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STRATEGIC ALIGNMENT OF DIGITAL TRANSFORMATION WITH SUSTAINABLE BANKING PRACTICES IN NIGERIA'S BANKING SECTOR

Abubakar Ado Adamu, Anthony Kolade Adesugba and Salisu Umar
Distance Learning Institution, Kaduna State University, KASU, Kaduna
Department of Business Administration, Ahmadu bello University, Zaria
Corresponding Author: wadadanlami@gmail.com

ABSTRACT

Nigerian banks face significant challenges in aligning their digital transformation efforts with sustainable banking practices, which are crucial for long-term success in a competitive financial landscape. Despite the growing recognition of sustainability in the banking sector, many banks struggle to integrate digital technologies in ways that promote both operational efficiency and social responsibility. This study examines the strategic alignment between digital transformation and sustainable banking practices in Nigeria's banking sector, focusing on how five leading commercial banks and two regulatory-affiliated financial institutions operating within Nigeria aligned their digital strategies with sustainability goals. The research involves in-depth interviews with 12 participants (senior executives and IT specialists) from these banks, investigating how digital technologies such as mobile banking, cloud computing, and big data analytics contribute to environmental sustainability, financial inclusion, and social responsibility. The study identifies key themes, including the adoption of digital tools for operational efficiency and sustainability, the integration of green banking and corporate social responsibility (CSR) into digital strategies, and the challenges and opportunities of aligning digital initiatives with sustainability objectives. The findings suggest that strategic digital alignment enhances resource optimization, reduces operational costs, and improves customer loyalty, while also addressing barriers such as regulatory hurdles and cybersecurity concerns. This research provides actionable insights for Nigerian banks to overcome transformation barriers and leverage digital solutions for long-term sustainable growth, positioning them as leaders in both financial innovation and sustainability.

Keywords*: Digital Transformation, Strategic Alignment, Sustainable Banking, Financial Inclusion*

Introduction

The Nigerian banking sector is undergoing a profound transformation driven by the increasing adoption of digital technologies. In response to evolving customer expectations, regulatory reforms, and the competitive push from FinTech firms, banks in Nigeria are investing heavily in mobile banking, cloud computing, big data analytics, and artificial intelligence to enhance service delivery and operational efficiency (Alam, Azizah, & Caroline, 2025; Ekwe, 2025). This shift is consistent with global trends where digital transformation significantly improves the cost efficiency and credit allocation capacity of commercial banks, as evidenced in empirical studies from China and other emerging markets (Chen, Wang, & Wang, 2025; Shen et al., 2025). Nigerian banks are also leveraging digital ecosystems to modernize core operations in line with strategic IT governance and alignment models, which have been shown to enhance technological maturity and business performance (Apriadi & Muhammad, 2025; Sarwar et al., 2025).

These innovations not only offer significant advantages in terms of speed, convenience, and cost reduction but also enable banks to reach previously underserved populations through digital financial services. Moreover, the modernization of Nigeria's financial system highlights the increasing role of digital platforms in achieving financial inclusion and sustainable economic growth (Soetan & Mogaji, 2024; Soetan & Mogaji, 2024b). Consequently, digital transformation is emerging as a strategic imperative for banks seeking resilience, agility, and sustainable growth in an increasingly volatile financial landscape, aligning with broader ethical and technological considerations emphasized in Nigeria's digital transformation discourse (Munira, 2025; Ononiwu et al., 2024; Shittu et al., 2024).

Parallel to this digital revolution is the growing importance of sustainability in banking practices. Globally, banks are expected to play a central role in supporting environmental and social goals through responsible investment, green financing, and operational practices that minimize ecological footprints. Evidence from international studies shows that sustainable banking models contribute to achieving the UN Sustainable Development Goals through responsible lending, climate-aligned financing, and strengthened governance mechanisms (Taneja et al., 2025; Orian Peer, 2025; Thompson, 2025). In Nigeria, efforts toward sustainable banking have gained momentum, particularly under regulatory frameworks such as the Nigerian Sustainable Banking Principles (NSBP) introduced by the Central Bank of Nigeria (CBN).

These guidelines encourage banks to integrate sustainability considerations into all facets of their business operations, reflecting broader regional trends in emerging markets where sustainability practices are increasingly shaping organizational strategies (Owolabi, 2025; Ozbek et al., 2025). However, while digital initiatives are expanding rapidly, there remains a significant gap in aligning these transformations with environmental, social, and governance (ESG) goals. Research indicates that despite advances in digital banking, Nigerian banks still face challenges in embedding sustainability into technological innovations and strategic planning (Olowofela, Donfack, & Soh, 2025; Azad & Devi, 2024; Olubusola et al., 2024). This misalignment mirrors global findings that stress the need for effective alignment mechanisms to ensure that digital transformation complements sustainable banking practices rather than advancing solely profit-driven objectives (Best & Hamra, 2025; Flinders & Hinterleitner, 2025).

In Nigeria, digital banking is rapidly gaining traction alongside sustainability efforts, yet significant disparities persist. Approximately 71% of Nigerians about 128 million people use mobile phones, with over 84% of internet access occurring via mobile devices, reflecting the country's expanding digital infrastructure (DataReportal, 2025). Despite this widespread connectivity, only an estimated 9.2% of Nigerians utilized mobile wallets in 2020, though this figure is projected to rise to 18.9% by 2025, with transaction values expected to grow from USD 45 billion to USD 72.5 billion within that period (EFInA, 2023). Within banking, mobile apps receive solid user feedback mean ratings of 3.45/5, with 17.3% of sentiments positive versus 8.2% negative although post-2020 satisfaction declined amid the surge in digital usage (CBN, 2024). Additionally, Nigeria processed ₦1.56 quadrillion in e-payment transactions in the first half of 2024 alone, demonstrating the rapid expansion of digital financial activities nationwide (NIBSS/TechCabal Insights, 2025). Meanwhile, sustainable banking practices have been steadily encouraged since the 2012 adoption of the Nigerian Sustainable Banking Principles, yet recent sector analyses indicate that environmental initiatives still exert minimal influence on overall bank stability, while heavy investment in social programs may constrain liquidity for some institutions (CBN, 2024).

In examining regional disparities across Nigeria, data from a 2025 study on digital banking acceptance in the South-East and South-South zones highlights critical patterns: only 36% of residents were aware of digital banking during the cash crunch, rising marginally to 37% in acceptance and usage afterward; moreover, 59% cited communication and awareness efforts as central to driving adoption (PwC Nigeria, 2024). At the national level, broadband penetration reached 43.5%, connecting more than 163

million Nigerians by March 2024 evidence of a rapidly expanding digital infrastructure that continues to provide fertile ground for fintech growth (NCC, 2024; World Bank, 2023). Yet, deep gender and urban–rural divides persist: internet penetration sits at just 45% for women versus 62% for men, and literacy challenges keep rural populations significantly disconnected, consistent with national ICT trends highlighted in the NBS ICT Data Compilation Report and mobile adoption patterns tracked by GSMA (NBS, 2023–2024; GSMA, 2023).

On the sustainability front, regional uptake of ESG and climate-related disclosures remains uneven despite the presence of national frameworks such as the Nigerian Sustainable Banking Principles of 2012. The Financial Reporting Council's Roadmap for Sustainability Reporting shows stronger federal-level engagement but limited alignment at state and local banking levels, constraining unified national implementation (FRC, 2023). Additional assessments underscore this unevenness: Nigeria's sustainable finance landscape continues to face challenges in governance, climate finance mobilization, and capacity-building across regions (UNEP FI, 2023; IFC & NESG, 2024; CPI, 2023). These disparities emphasize the need for region-sensitive strategies to align digital banking expansion with broader sustainability goals across Nigeria's diverse socio-economic and cultural environments, a priority also reflected in CBN's Financial Stability Report, Payments Vision 2025 updates, and NIBSS digital payment statistics (CBN, 2023–2024; CBN, 2024; NIBSS, 2024).

Strategic alignment between digital transformation and sustainable banking is essential for ensuring that technological innovation supports long-term value creation and responsible growth. This alignment entails more than technological adoption; it requires deliberate integration of sustainability into digital strategies, policies, and business models. Unfortunately, Nigerian banks often encounter challenges in achieving this synergy due to regulatory barriers, cybersecurity risks, limited infrastructure, and inconsistent sustainability reporting constraints also observed in global studies on digital transformation and IT governance (Apriadi & Muhammad, 2025; Shittu et al., 2024). Nonetheless, aligning digital innovation with sustainability presents vast opportunities for competitive advantage, financial inclusion, and reputational growth (Akpotu, 2016; Abdullahi & Ibrahim, 2025; Gaba & Sharma, 2025). Research further highlights that strategic alignment enhances organizational agility, environmental responsiveness, and innovation outcomes, reinforcing the need for banks to embed sustainability metrics into digital roadmaps (Sarwar et al., 2025; Okello et al., 2025). Therefore, understanding how Nigerian banks strategically align their digital transformation initiatives with

sustainability practices is both timely and crucial for fostering a resilient and future-ready financial system.

The Nigerian banking sector is rapidly embracing digital transformation through innovations such as mobile banking, cloud computing, big data analytics, and artificial intelligence to improve service delivery and enhance operational efficiency. Evidence from international contexts demonstrates that digital transformation significantly boosts cost efficiency, improves credit allocation, and strengthens customer experience in banking (Chen, et al., 2025; Shen et al., 2025; Tahmasian, et al., 2025). However, while these technologies offer promising avenues for growth and competitiveness, their integration with sustainability goals remains largely fragmented. Many banks implement digital strategies in isolation from their environmental and social responsibility frameworks, resulting in missed opportunities to leverage technology for green finance, energy efficiency, climate-aligned lending, and broader financial inclusion (Olowofela, et al., 2025; Alam, et al., 2025; Zhang et al., 2025). Studies further suggest that without deliberate strategic planning, digital transformation may advance operational efficiency while failing to contribute meaningfully to sustainable banking objectives (Ojong et al., 2014; Soetan & Mogaji, 2024).

Despite regulatory interventions such as the Nigerian Sustainable Banking Principles (NSBP), there is limited evidence that digital initiatives are being systematically aligned with sustainability mandates across the sector. Banks often face challenges in embedding environmental, social, and governance (ESG) priorities into their digital infrastructures due to issues such as cybersecurity risks, lack of technical expertise, regulatory uncertainty, and poor data governance barriers consistent with global examinations of governance weaknesses in sustainable banking (Ozbek et al., 2025; Oyewole et al., 2024). These challenges hinder the creation of a cohesive digital sustainability agenda and limit the potential for achieving long-term developmental goals (Azad & Devi, 2024; Olubusola et al., 2024). Furthermore, inconsistencies in sustainability reporting and insufficient strategic planning frameworks further complicate alignment efforts, echoing findings that institutions require stronger environmental scanning, stakeholder engagement, and strategic execution structures to enhance sustainability integration (Best & Hamra, 2025; Flinders & Hinterleitner, 2025; Thompson, 2025).

As Nigeria aims to achieve both financial inclusion and sustainable development in line with global targets like the SDGs and the African Continental Free Trade Area (AfCFTA) aspirations, it becomes imperative to explore how digital transformation can be strategically aligned with sustainable banking practices. Without a clear understanding of this alignment, banks risk implementing disjointed digital

systems that may exacerbate inequalities, increase operational risks, and fall short of contributing meaningfully to Nigeria's green and inclusive growth agenda (Abdullahi & Ibrahim, 2025; Gaba & Sharma, 2025). Therefore, a qualitative investigation is needed to understand the nature, challenges, and strategic opportunities of aligning digital transformation with sustainability practices in Nigerian banking institutions.

The study is guided by the following research questions

i. How are Nigerian banks leveraging mobile banking solutions to promote financial inclusion among underserved populations?

ii. In what ways has the adoption of cloud computing improved operational efficiency and supported sustainability efforts in Nigerian banks?

iii. How are banks in Nigeria using big data analytics to optimize resource allocation, reduce costs, and enhance profitability?

iv. How do Nigerian banks integrate environmental sustainability into their digital strategies, particularly in reducing environmental footprints?

v. What role do digital banking strategies play in advancing corporate social responsibility and strengthening customer engagement?

vi. What challenges do Nigerian banks face in aligning digital transformation initiatives with sustainability goals?

vii. How does the strategic alignment of digital transformation with sustainability practices contribute to competitive advantage and long-term success in Nigerian banks?

Literature Review

The dynamic interplay between digital transformation and sustainable banking has attracted growing scholarly attention, especially within emerging markets like Nigeria. As banks integrate advanced technologies to improve operational efficiency and customer experience, questions arise about how these innovations align with environmental and social responsibility goals. While global literature highlights the benefits of digital tools in driving financial inclusion and sustainability, there remains limited empirical insight into how these efforts are strategically aligned in Nigeria's banking sector.

This review explores key themes surrounding digital transformation, sustainability practices, and their strategic integration to identify gaps and contextual relevance for the Nigerian banking industry.

1. Digital Transformation in the Banking Sector

Digital transformation in banking has revolutionized the way financial services are delivered, with mobile banking, cloud computing, big data analytics, and artificial intelligence playing central roles in operational modernization. Alam et al. (2025) emphasize that digital transformation enhances customer experience, streamlines operations, and improves service delivery speed and accuracy. Similarly, Munira (2025) provides a systematic review highlighting the growing use of digital platforms in developing economies, with Nigeria experiencing rapid growth in mobile wallet use and fintech partnerships. Ekwe (2025) further supports this by proposing AI-powered frameworks that enhance B2B banking productivity in Nigeria. These developments align with global evidence showing that digital transformation improves cost efficiency, strengthens lending outcomes, and expands customer access when properly executed (Chen, et al., 2025; Shen et al., 2025).

Furthermore, studies underscore the importance of strategic agility, IT governance maturity, and enterprise-wide alignment in ensuring that digital innovations translate into measurable business value (Apriadi & Muhammad, 2025; Sarwar et al., 2025). Despite these technological advancements, digital transformation alone does not guarantee long-term sustainability unless strategically integrated with core business values, responsible governance structures, and environmental goals. Research shows that without this alignment, digital initiatives risk becoming operational tools rather than drivers of sustainable banking practices, missing opportunities to support green finance, ESG reporting, and broader developmental objectives (Ojong et al., 2014; Ozbek et al., 2025; Thompson, 2025).

2. Sustainability Practices in Banking

Sustainability in banking refers to the integration of environmental, social, and governance (ESG) principles into banking operations, lending, and investments. Azad and Devi (2024) note that banks globally are increasingly leveraging employee behavior and internal culture to achieve sustainability outcomes, reflecting a broader shift toward responsible financial systems. This aligns with emerging global literature emphasizing that sustainable banking requires strong governance structures, climate-aligned financial instruments, and transparent ESG reporting (Orian Peer, 2025; Ozbek et al., 2025; Thompson, 2025). In Nigeria, the adoption of the Nigerian Sustainable Banking Principles (NSBP) in 2012 signaled a regulatory commitment to environmentally responsible practices. However, empirical

evidence suggests that these practices are unevenly implemented across the sector. Olowofela, et al. (2025) found that while sustainable banking positively impacts bank stability, its environmental dimension remains underutilized due to weak integration with digital and operational strategies. Similarly, Olubusola et al. (2024) highlight the potential of green IT practices in reducing the ecological footprint of banking services but note a gap in consistent policy execution across regions. This is consistent with findings that effective sustainability implementation requires strong strategic planning, stakeholder engagement, and organizational alignment elements often missing in developing markets (Best & Hamra, 2025; Ojong et al., 2014). Moreover, international studies suggest that banks that successfully align sustainability with digital transformation not only reduce risks but also enhance innovation capacity and competitiveness in a rapidly evolving financial ecosystem (Taneja et al., 2025; Soetan & Mogaji, 2024).

3. Strategic Alignment of Digital Transformation and Sustainability

The concept of strategic alignment refers to the intentional integration of digital strategies with sustainability goals to create synergistic value. Ghonim et al. (2022) argue that alignment enhances decision-making effectiveness and builds organizational resilience. Audretsch and Belitski (2022) extend this view by framing strategic alignment as a critical driver of innovation within entrepreneurial ecosystems. In the banking context, Kindermann et al. (2021) conceptualize "digital orientation" as a prerequisite for banks to successfully blend technology with broader organizational goals. These arguments are reinforced by recent findings that IT strategic alignment and governance maturity significantly strengthen organizational capability and digital transformation outcomes (Apriadi & Muhammad, 2025; Sarwar et al., 2025). Furthermore, aligning digital and sustainability strategies is increasingly viewed as essential for climate-responsible banking, particularly as global institutions push for greater transparency and climate-aligned financing mechanisms (Orian Peer, 2025; Thompson, 2025).

In Nigeria, Akpotu (2016) points out that without strong strategic alliances and governance mechanisms, digital initiatives risk being fragmented and misaligned with sustainability goals. Abdullahi and Ibrahim (2025) further argue that alignment with regional green trade frameworks like AfCFTA and BRICS could help Nigeria achieve dual objectives of economic growth and sustainable development. Emerging evidence also suggests that digital transformation, when properly aligned with sustainability mandates, reduces green credit risks and enhances environmental accountability (Zhang et al., 2025; Ozbek et al., 2025). However, challenges persist, including regulatory complexity,

cybersecurity risks, and a lack of institutional coordination (Hassan et al., 2024; Ige, et al., 2024). These challenges echo broader concerns regarding digital ethics, cybersecurity vulnerabilities, and weak governance structures in emerging markets (Oyewole et al., 2024; Shittu et al., 2024), which continue to limit the full realization of strategic alignment in Nigeria's banking sector.

4. Gaps in Literature and Need for the Study

Although prior research has addressed the individual components of digital transformation and sustainable banking, very few studies have explored their strategic integration within the Nigerian context. There is a clear gap in qualitative research that examines how banks perceive, design, and implement aligned digital and sustainability strategies. This study seeks to fill that gap by providing in-depth, contextual insights into the drivers, barriers, and outcomes of strategic alignment in Nigeria's banking sector.

Empirical Review (Synthesis)

Empirical evidence suggests that digital transformation has significantly enhanced banking efficiency, financial inclusion, and customer satisfaction across developing economies, including Nigeria. Alam, Azizah, and Caroline (2025) found that the integration of mobile banking and digital platforms in Nigerian banks has led to improved customer outreach and operational speed, especially among underserved populations. Similarly, Munira (2025) highlighted that cloud computing and big data analytics are increasingly used for cost optimization and resource management in banking operations. These findings align with global evidence demonstrating that digital transformation improves cost efficiency, credit allocation, and overall bank productivity (Chen, et al., 2025; Shen et al., 2025). Moreover, Ekwe (2025) and Su and Wang (2025) show that AI-enabled digital transformation enhances decision-making, risk prediction, and business agility in both Nigerian and international banking contexts. However, these digital advancements often operate independently of sustainability goals. For example, Olowofela, et al. (2025) concluded that while sustainable banking practices positively influence financial stability, their alignment with digital strategies remains limited, largely due to implementation gaps, infrastructural constraints, and weak regulatory enforcement. This disconnect is further highlighted by research showing that digital innovations, when not strategically aligned with broader organizational goals, become fragmented and fail to deliver long-term value (Olutimehin et al., 2021; Okello et al., 2025).

On the sustainability front, studies by Azad and Devi (2024) and Olubusola et al. (2024) emphasize the growing interest in green banking and environmental responsibility within the Nigerian banking industry. However, most banks lack a coherent strategic approach that integrates digital innovations with environmental and social governance (ESG) priorities. Global literature also underscores the need for robust governance structures, climate-aligned lending, and transparent sustainability reporting for banks to achieve meaningful ESG outcomes (Orian Peer, 2025; Thompson, 2025; Ozbek et al., 2025). Gaba and Sharma (2025), through a bibliometric analysis, revealed that although ESG-related disclosures are rising globally, banks in emerging markets like Nigeria struggle to balance digital innovation with sustainability mandates due to cybersecurity risks, low stakeholder engagement, and policy fragmentation. Additional evidence suggests that weak IT governance, poor ethical standards in technology use, and insufficient strategic planning have further impeded digital–sustainability alignment in Nigeria (Shittu et al., 2024; Oyewole et al., 2024). Furthermore, research has shown that banks that successfully integrate digital transformation with sustainability are better positioned to reduce green credit risks, support renewable financing, and contribute to rural economic development (Zhang et al., 2025; Zhou et al., 2025). This empirical gap underscores the need for a deeper understanding of how Nigerian banks can strategically align digital transformation with sustainability goals to achieve long-term competitive advantage and societal impact.

Theoretical Framework

This study is grounded in the Strategic Alignment Theory and the Resource-Based View (RBV) of the firm. Strategic Alignment Theory posits that an organization's performance is optimized when its internal processes, capabilities, and strategies are aligned with external market demands and technological opportunities (Ghonim et al., 2022). Within the context of banking, this theory helps to explain how aligning digital transformation initiatives such as mobile banking, cloud infrastructure, and data analytics with broader sustainability goals can improve strategic coherence and operational effectiveness. The theory emphasizes that misalignment between technology implementation and environmental or social objectives can lead to inefficiencies, strategic fragmentation, and reputational risk. As such, banks must intentionally integrate sustainability considerations into their digital agendas to ensure consistent and long-term value delivery.

Complementing this, the Resource-Based View (RBV) provides insight into how Nigerian banks can leverage internal capabilities such as digital infrastructure, data assets, and human capital to gain a sustainable competitive advantage. According to RBV, firms that possess valuable, rare, inimitable,

and non-substitutable (VRIN) resources are better positioned to adapt and succeed in dynamic environments. Recent studies reinforce this view by demonstrating that digital competencies such as big data analytics capability, IT governance maturity, and strategic agility serve as critical VRIN resources that improve innovation outcomes and organizational responsiveness (Sarwar et al., 2025; Apriadi & Muhammad, 2025). In this study, digital competencies and sustainability frameworks are conceptualized as strategic resources that, when effectively combined, enhance organizational performance and market positioning. This perspective aligns with global evidence showing that digital transformation strengthens banks' climate-aligned decision processes, risk management functions, and environmental accountability (Orian Peer, 2025; Zhang et al., 2025).

The RBV lens is particularly relevant in the Nigerian context, where banks operate under increasing regulatory pressure, rapid fintech disruption, and growing societal expectations for green and inclusive finance. Studies suggest that banks that invest in strong digital infrastructures and sustainability-oriented capabilities are better equipped to navigate regulatory uncertainty, cybersecurity vulnerabilities, and governance challenges (Oyewole et al., 2024; Shittu et al., 2024; Ozbek et al., 2025). Additionally, strategic planning and environmental scanning have been identified as key internal capabilities that enhance sustainability integration and institutional resilience (Best & Hamra, 2025; Ojong et al., 2014). Together, Strategic Alignment Theory and RBV form a robust foundation for exploring how banks integrate digital innovation with sustainable banking practices to drive long-term resilience and impact. This combined theoretical approach is consistent with contemporary scholarship advocating for the fusion of digital transformation, sustainability orientation, and strategic governance mechanisms in modern financial institutions (Thompson, 2025; Soetan & Mogaji, 2024).

Methodology

This study adopts a qualitative research design to examine how Nigerian banks strategically align digital transformation initiatives with sustainable banking practices. A qualitative approach is most appropriate because it enables an in-depth exploration of organizational perspectives, decision-making processes, and contextual challenges that cannot be fully captured through quantitative techniques. The study involved five leading commercial banks and two regulatory-affiliated financial institutions operating in Nigeria, from which a total of twelve participants were selected through a combination of purposive and expert sampling techniques. The selection process began by identifying banks that were

actively implementing digital transformation initiatives alongside sustainability or ESG programs. Within these institutions, individuals occupying strategic roles in digital banking, IT governance, sustainability management, regulatory compliance, and product innovation were targeted because they possess firsthand experience in aligning technology with sustainability objectives.

To ensure the relevance and expertise of participants, human resource managers or departmental heads were requested to nominate personnel who met the study's inclusion criteria: (1) at least three years of experience in digital transformation or sustainability-related roles, (2) involvement in policy formulation or project implementation, and (3) active participation in cross-functional strategy execution. This rigorous and systematic selection process resulted in a diverse and knowledgeable sample of twelve participants, cutting across multiple hierarchical levels and functional departments, thereby strengthening the credibility and depth of the qualitative insights obtained.

Interview data (see Appendix for sample interview questions) were analyzed using thematic analysis, following Braun and Clarke's (2006) six-step framework of familiarization, coding, theme development, review, definition, and reporting. NVivo software supported data management and pattern identification throughout the analysis. Themes were developed deductively from the study's research questions and theoretical foundations—namely Strategic Alignment Theory and the Resource-Based View—while also allowing for inductive insights to emerge organically from participants' narratives. To ensure trustworthiness, the study incorporated triangulation of sources, member checking, and peer debriefing. Ethical approval was obtained, and informed consent was secured from all participants before data collection, in accordance with established academic ethical standards.

Result and discussions

The study engaged a total of 12 participants drawn from five leading commercial banks and two regulatory-affiliated financial institutions operating within Nigeria. Participants were purposively selected based on their expertise in areas relevant to the study's focus, including digital strategy, IT infrastructure, sustainability management, and compliance. The group comprised 4 digital transformation managers, 3 sustainability and CSR officers, 2 IT governance executives, 2 regulatory policy advisors, and 1 executive director overseeing innovation and corporate strategy. Their professional experience ranged from 3 to 20 years, with all participants occupying mid- to senior-level positions within their respective organizations. This diverse yet targeted profile ensured rich, context-

specific insights into how digital initiatives and sustainability goals are being aligned within the Nigerian banking sector.

Table 1

Profile of Interview Participants

Participant Roles	**Number of Participants**
Digital Transformation Managers	4
Sustainability/CSR Officers	3
IT Governance Executives	2
Regulatory Policy Advisors	2
Executive Director (Strategy)	1

Note. This table summarizes the distribution of interview participants across five professional roles.

Thematic Analysis

Table 2: Thematic Analysis

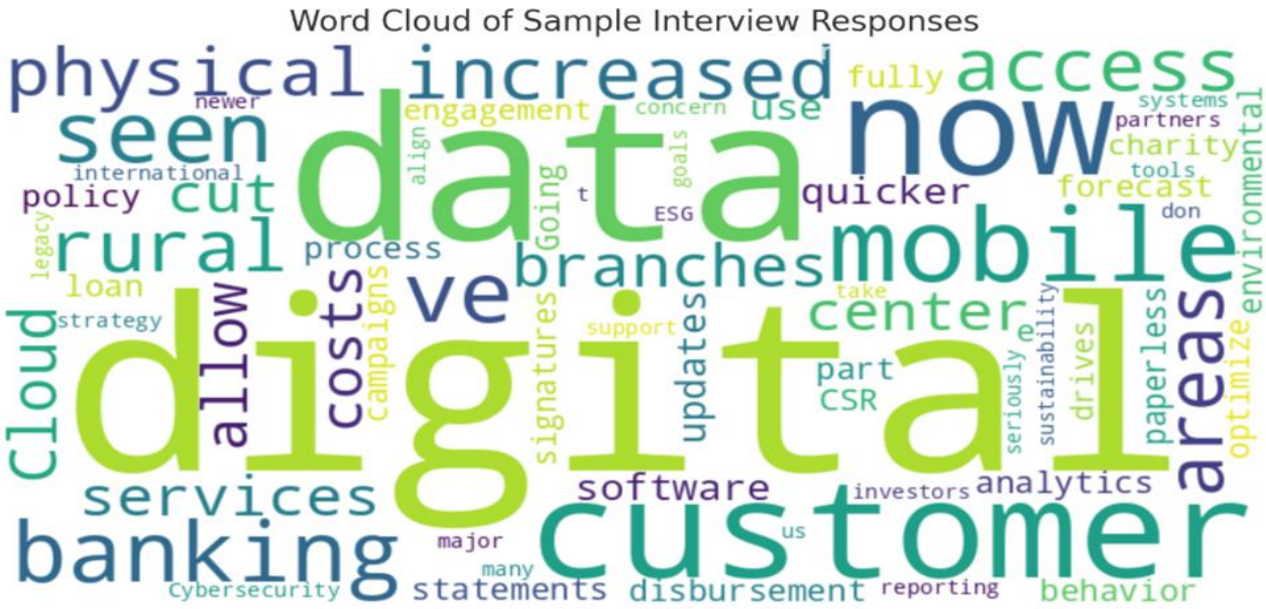
Theme	Sub-theme	Description	Interview Answer
Theme 1: Strategic Digital Transformation Initiatives	Sub-theme 1.1: Mobile Banking & Financial Inclusion	Use of mobile banking to promote financial inclusion for underserved populations.	"With mobile banking, there seems to be increased access in rural areas where we had no physical branches"
Theme 1: Strategic Digital Transformation Initiatives	Sub-theme 1.2: Cloud Computing & Operational Efficiency	Cloud computing adoption to increase efficiency, reduce costs, and enhance sustainability.	"Cloud services have cut our data center costs and allow for quicker software updates"

Theme 1: Strategic Digital Transformation Initiatives	Sub-theme 1.3: Big Data Analytics & Cost Management	Application of big data for optimizing resource use and profitability.	We use data analytics to forecast customer behavior and optimize our loan disbursement process."
Theme 2: Integrating Sustainability into Digital Strategies	Sub-theme 2.1: Environmental Sustainability via Digital Tools	Implementation of green digital tools to reduce paper use and energy consumption.	"Going paperless with e-statements and digital signatures is part of our environmental policy now"
Theme 2: Integrating Sustainability into Digital Strategies	Sub-theme 2.2: Social Responsibility in Digital Banking	Digital strategies supporting CSR, customer engagement, and inclusion.	"Our CSR campaigns are now fully digital, from customer engagement to charity drives"
Theme 3: Challenges and Opportunities in Strategic Alignment	Sub-theme 3.1: Barriers to Digital Transformation & Sustainability	Challenges such as regulation, cybersecurity, and digital readiness limiting alignment.	"Cybersecurity is a major concern" many legacy systems do not support newer sustainability reporting tools"
Theme 3: Challenges and Opportunities in Strategic Alignment	Sub-theme 3.2: Opportunities for Competitive Advantage	Benefits such as competitive edge and market leadership from aligning digital and sustainability strategies.	: When we align our digital strategy with ESG goals, investors and international partners take us more seriously"

The findings from the interviews revealed three overarching themes: strategic digital transformation initiatives, integration of sustainability into digital strategies, and challenges and opportunities in strategic alignment. Under Theme 1, participants consistently highlighted that mobile banking has played a transformative role in expanding financial inclusion across urban and semi-urban regions.

Participants noted that mobile platforms have enabled banks to reach previously unbanked populations, aligning closely with social sustainability goals. Additionally, the adoption of cloud computing was widely cited for its contribution to operational efficiency, reducing infrastructure costs and enabling flexible, scalable services. Respondents emphasized that cloud-based systems have also minimized environmental impacts by reducing physical infrastructure and energy consumption, thereby contributing indirectly to green banking efforts. Big data analytics was another recurring sub-theme, as banks use data-driven tools to forecast demand, reduce fraud, and manage resources more effectively indicating a gradual shift toward data-informed sustainability and profitability strategies.

Theme 2 revealed how some Nigerian banks are beginning to integrate sustainability directly into their digital transformation agendas. Several participants mentioned digital dashboards and e-statements as efforts to reduce paper use and enhance environmental consciousness. Likewise, CSR initiatives have become more digitally enabled, with banks using mobile apps and social media to engage customers and promote financial literacy, especially among women and youth. However, under Theme 3, participants identified key barriers to alignment, including regulatory inconsistency, cybersecurity concerns, limited ESG expertise, and resistance to change among senior management. Despite these barriers, respondents also highlighted strategic opportunities, such as enhanced brand equity, improved stakeholder trust, and access to international green finance instruments when digital efforts are properly aligned with sustainability frameworks. These findings support the theoretical proposition that strategic alignment when achieved can serve as a source of competitive advantage (Audretsch & Belitski, 2022; Ghonim et al., 2022), and affirm the RBV perspective that digital and sustainability competencies are valuable organizational resources in Nigeria's evolving financial landscape.



The analysis from the participants' responses reveals key concepts such as "digital," "cloud," "banking," "CSR," "access," "sustainability," and "data," indicating recurring themes across interview narratives. These terms highlight how Nigerian banks are actively leveraging digital tools such as cloud services, mobile banking, and big data analytics to enhance financial inclusion, optimize operations, and align with sustainability goals. This pattern is consistent with global findings showing that digital transformation improves operational efficiency, enhances lending quality, and reduces green credit risks when strategically deployed (Chen, et al., 2025; Zhang et al., 2025). The prominence of "CSR" and "access" reflects a growing emphasis on social responsibility and equitable service delivery, supporting earlier findings by Azad and Devi (2024) on the behavioral dimensions of sustainable banking and aligning with broader ESG expectations highlighted in climate-aligned banking research (Orian Peer, 2025; Thompson, 2025).

Similarly, Alam, et al., (2025) underscore how cloud computing and mobile platforms are central to modern banking efficiency and outreach, especially in emerging markets like Nigeria. This is further reinforced by studies emphasizing that strategic IT governance and digital capability maturity are essential for effective digital transformation and service delivery (Apriadi & Muhammad, 2025; Sarwar et al., 2025). Furthermore, the frequent mention of "sustainability" aligns with the principles outlined in the Nigerian Sustainable Banking Principles (NSBP) and affirms the sector's slow but growing commitment to environmentally conscious practices (Olowofela, et al., 2025). This trend also

mirrors global movements advocating stronger governance indicators and sustainability integration within banking operations (Ozbek et al., 2025; Taneja et al., 2025).

Thus, the word cloud not only reinforces the core themes of the study but also validates the strategic relevance of integrating digital transformation with sustainability agendas in the banking sector. The convergence of terms related to digitalization, CSR, and sustainability affirms the need for banks to adopt a holistic alignment approach one that merges digital innovation with environmental, social, and governance imperatives to achieve long-term resilience and societal impact (Best & Hamra, 2025; Ojong et al., 2014).

Conclusion

This study explored how Nigerian banks strategically align digital transformation initiatives with sustainable banking practices. The findings revealed that while digital technologies such as mobile banking, cloud computing, and big data analytics are increasingly adopted to enhance operational efficiency and financial inclusion, their integration with sustainability goals remains inconsistent and often ad hoc. Although some banks have implemented environmentally friendly practices and digital CSR initiatives, challenges such as regulatory uncertainty, limited ESG expertise, cybersecurity threats, and resistance to change continue to hinder full alignment. Nevertheless, strategic alignment offers significant potential for competitive advantage, improved stakeholder trust, and enhanced contribution to national development goals. Thus, aligning digital transformation with sustainability is not only desirable but necessary for Nigerian banks seeking long-term viability and societal relevance in an increasingly digital and environmentally conscious world.

Recommendations

1. Nigerian banks should formulate comprehensive strategies that align digital initiatives with environmental and social sustainability goals. This includes setting clear ESG targets that are embedded into digital product design, service delivery, and internal operations.
2. The Central Bank of Nigeria (CBN) and related regulatory bodies should provide clearer, harmonized frameworks that guide banks on digital sustainability integration. This may involve updated NSBP guidelines to reflect new digital realities and incentives for ESG-compliant innovation.

3. Banks must prioritize continuous training for staff at all levels on sustainability, data governance, and digital ethics. Cross-functional teams comprising IT, sustainability, compliance, and strategy units should be created to foster alignment.

4. Strategic partnerships with FinTech companies, tech incubators, and environmental organizations can help banks co-develop inclusive and eco-friendly digital solutions, especially in underserved communities.

5. Banks should leverage AI and big data analytics to track, report, and communicate their sustainability performance. Digital dashboards and open data platforms can help enhance transparency and build investor and public trust.

6. Leadership must actively manage resistance to change by involving stakeholders early in transformation processes and communicating the long-term benefits of digital-sustainability alignment.

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