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DIGITAL TRANSFORMATION AND FINANCIAL GOVERNANCE IN DEPOSIT MONEY BANKS: THE MEDIATING ROLE OF HUMAN RESOURCE MANAGEMENT AND THE MODERATING EFFECT OF INSTITUTIONAL ENVIRONMENT IN SOKOTO METROPOLIS

Umar S. Gardi Ibrahim

Department of Public Administration,Federal Polytechnic, Kaura Namoda, Zamfara State

Email: umarsgardi@gmail.com

Umar Mohammed Tela

Department of Banking and Finance, University of Maiduguri, Borno State, Nigeria.

Email: umarmtela@unimaid.edu.ng

Sani Ya'u

Department of Liberal Studies, Federal Polytechnic, Kaura Namoda, Zamfara State, Nigeria.

Email: syaugeza@gmail.com

Abstract

Digital transformation is fundamentally reshaping the banking industry in big ways that will affect how money is managed. Previous research has predominantly concentrated on technology outcomes, with insufficient emphasis on the organisational mechanisms by which digital transformation affects governance, especially in emerging economies. This research investigates the impact of digital transformation on financial governance in deposit money banks (DMBs), emphasising the mediating function of human resource management (HRM) and the moderating influence of the institutional environment in Sokoto metropolis, Nigeria. Utilising the Resource-Based View, Dynamic Capabilities Theory, and Institutional Theory, the research formulates and evaluates an integrated model that encompasses technical, organisational, and contextual dynamics. Data were gathered from 312 employees of chosen DMBs and examined by Partial Least Squares Structural Equation Modelling (PLS-SEM). The results show that digital transformation has a favourable but moderate direct effect on financial governance and a substantial effect on HRM. HRM greatly improves financial governance and also somewhat mediates the link between digital transformation and financial governance. The institutional context also has a small but positive effect on this relationship. The research illustrates that the governance advantages of digital transformation are rooted in capabilities rather than solely in technology. It shows that HRM is a key connection between

ISSN 2756-3162

digital transformation and governance results, and it stresses how important it is to have supportive institutional frameworks. The results give bank managers and regulators useful information on how to make sure that digital investments are in line with the growth of human capital and the effectiveness of regulations in emerging economies.

Keywords: Digital Transformation; Financial Governance; Human Resource Management; Institutional Environment

1. Introduction

Digital transformation has become a major driver in the financial services industry, changing the way banks do business, provide services, and keep their governance frameworks in place. Improvements in technologies like artificial intelligence, big data analytics, blockchain, and digital platforms have made things more efficient, made it easier to provide services, and made it easier to make decisions (Hanelt et al., 2021; Verhoef et al., 2021; Vial, 2019). These technologies have changed how banks handle money by making it possible to do transactions in real time, manage risk based on data, and follow the rules better (Gomber et al., 2018; Philippon, 2020; Thakor, 2020).

Digital transformation has big effects on financial governance, in addition to operational improvements. It makes things more open, accountable, and controlled by automating reporting and real-time monitoring. However, it also brings up problems like cybersecurity risks, operational weaknesses, and algorithmic biases. Regulatory frameworks often do not keep up with changes in technology (Boot et al., 2021; OECD, 2023; Zetzsche et al., 2020). This dichotomy implies that its governance effect is contingent upon organisational execution and administration.

The majority of the studies that have been conducted so far have concentrated on technological aspects, such as adoption and performance, rather than the human and organisational factors (Kraus et al., 2021). Particularly uncharted territory is the function of HRM in converting digital transformation into results for governance. Dynamic Capabilities Theory emphasises the significance of learning and adaptability in reacting to technological change (Teece, 2007; Teece et al., 1997), whereas Resource-Based View (RBV) posits human capital as a strategic asset that enables effective utilisation of digital technology (Barney, 1991). Human resource management is seen as an important tool for connecting digital transformation with financial governance from these points of view.

The institutional environment, which includes rules, enforcement procedures, and industry standards, also affects how well digital transformation works. Institutional Theory asserts that organisational practices are shaped by coercive, normative, and mimetic influences (DiMaggio & Powell, 1983; Scott, 2014). Robust institutional frameworks foster openness and accountability, while inadequate regulatory systems hinder governance results, especially in emerging economies (Ozili, 2021; World Bank, 2022).

The banking industry in Nigeria has changed quickly thanks to new financial technologies and changes to the rules. Deposit money banks (DMBs) have been using digital platforms more and more to improve efficiency and include more people in the financial system. However, these changes have also made it harder for DMBs to manage cybersecurity, follow the rules, and deal with risk. Current research in this area primarily emphasises technical adoption and

performance, while insufficiently addressing governance outcomes and the mechanisms that underpin them.

Furthermore, previous studies frequently employ a generalised national approach, neglecting contextual disparities among different regions and organisations. To rectify this deficiency, our study concentrates on deposit money banks in Sokoto metropolis, offering a more contextually relevant and methodologically rigorous examination.

In this context, the paper investigates the relationship between digital transformation and financial governance, focusing on the mediating role of human resource management and the moderating influence of the institutional environment. It adds to the body of knowledge by going beyond technology-focused views, giving real-world examples of organisational and institutional procedures, and giving insights that are relevant to an emerging economy. The study shows that the effect of digital transformation on financial governance is based on capabilities and the context, not only technology.

2. Literature Review

This section critically reviews the relevant literature on the concepts of financial governance, digital transformation, human resource management, and institutional environment. It integrates conceptual, theoretical, and empirical perspectives to establish the relationships among the study variables and identify gaps addressed by this research.

2.1 Financial Governance

Financial governance has evolved beyond traditional financial control to encompass mechanisms that ensure transparency, accountability, risk management, and regulatory compliance within organisations. It is increasingly viewed as a multidimensional construct shaped by both structural and behavioural factors.

Recent literature characterises financial governance as the system of rules, processes, and practices that direct and control financial resources to ensure accountability and value creation (OECD, 2023). It also serves as a framework for enhancing transparency, risk oversight, and regulatory compliance within financial institutions (World Bank, 2022). Other perspectives stress the importance of monitoring and control systems that make sure that managers' actions are in line with the interests of stakeholders (Aguilera et al., 2018; Erel & Liebersohn, 2022). More recent views, on the other hand, focus on the digital aspect, such as real-time monitoring and data-driven decision-making.

In the banking sector, financial governance is critical due to systemic risks and regulatory pressures. It enhances risk management, reduces information asymmetry, and supports financial stability, although increasing digitalisation requires the integration of technological and human capabilities.

In this study, financial governance is defined as a multidimensional system of structures, processes, and human-driven practices that ensure transparency, accountability, risk management, and regulatory compliance within digitally enabled financial institutions.

2.2 Digital Transformation

ISSN 2756-3162

Digital transformation is the act of adding digital technologies to business operations. This changes the way businesses work and how they deliver value (Kraus et al., 2021). It goes beyond just adopting new technologies to include changes to strategy, structure, and culture.

Recent literature defines digital transformation as the application of digital technologies to alter business processes, organisational structures, and value propositions (OECD, 2023; Verhoef et al., 2021). It is also characterised as a continuous process of organisational renewal propelled by technologies such as artificial intelligence, big data analytics, and cloud computing (Hanelt et al., 2021). It is also seen as the rearranging of resources and skills to deal with changing situations (Kraus et al., 2021).

Digital transformation has changed how services are delivered, how money is moved between people, and how rules are made in the financial sector. Blockchain, fintech platforms, and RegTech are examples of technologies that make things more efficient, open, and compliant. However, they also come with hazards including cyber threats, operational weaknesses, and regulatory problems.

Digital transformation is becoming more and more recognised as a process that depends on people's skills, the readiness of the organization, and support from the institution, rather than just technology.

In this study, digital transformation is defined as the strategic integration of digital technologies into organisational processes to enhance efficiency, adaptability, and governance outcomes within the banking sector.

2.3 Human Resource Management

Human Resource Management (HRM) plays a critical role in shaping organizational capabilities, particularly in digitally transforming environments. Contemporary HRM extends beyond administrative functions to strategic roles involving talent development, capability building, and organizational change.

Recent research characterises HRM as a framework of procedures designed to cultivate employee competences, improve performance, and synchronise workforce abilities with organisational objectives (Budhwar et al., 2022). It is also thought of as a strategic way to manage human capital in order to get a competitive edge, especially in contexts where knowledge is important (Bondarouk et al., 2022). In digital settings, HRM is more and more linked to e-HRM systems, gaining new digital skills, and ongoing education (Margherita, 2022; Strohmeier, 2020).

In the banking sector, HRM is essential for developing competencies in areas such as data analytics, cybersecurity, and digital operations. It also plays a critical role in fostering organizational culture, ethical behaviour, and compliance, all of which are central to financial governance.

Furthermore, HRM acts as a bridge between technological resources and organizational outcomes. Without appropriate skills and capabilities, digital technologies cannot be effectively utilized, limiting their impact on governance.

ISSN 2756-3162

For this study, HRM is defined as a strategic system of practices focused on developing human capital, fostering adaptability, and enabling effective utilization of digital technologies to achieve organizational and governance objectives.

2.4 Institutional Environment

The institutional environment refers to the formal and informal rules that shape organizational behaviour (Ozili, 2021). It includes regulatory frameworks, legal systems, norms, and cultural expectations that influence how organizations operate.

Recent literature conceptualizes the institutional environment as a set of regulatory, normative, and cognitive structures that guide organizational practices (OECD, 2023; Scott, 2014). It is also viewed as a critical determinant of governance effectiveness, particularly in sectors subject to strict regulation such as banking (World Bank, 2022). In emerging economies, institutional environments are often characterized by varying levels of regulatory quality, enforcement, and institutional capacity (Ozili, 2021).

In the context of digital transformation, the institutional environment plays a moderating role by shaping how technologies are adopted and utilized. Strong regulatory frameworks enhance transparency, accountability, and compliance, while weak institutions may create governance gaps and risks.

In the Nigerian banking sector, regulatory bodies and policy frameworks significantly influence digital transformation and governance practices. The effectiveness of digital technologies in improving governance is therefore contingent on the strength of the institutional environment.

In this study, the institutional environment is defined as the regulatory, legal, and normative framework that shapes organizational behaviour and influences the effectiveness of digital transformation in achieving financial governance outcomes.

2.5 Review of Empirical Studies

Empirical studies on digital transformation, HRM, and financial governance reveal important insights but also highlight significant gaps.

Studies examining the relationship between digital transformation and organizational outcomes generally report positive effects on efficiency, transparency, and decision-making (Kraus et al., 2021; Verhoef et al., 2021). In the financial sector, digital technologies have been shown to enhance financial inclusion, reduce transaction costs, and improve governance mechanisms through real-time monitoring and automated reporting (Ozili, 2021; World Bank, 2022). However, some studies caution that digital transformation also introduces risks such as cybersecurity threats and regulatory challenges (Boot et al., 2021; Erel & Liebersohn, 2022).

Empirical research on HRM indicates that human capital development significantly influences organizational performance and governance outcomes. Studies show that training, talent management, and employee engagement improve compliance, risk management, and ethical behaviour (Bos-Nehles et al., 2023; Jiang et al., 2012; Minbaeva, 2018). In digital contexts, HRM has been found to enhance the effectiveness of technology adoption by developing relevant skills and capabilities (Bondarouk et al., 2022; Margherita, 2022).

Regarding mediation, several studies suggest that organizational capabilities mediate the relationship between digital transformation and performance outcomes (Kraus et al., 2021; Nambisan et al., 2019). However, limited empirical work specifically examines HRM as a mediating mechanism linking digital transformation to governance outcomes, particularly in emerging economies.

Studies on institutional environment highlight its role as a contextual factor influencing organizational practices. Strong institutional frameworks have been shown to enhance governance effectiveness, while weak institutions constrain the benefits of digital transformation (OECD, 2023; Ozili, 2021). However, empirical evidence on its moderating role in digital transformation–governance relationships remain limited.

Overall, existing literature is largely technology-centric, with insufficient attention to organizational and contextual mechanisms. There is a clear gap in understanding:

1) How HRM mediates the relationship between digital transformation and financial governance
2) How institutional environment moderates this relationship
3) How these dynamics operate in emerging economy contexts such as Nigeria

This study addresses these gaps by developing and empirically testing an integrated framework that combines technological, organizational, and institutional perspectives.

2.6 Theoretical Review

This study is grounded in three complementary theoretical perspectives: the Resource-Based View (RBV), Dynamic Capabilities Theory, and Institutional Theory.

The Resource-Based View (RBV) posits that sustainable competitive advantage arises from valuable, rare, inimitable, and non-substitutable resources, particularly human capital (Barney, 1991). In the context of digital transformation, technological resources alone are insufficient; their value depends on effective deployment through human capabilities.

Dynamic Capabilities Theory extends RBV by emphasizing the organization's ability to integrate, build, and reconfigure resources in response to changing environments (Teece et al., 1997; Teece, 2007). Digital transformation requires continuous adaptation, learning, and innovation, with HRM serving as a key enabler of these capabilities.

Institutional Theory complements these perspectives by highlighting the role of external pressures in shaping organizational behaviour (DiMaggio & Powell, 1983; Scott, 2014). Regulatory frameworks and institutional conditions influence both digital transformation and governance outcomes.

Together, these theories provide an integrated framework in which:

i. Digital transformation represents strategic and dynamic capabilities
ii. HRM acts as a capability-building and mediating mechanism
iii. Institutional environment serves as a contextual moderator

This multi-theoretical approach provides a comprehensive explanation of how digital transformation influences financial governance in the banking sector.

2.7 Digital Transformation and Financial Governance

Digital transformation is a major force for change in the financial sector. It improves transparency, risk management, accountability, and regulatory compliance, which all affect how money is managed. Artificial intelligence, big data analytics, blockchain, and cloud computing are just a few examples of technologies that have changed how financial information is created and tracked. These changes have made it possible to make decisions in real time and have made governance mechanisms stronger (Hanelt et al., 2021; Verhoef et al., 2021; Vial, 2019). Digital transformation lowers information asymmetry and improves transparency, audits, and internal controls by making data more available, accurate, and easy to get to.

In the banking sector, digital transformation has accelerated FinTech innovations that reshape financial intermediation and governance structures. Digital payments, peer-to-peer lending, and blockchain improve efficiency and transparency (Gomber et al., 2018; Lee & Shin, 2018; Philippon, 2020), while Regulatory Technology (RegTech) strengthens compliance and oversight through automated reporting (OECD, 2023; Zetzsche et al., 2020).

From the standpoint of dynamic capabilities, digital transformation augments organisations' capacity to detect and react to risks by continuous monitoring and predictive analytics, hence enhancing resilience (Hanelt et al., 2021; Teece, 2007; Teece et al., 1997; Warner & Wäger, 2019). From a Resource-Based View (RBV), digital technologies are strategic resources whose governance value depends on good integration with organisational processes and human capital (Barney, 1991; Kraus et al., 2021).

However, digital transformation also introduces governance challenges, including cybersecurity risks, data breaches, and algorithmic biases (Erel & Liebersohn, 2022), as well as regulatory gaps arising from rapidly evolving FinTech activities (Boot et al., 2021; Thakor, 2020). Consequently, its impact on financial governance is not deterministic but contingent on organisational and institutional factors. Effective governance depends on aligning technological capabilities with organisational processes and regulatory environments, particularly in emerging economies where institutional constraints may limit outcomes (Kraus et al., 2021; OECD, 2023; Ozili, 2021; World Bank, 2022).

Overall, digital transformation represents a double-edged phenomenon that enhances governance while introducing new risks, making its impact capability-driven and context-dependent. Accordingly, this study posits that:

H1: Digital transformation positively influences financial governance in the banking sector.

2.8 Digital Transformation and Human Resource Management

Digital transformation significantly reshapes human resource management (HRM) by altering work structures, skill requirements, and organisational processes. In the banking sector, digital technologies have transformed job roles and competencies, requiring HRM to align workforce

capabilities with technological advancements, making digital transformation both a technological and organisational process (Kraus et al., 2021; Verhoef et al., 2021; Vial, 2019).

From a dynamic capability's perspective, organisations must continuously adapt by developing new competencies and reconfiguring resources in response to rapidly evolving environments (Teece et al., 1997; Teece, 2007). Digital transformation increases the need for continuous learning, with HRM playing a central role through training, reskilling, and knowledge development to support effective technology utilisation (Hanelt et al., 2021; Margherita, 2022; Warner & Wäger, 2019). This is reinforced by the growing demand for digital skills, as automation reduces routine tasks while increasing the need for analytical and technical capabilities, making continuous upskilling essential (Budhwar et al., 2022; Margherita, 2022; Strohmeier, 2020).

From a Resource-Based View (RBV), human capital is a critical strategic resource that enables organisations to leverage digital technologies effectively (Barney, 1991). While technologies are widely accessible, the competencies required to utilise them are not easily replicated, making HRM essential for building competitive advantage through talent management (Bondarouk et al., 2022; Kraus et al., 2021).

Digital transformation has also driven the emergence of digital HRM (e-HRM), where technologies enhance HR processes, automate tasks, and enable real-time performance monitoring, positioning HRM as a strategic partner (Bondarouk et al., 2022; Strohmeier, 2020). It further shapes organisational culture by fostering innovation, learning, and adaptability (Hanelt et al., 2021; Warner & Wäger, 2019). However, challenges such as skill gaps, resistance to change, and job displacement highlight the need for strategic HRM in managing transformation.

Overall, digital transformation necessitates capability development, digital HR systems adoption, and cultural alignment to realise its benefits. Accordingly, this study posits that:

H2: Digital transformation positively influences human resource management practices.

2.9 Human Resource Management and Financial Governance

Human resource management (HRM) plays a central role in shaping financial governance by influencing employee competencies, organisational culture, ethical behaviour, and compliance practices. While governance has traditionally focused on structural and regulatory mechanisms, recent research emphasises the importance of human and behavioural factors, with employees acting as key agents in implementing and sustaining governance practices (Aguilera et al., 2018; Bos-Nehles et al., 2023; Jiang et al., 2012). Effective HRM enhances governance by developing competencies for financial oversight, risk management, and regulatory compliance. Training improves employees' ability to identify risks, while performance management and incentives align behaviour with organisational goals, promoting accountability and reducing opportunistic behaviour (Jiang et al., 2012; Minbaeva, 2018). HRM also strengthens governance through organisational culture and ethical standards. Practices such as recruitment, socialization, and leadership development foster transparency, integrity, and accountability, reinforcing governance mechanisms (Aguilera et al., 2018; Budhwar et al., 2022).

In digital environments, HRM becomes increasingly critical as employees manage data-driven systems and automated processes. This requires digital competencies such as data analytics, cybersecurity awareness, and adaptability. Without these capabilities, digital systems may be misused, undermining governance effectiveness (Erel & Liebersohn, 2022; Margherita, 2022).

From a Resource-Based View (RBV), human capital is a strategic resource underpinning governance outcome (Barney, 1991), while its effective utilization determines the value of digital technologies (Kraus et al., 2021). Similarly, dynamic capabilities theory highlights HRM's role in fostering learning and adaptability in response to evolving risks and regulatory changes (Hanelt et al., 2021; Teece, 2007; Teece et al., 1997; Warner & Wäger, 2019).

Overall, HRM enhances financial governance by developing human capital, shaping organisational culture, and enabling adaptability. Accordingly, this study posits that:

H3: Human resource management positively influences financial governance.

2.10 Mediating Role of Human Resource Management

Although digital transformation can enhance financial governance, its effects are often indirect, operating through organizational mechanisms that translate technological capabilities into outcomes, with human resource management (HRM) playing a central role. Prior empirical studies research shows that the relationship between digital transformation and organisational outcomes is mediated by factors such as human capital, innovation, and organisational processes (Kraus et al., 2021; Nambisan et al., 2019). While digital technologies provide the infrastructure for transformation, their effectiveness depends on how they are adopted and utilized, making the process inherently human-centered.

HRM serves as a critical link by developing the capabilities required to leverage digital technologies. Through training, reskilling, and talent management, HRM equips employees to operate digital systems, interpret data, and manage risks, while promoting learning and adaptability essential for transformation.

From a Resource-Based View (RBV), this mediating role reflects the transformation of technological resources into capabilities through human capital (Barney, 1991). HRM enables this process by developing the skills needed to utilise digital technologies, thereby translating investments into governance outcomes. Similarly, Dynamic Capabilities Theory highlights HRM's role in fostering learning, innovation, and resource reconfiguration in response to change (Teece et al., 1997; Teece, 2007).

Overall, HRM acts as a bridge between digital transformation and financial governance, indicating that technological investments alone are insufficient without supporting organisational capabilities. Accordingly, this study posits that:

H4: Human resource management mediates the relationship between digital transformation and financial governance.

2.11 Moderating effect of Institutional Environment

ISSN 2756-3162

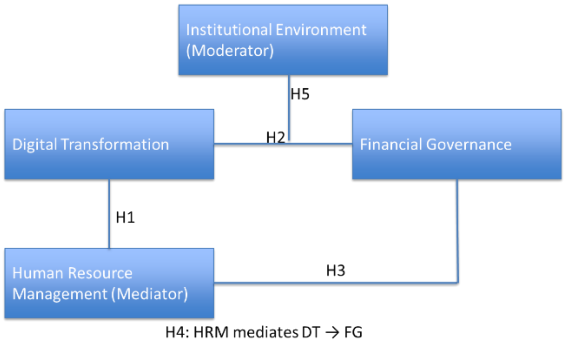
The relationship between digital transformation and financial governance is embedded within an institutional environment comprising regulatory frameworks, legal systems, industry standards, and cultural norms that shape organizational behaviour.

From an institutional theory perspective, organizations are influenced by coercive, normative, and mimetic pressures that guide their practices (DiMaggio & Powell, 1983; Scott, 2014). In the banking sector, regulatory bodies establish standards for transparency, risk management, and compliance, affecting both the implementation of digital transformation and its governance outcomes. Regulatory frameworks and enforcement mechanisms are critical in determining the effectiveness of digital transformation. Strong institutional systems enhance governance by promoting transparency and accountability, while tools such as Regulatory Technology (RegTech) enable real-time monitoring and improve compliance efficiency (Zetzsche et al., 2020). In contrast, weak regulatory environments may create gaps in oversight and increase the risk of misconduct.

In emerging economies, variations in regulatory quality and institutional capacity significantly influence governance outcomes (Ozili, 2018; World Bank, 2022). Although digital technologies can improve transparency and reduce corruption, their effectiveness is often constrained by institutional weaknesses, making governance outcomes context-dependent. The institutional environment therefore acts as a boundary condition that shapes how digital transformation translates into financial governance. While digital technologies provide the capability, institutional factors determine their effective utilisation, with stronger regulatory environments supporting more robust governance mechanisms (OECD, 2023).

Overall, the impact of digital transformation on financial governance depends on the interaction between technological capabilities and institutional conditions. Accordingly, this study posits that:

H5: Institutional environment moderates the relationship between digital transformation and financial governance.



Prepared by the researcher

Figure 1. Study model showing how institutional setting moderates the connection between digital transformation and financial governance and how human resource management acts as a mediator.

3. Research Methodology

This study adopts a quantitative approach to examine the relationships among digital transformation, human resource management (HRM), financial governance, and the institutional environment in the banking sector. A cross-sectional survey design was employed to collect data at a single point in time for hypothesis testing.

The study focuses on employees of deposit money banks (DMBs) in Sokoto metropolis, ensuring a context-specific and methodologically precise scope. Respondents were drawn from key functional areas including information technology, human resources, compliance, and operations, given their relevance to digital transformation and governance practices.

Data were collected using a structured questionnaire adapted from validated scales in prior studies. All constructs were measured using multi-item reflective indicators on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Digital transformation, HRM, financial governance, and institutional environment were each measured using five items capturing their respective dimensions. The measures were adapted from established literature (Bondarouk et al., 2022; Ozili, 2021; Strohmeier, 2020; Verhoef et al., 2021; Vial, 2019; Zetzsche et al., 2020) to ensure content validity and contextual relevance. The instrument was pilot-tested, and minor revisions were made to improve clarity and reliability.

Due to the difficulty of obtaining comprehensive staff lists, a purposive sampling technique was employed to select respondents with relevant expertise. The sample size was determined using Cochran's (1977) formula for an infinite population at a 95% confidence level and 5% margin of error, yielding a minimum of 384. However, 312 valid responses were obtained due to field constraints. This sample size remains adequate for PLS-SEM, exceeding the minimum requirement based on the 10-times rule (Hair et al., 2019), where the maximum number of structural paths directed at a construct is two.

Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS software (Hair et al., 2019). The analysis followed a two-stage procedure. The measurement model was assessed for reliability and validity using indicator loadings (≥ 0.70), Cronbach's alpha and composite reliability (≥ 0.70), average variance extracted (AVE ≥ 0.50), and discriminant validity using the Fornell–Larcker criterion and HTMT ratio. The structural model was evaluated using path coefficients and their significance via bootstrapping (5,000 resamples), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Mediation was assessed using bootstrapped indirect effects, while moderation was tested using an interaction term, with simple slope analysis employed for interpretation.

To address common method bias, Harman's single-factor test and the full collinearity assessment approach were applied, with results indicating no significant bias. Overall, the methodology is consistent with established practices in management research and appropriate for examining the proposed relationships within DMBs in Sokoto metropolis.

4. Results and Discussion

4.1 Descriptive Analysis

A total of 312 valid responses were obtained from employees of selected deposit money banks (DMBs) in Sokoto metropolis and used for analysis. This sample size is considered adequate based on both Cochran's sampling framework and PLS-SEM requirements, ensuring sufficient

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statistical power and reliability of the results. Respondents were drawn from key functional areas including information technology, operations, compliance, and human resource units, ensuring relevance to digital transformation and governance practices. The distribution of respondents across these units enhances the credibility of the data and supports the validity of the findings.

4.2 Measurement Model Assessment

The measurement model was assessed by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity, following established guidelines for PLS-SEM (Hair et al., 2019).

4.2.1 Indicator Reliability, Internal Consistency, and Convergent Validity

Indicator reliability was assessed using outer loadings, while internal consistency reliability was evaluated using Cronbach's alpha (α) and composite reliability (CR). Convergent validity was assessed using the average variance extracted (AVE).

As shown in Table 2, all indicator loadings exceed the recommended threshold of 0.70, indicating that the items adequately represent their respective constructs. Cronbach's alpha and composite reliability values are above 0.70, demonstrating satisfactory internal consistency. Furthermore, all AVE values exceed the threshold of 0.50, confirming adequate convergent validity.

Table 2: Measurement Model Assessment

Construct	Item	Loading	Cronbach's Alpha (α)	Composite Reliability (CR)	AVE
Digital Transformation (DT)	DT1	0.82	0.88	0.91	0.63
	DT2	0.85			
	DT3	0.87			
	DT4	0.79			
	DT5	0.84			
Human Resource Management (HRM)	HRM1	0.83	0.87	0.90	0.61
	HRM2	0.86			
	HRM3	0.81			
	HRM4	0.78			
	HRM5	0.82			
Financial Governance (FG)	FG1	0.84	0.89	0.92	0.65
	FG2	0.88			

ISSN 2756-3162

	FG3	0.81			
	FG4	0.86			
	FG5	0.83			
Institutional Environment (IE)	IE1	0.80	0.86	0.89	0.60
	IE2	0.84			
	IE3	0.79			
	IE4	0.82			
	IE5	0.81			

Source: Authors computation (2026), using SmartPLS 4.

4.2.2 Discriminant Validity

Discriminant validity was assessed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. As shown in Table 3, the square root of the AVE for each construct is greater than its correlations with other constructs, satisfying the Fornell–Larcker criterion. In addition, all HTMT values are below the threshold of 0.85, indicating that the constructs are empirically distinct. Discriminant validity was assessed using the Heterotrait–Monotrait ratio (HTMT), which provides a more reliable criterion than traditional methods (Henseler et al., 2015). Furthermore, advanced PLS-SEM procedures were employed to enhance the robustness of the analysis (Hair et al., 2021).

Table 3: Discriminant Validity (Fornell–Larcker Criterion)

Construct	DT	HRM	FG	IE
DT	**0.79**			
HRM	0.64	**0.78**		
FG	0.52	0.61	**0.81**	
IE	0.45	0.48	0.50	**0.77**

Source: Authors computation (2026), using SmartPLS 4.0

Table 4: HTMT Ratio

Construct	DT	HRM	FG	IE
DT		0.74	0.63	0.58
HRM			0.72	0.65
FG				0.60
IE				

Source: Authors computation (2026), using SmartPLS 4.0

Overall, the results in table 2-4 confirm that the measurement model exhibits adequate reliability and validity and is suitable for further analysis.

4.3 Structural Model Assessment

The structural model was assessed using path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Bootstrapping with 5,000 resamples was employed to evaluate the significance of the hypothesised relationships.

4.3.1 Coefficient of Determination (R^2)

Table 5: Coefficient of Determination (R^2)

Endogenous Construct	R^2	Adjusted R^2
Human Resource Management	0.40	0.39
Financial Governance	0.49	0.48

Source: Author's computation (2026), using SmartPLS 4

The results in table 5 indicate that digital transformation explains 40% of the variance in HRM, while digital transformation and HRM jointly explain 49% of the variance in financial governance, indicating that the model explains a meaningful proportion of variance, consistent with expectations in behavioural and organisational research contexts (Hair et al., 2019).

4.3.2 Hypothesis Testing

Table 6: Structural Model Results

Hypothesis	Path	β	t-value	p-value	Decision
H1	DT → FG	0.24	3.72	<0.001	Supported
H2	DT → HRM	0.63	11.05	<0.001	Supported
H3	HRM → FG	0.38	5.89	<0.001	Supported

Source: Author's computation (2026), using SmartPLS 4

The path coefficients and hypothesis testing results are presented in Table 6. The results indicate that digital transformation has a positive and significant effect on financial governance ($\beta = 0.24$, $p < 0.001$), supporting H1. However, the magnitude of this effect is moderate, suggesting that digital technologies alone may not fully determine governance outcomes.

Digital transformation has a strong positive effect on HRM ($\beta = 0.63$, $p < 0.001$), supporting H2. This finding highlights the substantial influence of digital transformation on workforce development and HR practices.

Furthermore, HRM has a positive and significant effect on financial governance ($\beta = 0.38$, $p < 0.001$), supporting H3. This suggests that human resource capabilities play an important role in shaping governance outcomes.

4.4 Mediation Analysis

The mediating effect of HRM was assessed using bootstrapping procedures. The results are presented in Table 7.

Table 7: Mediation Analysis

Path	Indirect Effect	t-value	p-value	Result
DT → HRM → FG	0.24	5.21	<0.001	Supported

Source: Author's computation (2026), using SmartPLS 4

In Table 7 the results indicate that the indirect effect of digital transformation on financial governance through HRM is positive and significant ($\beta = 0.24$, $p < 0.001$), supporting H4. Since both the direct effect ($\beta = 0.24$, $p < 0.001$) and indirect effect are significant and in the same direction, the mediation is classified as complementary partial mediation (Hair et al., 2019). This suggests that digital transformation influences financial governance both directly and indirectly through HRM, highlighting the critical role of human capital in translating technological investments into governance outcomes.

4.5 Moderation Analysis

The moderating effect of the institutional environment was examined by including an interaction term between digital transformation and institutional environment. The results are presented in Table 8.

Table 8: Moderation Analysis

Hypothesis	Path	β	t-value	p-value	Decision
H5	DT × IE → FG	0.11	2.01	0.047	Supported

Source: Author's computation (2026), using SmartPLS 4

The interaction effect is positive and statistically significant ($\beta = 0.11$, $p < 0.05$), supporting H5. Although the effect size is relatively small, it indicates that the institutional environment strengthens the relationship between digital transformation and financial governance. Specifically, stronger regulatory frameworks enhance the effectiveness of digital transformation by improving compliance, transparency, and accountability mechanisms. This suggests that governance outcomes are contingent upon both internal capabilities and external institutional conditions.

4.6 Effect Size and Predictive Relevance

Effect sizes (f^2) were calculated to assess the relative impact of each predictor variable, while predictive relevance (Q^2) was evaluated using blindfolding procedures.

Table 9: Effect Sizes (f^2)

Relationship	f^2	Effect Size
DT → HRM	0.35	Large

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HRM → FG	0.15	Medium
DT → FG	0.08	Small

Source: Author's computation (2026), using SmartPLS 4

The results indicate that digital transformation has a large effect on HRM, while its effect on financial governance is relatively smaller. HRM exhibits a moderate effect on financial governance, highlighting its importance as a mediating mechanism.

Table 10: Predictive Relevance (Q^2)

Endogenous Construct	Q^2 Value
Human Resource Management (HRM)	0.28
Financial Governance (FG)	0.32

Source: Author's computation (2026), using SmartPLS 4

The results in table 10 indicate that all Q^2 values are greater than zero, confirming that the model has adequate predictive relevance. Specifically, financial governance ($Q^2 = 0.32$) demonstrates strong predictive relevance, while human resource management ($Q^2 = 0.28$) shows moderate predictive capability. These findings suggest that the model is not only explanatory but also possesses satisfactory predictive power, in line with recommended PLS-SEM guidelines (Hair et al., 2019).

4.7 Assessment of Common Method Bias

To assess the potential for common method bias (CMB), both Harman's single-factor test and the full collinearity approach were employed. The results indicate that a single factor does not account for the majority of variance, and all variance inflation factor (VIF) values are below the threshold of 3.3, suggesting that common method bias is not a significant concern (Kock, 2015).

5. Discussion of Findings

This study examined the influence of digital transformation on financial governance in the banking sector, focusing on the mediating role of human resource management (HRM) and the moderating role of the institutional environment. The findings show that the impact of digital transformation is not uniform but depends on organisational capabilities and contextual factors.

5.1 Digital Transformation and Financial Governance

The results indicate that digital transformation has a positive but moderate effect on financial governance, suggesting that technology enhances transparency, risk management, and compliance but is insufficient on its own. Rather, it provides enabling infrastructure that must be integrated into organisational processes to yield governance benefits.

This finding aligns with prior studies highlighting improved data availability, monitoring, and decision-making (Kraus et al., 2021; Verhoef et al., 2021), while reinforcing that governance outcomes depend on the alignment between technological capabilities and organisational systems. It also reflects the dual nature of digital transformation: enhancing governance while

introducing risks such as cybersecurity threats and algorithmic opacity, thus requiring robust governance frameworks.

5.2 Digital Transformation and Human Resource Management

Digital transformation was found to have a strong positive effect on HRM, indicating that technological change significantly reshapes workforce structures and skill requirements. This underscores the role of HRM in developing competencies needed for effective technology utilisation.

The finding supports the dynamic capabilities perspective, which emphasises continuous learning and resource reconfiguration (Teece et al., 1997; Teece, 2007), as well as the Resource-Based View (RBV), which identifies human capital as a key strategic resource (Barney, 1991). As digital technologies are accessible but skills are not easily replicated, HRM becomes essential for enabling organisational adaptation and competitive advantage.

5.3 Human Resource Management and Financial Governance

The results show that HRM has a significant positive effect on financial governance, highlighting the importance of human and behavioural factors alongside structural mechanisms. HRM enhances governance by developing competencies in risk management, compliance, and ethical behaviour, while fostering organisational cultures that promote accountability and transparency. This aligns with studies showing that HRM practices improve governance outcomes such as compliance and ethical conduct (Bondarouk et al., 2022; Bos-Nehles et al., 2023).

HRM also serves as a key mechanism through which governance principles are operationalised. Digital HRM practices—including HR analytics, e-learning, and performance management—improve decision-making, transparency, and organisational control (Margherita, 2022; Strohmeier, 2020), while strengthening regulatory compliance and organisational integrity in the financial sector (Bos-Nehles et al., 2023; Budhwar et al., 2022).

In digital environments, HRM becomes even more critical as digital transformation increases demand for advanced skills such as data analytics, cybersecurity, and digital compliance (Bondarouk et al., 2022; Margherita, 2022). Without these capabilities, digital systems may be underutilised or mismanaged, undermining governance effectiveness.

Overall, the findings confirm that financial governance is not solely determined by formal structures but is significantly shaped by human capabilities and organisational practices, positioning HRM as a foundational mechanism for effective governance in digitally transforming institutions.

5.4 Mediating Role of Human Resource Management

The study finds that HRM partially mediates the relationship between digital transformation and financial governance, indicating that technological effects operate both directly and through organisational capabilities.

This supports Resource-Based View and dynamic capabilities perspectives, where the value of digital technologies is realised through human capital (Barney, 1991) and adaptive organisational processes (Teece et al., 1997). HRM functions as a key mechanism that

translates technological investments into governance outcomes by fostering learning and capability development.

The finding further demonstrates that digital transformation is capability-driven rather than purely technological, emphasizing the need to complement digital investments with human capital development.

5.5 Moderating Effect of Institutional Environment

The results also show that the institutional environment positively moderates the relationship between digital transformation and financial governance, although the effect is modest. This indicates that external factors such as regulatory frameworks and institutional support influence governance outcomes.

Consistent with institutional theory (DiMaggio & Powell, 1983; Scott, 2014), strong regulatory systems enhance transparency and accountability, while weak environments constrain effectiveness. However, the modest effect suggests that governance outcomes depend on the interaction between internal capabilities and external conditions rather than institutional factors alone.

This is particularly relevant in emerging economies such as Nigeria, where institutional weaknesses may limit the benefits of digital transformation, highlighting the need to strengthen regulatory systems and institutional capacity.

5.6 Study Implications

This study provides important theoretical and practical insights into the relationship between digital transformation and financial governance. Theoretically, it advances the literature by demonstrating that the impact of digital transformation on financial governance is not purely direct but operates through organisational capabilities, particularly human resource management (HRM), thereby moving beyond technology-centric perspectives. It contributes to the Resource-Based View and Dynamic Capabilities Theory by identifying HRM as a key mechanism through which digital transformation translates into governance outcomes, emphasizing the role of human capital and organisational learning. Additionally, the study enriches institutional theory by showing that governance outcomes are jointly shaped by internal capabilities and external institutional environments, offering a more integrated perspective.

Practically, the findings indicate that banking institutions should align digital transformation with strategic human capital development through training, reskilling, and talent management. Strengthening governance frameworks is also essential to address risks such as cybersecurity threats and algorithmic bias, particularly through the integration of digital systems with effective internal controls and risk management processes. For policymakers, the results highlight the need for supportive institutional frameworks, including stronger regulatory systems, improved transparency, and effective enforcement mechanisms.

Overall, the findings show that while digital transformation enhances financial governance, its impact is capability-dependent and context-specific. HRM plays a critical mediating role, while the institutional environment shapes the extent to which benefits are realised, underscoring the need for an integrated approach.

Despite its contributions, the study has limitations. The cross-sectional design restricts causal inference, and reliance on self-reported data may introduce bias. Future research could adopt longitudinal designs, examine additional mediating mechanisms such as organisational culture and leadership, and explore the role of emerging technologies like artificial intelligence in shaping governance outcomes.

References

Aguilera, R. V., Judge, W. Q., & Terjesen, S. A. (2018). Corporate governance deviance. *Academy of Management Review, 43*(1), 87–109. https://doi.org/10.5465/amr.2014.0394

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Bondarouk, T., Parry, E., & Furtmueller, E. (2022). Electronic HRM: Four decades of research on adoption and consequences. *The International Journal of Human Resource Management, 33*(1), 1–32. https://doi.org/10.1080/09585192.2021.1964098

Bos-Nehles, A., Bondarouk, T., & Nijenhuis, K. (2023). Innovative human resource management and organisational performance: The role of employee abilities and behaviours. *Human Resource Management Review*, 33(1), 100902.

Boot, A. W. A., Hoffmann, P., Laeven, L., & Ratnovski, L. (2021). FinTech: What's old, what's new? *Journal of Financial Stability, 53*, 100836. https://doi.org/10.1016/j.jfs.2020.100836

Budhwar, P., Malik, A., De Silva, M. T., & Nyfoudi, M. (2022). Talent management in the digital age: A review and research agenda. *Human Resource Management Review, 32*(3), 100795. https://doi.org/10.1016/j.hrmr.2020.100795

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields. *American Sociological Review, 48*(2), 147–160.

Erel, I., & Liebersohn, J. (2022). FinTech, regulatory arbitrage, and the rise of shadow banks. *Journal of Financial Economics, 145*(2), 578–599. https://doi.org/10.1016/j.jfineco.2021.04.001

Gomber, P., Koch, J. A., & Siering, M. (2018). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics, 87*(5), 537–580. https://doi.org/10.1007/s11573-017-0852-x

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). *A primer on partial least squares structural equation modelling (PLS-SEM)* (2nd ed.). Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modelling (PLS-SEM) using R*. Springer. https://doi.org/10.1007/978-3-030-80519-7

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of digital transformation. *Journal of Management Studies, 58*(5), 1159–1197. https://doi.org/10.1111/joms.12690

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organisational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal, 55*(6), 1264–1294. https://doi.org/10.5465/amj.2011.0088

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration, 11*(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2021). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management, 63*, 102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466

Lee, I., & Shin, Y. J. (2018). FinTech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons, 61*(1), 35–46. https://doi.org/10.1016/j.bushor.2017.09.003

Margherita, A. (2022). Human resources analytics: A systematization of research topics and directions for future research. *Human Resource Management Review, 32*(2), 100795. https://doi.org/10.1016/j.hrmr.2020.100795

Minbaeva, D. (2018). Building credible human capital analytics for organisational competitive advantage. *Human Resource Management Journal, 28*(3), 378–393. https://doi.org/10.1111/1748-8583.12207

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2019). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly, 43*(1), 223–238. https://doi.org/10.25300/MISQ/2019/13398

OECD. (2023). *OECD corporate governance factbook 2023*. OECD Publishing. https://doi.org/10.1787/6d0b3caa-en

Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329–340. https://doi.org/10.1016/j.bir.2017.12.003

Ozili, P. K. (2021). Financial inclusion research around the world: A review. *Forum for Social Economics, 50*(4), 457–479. https://doi.org/10.1080/07360932.2020.1715238

Philippon, T. (2020). On FinTech and financial inclusion. *Journal of Economic Perspectives, 34*(3), 65–86.

Scott, W. R. (2014). *Institutions and Organisations: Ideas, interests, and identities* (4th ed.). Sage.

Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. *German Journal of Human Resource Management, 34*(3), 345–365. https://doi.org/10.1177/2397002220921131

ISSN 2756-3162

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and micro foundations of enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.

Thakor, A. V. (2020). FinTech and banking: What do we know? *Journal of Financial Intermediation, 41*, 100833. https://doi.org/10.1016/j.jfi.2019.100833

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research, 122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Vial, G. (2019). Understanding digital transformation: A review and research agenda. *Journal of Strategic Information Systems, 28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning, 52*(3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

World Bank. (2022). *World development report 2022: Finance for an equitable recovery*. World Bank. https://doi.org/10.1596/978-1-4648-1730-4

Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Barberis, J. N. (2020). From FinTech to TechFin: The regulatory challenges of data-driven finance. *New York University Journal of Law & Business, 14*(2), 393–446.