DIGITAL FINANCIAL REFORMS AND CORRUPTION CONTROL IN NIGERIA

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Abstract
This study investigated the effects of the Integrated Personnel and Payroll Information System (IPPIS), Government Integrated Financial Management Information System (GIFMIS), and Public Procurement Reform (PPR) on corruption control (CC). The study adopted a survey research design, with primary data collected through structured questionnaires administered to personnel from selected federal ministries, departments, agencies, anti-corruption institutions, and civil society organizations involved in public financial management and accountability processes. A sample size of 326 respondents was determined from a population of 1,772 using the Taro Yamane formula and selected through stratified sampling technique. Data were analyzed using PLS-SEM involving measurement and structural model assessments. The findings revealed that IPPIS exerted a weak negative and statistically insignificant effect on CC, while PPR also recorded a weak positive and insignificant relationship with CC. Conversely, GIFMIS exhibited a positive and statistically significant relationship with CC challenges, suggesting implementation weaknesses and institutional inefficiencies within the reform process. The study concluded that although digital financial reforms theoretically improve transparency and accountability mechanisms, their effectiveness in controlling corruption within Nigeria's Federal Public Sector remains is not established. The study recommended strict institutional monitoring, improved inter-agency integration, enhanced staff capacity building, and firm enforcement of public financial management regulations to strengthen CC outcomes in Nigeria.

Keywords: Digital financial reforms, corruption control, IPPIS, GIFMIS, PPR, PLS-SEM, Nigeria.

1. Introduction

The growing deployment of digital technologies in public financial administration has significantly transformed governance systems across developing economies. Governments increasingly adopt digital financial reforms not only to strengthen accountability, improve transparency, and enhance operational efficiency, but also to check corruption in the management of public resources. In Nigeria, persistent cases of financial leakages, payroll fraud, procurement irregularities, and weak accountability mechanisms especially within the Federal public sector necessitated the introduction of several digital financial reform initiatives aimed at improving controlling corruption, fiscal discipline and institutional performance.

These reforms include the Integrated Personnel and Payroll Information System (IPPIS), Government Integrated Financial Management Information System (GIFMIS), and Public Procurement Reform (PPR). However, despite these reforms,

corruption within the public sector remains alarming. For instance, the Economic and Financial Crimes Commission (EFCC) reported that about N2.9 trillion was lost to contract and procurement fraud between 2018 and 2020, representing nearly 10% of total budgetary allocations during the period (EFCC, 2023). Similarly, the Independent Corrupt Practices and Other Related Offences Commission (ICPC) uncovered duplicate projects valued at N300 billion and N100 billion in the 2021 and 2022 federal budgets respectively, largely linked to weaknesses in procurement and financial management processes (ICPC,2022). In addition, a whistleblower report in 2022 exposed about 54,000 fraudulent entries within the IPPIS platform, further questioning the effectiveness of existing digital reforms in controlling corruption (Ejike, 2022).

Also, the Transparency International continues to rank Nigeria among countries facing severe corruption challenges, with the Nigeria's score declining from 27% in 2012 to 25% in 2023, indicating persistent weaknesses in corruption control (CC) (TI, 2023). Furthermore, in 2022, the EFCC recovered over N30 billion and 15 properties allegedly linked to the manipulation of the GIFMIS and IPPIS platforms by the former Accountant General of the Federation (EFCC, 2022). These incidents suggest that although digital financial reforms theoretically improve administrative processes, institutional weaknesses, poor enforcement mechanisms, and governance deficiencies continue to undermine their effectiveness in controlling corruption.

Given the strategic role of digital financial reforms in strengthening accountability and reducing opportunities for financial misconduct, there is growing need to empirically assess the extent to which these reforms contribute to CC in Nigeria's Federal public sector. While previous studies have largely focused on isolated reforms or conceptual discussions, limited empirical studies have examined the combined effects of digital financial reforms on CC using advanced multivariate analytical techniques such as Partial Least Squares Structural Equation Modelling (PLS-SEM). This study therefore investigates the effect of digital financial reforms on CC in Nigeria's Federal public sector using PLS-SEM analysis.

The broad objective of this study is to examine the effect of digital financial reforms on CC in Nigeria's Federal public sector. The specific objectives are to:
i. examine the effect of IPPIS on CC in Nigeria's Federal public sector;
ii. evaluate the effect of GIFMIS on CC in Nigeria's Federal public sector;
iii. assess the effect of PPR on CC in Nigeria's Federal public sector.

From the objectives of the study, the following null hypotheses are put forward and tested.
$H0_1$: IPPIS has no significant effect on CC in Nigeria's Federal public sector.
$H0_2$: GIFMIS has no significant effect on CC in Nigeria's Federal public sector.
$H0_3$: PPR has no significant effect on CC in Nigeria's Federal public sector.

2. Literature Review

2.1. Conceptual review

Digital financial reforms refer to the application of information and communication technologies (ICT) in the management of public financial processes to improve efficiency, transparency, accountability, and fiscal discipline within government institutions (International Monetary Fund, 2019; World Bank, 2023). These reforms

involve the automation and integration of financial management operations such as payroll administration, procurement processes, budgeting, expenditure control, financial reporting, and revenue management, typically implemented through GIFMIS and similar platforms (Ojeifo & IleSanmi, 2015; Essien, 2026; World Bank, 2017). Digital financial reforms are considered important instruments for CC because they reduce human discretion in financial transactions, improve transparency in public expenditure administration, and facilitate real-time monitoring of government financial activities (Bertot et al., 2010; Heeks, 1998). For instance, IPPIS assists in eliminating ghost worker practices and payroll fraud through centralized payroll administration, while GIFMIS enhances financial reporting accuracy and expenditure monitoring (Enakirerhi & Temile, 2017; Ogbonna & Ojeaburu, 2015). Similarly, PPR improves transparency and competitiveness in government contracting processes through standardized procurement procedures and due process mechanisms (Aminu, 2019; Ezeh, 2016).

IPPIS was introduced to address persistent payroll fraud, eliminate ghost workers, and establish a centralized personnel database within the federal public service. The reform digitalized payroll administration and enhanced payroll accountability through automated salary processing and personnel verification mechanisms (Enakirerhi & Temile, 2017; Ogbonna & Friday, 2015). Although the system has contributed to significant savings and improved payroll transparency, implementation challenges such as salary delays, institutional resistance, and lack of integration with other financial systems remain major concerns (Onukogu, 2010).

Similarly, PPR was introduced through the Public Procurement Act of 2007 to strengthen transparency, competitiveness, accountability, and value-for-money in government procurement processes. The reform sought to harmonize procurement procedures, reduce contract-related corruption, and establish due process mechanisms in public expenditure administration (Aminu, 2019; BPP, 2018). The introduction of competitive bidding procedures and mandatory publication of contract awards represented major institutional efforts toward reducing procurement fraud and improving accountability within the public sector (Ezeh, 2016). However, weak enforcement mechanisms, political interference, and institutional capacity limitations continue to affect the effectiveness of the reform (Kasim, 2016; Obanda, 2010).

In addition, GIFMIS represents another major component of Nigeria's digital financial reform initiatives. The system was introduced to strengthen financial reporting, budgetary administration, expenditure monitoring, and cash management through an integrated electronic financial management platform. GIFMIS facilitates centralized monitoring of government revenues and expenditures and enhances timely access to financial information for effective decision-making (Olurankinse & Oloruntoba, 2018; Ogbonna & Ojeaburu, 2015). The reform has reportedly improved budgetary control, payroll administration, and financial reporting within the public sector (Adeyemi, 2018). Nevertheless, challenges relating to inadequate information technology infrastructure, shortage of skilled personnel, and system integration problems continue to constrain its full implementation (Abdulraheem, 2016; Ibrahim, 2018).

The concept of corruption generally refers to the abuse of public office or entrusted authority for private gain (World Bank, 1997). Corruption manifests in various forms

including bribery, embezzlement, fraud, abuse of office, procurement manipulation, payroll fraud, diversion of public funds, and other unethical practices that undermine institutional efficiency and public accountability (Rose-Ackerman, 1999; Premchand, 1999).

Corruption control (CC) refers to the institutional, legal, administrative, and technological mechanisms established to prevent, detect, monitor, and reduce corrupt practices within public institutions (Klitgaard, 1998). Effective CC systems are expected to strengthen transparency, accountability, compliance, and ethical conduct in public administration (Bertot et al., 2010). In late 1990s and early 2000s, governments across the world increasingly adopted digital governance systems and public financial management reforms as strategic tools for controlling corruption and improving public sector efficiency (Heeks, 1998; Bertot et al., 2010).

The adoption of digital financial reforms is therefore widely regarded as an important institutional strategy for improving public sector accountability, reducing opportunities for corruption, and enhancing governance outcomes. However, the effectiveness of these reforms largely depends on the quality of implementation, institutional commitment, regulatory enforcement, and technological integration within the public sector environment.

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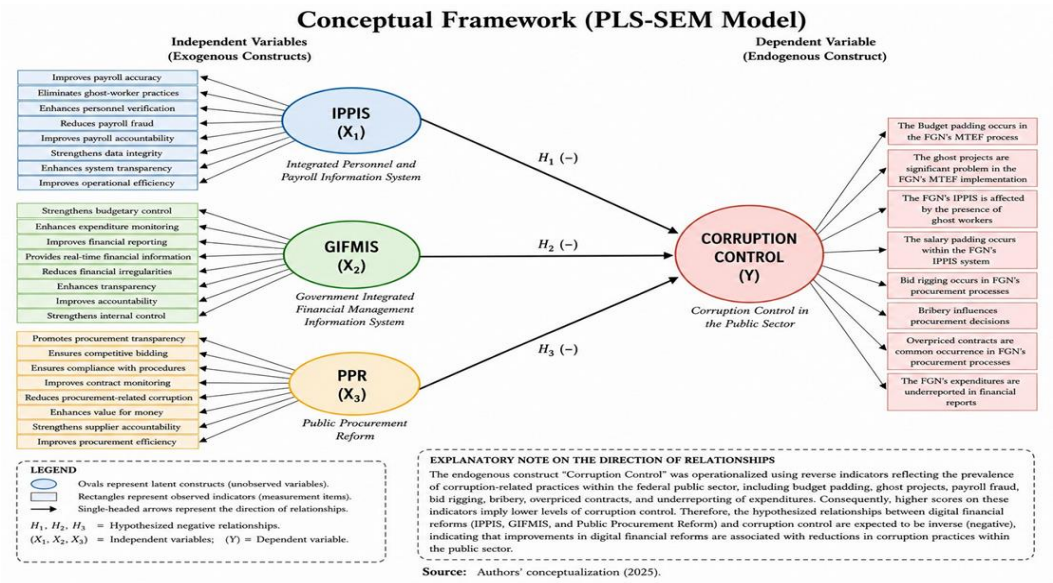

Source: Authors' conceptualization (2025).

2.2. Theoretical Framework

This study is anchored on the Principal-Agent Theory. The theory provides relevant explanations regarding the relationship between digital financial reforms and corruption control within the public sector. The Principal-Agent Theory was developed by Jensen and Meckling (1976) to explain the relationship between principals, who delegate authority, and agents, who are entrusted with responsibilities on behalf of the principals. Within the public sector context, citizens and government authorities act as principals, while public officials and administrators function as agents responsible for managing public resources and implementing government policies.

The theory assumes that agents may pursue personal interests at the expense of organizational or public interests due to information asymmetry, weak monitoring mechanisms, and lack of accountability structures (Jensen & Meckling, 1976). This situation creates opportunities for corruption, abuse of office, financial

mismanagement, and other unethical practices within public institutions.

Digital financial reforms such as IPPIS, GIFMIS, and PPR are therefore designed to minimize information asymmetry, strengthen monitoring mechanisms, improve transparency, and reduce discretionary powers in financial administration. For instance, IPPIS reduces opportunities for payroll fraud through centralized payroll verification systems, while GIFMIS enhances expenditure monitoring and financial reporting. Similarly, PPR improves transparency and accountability in government contracting processes through standardized procurement procedures and due process mechanisms.

The relevance of Principal-Agent Theory to this study lies in its ability to explain how digital financial reforms can reduce agency problems and strengthen accountability within the public sector by improving transparency, monitoring, and control systems.

2.3. Empirical Review

Ikpe-Agha et al. (2025) examined the impact of financial management policies, including TSA, IPPIS, and GIFMIS, on fraud detection in Nigeria's public sector. The findings indicated that TSA had the strongest positive effect on fraud detection, while IPPIS moderately reduced payroll fraud. Conversely, GIFMIS showed limited effectiveness due to weak implementation and institutional inefficiencies. Furthermore, Egbara and Ofodu (2025) assessed the effectiveness of IPPIS in curbing payroll fraud within Nigeria's public service. The study revealed that IPPIS significantly reduced fraudulent salary practices and improved payroll transparency; however, institutional resistance, weak ICT infrastructure, and poor inter-agency coordination limited its effectiveness.

Similarly, Jejeniwa and Adetoro (2026) examined Nigeria's persistent vulnerability to fraud in public financial management despite extensive digitalization initiatives such as the GIFMIS, TSA and IPPIS. The study found that while digitalization improved efficiency, governance gaps undermined fraud resilience. Again, Eze and Ugada (2025) investigated the role of IPPIS in fraud control within the federal public service in Anambra State. The study found that IPPIS substantially reduced ghost workers and multiple salary payments, thereby improving accountability and transparency in payroll administration, despite challenges relating to ICT deficiencies and data inconsistencies.

In the area of procurement administration, Aminu (2019) examined the impact of PPR on transparency and accountability in Nigeria's public sector. The study found that the implementation of the Public Procurement Act improved competitive bidding processes, strengthened procurement monitoring, and reduced procurement-related corruption in public institutions. Ezeh (2016) also observed that PPR contributed to improved compliance with procurement procedures and enhanced value-for-money in public expenditure administration. However, weak enforcement mechanisms, political interference, and non-compliance with procurement regulations remained major implementation challenges.

Moreso, Ukomadu and Ogundare (2026) examined the adoption of e-governance in salary administration within the Kogi State civil service, with emphasis on transparency and efficiency. The study found that IPPIS and TSA improved salary

administration through reduction of ghost workers and timely salary payments, although poor ICT infrastructure, corruption, and resistance to change constrained effective implementation. Beyond Nigeria, Bertot et al. (2010) examined the role of information and communication technologies in promoting transparency and reducing corruption in public administration. The study concluded that digital governance systems improve access to information, strengthen accountability mechanisms, and reduce opportunities for corrupt practices through enhanced monitoring and transparency. Similarly, Heeks (1998) argued that electronic governance systems contribute significantly to public sector accountability by reducing human discretion and improving administrative efficiency.

Despite the growing body of empirical literature on financial management reforms and corruption control, most previous studies focused on individual reform initiatives rather than examining the combined effects of IPPIS, GIFMIS, and PPR on corruption control. Furthermore, many studies adopted descriptive or conventional regression approaches with limited application of advanced multivariate analytical techniques such as PLS-SEM. This creates a methodological and empirical gap

which this study seeks to address by providing a comprehensive assessment of the effect of digital financial reforms on corruption control in Nigeria's public sector using PLS-SEM analysis.

3. Methodology

The study employed a survey research approach through the administration of structured questionnaires to selected respondents within federal ministries, departments, and agencies involved in the implementation and operation of the identified digital financial reforms.

The study further utilized PLS-SEM as the technique for data analysis. PLS-SEM was adopted because it is suitable for analyzing complex relationships among latent constructs and for simultaneously assessing measurement and structural models (Hair et al., 2019).

The population of the study comprised personnel from selected federal ministries, departments, and agencies associated with the implementation and administration of digital financial reforms in Nigeria. In addition to the government agencies, the population encompasses officials from the ICPC and the EFCC that engage in corruption cases and investigations. Finally, the study incorporates CSOs that focused on transparency, accountability, and anti-corruption efforts. These groups play a crucial role in monitoring and advocating for reforms, and their perspectives can provide valuable insights into the public's perception and assessment of the digital financial reforms and their effectiveness in curbing corruption.

The study's population consists of 1,772 respondents (Table 1). To determine the appropriate sample size for the research, this study utilized the Taro Yamane formula, a widely adopted statistical technique for calculating the sample size. The study set the margin of error at 5% (0.05) and the confidence level at 95%. Employing the Taro Yamane formula, the study calculated the sample size for the study to be 326 (Table 1). Hence, the Taro Yamane formula is given as:

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

Where n = Sample size; N = Population of the study (1,772); e = Tolerable error (5%).

$n = \frac{1772}{1+1772(0.05^2)}$, $n = \frac{1772}{1+4.43}$, $n = \frac{1772}{5.43}$, n = 326

Moreover, a stratified sampling technique was used to identify the respondents in each category. Thus, the respondents were selected from the sampled federal government ministries, departments, and agencies. However, to determine the actual number of respondents in the sampled federal government MDAs and CSOs, this study used proportional allocation sample formula, and the results are reported in Table 1.

Table 1: Population and Sample size

S/N	Organization	Population	Sample Size
1	Budget, Account, Expenditure control, Treasury officials of the FMF	1,053	194
2	Officials of the AuGF	350	65
3	Officials of the BPP	105	19
4	Officials of the EFCC & ICPC	110	20
5	Officials of CSOs-Transparency and Anti-Corruption NGOs	154	28
6	Total	1,772	326

Source: Author's Computation, 2025

Model Specification and Method of Data Analysis

The study specified CC as a function of digital financial reforms represented by IPPIS, GIFMIS, and PPR. The functional relationship is expressed as:

$Y = f(X_1, X_2, X_3)$.

The econometric form of the model is specified as:

$CC = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$

Where:
Y= Corruption Control (CC)
X_1 =Integrated Personnel and Payroll Information System (IPPIS)
X_2 =Government Integrated Financial Management Information System (GIFMIS)
X_3 = Public Procurement Reform (PPR)
β_0 = Constant term
$\beta_1 - \beta_3$ = Regression coefficients
μ = Error term

To ensure the validity and reliability of the research instrument, the study conducted validity and reliability assessments prior to the main analysis, the study employed PLS-SEM for data analysis. The analysis was conducted in two stages comprising measurement model assessment and structural model assessment. The measurement model assessment involved the evaluation of reliability, convergent validity, and discriminant validity of the constructs, while the structural model assessment focused on path coefficients, coefficient of determination (R^2),

predictive relevance, and hypotheses testing to determine the effects of digital financial reforms on CC in Nigeria's Federal public sector.

Table 2: Definition and Measurement of the Variables of the Study

Variable	Label	Measurement	Prior Studies
Corruption Control	CC	Measured using survey-based perception ratings on a 5-point Likert scale	UNODC (2023); Dell'Anno (2020)
Integrated Payroll and Personnel Information System	IPPIS	Perceived effectiveness of IPPIS, on a 5-point Likert scale	Ike et al. (2023); Paul & Folorunsho (2020)
Public Procurement Reform	PPR	Assessed through respondents' perceptions on a 5-point Likert scale.	Fazekas et al. (2016); Hessami (2014)
Government Integrated Financial Management Information System	GIF MI S	Measured by respondents' ratings on 5-point Likert scale	Ibrahim et al. (2022); Ogunyemi (2019);

Source: Researchers' initiative, 2025

4. Results and Discussions

This section assesses both measurement and structural models that are the established reporting conventions for PLS-SEM, as recommended by Hair et al. (2019).

Assessment of Measurement model

Internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability values. The results indicated that all constructs recorded reliability values above the minimum acceptable threshold of 0.70, suggesting adequate internal consistency among the measurement items. Convergent validity was assessed using Average Variance Extracted (AVE) and factor loadings. The AVE values for all constructs exceeded the recommended threshold of 0.50, indicating that the constructs adequately explained the variance of their respective indicators. Similarly, the factor loadings of the measurement items were within acceptable limits, confirming satisfactory convergent validity of the constructs. Discriminant validity was evaluated to determine the distinctiveness of the study constructs. The results confirmed that the constructs were empirically distinct from one another, indicating the absence of multicollinearity problems among the latent variables. This suggests that the measurement model was statistically adequate for structural model analysis.

Assessment of structural model and test of hypotheses

The structural model assessment examined the relationships between digital financial reforms and corruption control in Nigeria's Federal public sector. The analysis focused on path coefficients, coefficient of determination (R^2) and hypotheses testing as depicted from Tables 3 and 4 and figure 1.

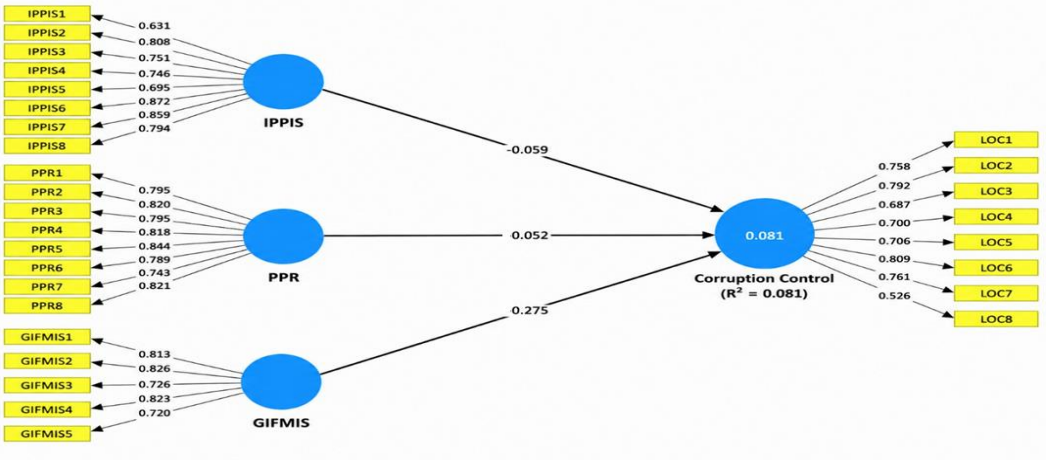

Figure 1: Structural Model

In this study, the R^2 was employed to assess the explanatory power of the model, and the result is reported in Table 3:

Table 3: Explanatory Power of the model

Variable	R-square	R-square adjusted
CC	0.081	0.072

Source: Author's Computation from Smart PLS output, 2025

Table 3 presents the R-squared value for the variable of the CC in Nigeria Federal context which is recorded at 0.081. This indicates that only 8.1% of the variance in CC can be explained by the independent variables (IPPIS, PPR and GIFMIS) included in the model. The low R-squared value suggests that the model has limited explanatory power regarding the impact of digital financial reform on CC in Nigeria's Federal Public Sector. There are several reasons that contribute to this low figure: first, Corruption is inherently a multifaceted issue influenced by various factors beyond just digital financial management reforms. It encompasses political, social, economic, and cultural dimensions that were not captured by the model's variables. The narrow focus on specific reforms overlooks broader systemic issues that also drive corrupt practices. Lastly, the factors outside the scope of the study, such as political instability, economic conditions, and public attitudes towards corruption, also play significant roles in influencing CC. These external influences have not been accounted for in the model, leading to under-exploration of the effects of digital financial reforms.

Table 4: Path coefficients and test results of the hypotheses

Null Hypothesis (HO)	**Path Coefficient (β)**	**P-Value**	**Effect on CC**	**Decision**
$H0_1$: IPPIS has no significant effect on CC in Nigeria Federal Public Sector.	-0.059	0.706	Improve CC (insig.)	Fail to Reject H1
$H0_2$: PPR has no significant effect on CC in Nigeria Federal Public Sector.	0.052	0.657	Decreases CC (insig.)	Fail to Reject H2
$H0_3$: GIFMIS has no significant effect on CC in Nigeria Federal Public Sector.	0.275	0.001	Decreases CC (sig.)	Reject H3, Accept H3

Source: Author's computation from Smart PLS output, 2025.

The hypothesis testing results reveal that the implementation of the IPPIS has a weak negative and statistically insignificant effect on CC (β = -0.059; p = 0.706). This suggests that although IPPIS marginally supports CC within Nigeria's Federal Public Sector, the effect is not substantial enough to produce measurable institutional impact. Consequently, the null hypothesis was not rejected. The finding corroborates earlier studies by Ikpe-Agha et al. (2025), Friday and Ameh (2022), and Ocholi and Ocholi (2021). However, the result contrasts with the findings of Egbara and Ofodu (2025), Solomon and Fidelis (2023), and Bappi (2023), and Adegbile et al. (2021), who documented significant digital financial reforms effect.

Similarly, PPR recorded a weak positive but statistically insignificant relationship with CC (β = 0.052; p = 0.657). The result indicates that the PPR have not generated a meaningful reduction in corrupt practices within the Federal Public Sector. Hence, the null hypothesis was also not rejected. This finding is broadly consistent with the studies of Otieno and Awuor (2023), and Olusegun and Ikenwa (2020), which found limited or insignificant effects of PPR on corruption reduction. Nonetheless, the result differs from Augustine et al. (2023) and Ortiz et al. (2023), who reported that PPR significantly strengthened CC mechanisms.

In contrast, GIFMIS exhibited a positive and statistically significant relationship with CC challenges (β = 0.275; p = 0.001). While the null hypothesis was rejected, the positive coefficient implies that GIFMIS implementation has not effectively translated into the expected reduction in corruption within Nigeria's Federal Public Sector. This outcome aligns with the findings of Izang et al. (2024), Triwibowo (2020), and Olurankinse and Oloruntoba (2018), who also reported significant relationships between GIFMIS and corruption-related outcomes. However, it contradicts the studies of Lewis and Hendrawan (2020) and Enofe et al. (2017), which found no significant association between GIFMIS adoption and corruption reduction.

Ikpe-Agha et al. (2025) examined the impact of financial management policies, including TSA, IPPIS, and GIFMIS, on fraud detection in Nigeria's public sector. The findings indicated that TSA had the strongest positive effect on fraud detection, while IPPIS moderately reduced payroll fraud. Conversely, GIFMIS showed limited effectiveness due to weak implementation and institutional inefficiencies. Furthermore, Egbara and Ofodu (2025) assessed the effectiveness of IPPIS in curbing payroll fraud within Nigeria's public service. The study revealed that IPPIS significantly reduced fraudulent salary practices and improved payroll transparency; however, institutional resistance, weak ICT infrastructure, and poor inter-agency coordination limited its effectiveness.

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5. Conclusion and Recommendations

This study concludes that the implementation of digital financial reforms in Nigeria's Federal Public Sector has produced limited success in strengthening CC. Furthermore, the study concludes that the mere adoption of technology-driven financial reforms may not automatically translate into effective corruption reduction without adequate institutional support and enforcement mechanisms.

Based on the findings of the study, the following recommendations are made:

1. The Federal Government should strengthen institutional enforcement and compliance mechanisms guiding the implementation of IPPIS, GIFMIS, and PPR to ensure that the systems achieve their intended anti-corruption objectives.
2. Relevant oversight agencies should improve monitoring, auditing, and real-time evaluation of digital financial systems to detect and prevent loopholes that may facilitate corrupt practices within public institutions.
3. Government should enhance the integration and interoperability of digital financial management platforms to promote transparency, data accuracy, accountability, and effective tracking of public funds across ministries, departments, and agencies.
4. Continuous capacity building and technical training should be provided for public sector personnel to improve operational efficiency, ethical compliance, and effective utilization of digital financial reform systems.
5. Future reform initiatives should focus not only on technology adoption but also on institutional culture, leadership commitment, and governance quality to ensure sustainable CC outcomes.

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