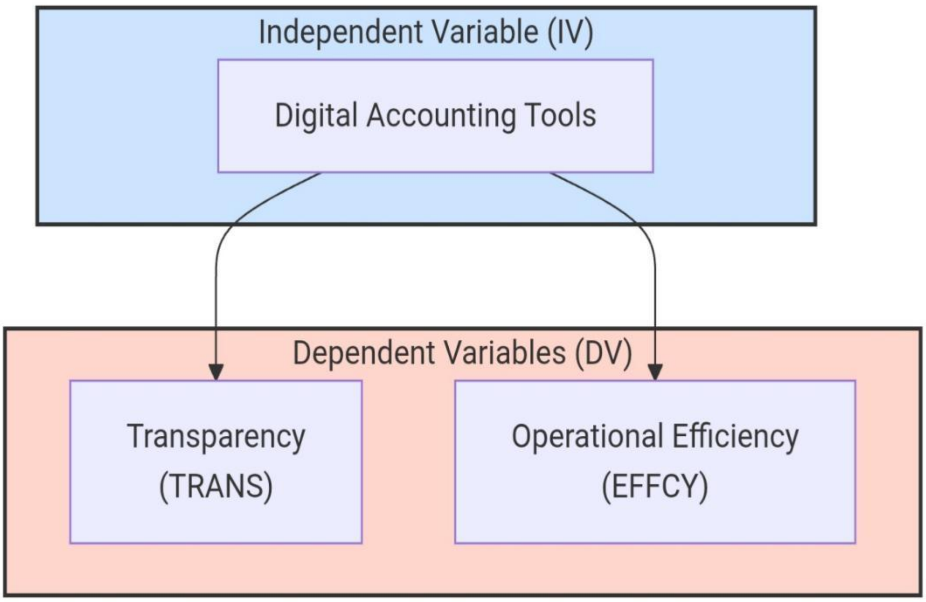

Fig. 2.1: Conceptual Framework of the Study

The framework suggests that these digital tools, by automating processes and creating integrated, auditable data trails, simultaneously enhance both transparency and efficiency.

Digital tools represent a shift from manual accounting to integrated, real-time financial management. An IFMIS, for instance, creates a single source of truth for budgetary and accounting data, making it difficult to manipulate figures across different stages of the budget cycle (Diamond & Khemani, 2016). E-Payments eliminate ghost workers and reduce leakages by ensuring funds are paid directly into beneficiary accounts (Cangiano, Curristine, & Lazare, 2019).

Transparency is the prerequisite for accountability. It allows citizens, legislators, and auditors to scrutinize the government's financial activities, thereby deterring corruption (Heald, 2018). in the other hand, efficiency ensures that public funds are used economically and that financial processes do not become a bottleneck in public service delivery. Digital tools are key to achieving this by streamlining workflows and reducing administrative bottlenecks.

Empirical Review

IFMIS and Public Financial Management

Studies globally have shown a positive correlation between IFMIS and improved PFM.A study by the IMF (2018) in sub-Saharan Africa found that IFMIS implementation significantly improved budget credibility and reporting timeliness. However, a study by Nwankwo (2019) in Nigeria cautioned that the GIFMIS's effectiveness is hampered by inconsistent power supply, network issues, and resistance from vested interests who benefit from the old, opaque system.

E-Payment Systems and Fiscal Control

The implementation of the TSA in Nigeria,which consolidated thousands of government bank accounts, has been widely praised. Research by Eze and Okoye (2020) found that the TSA significantly reduced leakages and improved the government's cash management. However, its impact on broader transparency beyond cash consolidation is less clear, as it does not directly affect the quality of financial reporting.

Accrual Accounting and Digital Systems

The transition to IPSAS accrual accounting is a complex process heavily reliant on sophisticated software.Osho and Aruya (2021) found that Nigerian MDAs using specialized accounting software demonstrated a higher level of compliance with IPSAS disclosure requirements compared to those using spreadsheets. This suggests that E-Accrual systems are critical for unlocking the transparency benefits of the accounting standards reform.

Based on the theoretical and empirical reviews the following hypotheses are developed:

HO$_1$: The adoption of IFMIS has no significant effect on the transparency and efficiency of public sector accounting in Nigeria.

HO$_2$: The adoption of E-Payment platforms has no significant effect on the transparency and efficiency of public sector accounting in Nigeria.

HO$_3$: The adoption of E-Accrual Accounting Systems has no significant effect on the transparency and efficiency of public sector accounting in Nigeria.

METHODOLOGY

The study employed a cross-sectional survey design. The population comprised of all the accounting and finance officers in Federal and State MDAs in Nigeria. A focus was placed on a sample of 180 officers purposely drawn from six key MDAs (Finance, Budget & Planning, Auditor-General's Office, and three service-delivery MDAs) in states across the six geo-political zones and at the federal level. The data was collected using a structured questionnaire. The data was analyzed using both descriptive and multiple linear regression analysis.

The econometric models are specified as follows:

Model 1: $TRANS = \beta_0 + \beta_1 IFMIS + \beta_2 EPAY + \beta_3 EACCR + \beta_4 MDASZ + \beta_5 ITCAP + \mu$

Model 2: $EFFCY = \beta_0 + \beta_1 IFMIS + \beta_2 EPAY + \beta_3 EACCR + \beta_4 MDASZ + \beta_5 ITCAP + \mu$

RESULTS AND DISCUSSION

Descriptive Statistics

The response rate was 91.6%, yielding 165 usable questionnaires.

Table 1: Demographic and MDA Characteristics

Characteristics	Category	Frequency	Percentage
Level of Government	Federal MDA	75	45.5%
	State MDA	90	54.5%
MDA Type	Finance/Budget	60	36.4%
	Service Deliver	105	63.6%

Table 2: Level of Adoption of Digital Tools (Mean Scores)

Digital Tool	Mean Score	Std.	Interpretation
IFMIS (GIFMIS)	3.55	1.08	Moderate Adoption
E-Payment (TSA)	4.10	0.89	High Adoption
E-Accrual Systems	2.80	1.21	Low-Moderate Adoption

The descriptive results show a varied level of adoption. E-Payment platforms, driven by the mandatory TSA policy, are the most widely adopted. IFMIS adoption is moderate, suggesting ongoing integration challenges. E-Accrual Systems have the lowest adoption, reflecting the slower pace of the full IPSAS accrual transition.

Regression Results

Table 3: Multiple Regression Results for Transparency (Model 1)

Variable	Coefficient	Std. Error	t-Statistic	P-Value
Constant	0.851	0.210	4.052	0.000
IFMIS	0.288	0.075	3.840	0.000***
EPAY	0.092	0.068	1.353	0.178
EACCR	0.251	0.071	3.535	0.001***
MDASZ	0.064	0.059	1.085	0.280
ITCAP	0.198	0.062	3.194	0.002***
R-squared 0.49				
Adjusted R-squared 0.47				
F-Statistic 18.24 (p=0.000)				

Table 4: Multiple Regression Results for Efficiency (Model 2)

Variable	Coefficient	Std. Error	t-Statistic	P-Value
(Constant)	0.789	0.225	3.507	0.001
IFMIS	0.321	0.080	4.013	0.000
EPAY	0.234	0.073	3.205	0.002
EACCR	0.195	0.076	2.566	0.011
MDASZ	-0.045	0.063	-0.714	0.476
ITCAP	0.225	0.066	3.409	0.001
R-squared 0.53				
Adjusted R-squared 0.51				
F-Statistic 21.15 (p=0.000)				

Both models are statistically significant. The control variable IT Capacity was significant in both models, underscoring its importance.

Hypothesis Testing

HO_1: Rejected. IFMIS adoption has a significant positive effect on both Transparency ($\beta=0.288$, $p=0.000$) and Efficiency ($\beta=0.321$, $p=0.000$). Its integrated nature makes it a powerhouse for improving both accountability dimensions.

HO_2: Partially Rejected. E-Payment adoption has a significant positive effect on Efficiency ($\beta=0.234$, $p=0.002$) but an insignificant effect on Transparency ($\beta=0.092$, $p=0.178$). It speeds up transactions but doesn't inherently improve the quality of financial information disclosed.

HO_3: Rejected. E-Accrual Systems have a significant positive effect on both Transparency ($\beta=0.251$, $p=0.001$) and Efficiency ($\beta=0.195$, $p=0.011$). By automating complex accrual accounting, they enhance reporting quality and streamline period-end processes.

DISCUSSION OF FINDINGS

The findings provide a nuanced and strategic understanding of digital tool impact.

IFMIS

The strong, dual impact of IFMIS confirms its role as the backbone of modern PFM. By integrating the entire budget-to-report cycle, it eliminates data reconciliation problems, provides real-time monitoring, and creates an unbroken audit trail, thereby simultaneously boosting transparency and cutting down processing delays.

E-Payment Systems and Fiscal Control

The implementation of the TSA in Nigeria,which consolidated thousands of government bank accounts, has been widely praised. Research by Eze and Okoye (2020) found that the TSA significantly reduced leakages and improved the government's cash management. However, its impact on broader transparency beyond cash consolidation is less clear, as it does not directly affect the quality of financial reporting.

Accrual Accounting and Digital Systems

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CONCLUSION

The study concludes that:

The adoption of digital tools is unequivocally linked to improvements in both the efficiency and transparency of public sector accounting in Nigeria. Secondly, the strategic value of digital tools varies. IFMIS provides the most holistic benefits, while E-Payments, though crucial for efficiency, must be complemented by other systems to enhance transparency. Similarly, the full benefits of IPSAS accrual accounting cannot be realized without the underlying E-Accrual software systems. Finally, the successful digital transformation requires a supportive ecosystem of infrastructure, skills, and political will.

RECOMMENDATIONS

Based on the conclusions, the study recommends that government and PFM Reform Leaders should double down on IFMIS integration where the full roll-out and stabilization of GIFMIS across all MDAs, ensuring all modules (budget, commitment, accounting) are actively used and interconnected are prioritize. Moreover, the government should bridge the transparency gap of e-payments by integrate e-payment platforms directly with IFMIS and public procurement data portals. This will tag payments to specific budget lines and contracts, providing the necessary context for transparency. Additionally, the government should accelerate the e-accrual transition by investing in and mandate the use of certified e-accrual accounting software to enable seamless IPSAS compliance and improve the quality of financial statements.

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