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CORPORATE GOVERNANCE MECHANISM AND DIGITAL TRANSFORMATION OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The study examined corporate governance mechanisms and the digital transformation of deposit money banks (DMBs) in Nigeria, focusing on the effect of board composition—independent non-executive directors, non-executive directors, and executive directors—on the digital transformation of DMBs. Using empirical data from five DMBs covering the period 2010 to 2024, the regression analysis revealed that both independent non-executive directors and non-executive directors have a positive and significant effect on the digital transformation initiatives of DMBs in Nigeria. Their involvement in strategic oversight, diverse expertise, and ability to challenge executive decisions appear to enhance governance and innovation. In contrast, the negative and insignificant effect of executive directors on digital transformation suggests that operational practices alone cannot facilitate digital transformation without complementary oversight and strategic challenge from the board. Based on the findings, the study recommends that a balanced and well-structured board be employed to navigate the technological and regulatory complexities of digital banking, with greater emphasis on independent non-executive directors and non-executive directors.

Introduction

The rate at which technology is advancing has become a cause for concern in all sectors of the economy, particularly the banking sector. This ever-evolving technological advancement has brought about a paradigm shift—from a physical presence on the desk in the form of a computer to cloud-based systems (Jingzhuo & Youg-sik, 2024). The rapid development of digital technologies such as big data, artificial intelligence, cloud computing, and mobile connectivity is accelerating the world's entry into the digital era (Luo, Tian, Wang, & Han, 2024) and has introduced new challenges to corporate governance structures. Traditional governance frameworks have long relied on physical documentation, in-person meetings, and manual decision-making processes. However, with the expansion of the digital economy, there is increasing pressure on the corporate sector to modernize in response to technological

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advancements, market globalization, and regulatory changes. This demands that corporate governance structures intensify their efforts as new information technologies continue to merge with various industries, driving changes in both production processes and governance practices (Zhang, 2024). These challenges necessitate a rethinking of traditional governance frameworks to accommodate the complexities of the digital age. The effectiveness of governance structures—those that can not only uphold traditional principles of accountability and fairness but also foster innovation, agility, and digital competency—ultimately depends on the board of directors.

The board of directors, as a key mechanism of corporate governance, is composed of independent non-executive, non-executive, and executive directors who are collectively responsible for making decisions that serve the best interests of stakeholders. The interaction between this governance structure and digital transformation has become a significant area of study and practice, especially in today's rapidly evolving global business environment. Boards play a critical role in shaping the strategic decisions that drive digital initiatives, serving as a means through which organizations are directed and controlled. The board plays a vital role in steering organizations through the complexities and fast-paced changes associated with digital transformation (Olukoyade 2023). Similarly, the successful adoption and integration of digital technologies into business operations depend on strong governance frameworks that promote accountability, transparency, and the ethical use of data and technology, while also curbing executive overreach.

The core function of corporate governance is to oversee management and ensure that decisions align with the interests of all stakeholders. Board composition refers to the structure and characteristics of a firm's board of directors, including the presence of independent, non-executive, and executive members. These individuals are often selected based on a diverse range of expertise, professional backgrounds, and demographic attributes.

Digital competency encompasses the knowledge, skills, and attitudes related to digital technologies that board members possess. Given the strategic importance of technology adoption, boards with a broader range of expertise and a high level of independence are often better positioned to assess technological opportunities and risks, thereby facilitating effective digital transformation (Andrew, Layler, Thomas, and Mei 2025).

Grosman, Aguilera, and Wright (2019) highlighted that board independence has become a central topic in governance research. Empirical findings further suggest a link between corporate digital transformation and the international experience of executive teams (Cao, 2023). Boards that include members with IT expertise are more likely to advocate for increased investment in digital initiatives (Zhao, Yunfang, Zhou, & Hu, 2024). Additionally, diversity in executives' educational levels, international exposure, and professional experience tends to enhance the positive impact of financial resources on digital

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transformation. Conversely, age heterogeneity among executives may have a dampening effect (Li, Cai, & Lv, 2024). Yijun (2024) also found that the extent of digital transformation is influenced by the industry background, age, and technical expertise of corporate executives.

Studies on the drivers of digital transformation have identified factors such as infrastructural development, financial growth, and industrial clustering as significant enablers (Jia, Xu, & Li, 2024; Chen, 2022). From a corporate governance perspective, elements such as complementary strategic capabilities (Porfírio, Carrilho, Felício, & Jardim, 2020), as well as executives' vision and organizational culture, are considered essential (McTaggart & Loonam, 2023).

Despite the increasing importance of this subject, there remains a lack of empirical research in Nigeria examining the impact of corporate governance mechanisms—particularly the composition of the board of directors—on the digital transformation of deposit money banks (DMBs). Specifically, this study seeks to explore the roles of independent non-executive directors, non-executive directors, and executive directors in facilitating digital transformation within Nigerian DMBs, thereby distinguishing it from prior research.

Corporate Governance and the Digital Transformation of Firms

Digital transformation refers to the integration of digital technologies into all areas of a firm's operations to enhance efficiency and effectiveness. This process fundamentally reshapes how organizations operate and deliver value to customers (Billi & Bernardo, 2025). In the context of this study, digital transformation is viewed as the consolidation of digital technologies to overhaul a firm's operational systems, information delivery, and reporting processes. It goes beyond the mere adoption of new technologies—it involves a comprehensive shift in organizational culture, leadership mindset, operational processes, and customer engagement strategies.

In Nigeria, digital transformation is increasingly recognized as a strategic priority for firms across various sectors, including banking, manufacturing, telecommunications, and retail. However, several barriers hinder its widespread adoption. Overcoming these challenges requires robust governance structures, as sound corporate governance provides the strategic direction, oversight, and risk management necessary for successful digital implementation.

The board of directors holds a unique and influential position in any organization. They are tasked with shaping strategic direction and ensuring long-term sustainability (Olukayode, 2023). While board members may not possess expert knowledge in every functional area—such as accounting, legal affairs, human resource management, or digital technologies—their role lies in leveraging experience and strategic insight to guide the management team. Most importantly, they must understand that digital technology is not merely a tool, but a strategic asset and competitive differentiator (Dan, n.d.).

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Navigating a firm through digital transformation requires strong boardroom leadership, as the process can be complex and demanding. Fernandez-Vidal, Perotti, Gonzalez, and Gasco (2022) assert that effective oversight demands vision, courage, and technological awareness. Without proper governance, the promise of digital innovation can easily devolve into organizational setbacks. Therefore, both the innovation process and its outcomes must be carefully monitored and evaluated. From a governance standpoint, digital transformation is a long-term strategic investment that involves significant risk and uncertainty. Board support—especially from well-informed and engaged directors—is thus critical. Although boards are not involved in the day-to-day management of the firm, they can contribute meaningfully to digital transformation by setting guidelines, raising pertinent questions, challenging projections, identifying gaps, and supporting the management team.

Boards can further support digital transformation by reviewing and approving digital strategies that align with the company's overall business goals. Establishing both short- and long-term strategies is a key board responsibility, and in fulfilling this role, directors must ensure the digital strategy supports sustainable growth. Aligning digital initiatives with broader corporate objectives ensures that business transformation remains focused and impactful. Additionally, boards may consider establishing a dedicated committee to oversee the digital transformation process and monitor its progress (DCSL, 2024).

The composition of the board, as a corporate governance mechanism, continues to face challenges such as conflicts of interest, which can impede successful digital transformation. Executive directors are responsible for the day-to-day operations of the firm. Luo and Zheng (2024) found that executive officers tend to drive digital transformation when their emphasis is on growth and innovation, but they may obstruct it when their focus shifts to stability, safety, and risk avoidance.

Other studies suggest that appropriate reward systems for executive directors encourage innovative thinking and support digital transformation (Ma & Wang, 2024; Yu, 2024; Fan, Zhao, Zhang, Wang, & Shao, 2023). Research also highlights that factors such as tenure, age, and expertise of executive directors can positively influence digital transformation initiatives (Andrew, Layler, Thomas, & Mei, 2025; Huang, Lu, & Wang, 2025; Yijun, 2025).

However, when executive directors are primarily evaluated on short-term financial performance, they may be reluctant to invest in digital transformation projects, given their uncertain outcomes and long-term payoffs. In such cases, they may favor incremental upgrades over transformative innovation, particularly if disruptive changes threaten their own positions. Furthermore, if boards are dominated by executive directors, oversight of strategic initiatives may be weakened, which can obstruct digital projects (Lu, Ntim, Zhang, & Li, 2022). On the other hand, non-executive directors, through closer monitoring, can reduce excessive risk-taking by executives. Yet, because they are accountable to the board while also

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serving as managers, they may face conflicts of interest arising from their dual roles (David, 2024).

Ho_1: Executive directors have no significant effect on digital transformation of money deposit banks in Nigeria.

Independent non-executive directors are well positioned to influence strategic decisions, reduce managerial resistance, and promote innovation. Within corporate governance, they are expected to provide objectivity, oversight, and accountability in board decisions, particularly regarding strategic investments and risk management. Consequently, boards with a higher proportion of independent non-executive directors are more likely to respond effectively to stakeholder pressures related to digital transformation and to promote the adoption of digital technologies (Meng, Su, & Yu, 2022).

Research further indicates that a stronger presence of independent non-executive directors improves the integration of digital tools to address social responsibility concerns (Jingzhuo & Young-sik, 2024). Similarly, studies show that a higher proportion of independent non-executive directors significantly supports digital transformation (Meng, Su, & Yu, 2022). These directors are also more inclined to foster the use of digital technologies to achieve corporate social responsibility (CSR) objectives, enhancing both firm performance and their own reputations (Zaid Abuhijleh & Pucheta-Martínez, 2020). Independent directors who also hold shares in the firm may be even more likely to support strategic digital investments, as they have a direct interest in long-term value creation. Their independence from management enables them to critically evaluate digital strategies, challenge short-termism, and ensure that technological adoption aligns with broader corporate objectives. Ultimately, board effectiveness depends on the capacity and willingness of independent non-executive directors to hold executives accountable for delivering on planned initiatives.

In the Nigerian context—where digital transformation is critical for global competitiveness and sustainable growth—independent non-executive directors can strengthen their commitment to long-term success by enhancing their monitoring roles and influencing decision-making processes to encourage innovation and strategic development. This is particularly important in emerging markets like Nigeria, where governance challenges such as weak regulatory enforcement and managerial entrenchment may hinder accountability.

Ho_2: Independent non-executive directors have no effect on digital transformation of money deposit banks in Nigeria.

Non-executive directors, like independent non-executive directors, provide oversight, advice, and an external perspective to the firm. However, they may also be significant shareholders, former executives, or individuals with existing business relationships with the firm. These

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interests distinguish them from fully independent directors and may influence their judgment (David, 2024).

Findings presented in a conceptual framework suggest that digital transformation affects the capabilities of all board directors in four key areas: gathering, interpreting, and sharing information (Oliveira, Kakabadse, & Khan, 2022). Andrew, Layler, Thomas, and Mei (2025) employed a mixed-methods design to examine the influence of board composition and digital competence on technology adoption in 150 publicly listed financial firms across North America and Europe between 2018 and 2023. Board composition data were collected from annual reports and corporate governance disclosures, focusing on diversity factors such as gender, age, and professional background, as well as the presence of directors with digital or IT expertise. The quantitative analysis demonstrated a strong positive association between the proportion of digitally competent directors on the board and the extent of technology adoption in financial firms. Boards with higher levels of IT and digital expertise were found to invest more heavily in emerging technologies and to implement them more rapidly. Similarly, Fortis, Ioanis, and Maria (2021) investigated the acceptance of digital transformation among 161 employees of Greek banks through survey research. The regression results showed that employees' perceptions of new technologies significantly influenced the rate of digital adoption.

Ho_3: Non-executive directors have no significant effect on digital transformation of deposit money banks

Theoretically, The Upper Echelons Theory (UET), introduced by Donald C. Hambrick and Phyllis A. Mason in 1984, posits that organizational outcomes reflect the managerial characteristics of a firm's board of directors. Their ability to make sound judgments, when provided with adequate information, is shaped by their experiences, values, personalities, and perceptions. These characteristics influence strategic decisions that can give the firm a competitive advantage. However, the assumption that boards always possess perfect information or make fully rational decisions is often unrealistic, as outcomes may depend on the interests at stake. UET suggests that directors' perceptions are guided by their cognitive frameworks and past experiences, which affect resource allocation, risk-taking, and innovation. As such, the human factor remains a constraint in decision-making. Consequently, a firm's ability to achieve digital transformation largely depends on the composition of its board of directors.

The Resource Dependency Theory (RDT) views firms as reliant on diverse external and internal resources, with board members serving as key facilitators of access to these resources. In the context of digital transformation, the theory emphasizes the importance of board composition in enabling resource mobilization and ensuring that technology adoption benefits stakeholders. Digital transformation also fosters closer and more frequent

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interactions among board members, managers, and stakeholders (Oliveira, Kakabadse, & Khan, 2022). Chen and Tian (2022) argue that firms must account for both external environmental changes and internal resource management during digital transformation processes. The underlying assumption is that different board compositions generate different corporate outcomes by shaping how existing resources are used and how additional resources, such as digital technologies, are attracted. From this perspective, board composition serves as an essential link for firms to adapt to changing environments and shifting resource needs (Lu, Ntim, Zhang, & Li, 2022).

METHODOLOGY

The study adopted non-experimental design, using judgmental sampling to sample five deposit money banks listed on the Nigerian Exchange Group (NGX) for the period of 2010 to 2024. The data is drawn from the annual report of these banks and it comprise of total expenditure on computer as dependent variable of digital transformation while the number of executive board of directors, independent non-executive directors and non-executive directors on the board as independent variables of corporate governance. The E-View 13 statistical analysis involves descriptive analysis to the describe the variables, correlation to show relationship, hausman test to select the appropriate model, for robust to control heteroskedacitity white cross section standard error and covariance and panel least square method to test the hypotheses.

Descriptive Statistics

	LOGCOMEX	LOGEX	LOGINEX	LOGNEX
Mean	3.435430	0.602662	0.380406	0.745173
Median	3.357172	0.602060	0.301030	0.778151
Maximum	5.088696	1.000000	0.698970	1.000000
Minimum	2.173186	0.301030	0.301030	0.301030
Std. Dev.	0.654740	0.190401	0.107307	0.157777
Skewness	0.398799	-0.205684	0.931255	-0.292138
Kurtosis	2.882399	2.119614	2.706992	2.523658
Jarque-Bera	2.031231	2.950946	11.10874	1.775873
Probability	0. 306218	0.228671	0.003871	0. 411504
Sum	257.6572	45.19963	28.53044	55.88797
Sum Sq. Dev.	31.72266	2.682681	0.852099	1.842130

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Observations	75	75	75	75

In describing the variables, the Mean of LOGCOMEX: 3.44, LOGEX: 0.60, LOGINEX: 0.38 and LOGNEX: 0.75. Median for all variables are close to the mean which suggests distributions are fairly symmetric. In the measure of spread of data, their Standard deviation reveal LOGCOMEX value of 0.65 fluctuate moderately around the mean, LOGEX value of 0.19, LOGINEX value of 0.11, and LOGNEX value 0.16 shows more stability. The Range (Max – Min) LOGCOMEX ranges from 2.17 to 5.09 while the independent variables all range between 0.30 and 1.00 suggesting they are normalized.

Correlation Table

	LOGCOMEX	LOGEX	LOGINEX	LOGNEX
LOGCOMEX	1	0.19140725512	0.304320452171	0.22253227955
LOGEX	0.191407255123	1	0.161663133787	0.019686175558
LOGINEX	0.304320452171	0.16166313378	1	-0.144240687124
LOGNEX	0.222532279554	0.0196861755	-0.144240687124	1

The correlation result shows that executive directors (LOGEX), independent non-executive directors (LOGINEX) and non-executive director (LOGNEX) are positively correlated with LOGCOMEX

Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.134792	3	0.0276

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Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOGEX	0.598728	0.461726	0.035451	0.4668
LOGINEX	2.529471	1.958653	0.084254	0.0492
LOGNEX	1.436466	1.104635	0.106501	0.0392

The hausman test result of Chi-Sq statistic of 9.134792 and probability value of 0.0276 is an indication that fixed effect model is the most appropriate model for the study

Method: Panel Least Squares

Date: 08/30/25 Time: 12:30

Sample: 1 75

Periods included: 5

Cross-sections included: 15

Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.041958	0.555936	1.874243	0.0660

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LOGEX	0.598728	0.417493	1.434105	0.1570
LOGINEX	2.529471	0.728362	3.472822	0.0010
LOGNEX	1.436466	0.554622	2.589991	0.0122

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0. 634941	Mean dependent var	3.435430
Adjusted R-squared	0. 515441	S.D. dependent var	0.654740
S.E. of regression	0.601705	Akaike info criterion	2.027466
Sum squared resid	20.63682	Schwarz criterion	2.583663
Log likelihood	-58.02996	Hannan-Quinn criter.	2.249549
F-statistic	1.801158	Durbin-Watson stat	1.780435
Prob(F-statistic)	0.045063		

LOGCOMEX = 1.58893776821 + 0.461726072487*LOGEX + 1.9586525503*LOGINEX + 1.104635484*LOGNEX + [CX=R]

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LOGCOMEX = 1.041958 + 0.598728*LOGEX + 2.529471*LOGINEX + 1.436466*LOGNEX

The regression results based on the fixed effect model revealed the coefficient of 0.5987, 2.529 and 1.4365 for executive directors (LOGEX), independent non-executive directors (LOGINEX) and non-executive directors (LOGNEX) respectively. This shows that a unit increase in executive directors (LOGEX), independent non-executive directors (LOGINEX) and non-executive directors (LOGNEX) will cause a change in expenditure on computer (LOGCOMEX) to the tune of 0.5987, 2.529 and 1.4365. **Model Fitness shows R-squared of 0.635 which is** implies that 63.5% of the variation in **LOGCOMEX** is explained by the model. **Adjusted R-squared of 0.515** after adjusting for the number of predictors, 51.5% of the variation is explained. The overall statistically significant of the model is shown with **F-statistic p-value of 0.045 and Durbin-Watson 1.78** Suggests no autocorrelation.

The test for individual effect reveal that **LOGEX with coefficient of 0.5987 and p-value of 0.157 is** not statistically significant since is greater 0.05 Suggests that null hypothesis is accepted. **LOGINEX with p-value of 0.001is an indication that null hypothesis is rejected to accept the alternative that independent non-executive directors has significant positive effect on expenditure on computer. LOGNEX with p-value of 0.012 shows a significant effect on expenditure on computer.**

In the empirical analysis, the study finds that executive directors mitigate digital transformation firms' while independent non-executive and non-executive directors promote digital transformation deposit money banks in Nigeria. The study then concludes that corporate governance mechanism (board composition) positively and significantly plays a crucial role in facilitating digital transformation of firms. The findings contribute' to better understanding of corporate governance and literature on digital transformation in this digital era

Based on the findings, the study recommended that a balanced and well-structured board that incorporate more of independent non-executive directors and non-executive directors should be employed to navigate the technological and regulatory complexities of digital banking**.**

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General meaning of correlation values

- **1.0** = perfect positive correlation (they move together exactly).
- **0** = no linear relationship.
- **Negative values** = inverse relationship (when one goes up, the other tends to go down).
- **Interpretation rule of thumb**:
    - 0.0–0.2 → very weak
    - 0.2–0.4 → weak
    - 0.4–0.6 → moderate
    - 0.6–0.8 → strong
    - 0.8–1.0 → very strong

2. Pairwise interpretation

- **LOGCOMEX & LOGEX (0.19)** → very weak positive relationship.
- **LOGCOMEX & LOGINEX (0.30)** → weak positive relationship.
- **LOGCOMEX & LOGNEX (0.22)** → weak positive relationship.
- **LOGEX & LOGINEX (0.16)** → very weak positive relationship.
- **LOGEX & LOGNEX (0.02)** → essentially no relationship.

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- **LOGINEX & LOGNEX (-0.14)** → very weak negative relationship.

3. Overall insights

- **LOGCOMEX** shows the strongest connections among the variables, but still only weak (highest is with LOGINEX, 0.30).
- **LOGEX** and **LOGNEX** are almost uncorrelated (0.02).
- The only negative correlation is between **LOGINEX** and **LOGNEX** (-0.14), but it's very weak.
- No pairs are strongly correlated — suggesting these variables don't move closely together in linear terms.

Hausman test

1. Test summary

- **Chi-Sq Statistic = 9.1348**
- **d.f. = 3**
- **p-value = 0.0276**

Since **p = 0.0276 < 0.05**, we **reject the null hypothesis** that the Random Effects (RE) estimator is consistent.
Conclusion: The **Fixed Effects (FE)** model is preferred.

2. Variable-level comparisons

Looking at the detailed comparison of coefficients between FE and RE:

Variable	FE Coefficient	RE Coefficient	p-value
LOGEX	0.5987	0.4617	0.4668 (not significant)
LOGINEX	2.5295	1.9587	0.0492 (significant)
LOGNEX	1.4365	1.1046	0.0392 (significant)

- **LOGEX:** Difference between FE and RE is small and not statistically significant.
- **LOGINEX & LOGNEX:** Differences are statistically significant ($p < 0.05$), suggesting RE estimates are biased for these variables.

3. Overall interpretation

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- The **Hausman test rejects RE**, meaning **Fixed Effects is the safer, consistent estimator**.
- RE might underestimate or misrepresent the effects of **LOGINEX** and **LOGNEX**, since their coefficient differences vs FE are significant.
- For **LOGEX**, RE and FE give similar results, but the test overall indicates FE is more reliable