



(RESEARCH ARTICLE)



Digital transformation and internal control effectiveness of fintech-intensive firms in Nigeria

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World Journal of Advanced Research and Reviews, 2026, 29(03), 1058-1069

Publication history: Received on 02 February 2026; revised on 10 March 2026; accepted on 13 March 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.29.3.0590>

Abstract

Transformation of The Digital revolution has brought about a significant change in the working of financial institutions, especially those who perform intensive fintech work related to IT technologies and are heavily dependent on digital technologies as their medium of service delivery and financial reporting. However, in spite of the rapid increase in the development of fintech in Nigeria, there are worries about the effectiveness of internal control systems on ensuring compliance and reliable financial reporting in the digital oriented environments. This study examined the relationship between digital transformation and internal control effectiveness in the fintech intense firms in Nigeria. Specifically, the study examined the psychological and demographic factors of digital strategy and leadership support; process digitalization; and digital skills or digital culture on compliance and reliability in reporting. The study was based on technology acceptance model, resource-based view theory and institutional theory. A cross-sectional research design was adopted and the research philosophy that directed this study was the positivist research philosophy. The population of the study consisted of 390 employees and managerial personnels of fintech intensive firms in Nigeria of which, a sample size of 378 respondents was selected using purposive sampling techniques. Primary data were obtained on the basis of a structured questionnaire prepared on a Likert scale. The data were analyzed in using descriptive statistics and rank correlation coefficient of spearman at level 0.01. The results showed that digital strategy and leadership support, process digitalization and digital skills or culture all have positive and significant relationships with compliance and reporting trustworthiness. The study concluded that digital transformation facilitates the effectiveness of the internal control system in fintech-intensive institutions. Based on the findings, the study recommends that fintech firms improve leadership commitment to digital initiatives, invest in process automation, and build the digital competency of employees to improve compliance and reliability of reporting. The study adds to the knowledge by presenting empirical evidence on the role of digital transformation in enhancing the effectiveness of internal control in the fintech-intensive firms in Nigeria.

Keywords: Digital transformation; Internal control efficiency; Fintech companies; Reliability of compliance; Reliability of report; Nigeria

1. Introduction

Digital transformation has become a critical strategic priority for organizations worldwide - especially in the financial services sector where technological innovations are transforming operational processes, governance mechanisms and risk management systems. The transformation of businesses with digital technologies is referred to as digital transformation, defined as the integration of digital technologies into business operations, organizational structures, and strategic decision-making processes in order to improve efficiency, transparency, and service delivery (Vial, 2019). In the financial sector, digital transformation is the use of technologies such as cloud computing, artificial intelligence, blockchain, big data analytics, and digital payment platforms that add value to their operational effectiveness and

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financial intermediation (Bharadwaj et al., 2013; Verhoef et al., 2021). As financial institutions increasingly depend on their daily operations on technologically-based systems, the demand to couple the digital transformation with adequate mechanisms for governance and internal controls has become more relevant.

In Nigeria, the proliferation of financial technology (fintech) companies and the digitalization of conventional financial institutions has transformed the landscape of financial service delivery in the country in a big way. Fintech-intensive companies use digital platforms intensively in their transactions, lending, payment and financial data management processes. This change has been supported by policy initiatives including the National Digital Economy Policy and Strategy (2020-2030) which seeks to promote the development of digital infrastructure and diversification of Nigeria's digital economy (Federal Ministry of Communications and Digital Economy, 2020). The development of fintech companies in Nigeria has also been enabled by issuing regulatory frameworks by the Central Bank of Nigeria such as mobile payment, digital banking, and open banking systems. These developments have had a positive impact on financial inclusion and efficiency of financial transactions throughout Nigerian economy (Ozili, 2020; Suri & Jack, 2016).

However, as organizations have become increasingly reliant on digital technologies, the efficiency of internal control systems has become more important. Internal controls are policies and procedures established in order to ensure efficiency in operation, protection of assets, compliance with regulations and reliability of financial reporting (COSO, 2013). In digitally driven organizations, internal control effectiveness is often determined by how much digital transformation is embedded into organizational processes and leadership structures. Digital strategy and leadership support has an important role to play in ensuring that technological initiatives are aligned to organizational governance and risk management objectives. Leadership commitment to digital transformation is needed as a means to ensure enough investment in technological infrastructure, compliance frameworks and internal monitoring systems (Kane et al., 2019).

Furthermore, process digitalization has a major impact on the effectiveness of internal controls by automating financial transactions, reducing manual errors, and allowing for the monitoring of organizational activities in real-time. Automated systems enhance transparency and audit trails, which in turn enhances compliance and reliability of reporting within fintech-intensive firms (Alles, Kogan, & Vasarhelyi, 2018). Similarly, the development of digital competencies and a supportive digital culture in organizations improves the ability of employees to efficiently use technologic tools for compliance monitoring, risk management and financial reporting (Warner & Wager, 2019). Consequently, fintech-intensive firms that successfully integrate digital strategy, digital process and digital skills into their operations tend to build up robust internal control systems that can successfully ensure compliance and reliable reporting.

Despite the benefits that come with digital transformation, fintech companies are also experiencing a variety of new challenges, including cybersecurity risks, regulatory compliance challenges, and technological disruptions. These risks illustrate the importance of exploring the impact of digital transformation on the effectiveness of internal control, especially in fast changing financial markets like Nigeria. Therefore, it is important to understand the relationship between digital transformation in the form of digital strategy and leadership support, process digitalization and digital skills or culture, and the internal controls effectiveness measured through compliance and the reliability of reporting to strengthen the governance frameworks in fintech intensive firms.

1.1. Statement of Problem

Although digital transformation has seen a huge amount of scholarly research in the last few years, empirical research into digital transformation's relationship with internal control effectiveness is relatively limited. Most of the certain existing studies have been more focused on how digital transformation has affected firm performance, innovation and competitiveness rather than governance related outcomes such as compliance and reporting reliability (Verhoef et al., 2021; Vial, 2019). For instance, Bharadwaj et al. (2013) and Warner and Wager (2019) focused on strategic and organizational implications of digital transformation and paid limited attention to the effects of digital transformation on internal control system and regulatory compliance.

Within Nigerian context, a few studies have been conducted on the role of fintech and digital financial services in facilitating financial inclusion, economic growth and banking sector performance (Ozili, 2020; Ezeani and Oladele, 2022). However, these studies are largely macroeconomic outcome and financial service delivery-oriented, and do not pay enough attention to the governance implications of digital transformation. Moreover, the currently available research works on the effectiveness of internal control in Nigeria have been generally concentrated on traditional financial institutions (banks) instead of financial institutions (fintech) intensive firms whose business model operation is highly dependent on digital technologies. Another limitation in the literature is that many of the studies measure

digital transformation through general indicators of technology adoption without introducing dimensionalities in terms of organization e.g. digital strategy and leadership support, process digitalization and digital skills or culture. This generates a conceptual and empirical void on how these particular dimensions of digital transformation impact compliance and reporting reliability in fintech-intensive firms. Consequently, there is a need for empirical studies concentrating on multidimensional relationship between digital transformation and the effectiveness of internal control system in Nigeria's fast growing fintech ecosystem.

2. Literature Review

2.1. Conceptual Framework

2.1.1. Digital Transformation

Digital transformation means the strategic integration of digital technologies into the organizational activities, processes and models of business in a bid to enhance efficiency, innovation and value creation. It is not related to the mere use of technological tools, but rather it represents a deep transformation of organizational forms, operational processes, as well as managerial decision-making processes, thanks to the effective use of digital technologies (Vial, 2019). In today's business environments, digital transformation has emerged as a major driver of competitiveness, especially for technology-intensive industries like financial services, where digital platforms are a central part of service delivery and its operational management (Verhoef et al., 2021). Digital transformation has several dimensions related to the organization, among which digital strategy, digitalization of the process, digital capabilities. Digital strategy and leadership support can be defined as the degree to which top management incorporates digital initiatives into organizational strategies and resources for technological innovation. Leadership commitment is crucial because, it shapes the organizational readiness for digital change and aids in aligning the technological investments with organizational goals (Kane et al., 2019). Process digitalization, on the other hand, concerns automation and digitization of business processes with the help of information systems and digital platforms. This helps organizations to have less operational inefficiencies, less manual errors, and improve the processing of data in real time (Bharadwaj et al, 2013).

Another important dimension of digital transformation is digital skills and organizational culture. Organizations need employees who have sufficient technological competencies and a culture of innovation and digital experimentation. Such capabilities allow firms to draw good use of digital tools to perform operations and make strategic decisions (Warner & Wager, 2019). In the financial sector, digital transformation has had a significant impact on the way financial intermediation is carried out through innovation in areas such as digital payments, blockchain technology, mobile banking, and the decision-making algorithm (Ozili, 2020). In profiling and overview of emerging economies like Nigeria, digital transformation, in particular, is significant to better financial inclusion, improved financial operational efficiency, and improved institutional governance at fintech-intensive firms. As an increasing number of commercial and financial institutions are adopting digital technologies, the impact of digital transformation on organizational processes and control mechanisms is an important subject of academic and policy research.

2.1.2. Internal Control Effectiveness

Internal control effectiveness refers to the extent to which an organization's control systems are successful in ensuring the organization's efficiency in operation, compliance with laws and regulations, assets protection, and financial reporting varies in the reliability. Internal controls are a set of policies, procedures, and monitoring designed to reduce risks, prevent fraud, and ensure that organizational goals are met in an organized and responsible fashion (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2013). Internal controls are necessary for transparency and accountability in organizations as stated for their maintenance idea is from important sectors characterized by complex financial transactions, such as compliance of these financial and accountability when it comes to regulatory. According to the framework of the COSO, the internal control effectiveness occurs if the organizations establish well-integrated internal control components with the control environment, risk assessment, control activities, information and communication systems and monitoring activities. These components operate collectively to ensure that organizations operate in accordance to the regulatory standards and maintain accurate financial records (COSO, 2013). Within financial institutions and fintech companies, a vital part of a compliance-focused policy is internal control systems that can help catch operational irregularities early before it becomes financially misstated and stick compliance regulations.

One of the most important indicators of the effectiveness of internal control is compliance reliability, the ability of organizations to comply with regulatory requirements and industry standards. Compliance reliability involves the financial institutions working within the legal and regulatory framework set down by the supervisory authorities.

Another important dimension is reliability of reporting, that concerns the accuracy, completeness and transparency of the financial information generated by an organization. Reliable financial reporting is critical to providing credibility to stakeholders and decision-makers (investors, regulators and management) in order to guide informed decision-making processes (Alles et al., 2018). In organizations driven by digital technologies, the internal control effectiveness is becoming increasingly reliant on technological infrastructures that support automated monitoring, real-time data analysis and secure financial reporting systems. The contextual inclusion of digital technologies within internal control frameworks helps organizations to promote compliance monitoring and reliability of financial reporting processes. Consequently, fintech-intensive companies that adopt sound use of digital control mechanisms have a higher likelihood to enhance internal control effectiveness, and reduce operational and regulatory risks.

2.2. Theoretical Framework

2.2.1. Technology Acceptance Model

The Technology Acceptance Model (TAM) is one of the most commonly used theoretical models for explaining the adoption and use of digital technologies in organizations. The theory was created by Fred Davis in 1989, as an extension of the Theory of Reasoned Action. TAM assumes that the acceptance and usage of technological systems by people is determined by two main constructs: perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness is the extent to which an individual considers that the use of a specific technology will increase job performance whereas perceived ease of use is defined as the extent to which an individual considers that the technology can be used without much effort. The basic premise of TAM is that, when it comes from the feeling that a technology is useful and easy to use, users are more likely to adopt and use it in their working processes. In organizational contexts, the adoption of digital technologies is therefore affected by employee's attitude towards technology and their behavioural intentions to use digital systems. Over the years, TAM has been modified to consider other constructs, like social influence, facilitating conditions and organizational support, which in combination impact technology adoption within modern organizations (Venkatesh et al., 2003).

In a fintech-intensive sector, TAM has a particular application as the digital transformation involves employees and managers in adopting new digital tools such as automated financial systems, digital reporting platforms, and compliance monitoring technologies. The successful implementation of digital transformation initiatives therefore relies to a large extent on the willingness and the ability of employees to use these technologies effectively. When employees feel that digital technologies are helpful for better compliance monitoring and accurate reporting of financial outcomes, they are more likely to adopt these technologies into their everyday work processes. Furthermore, leadership support and digital strategy are also playing an important part in influencing the perception of digital technologies by the employees. Organizations that offer sufficient levels of technological infrastructure, training programmes and management support create an environment that promotes technology acceptance. As a result TAM is an important theoretical explanation for the role that digital skills, digital culture and support for leadership play in the effectiveness of systems of internal control within fintech intensive firms.

2.2.2. Resource Based view (RBV) Theory

The Resource-Based View (RBV) theory is another key theoretical background to ascertain the link between digital change and the effectiveness of internal control. The RBV theory was developed by Jay Barney and emphasizes that the competitive advantage of an organization is much more determined by internal resources and capabilities (Barney, 1991). According to the theory, the firms perform better for possessing valuable, rare, inimitable and non-substitutable resources. Within the context of digital transformation, technological infrastructure, digital capabilities, and skilled human resources are critical organizational assets that can enable more operational efficiency and stronger governance structures. Digital strategy and leadership support help organizations effectively mobilize these resources by incorporating technological innovations in organizational processes and decision-making systems. Firms with robust digital capabilities therefore stand to gain in the ability to create effective systems for monitoring, automated reporting, and advanced compliance systems.

RBV also focuses on the importance of intangible resources such as organizational culture and knowledge. Digital culture and digital skills as strategic capability that allow organizations to manage technological tools for risk and financial reporting. Organizations that invest in digital training programmes and foster a culture that sustains technological innovation, are more likely to improve the effectiveness of their internal control programmes. In fintech intensive firms, digital resources such as advanced information systems, and automated compliance monitoring platforms and data analytics capabilities may improve the internal control effectiveness significantly. These resources help organizations to monitor financial transactions in real-time, identify irregularities and ensure compliance with

regulatory requirements. Consequently, RBV offers a theoretical explanation of the role played by digital capabilities in making internal controls systems stronger in technology-driven financial institutions.

2.2.3. Institutional Theory

Institutional theory offers an optimal perspective to understand the impact of external pressures on organizational adoption of digital technologies and internal control mechanisms. The theory was developed by Paul DiMaggio and Walter Powell in 1983 and it is centered on the extent to which organizations conform to institutional pressures for the purposes of legitimacy and stability in the operating environment (DiMaggio & Powell, 1983). Institutional theory posits that organizations will practice certain practices not only because it is efficient, but also because it is required in order to conform to regulatory requirements, industry standards, and societal expectations. These pressures often have the effect of causing organizations in the same industry to adopt similar structures and practices, which is referred to as institutional isomorphism. Institutional pressures can be caused by regulatory bodies, professional associations, competitors or social expectations.

In the context of the fintech industry, regulatory institutions are very important in determining organizational practices. Financial institutions are subject to the compliance requirements of regulatory agencies regarding financial reporting, risk management and consumer protection. Regulatory bodies like the Central Bank of Nigeria require stringent compliance, which forces technology companies to establish a strong internal control system and digital monitoring technologies. Digital transformation is thus an important mechanism within which organizations react to institutional pressures. Fintech companies embrace the digital technologies like automated reporting systems and repos less compliance monitoring tools to enforce compliance with the regulations and to achieve transparency. Institutional theory therefore explains why fintech intensive firms invest in digital transformation initiatives aimed to strengthen internal control effectiveness, and comply better with regulatory standards.

2.3. Empirical Review

Yahaya (2025) Disruptive Impact of Digital Transformation (DT) on the Effectiveness of Internal Control (ICE) of 14 Listed Deposit Money Banks (DMBs) in Nigeria (2015-2024). Using a random-effects panel regression (including descriptive statistics including correlation and robustness checks), it is reported that in the current study DT has a significant positive effect on ICE ($b = 0.52$, $p < .001$), and that organizational size and support from management also have a significant positive effect on ICE. The implication for firms heavy in the use of fintech is that the use of DT - when backed by leadership - can bolster controls required for compliance and reporting reliability.

Ike and Chiejina (2025) examined Accounting Information Systems (AIS) as an infrastructure in DT & its impact on the timeliness of financial reporting and decision-making speed in a cross section of 12 Nigerian DMBs (2015-2024; 120 bank-year observations). Using panel regression (fixed effects preferred via Hausman), they find statistically significant impacts from AIS investment for reporting timeliness and decision speed, and suggest that digital accounting infrastructure is conducive to transparency and to reporting that does not violate regulations given that it is properly governed.

Ijoma and Ugwu (2025) investigated the topic of blockchain technology (a DT component) and internal control systems in manufacturing firms, Nigerian. With a survey design (55 usable responses) and using least squares regression, they report that blockchain attributes (flexibility/adaptability/agility) produce positive and significant impacts on internal control systems leading to their conclusion that blockchain can contribute to an improvement in the strength of controls through increased transparency and traceability - features directly linked with reporting reliability as well as expectation of fulfilling compliance requirements.

Lukman, Sherifdeen and Muritala (2025) investigated the influence of blockchain on the quality of audit, and audit efficiency (external assurance closely linked to ICE) in Nigeria, sampled auditors/professionals associated with major audit firms using multiple regression technique. Their models demonstrate good explanatory power (e.g., $R^2 = .783$ for audit quality; $R^2 = .740$ for audit efficiency), with characteristics such as immutability and transparency showing up as key predictors of the models - suggesting that the use of DT tools can enhance evidence reliability/compliance assurance where controls must be able to support high-integrity reporting.

Atolo and Mukoma (2025) examined the effects of digital technologies (AI, RPA, data analytics, cognitive tech) on internal audit effectiveness in Kenyan commercial banks using descriptive design, questionnaire and regression analysis in banking industry. Findings suggest that AI and RPA have high positive impact on internal audit effectiveness, although some tools may not mean much alone - suggesting that DT makes control assurance the best when coupled with capabilities/skills and fit for purpose application of tools.

Qahman et al (2025) studied the impact of FinTech adoption on financial reporting quality in customs clearance companies in Jordan using structured questionnaires and PLS-SEM. The study finds meaningful positive impacts of FinTech adoption on reporting quality and underscores the moderating role of regulatory compliance and innovation culture - directly in line with the notion that DT reinforces reliability for reporting in the case that compliance orientation and governance structures have the adequate support for it.

Uzuchukwu, Nwoye, and Azu, (2025) Development of digital technology adoption and operational efficiency in supervisory agencies in Nigeria (NCC/NIPOST) cross sectional survey (n =352) using multiple regression/OLS based on UTAUT. They find significant positive effects for key adoption drivers (e.g. performance expectancy, perceived credibility, behavioural intention) on efficiency - evidence of the dependency of DT outcomes on user capability and organizational readiness, which seems analogous to the digital skills/culture requirements of fintech firms to unlock the full control effectiveness potential.

Gao and Gu (2025) using a fixed-effect model compiled large sample evidence from Chinese A-share listed firms between 2007-2022, provide evidence that DT has significant positive effect on both total factor productivity and effectiveness of internal control and the internal control has a mediating role between the DT and performance. Although not specific to Nigeria, the mechanism is very relevant: what DT investments do is strengthen control systems, which in turn improve firm outcomes - supporting your model where DT dimensions (strategy/leadership, process digitalization, skills/culture) are predictive of ICE (compliance/reporting reliability).

Aregebesola, Oladejo, Wright, & Omojola (2024) Examining the effectiveness of internal control systems and performance (ROA) in 10 Nigerian DMBs using the ex post facto research design and the secondary data information of the audited financial statements and inferential statistical analysis (Regression). They place a strong emphasis on internal controls as mechanisms to provide reliable financial reporting and compliance and report a statistically significant linkage between internal control systems and bank outcomes -- propounding the argument that better controls provide the basis for more credible reporting and regulatory adherence in highly digitized financial institutions.

3. Material and Methods

This study uses a cross-sectional research design to address issues relating to the relationship between digital transformation and the effectiveness of internal control in fintech-intensive firms in Nigeria. The use of cross-sectional design is suitable since this study is an attempt to analyze the current situation of digital transformation and its impact on the internal control systems of fintech intensive firms. The study employs the primary data collected from structured questionnaire from employees and managers of fintech intensive firms in Nigeria. Primary data refers to data that have been gathered directly from the respondents for the explicit purpose of solving a research problem (Sekaran and Bougie, 2016). The use of primary data is appropriate for this study because the researcher can have firsthand information on organizational practices relating to digital transformation and the effectiveness of internal control.

The population for the study includes employees and managerial personnel of the fintech intensive firms (Palmpay, Opay, Moniepoint, Interswitch, and Flutterwave) operating in Nigeria, especially those in the field of finance, compliance, internal audit, risk management, and information technology functions. These people are considered right respondents as there is a relevant knowledge of digital transformation initiatives and internal control systems present in their organizations. The total size of the population is 4,500 respondents. The study uses a purposive sampling technique, that is, the researcher selects the research subjects deliberately and this is considered necessary because the researcher wants to include in the study people who are knowledgeable in relevant expertise and experience in the area of fintech operations and internal control processes. According to Hair et al. (2019), purposive sampling is suitable for a study where researchers need participants who have knowledge originally connected to the research problem. A Yamane's (1967) formula was used to obtain a sample size of 367. In order to account for invalid questionnaire, the study included more 23 respondents to end up with 390. According to Sunday and Etugbo (2023), this addition respondents help to increase the sample size to avoid loss of respondents that emanates from invalid questionnaires.

Data for this study was gathered with an aid of structured questionnaire administered to the employees and managers who work in the (fintech intensive) company in Nigeria. The questionnaire has been designed based on the Likert-scale format of the questionnaire, that is, the respondent may indicate his level of agreement with the statements related to digital transformation and the effectiveness of internal controls. Questionnaire based data collection is commonly used in social science research due to its ability to help the researcher obtain standardized information from a large sample of respondents in a short period of time (Saunders, Lewis, & Thornhill, 2019). The questionnaires were distributed both via physical and electronic distribution such as email and online survey platforms in order to achieve greater coverage

and response rate. This approach also helps to increase efficiency, and makes it comparatively easy to compile and analyze quantitative data.

Reliability and validity are critical when it comes to ensuring that research findings are credible and accurate. Reliability: it is related to the consistency and stability of a research instrument in measuring what it is designed to measure in different situations and with different persons (Sekaran & Bougie, 2016). In this study the reliability of the items used in the questionnaire in measuring digital transformation and the effectiveness of internal control will be determined using the Cronbach's alpha coefficient which tests the internal consistency of measurements scales. A Cronbach's alpha of 0.70 or higher is usually considered to be acceptable for reliability in research (Hair, Black, Babin, & Anderson, 2019). Validity, on the other hand, is the degree of accuracy that a research instrument has in measuring the constructs for which it is designed (Creswell & Creswell, 2018). To ensure validity the content and face validity of the questionnaire will be checked through expert reviewed by scholars in accounting, finance and information system.

The data gathered for the study are analyzed through the descriptive method and using the spearman rank correlation. Descriptive statistics are used to summarize and present data in a meaningful way by offering such measures as mean, frequency, percentages, and standard deviation (Field, 2018). These statistical measures are used to describe the characteristics of the respondents and get an overview of the distribution of the responses regarding digital transformation and internal control effectiveness. In addition to the descriptive statistics, the study uses the Spearman rank correlation coefficient to cheque the strength and direction of the relationship between the variables under consideration. The Spearman correlation coefficient is a non-parametric statistical method that is used to estimate the strength of the association between two variables when the data are ordinal data or not normally distributed (Pallant, 2020). Since the study is based on Likert-scale data which are ordinal data, the correlation coefficient (Spearman) is considered appropriate in dealing with the stepwise analysis of the correlation between the digital transformation dimension and internal control effectiveness indicators. The range of the Spearman correlation coefficient would be between -1 and +, similarity closer to + means a very good positive relationship and similarity closer to -1 means a very good negative relationship, and closer to the same means no relationship between variables. By using this statistical technique, the study aims to assess the significant association between digital strategy and leadership support, process digitalization, and digital skills or culture and compliance reliability as well as reporting reliability in fintech-intensive firms. The application of these analytical methods allows to ensure that the study results are objective and statistically valid conclusions about the impact of digital transformation on internal controls effectiveness.

4. Analysis and Results

4.1. Results and Analysis

Table 1 Demographic Results

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	150	39.7	39.7	39.7
	Male	228	60.3	60.3	100.0
	Total	378	100.0	100.0	
Age	18-27	186	49.2	49.2	49.2
	28-35	109	28.8	28.8	78.0
	36 and above	83	22.0	22.0	100.0
	Total	378	100.0	100.0	
Marital Status	Single	216	57.1	57.1	57.1
	Married	127	33.6	33.6	90.7
	Separated	35	9.3	9.3	100.0
	Total	378	100.0	100.0	
Educational Attainment	WAEC/OND	157	41.5	41.5	41.5
	HND/Bachelor	186	49.2	49.2	90.7
	Master and above	35	9.3	9.3	100.0

	Total	378	100.0	100.0	
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Source: SPSS 28.0 Output

The demographic information of the respondents involved in the study on digital transformation and internal control effectiveness in fintech intensive firms in Nigeria is displayed in table 1. The results of the research are presented in the distribution table according to the gender, age, marital status and educational attainment. Gender distribution report has it that the total sample representing 60.3% of the respondents were male while 39.7% were female. That means that male respondents are overwhelming the majority of the people being asked in the study. The preponderance of males in the pool of respondents may be related to the high ventricular rates of males common in technology driven and financial services industries where male participation is always higher than that of females. Nevertheless, the female respondents included in the sample show that the study included perspectives from both genders, and as such, the study included balanced representation to reduce gender bias in the responses. With respect to age distribution, the results show that the majority of the respondents fall at the 18-27 years age category having 186 respondents (49.2%). This is followed by the 28-35 years who make up 109 respondents or 28.8%, while those aged 36 years and up make up 83 respondents or 22.0%. The implication of this result is that a large proportion of employees included in the fintech-intensive firms would be relatively young individuals. This finding is in line with the nature of the fintech industry which is mostly driven by technology-focused professionals and digital natives who are more inclined towards technological innovation and digital transformation. Younger employees are generally more flexible when it comes to new technologies, which could make it easier for these organizations to implement digital transformation initiatives.

In terms of marital status, results show that 216 respondents (57.1%) are single, 127 respondents (33.6%) married while 35 respondents (9.3%) are separated. The over-representation of single respondents also helps reinforce the youthful nature of the fintech workforce. Younger professionals often put marriage off because of building a career and professional obligations, this is especially true in fast-moving industries like financial technology. This demographic makeup indicates that the respondents will be likely active participants in technology driven processes in organizations. The number of years of education of the respondents also gives good insights to qualification profile of employees of fintech-intensive companies. The results show 186 (49.2%) respondents possess HND or Bachelor's degrees 157 (41.5%) of respondents are WAEC or OND qualification while 35 (9.3%) have Master's or higher qualification. The fact that most of the respondents are individuals with tertiary education suggests that fintech organizations put much emphasis on educated professionals with relevant technical and analytical skills. Overall, the results from the demographics indicate that because the respondents have adequate educational and professional backgrounds, they can provide informed responses on issues relating to the digital transformation and effectiveness of internal controls.

Table 2 Spearman Rank Result

Correlations						
			Compliance and reporting reliability	Digital strategy and leadership support	Process digitalization	Digital skills/culture
Spearman's rho	Compliance and reporting reliability	Correlation Coefficient	1.000	0.606**	0.518**	0.444**
		Sig. (2-tailed)	.	0.000	0.000	0.002
		N	378	378	378	378
	Digital strategy/leadership support	Correlation Coefficient	0.606**	1.000	0.718**	0.710**
		Sig. (2-tailed)	0.000	.	0.000	0.000
		N	378	378	378	378
	Process digitalization	Correlation Coefficient	0.518**	0.718**	1.000	0.773**

		Sig. (2-tailed)	0.000	0.000	.	0.000
		N	378	378	378	378
	Digital skills/culture	Correlation Coefficient	0.444**	0.710**	.773**	1.000
		Sig. (2-tailed)	0.002	0.000	0.000	.
		N	378	378	378	378

** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS 28.0 Output

The results show a positive and stat. significant relationship between digital strategy and leadership support and compliance/reporting reliability ($r = 0.606$, $p < 0.01$). This means that fintech-intensive firms that show a high level of leadership commitment toward digital transformation are more likely to improve internal control effectiveness. Similarly, the results indicate that there is a positive and significant relationship between process digitalization and compliance/reporting reliability ($r = 0.518$, $p < 0.01$). This is a suggestion that the digitization of organizational processes leads to better reliability of the financial reporting and improved compliance with the regulatory requirements. The results also suggest that there is a positive and significant relationship between digital skills or digital culture and compliance/reporting reliability ($r = 0.444$, $p < 0.01$). This finding suggests that organizations with employees who have high digital competencies and a favourable digital culture tend to have a higher level of effectiveness for internal control. Digital skills help employees to make better use of technological tools in compliance monitoring, data analysis and financial reporting.

4.2. Discussion of Findings

A positive and significant relationship is found between digital strategy/leadership support and compliance/reporting reliability ($r=0.606$, $p<0.01$) as indicated by the Pearson result. This implies that fintech intensive firms where top management shows clear articulation of a digital strategy, funds enabling technologies and actively sponsors digital governance have a greater chance of maintaining reliable routines for compliance and dependable outputs when it comes to reporting. From an Institutional Theory perspective, it discomforts leadership-backed digital strategy have elaborative and taxonomic effects on filling in bordering regulatory and legitimacy pressures (e.g., supervisory instances upon reporting, controls, and auditability) by codifying compliant digital routines and documentation trails (DiMaggio & Powell, 1983). Consistent with this, Yahaya (2025) reports on the positive relation of digital transformation to internal control effectiveness in the Nigerian deposit money banks, which implies that there are conditions of support for digital transformation within the organization. In same direction, Aregebesola et al (2024) show the correlation between stronger internal control systems and better outcomes of banks in Nigeria, hence the value in terms of governance of control strengthening initiatives. Therefore, likely compliance/reporting reliability is enhanced by strategy clarity and leadership sponsorship of digital investments in terms of a linkage of digital investments with control objectives (control automation, exception reporting, audit trails) and the related enhancement of accountability in regulatory adherence.

The finding also suggests that process digitalization has a positive and significant relationship with compliance/reporting reliability ($r=.518$, $p<.01$). Practically if the firms that are heavily investing in fintech are able to digitize their workflows (e-KYC, automated reconciliations, rule-based approvals, system forced segregation of duties, and continuous logging), you can see that they can minimize the manual handling aspect, build better traceability, and improve the timeliness and accuracy of the compliance and reporting outputs. This corresponds to the Resource-Based View (RBV): the digitalization of processes is a worthwhile capability supporting reliable reporting and compliance with regulatory rules as long as it is embedded in processes and underpinned by complementary resources (Barney, 1991). Empirically, Ike and Chiejina (2025) find that accounting information systems improve the efficiency of reporting and decision process in Nigerian banks, implying that digitized processes can improve on the reporting quality where the controlling mechanism is embedded in system. In addition, Odubuasi, Ogboi and Obasi (2026) demonstrate that financial reporting is enhanced through digital innovation in the firms that are listed in exchange of Nigeria exchange group in terms of reliability-related outcomes (e.g. accuracy, timeliness and quality) and it supports this argument that digitalized processes enhance financial reporting attributes. Hence, it is more probable for fintech companies that deepen the digitalization of their process management to gain compliance/reporting reliability through process automation, real-time validation rules, standardized data-capture, and robust audit trails.

Further, the results show that there is a positive and significant relationship between digital skills/culture and compliance/reporting reliability ($r=.444$, $p<.01$). Which leads to the implication that in addition to technology, the human and cultural infrastructure - competence in software and data handling among staff, discipline in data handling, and a culture that values controlling behaviors - support the reliable and reporting of compliance. The influential Technology Acceptance Model (TAM) describes the relationship where, as long as employees see digital control tools and reporting systems as useful and easy to use, they are more likely to adopt them properly, follow procedures set within the systems, and generate reliable compliance/reporting outcomes (Davis, 1989). There is also support for this skills-and-culture pathway: According to Hasan et al. (2025), digital transformation enables better accounting practices and outcomes related to reporting, and organizational culture is an important factor in how well companies achieve benefits from this transformation. Similarly, according to Ijoma and Ugwu (2025), technology-enabled characteristics (capabilities relating to business in blockchains) lead to significant improvement of internal control system in Nigeria, validate the notion that capability-improvement and supportive culture strengthen control reliability. Thus, it is likely that fintech-intensive firms that have good digital skills/culture are able to attain compliance/reporting reliability because staff still properly configure, interpret and act on digital control signals (alerts, exceptions, dashboards) whilst shared norms help circumventing controls.

5. Conclusion

This study has focused on the relationship between digital transformation and internal control effectiveness in fintech intensive firms in Nigeria using digital strategy and leadership support, process digitalization and digital skills or culture as dimensions of digital transformation while also looking at compliance and reliability of reporting as an indicator of internal control effectiveness. The results of Spearman correlation found an existence of a positive and statistically significant relationships among the dimensions of digital transformation with compliance and reliability in reporting. This would mean that fintech companies that embrace clear digital strategies, automate operational processes and foster the use of digital skills among employees are likely to strengthen their internal control system. The study therefore concludes that digital transformation plays a crucial role in improving compliance mechanisms and enhancing reliance of financial reporting in the area of fintech intense firms in Nigeria.

Limitations

Despite the contributions provided by this investigation, some limitations are to include. First, the study was based on cross-sectional survey data collected at one point in time, and as a result, it is difficult to explore changes in practices related to digital transformation and effectiveness of internal controls over time. Second, the research was based on self-reported answers by questionnaire, which may be vulnerable to bias by the respondent or errors in perception on the part of the respondent. Third, the study was specific to fintech-intensive firms in Nigeria, which may restrict the generalizability of the results to other sectors or countries. Above all, studies may adopt a longitudinal research design, include a combination of research methodologies, or discuss additional financial institutions or emerging digital economies.

Recommendations

First, fintech-intensive firms should establish a board/CEO-led digital governance charter that makes an explicit relationship between digital strategy and compliance and reporting reliability targets. This should include a quarterly 'controls-by-design' review of core digital products and processes, named executive owners for compliance automation and documented rules for escalation of exception and breaches. Leadership sponsorship is important because various studies reveal that the control benefits of digital transformation are greater when there is some level of organizational support and governance.

Second, firms should move end-to-end compliance/ reporting workflows toward digital, by integrating end-to-end controls in systems (automated reconciliations, system-based approvals, mandatory audit trails, and rule-based validations) instead of focusing on after-the-fact cheques. Evidence from Nigeria has shown digital innovation and adoption of systems enhances reporting outcomes such as timeliness, accuracy and quality attributes that are closely linked to reporting reliability.

Third is having right controls on digital control competency program (compliance, finance, internal audit, operations, IT) with mandatory training about data quality, access controls and interpretation of dashboards/exception reports with code of culture e.g. no override without justification. Culture and capability plays a role in the extent to which organizations translate digital transformation into reliable reporting and control outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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