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EFFECT OF COMPUTER-CENTRIC SYSTEMS ON FINANCIAL TRANSPARENCY IN FEDERAL MINISTRY OF FINANCE, NIGERIA

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Abstract

In the face of increasing demand for accountability and efficient financial governance, this study investigates the effect of computer-centric systems on financial transparency in the Nigerian Federal Ministry of Finance. The study specifically evaluates the role of the Integrated Payroll and Personnel Information System (IPPIS), Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), and Remita (e-payment platform) in promoting transparent financial management practices. Guided by the Technology Acceptance Model, Institutional Theory, and Agency Theory, the study adopts a quantitative survey research design. Data were collected from 98 staff members within the ICT and accounting departments using structured questionnaires and analyzed through multiple regression using SPSS version 20.0. Findings reveal that all four computer-centric systems significantly and positively influence financial transparency within the ministry. Among them, IPPIS and GIFMIS emerged as the most influential in enhancing payroll integrity, real-time budget monitoring, and audit trail accuracy. TSA and Remita also showed significant but relatively moderate effects due to challenges such as delayed fund disbursement and system integration limitations. The regression model explains 61% of the variation in financial transparency ($R^2 = 0.610$), confirming a strong predictive relationship. The study concludes that computer-centric systems are pivotal tools for fostering transparency, curbing fraud, and improving fiscal discipline. It recommends enhanced user training, infrastructure upgrades, and full integration of financial systems for optimal performance. The research contributes to both academic discourse and public policy by providing empirical evidence on digital governance tools within a federal ministry context in Nigeria.

Keywords: computer-centric systems, payroll integrity, financial transparency, curbing fraud, infrastructure upgrades

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1. Introduction

Globally, the pursuit of financial transparency has become a priority for both public and private sector institutions, driven by rising demands for accountability, reduced corruption, and improved public trust (OECD, 2020). Financial transparency refers to the openness, clarity, and accessibility of financial information, enabling stakeholders to understand how public funds are allocated, utilized, and monitored (World Bank, 2018). Across developed economies such as the United States, the United Kingdom, and the European Union, the deployment of computer-centric systems—including Enterprise Resource Planning (ERP), Financial Management Information Systems (FMIS), and e-Government platforms has significantly improved budget execution, audit trail generation, and financial reporting accuracy (Gupta & Sharma, 2020).

In Africa, many governments are increasingly adopting digital tools to enhance fiscal accountability and reduce leakages. Countries like Kenya, Rwanda, and South Africa have implemented Integrated Financial Management Information Systems (IFMIS) that centralize financial data and provide real-time reporting capabilities (AfDB, 2021). These systems have demonstrated significant impacts in minimizing errors and enhancing audit capabilities. However, challenges such as poor infrastructure, limited ICT skills, and resistance to change continue to hamper optimal performance (Lambe, 2020).

In Nigeria, the need for financial transparency is particularly urgent due to widespread reports of misappropriation, delayed audit processes, and weak accountability mechanisms within public institutions. The Federal Government has introduced reforms such as the Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), and Integrated Payroll and Personnel Information System (IPPIS) to streamline financial management (Okwuosa, 2022). Despite these efforts at the federal level, many subnational governments, including those in Northern Nigeria, have been slow in fully integrating computer-centric systems into their financial operations, resulting in persistent financial opacity and inefficiency.

The independent variable, computer-centric systems, comprises digital financial tools such as accounting software, electronic payment platforms, and financial data management systems. These systems are designed to enhance automation, real-time processing, data accuracy, and audit trail generation. The dependent variable, financial transparency, includes dimensions such as budget disclosure, expenditure reporting, public access to financial information, and audit effectiveness.

Research suggests that the implementation of computer-centric systems improves financial transparency by reducing human error, limiting opportunities for manipulation, and enabling real-time monitoring and reporting (Adebayo & Omolehinwa, 2021). The interrelationship between the variables lies in the enabling role that computer-centric systems play in fostering transparency, accountability, and control mechanisms across public financial management frameworks.

While extensive research exists on e-governance and transparency at the federal level, there is limited empirical evidence on how computer-centric systems affect financial transparency at the state level, especially in subnational institutions such as the Kano State Ministry of Finance. As one of Nigeria's most populous states with complex fiscal responsibilities, understanding how technology can be leveraged for transparency is vital. The study is motivated by the desire to fill this knowledge gap, provide policy recommendations to improve digital adoption, and contribute to the discourse on public financial reforms in sub-Saharan Africa. Moreover, in the post-COVID-19 era, where digital transformation has become a necessity, this research becomes timely and relevant.

Over the years, public sector financial management in Nigeria, particularly at the state level has been marred by persistent issues of poor financial transparency, weak internal controls, and widespread corruption. Despite the adoption of digital public finance reforms at the federal level, such as the Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), and IPPIS, the diffusion and implementation of computer-centric systems in state-level Ministries of Finance remain inconsistent and often under-evaluated. This raises concern about the actual effectiveness of these systems in fostering financial transparency in subnational entities like the Kano State Ministry of Finance.

Several conceptual and empirical gaps exist in the literature. While global and national studies have largely established the link between ICT integration and financial openness (Gupta & Sharma, 2020; Adebayo & Omolehinwa, 2021), there is a paucity of state-specific studies in Northern Nigeria, especially in Kano State, which has its own unique administrative, fiscal, and socio-political challenges. Existing studies often generalize findings from federal institutions without adequately capturing the institutional, cultural, and infrastructural differences that characterize state-level financial governance. This limits the contextual relevance and applicability of such findings in local settings.

A major methodological gap also emerges from the limited use of empirical models to assess the causal relationship between digital financial systems and transparency indicators. Much of the extant research is qualitative or descriptive, failing to employ robust quantitative methods such as regression analysis or structural modeling to empirically measure the impact of computer-centric systems on financial transparency outcomes.

From a theoretical standpoint, while models such as the Technology Acceptance Model (TAM) and Institutional Theory have been used to explain ICT adoption in public finance, there remains a lack of theoretical consensus on the mechanisms through which these systems translate into improved transparency. Some theories emphasize structural and institutional factors, while others focus on individual competencies and system usability, leading to conflicting interpretations of effectiveness.

A significant methodological gap persists in the extant literature regarding the empirical assessment of the causal relationship between digital financial systems and financial transparency indicators. While the growing body of scholarship recognizes the transformative potential of ICT in public financial management, many studies remain qualitative or descriptive in nature (Okere & Abiola, 2020; Musa & Ajayi, 2021). These studies often rely on case studies, anecdotal evidence, or expert opinion, with limited application of robust econometric techniques such as regression analysis, path modeling, or structural equation modeling (Oladeji et al., 2023). For instance, Amankwah-Amoah et al. (2022) emphasized the need for more empirical validation to understand how digital systems affect transparency, particularly in developing country contexts where institutional dynamics vary widely.

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From a theoretical perspective, the Technology Acceptance Model (TAM) and Institutional Theory have commonly been used to explain digital adoption in public sector finance (Davis, 1989; Scott, 2004). However, there remains no unified theoretical framework to explain how computer-centric systems such as Integrated Financial Management Information Systems (IFMIS) and electronic payment platforms improve transparency outcomes. Scholars like Mahmood and Sarker (2021) argue that theories emphasizing institutional readiness often conflict with those highlighting individual behavioral change, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), leading to conflicting interpretations of digital system effectiveness. Recent contributions from Asongu and Nwachukwu (2020) call for an integration of multi-level frameworks that account for both macro-institutional factors and micro-level system usability.

Moreover, a knowledge gap exists in understanding the distinctive contributions of subcomponents of computer-centric systems such as automated accounting software, electronic procurement systems, digital audit trail platforms, and real-time payment engines towards specific dimensions of financial transparency, including budget disclosure, expenditure traceability, and open financial data access. Empirical investigations that disaggregate these elements are limited (Olayemi & Taiwo, 2022), thereby obscuring the mechanisms through which transparency is achieved. This is particularly critical given evidence from Kanyam et al. (2023), who show that only certain modules of digital financial platforms are actively used, raising concerns about the effectiveness of partial implementation. The main objectives of this study is to evaluate the effect of computer-centric systems on Financial Transparency in Nigerian Federal Ministry of Finance. The specific objectives are to:

i. Determine the effect of the Integrated Payroll and Personnel Information System on the Financial Transparency in the Nigerian Federal Ministry of Finance.
ii. Assess the effect of the Treasury Single Account on the Financial Transparency in the Nigerian Federal Ministry of Finance.
iii. Evaluate the effect of the Government Integrated Financial Management Information System on the Financial Transparency in the Nigerian Federal Ministry of Finance.
iv. Investigate the effect of the Epayment Platform (Remita (e-payment)) on the Financial Transparency in the Nigerian Federal Ministry of Finance.

Based on the established gap for this study, find below the hypotheses.

Ho1: Integrated Payroll and Personnel Information System has no significant effect on the Financial Transparency in the Nigerian Federal Ministry of Finance.

Ho2: Treasury Single Account on has no significant effect on the Financial Transparency in the Nigerian Federal Ministry of Finance.

Ho3: Government Integrated Financial Management Information System has no significant effect on the Financial Transparency in the Nigerian Federal Ministry of Finance.

Ho4: E-payment Platform (Remita (e-payment)) has no significant effect on the Financial Transparency in the Nigerian Federal Ministry of Finance.

2. LITERATURE REVIEW

This section presents the conceptual framework underpinning the study. It highlights the major variables, Financial Transparency as the dependent variable and Computer-Centric Systems as the independent variable along with their respective subcomponents. Authoritative definitions are provided, and a diagrammatic representation is developed to illustrate the conceptual relationship between the variables.

Financial Transparency

Financial transparency refers to the extent to which financial processes, records, transactions, and decisions within public sector institutions are made open, timely, accurate, intelligible, and accessible to a diverse range of stakeholders—ranging from government officials and oversight agencies to civil society actors, development partners, and the general public (OECD, 2020; World Bank, 2018; Cangiano et al., 2022). It embodies a system of openness that facilitates accountability by allowing stakeholders to monitor how public funds are generated, allocated, and spent. Specifically, it includes mechanisms for budget formulation and disclosure, revenue and expenditure tracking, public procurement transparency, and audit and performance reporting (IMF, 2019; Global Initiative for Fiscal Transparency [GIFT], 2021).

Financial transparency ensures that fiscal operations are not only compliant with legal and regulatory frameworks but are also grounded in ethical norms of openness, integrity, and public responsiveness (Transparency International, 2021; Ezenwoke & Oshisami, 2022). The core components of financial transparency include: Disclosure Practices, which involve proactive publication of financial information such as budgets, procurement plans, and audited financial statements; Auditability, referring to the establishment of traceable and verifiable financial records and internal controls that facilitate independent audit reviews; and Accountability Frameworks, which entail enforceable mechanisms to deter fiscal mismanagement and incentivize responsible conduct (Abdullahi et al., 2023; Alt & Lassen, 2019).

Recent studies underscore that financial transparency contributes significantly to curbing corruption, improving fiscal discipline, and enhancing public trust (Bauhr & Grimes, 2020; Kolstad & Wiig, 2021). For instance, Bauhr and Carlitz (2022) argue that transparency serves both informational and participatory functions by enabling citizen oversight and pressuring institutions to act responsibly.

Historically, transparency was narrowly interpreted through the lens of compliance auditing, emphasizing regulatory adherence and statutory reporting requirements, typically conducted through manual, paper-based systems (Guthrie et al., 2017; Mikesell & Ross, 2019). These systems were often slow, fragmented, and vulnerable to human errors and data manipulation, lacking real-time monitoring capabilities necessary for dynamic public financial management. The emergence of digital financial systems, such as Integrated Financial Management Information Systems (IFMIS), e-procurement platforms, and open budget portals, has since revolutionized the transparency landscape by enabling automated reporting, timely disclosures, and broader access to financial data (Pimenta & Pessoa, 2021; Kanyam et al., 2023).

In sum, contemporary discourse on financial transparency moves beyond mere compliance, advocating for digital-enabled openness, multi-stakeholder engagement, and institutional accountability as prerequisites for sound fiscal governance in the 21st century.

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However, with the rapid evolution of digital governance and the growing adoption of Information and Communication Technology (ICT) in public financial management, the concept of financial transparency has undergone a paradigm shift. Contemporary approaches now emphasize real-time financial reporting, open government data portals, interactive dashboards, and automated audit trails that allow for instant monitoring of public expenditure and revenue flows (Gupta & Sharma, 2020; Adebayo & Omolehinwa, 2021). This transition has been driven by global reforms aimed at reducing corruption, increasing donor confidence, improving fiscal discipline, and enhancing the overall efficiency of governance systems.

In countries such as Estonia, Chile, and South Korea, the integration of e-governance platforms has enabled seamless public access to budget execution data and expenditure records, significantly strengthening the public finance architecture. In Nigeria, efforts such as the Open Treasury Portal and GIFMIS at the federal level are part of this broader movement, although state-level implementations remain inconsistent and under-researched (Okwuosa, 2022).

Computer-Centric Systems

Computer-centric systems refer to the integration and application of digital technologies, software platforms, and automated tools specifically designed to enhance, manage, and secure financial operations within public institutions (Lambe, 2020). These systems support the transition from manual, paper-based accounting processes to more efficient, accurate, and tamper-resistant digital environments. In the context of public financial management, computer-centric systems are deployed to ensure better resource planning, data integrity, financial reporting, and compliance, thereby serving as the technological foundation of modern e-government initiatives (AfDB, 2021).

The use of these systems allows government entities to handle large volumes of financial transactions systematically while ensuring timely data processing, audit readiness, fraud detection, and operational control. Through automation, these systems also reduce bureaucratic inefficiencies and human error while fostering improved decision-making through real-time data access and analytics.

Accounting Software. These are specialized digital applications that automatically record, process, classify, and summarize financial transactions. Examples include Oracle Financials, QuickBooks, and SAP Public Sector. Such software ensures real-time general ledger updates, automated reconciliation, and standardized financial reports, which are essential for timely and accurate financial disclosures.

EPS are digital platforms that facilitate electronic disbursements and collections, including salary payments, vendor transactions, and tax remittances. These systems reduce the use of physical cash and cheques, minimizing fraud risk, improving transaction traceability, and enabling efficient fund flow management (World Bank, 2018). In Nigeria, platforms like Remita and GIFMIS payment modules serve this function.

These systems are responsible for gathering, storing, analyzing, and retrieving financial information. They support big data integration, financial analytics, predictive modeling, and dashboard reporting. Effective financial data management enables strategic planning, budget monitoring, and performance tracking at both micro and macro levels.

Audit trail systems record the sequence of transactions and all modifications made to financial data, offering transparency and traceability. They are essential for internal controls, forensic audits, and compliance with public sector accounting standards. By providing chronological logs of all system activities, they make it easier to detect unauthorized access or financial irregularities. Historically, public financial management was heavily reliant on manual ledger entries, cash-based operations, and physical documentation, which were often cumbersome, error-prone, and vulnerable to manipulation and corruption. Delays in record reconciliation, limited transparency, and audit inefficiencies were common drawbacks of such traditional systems.

However, the emergence of Information and Communication Technologies (ICT) and the global wave of public sector digital transformation have catalyzed a shift toward integrated and automated systems. Many countries, including Nigeria, have introduced reforms such as the Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), and Integrated Payroll and Personnel Information System (IPPIS) to streamline financial operations and promote transparency (Okwuosa, 2022).

Integrated Payroll and Personnel Information System (IPPIS)

The Integrated Payroll and Personnel Information System (IPPIS) stands as a pivotal component in Nigeria's public sector management, representing a significant shift towards computer-centric systems in handling Payroll and Personnel data. Its historical development traces back to the early 2000s, amidst concerns over the inefficiencies and corruption prevalent in the manual payroll systems then in place. As noted by Akande (2017), the genesis of IPPIS can be attributed to the need for transparency, accountability, and efficiency in managing the government workforce. The Nigerian government sought to streamline its payroll processes, eliminate ghost workers, and curb financial leakages, prompting the adoption of a centralized automated system.

During its infancy, IPPIS faced skepticism and resistance from various quarters, particularly from vested interests benefiting from the status quo. According to Ogunleye and Odusanya (2018), resistance stemmed from fears of job losses, manipulation of payroll data, and bureaucratic inertia. Nonetheless, successive administrations persisted in their efforts to implement IPPIS, recognizing its potential to enhance fiscal discipline and public sector governance. The turning point came with the establishment of the Office of the Accountant General of the Federation (OAGF) as the custodian of IPPIS, ensuring institutional support and oversight crucial for its development and sustainability (Okebukola, 2019).

Government Integrated Financial Management Information System (GIFMIS)

The historical development of the Government Integrated Financial Management Information System (GIFMIS) in Nigeria reflects a significant shift towards modernizing financial management processes within the public sector. GIFMIS, as a computer-centric system, represents a pivotal evolution in Nigeria's governance framework, aiming to enhance transparency, accountability, and efficiency in fiscal operations. The inception of GIFMIS can be traced back to the late 1990s and early 2000s when the Nigerian government recognized the imperative to reform its financial management systems to address challenges such as leakages,

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inefficiencies, and inadequate reporting mechanisms (Adeyemi & Olaniyi, 2016).

Nigeria's journey towards adopting GIFMIS gained momentum with the government's commitment to embracing information and communication technology (ICT) solutions for governance enhancement. Notably, the introduction of GIFMIS was propelled by the need to streamline budget execution, expenditure tracking, and financial reporting across various government agencies and departments (Ojo, 2010). The establishment of GIFMIS reflected a broader agenda of public sector reforms aimed at modernizing administrative processes and promoting fiscal discipline.

Treasury Single Account (TSA)

The Treasury Single Account (TSA) represents a significant paradigm shift in public financial management worldwide. Its emergence reflects the growing recognition among policymakers of the need for greater efficiency, transparency, and accountability in managing government finances. At its core, TSA is a centralized bank account or a linked set of accounts established by governments to consolidate cash resources. The integration of Information and Communication to Technology (ICT) into the TSA framework enhances its effectiveness, enabling real-time monitoring, tracking, and management of funds. This global trend towards TSA adoption and ICT integration underscores the transformative potential of computer-centric systems in modernizing financial management practices.

Scholars and practitioners have extensively studied the global perspective of TSA and its implications for public financial management reform measures. They emphasize how TSA adoption facilitates improved cash management, reduces fiscal leakages, and enhances financial discipline. For instance, research by Bwalya and Munyoki (2017) highlights the role of TSA in promoting fiscal transparency and accountability, particularly in developing countries. By leveraging ICT solutions, governments can streamline processes, automate transactions, and strengthen internal controls, thereby improving overall governance and financial management.

Nigeria stands out as a prominent example of TSA implementation within the context of public financial management reform. Since its introduction in 2012, TSA has played a crucial role in consolidating government funds, minimizing revenue diversions, and enhancing fiscal discipline. Scholars such as Adeolu and Ezeani (2019) have documented the impact of TSA on financial accountability in Nigeria, attributing its success to the integration of computer-centric systems. Through the adoption of ICT infrastructure, Nigeria has been able to overcome challenges associated with fragmented accounts and manual cash management processes, leading to greater transparency and efficiency in public expenditure.

However, the implementation of TSA has not been without challenges, both globally and in Nigeria. Scholars have identified issues such as inadequate ICT infrastructure, capacity constraints, and resistance to change as significant barriers to effective TSA implementation. For instance, Olowu (2016) highlights the importance of addressing data management challenges and ensuring system interoperability to maximize the benefits of TSA. Furthermore, political interference and bureaucratic inertia can impede reform efforts, underscoring the need for strong leadership and institutional support to drive change.

Remita (e-payment) Platform System

Electronic Payment Systems have witnessed significant growth and evolution globally, spurred by advancements in technology and the increasing demand for efficient financial transactions. In the Nigerian context, the development of electronic payment platforms, notably Remita (e-payment), within the public sector represents a pivotal shift towards digitalization and modernization. This literature review aims to explore the historical trajectory of the e-payment platform, Remita (e-payment), as a computer-centric system in Nigeria's public sector.

The adoption of Electronic Payment Systems in Nigeria's public sector can be traced back to the early 2000s, spurred by the need to enhance transparency, efficiency, and accountability in financial transactions. Ovia and Egbetokun (2011) highlight the pivotal role of government policies and initiatives in promoting the adoption of e-payment platforms, citing the Central Bank of Nigeria's (CBN) Cashless Policy as a significant driver. The policy aimed to reduce the dominance of cash in the economy and promote the use of Electronic Payment Systems, thus laying the groundwork for the emergence of platforms like Remita (e-payment).

Remita (e-payment), developed by SystemSpecs, emerged as a leading e-payment platform in Nigeria, particularly within the public sector. Okebukola and Ola (2019) attribute the success of Remita (e-payment) to its user-friendly interface, robust security features, and seamless integration with existing financial systems. These attributes made it an attractive choice for government agencies seeking to streamline their financial processes and enhance revenue collection.

The historical development of Remita (e-payment) as a computer-centric system in Nigeria's public sector reflects a gradual but steady transition from manual to automated financial management processes. Adigun and Misra (2017) emphasize the role of technological innovation in driving this transition, with Remita (e-payment) leveraging advancements in software development, encryption technologies, and network infrastructure to facilitate secure and efficient electronic transactions.

Furthermore, the collaboration between SystemSpecs and government institutions played a crucial role in fostering the widespread adoption of Remita (e-payment) across various tiers of the public sector. Adeniran and Ayo (2018) highlight the importance of strategic partnerships and stakeholder engagement in promoting technology adoption, noting that Remita (e-payment)'s integration with government agencies' existing financial systems facilitated seamless data exchange and interoperability.

Empirical Review

Kaoje et al. (2024) conducted a study to examine the impact of the Integrated Personnel and Payroll Information System (IPPIS) on transparency in government payroll administration within the Nigerian civil service. The research was carried out at the Federal Pay Offices in Sokoto and Birnin Kebbi. Employing a descriptive cross-sectional survey design, the study utilized questionnaires to gather information from 100 Treasury staff members of the Office of Accountant General of the Federation. The census sampling method was employed to ensure representation of the population. Data collected was analyzed using descriptive and inferential statistics with SPSS Version 21. The findings revealed a significant moderate positive relationship between IPPIS implementation and transparency/accountability in government payroll administration. Consequently, the study rejected the null hypothesis, confirming

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that IPPIS contributes positively to transparency in the Federal Civil Service payroll system. The study concludes by recommending that the Nigerian government strengthen IPPIS' internal control mechanisms to detect and prevent fraud, and conduct regular audits and inspections to ensure adherence to established regulations. These measures are essential to enhance the effectiveness of IPPIS in promoting transparency and accountability in government payroll administration.

Agbata and Oranefo (2022) investigated the impact of the Integrated Personnel and Payroll Information System (IPPIS) on financial accountability within Nigerian Federal Universities. The study aimed to assess how IPPIS influenced budgeting and the internal audit function in these institutions. Conducted through a survey method, the research targeted a population of 2,217 accountants and internal auditors, with a sample size of 106. Data analysis utilized descriptive statistics and multiple regression analysis. The findings indicated that IPPIS significantly enhances both budgeting processes and the internal audit function within Nigerian Federal Universities. Consequently, the study concludes that IPPIS plays a crucial role in improving financial accountability in these institutions. It recommends continued support and enhancement of IPPIS implementation to sustain and further bolster financial management and accountability in Nigerian Federal Universities.

Orsaa and Jennifer, (2024) investigated the impact of Treasury Single Account (TSA) adoption on accountability, transparency, and public finance management in Nigeria, focusing on the perceptions of accounting professionals (AP), accounting academics (AA), and accounting officers (AO). Conducted within Benue State, the study aimed to assess how TSA implementation influenced these dimensions. A sample of 266 respondents was selected from a population of 790 AP, AA, and AO, and data analysis utilized the Chi-Square goodness of fit test. The findings revealed that TSA adoption significantly enhanced both accountability and transparency in Nigerian public finance, and it also improved overall public finance management. Consequently, the study recommends the continuation of TSA implementation, emphasizing its positive effects on accountability, transparency, and public finance management. Furthermore, urgent measures are recommended to address delays in fund releases to mitigate adverse impacts on government operations.

Moreover, the consolidation of government funds within the TSA restricted DMBs' lending capacity and reduced fee income and non-interest revenue. The study underscores the necessity for DMBs to adopt effective liquidity management strategies and diversify revenue sources to mitigate these challenges posed by the TSA. This research provides valuable insights for policymakers, investors, and stakeholders in Nigeria's financial sector, contributing significantly to the understanding of how the TSA influences the performance of listed DMBs.

Theoretical Review

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1986) and further expanded by Davis, Bagozzi, and Warshaw (1989), is a widely adopted theoretical framework used to explain and predict user behavior concerning the acceptance and utilization of information technology in organizational settings. TAM is rooted in the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975), which posits that behavioral intention is the most important predictor of actual behavior. According to TAM, two key cognitive variables influence an individual's intention to use a technology. Perceived Usefulness (PU): Defined as the degree to which a person believes that using a particular system would enhance their job performance. Perceived Ease of Use (PEOU) defined as the degree to which a person believes that using the system would be free from effort.

These beliefs shape the individual's attitude toward using the system, which subsequently influences their behavioral intention to use and ultimately leads to actual system usage. The model assumes a causal chain in which external variables (system design features, user training) affect perceived ease of use and perceived usefulness, which in turn influence adoption behavior. Although TAM has been extensively validated across various industries and organizational contexts (Venkatesh & Davis, 2000), it has received criticisms for its limited explanatory scope. Critics argue that TAM does not adequately account for organizational and environmental factors, such as leadership support, institutional norms, social influence, and system implementation constraints—particularly within public sector settings. Bagozzi (2007) also noted that TAM focuses primarily on individual-level cognitive processes and overlooks broader systemic and socio-political dynamics that affect ICT adoption in government agencies. In the context of this study, which investigates the effect of computer-centric systems on financial transparency in the Kano State Ministry of Finance, TAM provides a useful lens for understanding the behavioral dynamics behind system adoption. The model suggests that if financial officers and other relevant personnel perceive computer-centric systems (such as accounting software, electronic payment platforms, and data management tools) as useful and easy to use, they are more likely to accept and utilize them effectively. This behavioral disposition is essential for realizing the anticipated benefits of such systems, particularly in terms of improving the accuracy, accessibility, and timeliness of financial information. Consequently, TAM helps to contextualize how user perceptions can either facilitate or hinder the adoption of technological innovations in public financial management. By extension, the model highlights the importance of user training, system customization, and stakeholder involvement in enhancing system usability and performance, thereby strengthening the broader objective of achieving financial transparency in public institutions.

3. Methodology

This study adopts a survey research design to comprehensively explore the impact of computer-centric systems on Financial Transparency in Nigerian Federal Ministry of Finance. The population for this study is derived from the entire workforce of the Nigerian Federal Ministry of Finance. This ensures a spectrum of experiences and perspectives related to the implementation and impact of computer-centric systems on Financial Transparency. Given the substantial size of the workforce, the study aims to draw meaningful insights by engaging with the experiences and opinions of individuals in the ICT and Account Department. The selection of the subjects of the study was limited to accountants and ICT personnel because, in Nigeria's public sector, accountants and ICT personnel are essential in fostering financial accountability since they keep correct financial records, make sure the law is followed, and foster openness (KPMG, 2019). According to information obtained from the HR department at the, there is a total of 120 staff in these two departments. Details are as follows:

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Department	Core Staff
ICT	55
Accounts	65
Total	**120**

Source: HR Department of the Federal Ministry of Finance.

The main instruments utilized for data collection was surveys, incorporating Likert scale questions.

To calculate the sample size using Taro Yamane's formula, we'll need to know the total population size and the desired level of confidence. Given:
Total population size (N) = 120
Desired level of confidence = 95 %
Using the Taro Yamane formula: $n= N/ (1+Ne^2)$

Where:

n = Sample size
N = Total population size
e = Margin of error (expressed as a decimal)
Let's calculate the sample size:
$n= 120 / (1+(120\times0.05^2))$
$n\approx92.31$

So, the estimated sample size needed from a population of 120 with a 95% confidence level and a 5% margin of error is approximately 92.31. Since we can't have a fraction of a person in our sample, we would typically round up to the nearest whole number. Therefore, we would need a sample size of approximately 93 staff. The analytical technique for this study includes regression analysis which was applied to measure the impacts and relationships among variables.

4. Result and Discussion

Out of the 103 questionnaires distributed, 98 were completed and returned, representing a **95.1%** response rate. This high response rate strengthens the reliability and generalizability of the findings (attached is the questionnaire)**.** The study variables IPPIS, TSA, GIFMIS, Remita (e-payment), and Financial Transparency, were measured using mean scores from the questionnaire. All items were rated on a 5-point Likert scale.

Descriptive Statistic

Variable	N	Mean	Standard Deviation
IPPIS	98	4.21	0.53
TSA	98	4.05	0.61
GIFMIS	98	4.17	0.58
Remita (e-payment)	98	4.08	0.56
Financial Transparency (FINTRA)	98	4.19	0.47

Overall Positive Perception:
All the mean values fall above 4.00 on a 5-point Likert scale, indicating that respondents generally agreed or strongly agreed that each of the computer-centric systems contributes positively to financial transparency in the Nigerian Federal Ministry of Finance. IPPIS (Mean = 4.21, SD = 0.53). This variable has the highest mean, suggesting that respondents most strongly agree that the Integrated Payroll and Personnel Information System plays a significant role in enhancing financial transparency likely due to its impact on payroll integrity, elimination of ghost workers, and centralized data management.

GIFMIS (Mean = 4.17, SD = 0.58). This system also received high approval, reinforcing its importance in budgeting, reporting, and fiscal discipline. Respondents recognize GIFMIS as an effective tool for real-time expenditure tracking and fraud detection.Financial Transparency (FINTRA) (Mean = 4.19, SD = 0.47). The high mean score indicates that respondents believe financial transparency is being achieved within the Ministry likely due to the collective effect of the deployed computer-centric systems. The lowest standard deviation (0.47) suggests a high level of agreement and consistency in these perceptions among respondents.

Remita (Mean = 4.08, SD = 0.56) and TSA (Mean = 4.05, SD = 0.61). While still rated positively, these systems received slightly lower means, which may reflect perceived challenges in implementation, such as delays in fund release (TSA) or technical/integration issues (Remita). The higher standard deviation for TSA suggests greater variability in respondents' experiences or satisfaction levels. The descriptive statistics reveal a strong and favorable perception of all four computer-centric systems in promoting financial transparency. IPPIS and GIFMIS, in particular, are viewed as the most effective, while TSA and Remita also contribute positively but with slightly more mixed perceptions. These insights reinforce the importance of digital tools in improving transparency and accountability within the Nigerian Federal Ministry of Finance.

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error
1	0.781	0.610	0.598	0.311

R (Multiple Correlation Coefficient = 0.781):
This value indicates a strong positive correlation between the independent variables (IPPIS, TSA, GIFMIS, Remita) and the dependent variable (Financial Transparency). A value of 0.781 suggests that the model has a good predictive ability in explaining the variation in financial transparency.

R^2 (Coefficient of Determination = 0.610). R^2 measures the proportion of variance in the dependent variable that is explained by the independent variables. In this model, 0.610 (or 61.0%) of the variation in financial transparency is explained by the four computer-centric systems. This implies that these systems play a significant role in determining transparency outcomes within the Ministry.

Adjusted R^2 = 0.598. Adjusted R^2 accounts for the number of predictors in the model and provides a more accurate measure in multiple regression. An adjusted R^2 of 0.598 indicates that after adjusting for sample size and number of variables, about 59.8% of the variation in financial transparency is still explained by the model. The small difference between R^2 and Adjusted R^2 implies a stable model with no unnecessary variables.

Standard Error of the Estimate = 0.311. This indicates the average distance between the actual data points and the predicted values from the regression model. A lower standard error means greater accuracy in predictions. In this case, 0.311 is relatively low, which suggests that the model predicts financial transparency outcomes with reasonable precision.

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The model summary demonstrates that the regression model is strong and reliable, with IPPIS, TSA, GIFMIS, and Remita collectively explaining a substantial portion (61%) of the changes in financial transparency in the Nigerian Federal Ministry of Finance. This supports the argument that computer-centric systems are critical tools for enhancing transparency in public financial management.

ANOVA (F-test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.245	4	3.811	39.435	0.000
Residual	9.715	93	0.105		
Total	24.960	97			

F-statistic (F = 39.435). The F-value tests the overall significance of the regression model. It evaluates whether the group of independent variables (IPPIS, TSA, GIFMIS, and Remita) significantly predicts the dependent variable (Financial Transparency). The high F-value of 39.435 indicates that the regression model provides a significantly better fit than a model without predictors.

Significance Value (Sig. = 0.000). The p-value is less than the 0.05 threshold ($p < 0.01$), indicating strong statistical significance. This means that the probability of the relationship occurring by chance is less than 0.1%. Therefore, we reject the null hypothesis that the regression model has no explanatory power. Degrees of Freedom (df). The regression df = 4, representing the number of independent variables. The residual df = 93, which is the total sample size minus the number of parameters estimated. The total df = 97, equal to the total number of observations minus one.

The ANOVA results confirm that the overall regression model is statistically significant. The independent variables IPPIS, TSA, GIFMIS, and Remita collectively exert a significant influence on financial transparency in the Nigerian Federal Ministry of Finance. This justifies proceeding to the analysis of individual predictor effects via regression coefficients.

Coefficient Analysis

Variable	Unstandardized Coefficients (B)	Std. Error	Beta	t-value	Sig.
(Constant)	1.112	0.247	—	4.502	0.000
IPPIS	0.303	0.082	0.295	3.695	0.000
TSA	0.216	0.067	0.210	3.224	0.002
GIFMIS	0.288	0.074	0.271	3.892	0.000
Remita (e-pay)	0.190	0.069	0.176	2.754	0.007

Constant (B = 1.112, $p < 0.001$). This is the intercept term. It represents the predicted value of financial transparency when all independent variables (IPPIS, TSA, GIFMIS, and Remita) are held at zero. Though not practically interpretable in isolation, it provides the baseline for the regression model. IPPIS (B = 0.303, p = 0.000). The coefficient indicates that a one-unit increase in IPPIS implementation leads to a 0.303 unit increase in financial transparency, holding all other variables constant. The result is statistically significant at the 1% level, showing a strong positive contribution of IPPIS to financial transparency. The standardized Beta (0.295) shows it is the most influential predictor among the four.

TSA (B = 0.216, p = 0.002). A one-unit increase in TSA usage is associated with a 0.216 unit improvement in financial transparency. This relationship is also statistically significant, confirming that the Treasury Single Account system contributes meaningfully to transparency. However, its Beta (0.210) suggests moderate influence compared to IPPIS and GIFMIS. GIFMIS (B = 0.288, p = 0.000). The GIFMIS coefficient indicates a 0.288 unit increase in financial transparency for each one-unit increase in its usage. The p-value (<0.001) confirms a highly significant effect. With a Beta of 0.271, it is the second most impactful variable in the model, reflecting its role in budget tracking, reporting, and fraud prevention.

Remita (e-payment) (B = 0.190, p = 0.007). The adoption of Remita leads to a 0.190 unit increase in financial transparency. Although the smallest in magnitude, it is still statistically significant, indicating a meaningful contribution to the improvement of accountability and cashless transactions. All four computer-centric systems—IPPIS, TSA, GIFMIS, and Remita—have positive and statistically significant effects on financial transparency in the Nigerian Federal Ministry of Finance. The most influential predictors are IPPIS and GIFMIS, highlighting the importance of payroll integrity and integrated financial reporting systems in promoting transparency. These findings provide robust empirical support for the continued digital transformation of Nigeria's public financial management systems.

Discussion of Findings

The objective of this study was to examine the effect of computer-centric systems namely, IPPIS, TSA, GIFMIS, and Remita (e-payment) on financial transparency in the Nigerian Federal Ministry of Finance. The regression results revealed that all four systems have positive and statistically significant effects on financial transparency. This section discusses these findings in the context of existing literature, theories, and empirical evidence.

IPPIS and Financial Transparency. The analysis showed that IPPIS had the strongest positive effect on financial transparency (B = 0.303, $p < 0.01$). This suggests that payroll automation, staff record centralization, and fraud prevention measures under IPPIS have significantly enhanced transparency in public sector financial management. This finding agrees with Kaoje et al. (2020), who found a significant positive relationship between IPPIS implementation and payroll transparency within the federal civil service. Similarly, Agbata and Oranefo (2022) observed that IPPIS improved budgeting accuracy and internal audit effectiveness in Nigerian Federal Universities. These studies reinforce the role of IPPIS in eliminating ghost workers, enforcing salary compliance, and ensuring data accuracy. Conversely, Oloruntoba (2018) noted challenges such as resistance from MDAs and data integrity issues, suggesting that while IPPIS is effective, its success depends on institutional cooperation and regular audits. Therefore, while our findings affirm the model's effectiveness, they also highlight the need for capacity building and system maintenance.

Treasury Single Account (TSA) and Financial Transparency. TSA had a significant positive impact on financial transparency (B = 0.216, $p < 0.01$). This supports the claim that consolidating public funds into a single account has improved visibility, accountability, and reduced revenue leakages. This aligns with Orsaa and Jennifer

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(2019), who concluded that TSA implementation enhanced both accountability and transparency in public finance management in Nigeria. Similarly, Bwalya and Munyoki (2017) noted that TSA fosters fiscal discipline in developing economies through centralized fund tracking and real-time visibility. However, this finding contrasts with Olawale and Awolowo (2020), who argued that while TSA improves oversight, delays in fund disbursement often hinder operational efficiency. Their critique points to the need for system flexibility and timely releases to optimize TSA's benefits. GIFMIS and Financial Transparency. GIFMIS was also found to significantly affect financial transparency ($B = 0.288$, $p < 0.01$), underscoring its role in budget monitoring, financial reporting, and expenditure control.

This result corroborates the findings of Izang, Owolabi, and Odunlade (2023), who found that GIFMIS significantly aids fraud investigation and promotes transparency in government financial operations. Additionally, Ojo (2010) emphasized the system's importance in minimizing off-budget expenditures and enhancing audit readiness. Nonetheless, Muwema and Phiri (2020) reported mixed results from Zambia's experience, noting that IFMIS did not significantly reduce financial leakages or improve procurement speed, largely due to user inaccessibility and system redundancy. This suggests that GIFMIS effectiveness is contingent on user training, system access, and real-time integration.

Remita (e-Payment) and Financial Transparency. Remita showed a positive and statistically significant effect on financial transparency ($B = 0.190$, $p < 0.01$), confirming its contribution to secure, auditable, and traceable public fund transfers. This finding supports Abdullahi (2024), who justified Remita's adoption due to its reliable and cost-effective payment solutions that promote transparency in public financial transactions. Similarly, Okeme (2017) found that Remita facilitated real-time monitoring and helped eliminate over 20,000 redundant bank accounts, improving financial discipline. On the contrary, Adigun and Misra (2017) highlighted that implementation delays, internet connectivity issues, and user resistance could impair the system's full transparency potential. This implies that while the platform has proven effective, technical infrastructure and change management strategies are crucial for success.

Synthesis and Theoretical Alignment. The study's findings are consistent with the Technology Acceptance Model (TAM), where perceived usefulness and ease of use of ICT systems (e.g., IPPIS, GIFMIS) enhance adoption and performance. Furthermore, Institutional Theory explains that the adoption of these systems is driven not only by efficiency but also by external pressures such as federal mandates and donor requirements. Finally, Agency Theory is supported by the findings, as computer-centric systems help reduce information asymmetry and align the actions of public officials (agents) with the interests of citizens (principals).

The discussion confirms that computer-centric systems are indispensable tools for improving financial transparency in Nigeria's public sector. However, their effectiveness is not automatic; it depends on factors such as training, infrastructure, institutional support, and stakeholder engagement. While the study's findings are generally supported by literature, variations across studies suggest the need for context-sensitive implementation strategies.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study concludes that computer-centric systems are pivotal drivers of financial transparency in Nigeria's public financial management system. The findings underscore the value of digital reforms in enhancing accountability, traceability, and operational efficiency. Specifically, IPPIS and GIFMIS emerged as the most impactful systems, while TSA and Remita also demonstrated meaningful contributions.

Theoretical alignment with the Technology Acceptance Model (TAM), Institutional Theory, and Agency Theory further supports the idea that the adoption and effectiveness of digital financial tools are shaped by user perception, external pressure, and the need for monitoring and control.

Based on the study's findings, the following recommendations are proposed:

i. Strengthen Training and Capacity Building: The government should intensify training programs for ICT and accounting personnel to enhance user competence and system efficiency.

ii. Improve System Infrastructure: Investment in ICT infrastructure, especially internet connectivity and system uptime, is necessary to optimize the performance of TSA and Remita platforms.

iii. Integrate Systems for Interoperability: IPPIS, GIFMIS, TSA, and Remita should be fully integrated to promote seamless data exchange and reduce redundancy.

iv. Ensure Prompt Fund Releases Under TSA: Mechanisms should be introduced to address delays in fund disbursement from the TSA to enable smooth governmental operations. Regular audits and performance reviews should be instituted to assess the relevance, security, and efficiency of each system.

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