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Professor A. Mukoro PhD

Editor-in-Chief

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Second Page: The page should repeat the title of the articles but should not in any way disclose the names and addresses of the author. It should include the abstract which should not exceed two hundred and fifty words (typed single –spacing in 12 Times New Roman font) and a list of not more than five keywords. The 12 point font size requirement applies to all the headings, subheadings and all other contents.

Main Body: Articles are normally not expected to exceed 20 pages of A4 paper, typewritten in double – line spacing. Sub-headings sections should not be numbered. However, tables, figures, maps and other illustrations should each be numbered and given a title which must be centred. All sub-headings should be justified.

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Association Between Development Banking And Technical Innovation In Nigeria: An Empirical Analysis

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Abstract

Innovations do not occur with spontaneity but involves activities that have cost implications and hence the need for proper funding. The relationship between development banking and innovations, particularly, technical innovations, is still an empirical question. This study empirically explored the relationship between development banking and innovation in Nigeria during the period, 1996-2023. Pearson correlation and covariance tests were applied to the annual time series data obtained from World Development Indicators. In this study, technical innovation is proxy with scientific and technical journal articles, while number of development banks is the proxy for development banking. Empirically, the study found the existence of a strong, positive, and significant relationship between development banking and technical innovation in Nigeria. This implies that, a higher number of development banks is associated with higher volume of technical innovation in Nigeria. It can therefore be concluded that development banking and innovation have are directly related in Nigeria. The study recommends that government should look in the direction of development banks, in order to promote technical innovations in Nigeria and also development banks should also embrace the positive role of technical innovations in their operations.

Keywords: *Correlation, Covariance, Development Banking, Innovation, Finance, Scientific, Technical.*

Introduction

In the contemporary economic landscape, technical innovation has emerged as a pivotal driver of national competitiveness, productivity growth, and sustainable development. Particularly in developing economies, fostering innovation is essential for addressing structural imbalances, enhancing industrial capacity, and achieving inclusive economic transformation (World Bank, 2020). Nigeria, as Africa's largest economy, has recognized the strategic imperative of building a knowledge-based and innovation-driven economy, as reflected in policy frameworks such as the National Digital Economy Policy and Strategy (NDEPS) 2020–2030 (Federal Ministry of Communications and Digital Economy [FMCDE], 2020). Despite these policy initiatives, the country continues to grapple with weak innovation infrastructure, limited research and development (R&D) funding, and low levels of technology adoption across sectors (Oyebanji, et al., 2022).

In recent years, Nigeria has witnessed a surge in technological transformation, particularly in the digital financial services space. Financial technology (fintech) firms and digital platforms are disrupting traditional business models, improving service delivery, and expanding access to financial services (Otonne et al., 2023). However, despite this progress, there remains a significant gap in innovation financing, particularly for early-stage technologies and small and medium-sized enterprises (SMEs). Development banks, by offering concessional loans and risk-tolerant capital, can potentially bridge this gap and stimulate innovation at scale. While studies have explored innovation and access to finance independently (Salihu, 2020; Osisanwo, 2022), few have empirically examined the linkage between development banking and technical innovation in Nigeria. Understanding this relationship is crucial in aligning development financing strategies

with the country's innovation and industrialization goals.

Development banking institutions are considered critical vehicles for financing long-term investments that market-oriented financial institutions often neglect due to risk aversion and short-termism. Globally, development banks have played instrumental roles in supporting industrialization, technological advancement, and entrepreneurial ecosystems by providing patient capital and facilitating strategic investments in research, innovation, and infrastructure (Mazzucato & Penna, 2016; Griffith-Jones & Ocampo, 2018). In the Nigerian context, institutions such as the Bank of Industry (BOI) and the Nigerian Export-Import Bank (NEXIM) have been established to bridge financing gaps in key sectors, including technology-driven enterprises and manufacturing. However, the extent to which these banks have effectively catalyzed technical innovation remains a subject of empirical inquiry.

Development banking has emerged as a cornerstone of long-term economic development strategies in emerging economies, particularly in Nigeria, where financial markets remain underdeveloped and private investment in innovation is relatively low. Development banks such as the Bank of Industry (BOI) and the Nigerian Export-Import Bank (NEXIM) provide tailored financial support to sectors that are often neglected by commercial banks, including agriculture, infrastructure, and manufacturing (Adegbite & Machethe, 2020). These sectors are critical for promoting technical innovation, which is essential for enhancing productivity, competitiveness, and inclusive growth.

The relationship between development banking and innovation in Nigeria is complex and underexplored. While some scholars suggest that development finance institutions (DFIs) have the potential to incentivize innovation through targeted funding and

technical support (Adeniran & Ajakaiye, 2021), others argue that bureaucratic inefficiencies, political interference, and limited institutional capacity undermine the innovation impact of DFIs (Ibrahim & Alabi, 2019). Furthermore, Nigeria's innovation ecosystem is characterized by fragmented coordination among stakeholders, regulatory bottlenecks, and inadequate intellectual property protections (Adeleye & Esan, 2023), all of which may hinder the transmission mechanisms through which development banking influences innovation outcomes. Theoretically, Schumpeterian and endogenous growth models underscore the role of finance in enabling innovation by reducing constraints to investment in human capital and technological capabilities (Aghion et al., 2015).

Despite policy initiatives and substantial public investments in development banking, Nigeria continues to lag behind in innovation outputs, as reflected in its low ranking on the Global Innovation Index (WIPO, 2023). There is insufficient empirical evidence on the extent to which development banking contributes to the generation, adoption, and diffusion of technical innovations in Nigeria's economic landscape. Moreover, challenges such as poor infrastructure, bureaucratic lending processes, limited technical support, and low absorptive capacity among firms hinder the effective utilization of development bank funding for innovative projects (Adeyemo & Obafemi, 2024). The lack of coherent data and systematic evaluation also restricts stakeholders from understanding how effectively development banks support innovation-driven enterprises.

Empirical analyses of the development finance innovation nexus are particularly pertinent in light of Nigeria's quest to diversify its economy away from oil dependence and accelerate industrial development (Osarosee and Laoye, 2025; Famakin et al., 2024; Nwodo et al., 2024;

Ogunkoya et al., 2024; Ndaghu et al., 2023; Obayi et al., 2023; Oyedele, 2022; Okpalaoka et al., 2022; Nwosu et al., 2022; Ejemeyovwi et al., 2021). Within this framework, development banks are positioned as agents of structural change, capable of altering innovation trajectories in sectors deemed strategically important for national development. This study therefore seeks to empirically examine the association between development banking and technical innovation in Nigeria, contributing to the literature by offering evidence-based insights into the role of DFIs in fostering an innovation-led development agenda.

Literature Review

Conceptual Review

Development Banking

Development banks are specialized financial institutions established to provide long-term capital and financial services in sectors that are underfunded by commercial banking systems. Their mandate often extends beyond profit maximization to include social and developmental goals such as industrialization, technological upgrading, infrastructure development, and inclusive economic growth (Griffith-Jones & Ocampo, 2018). As state-owned or publicly-backed institutions, development banks serve as counter-cyclical tools in economic policy, especially during financial downturns, when risk-averse private investors retreat from lending (Crespi et al., 2021). The conceptual foundation of development banking is rooted in structuralist and Schumpeterian economics, which posit that financial markets are inherently imperfect, particularly in developing economies where institutional voids and capital shortages are prevalent (Mazzucato & Penna, 2016). Development banks are thus positioned to correct market failures by offering concessional loans, guarantees, and equity participation in ventures that are essential for national development but unattractive to

private financiers due to perceived risks or long gestation periods (Luna-Martínez & Vicente, 2015).

A key conceptual attribute of development banks is their ability to play both financial and strategic roles. Financially, they provide long-term financing for projects in agriculture, industry, infrastructure, and technology, often with interest rates and repayment terms that are more favorable than those of commercial banks. Strategically, development banks are policy instruments for the state, used to direct capital flows toward sectors identified as priorities for structural transformation and economic diversification (De Luna-Martínez et al., 2023). Development banks are also differentiated by their developmental mandate, which includes goals that go beyond financial returns. These include employment creation, technological spillovers, and capacity building for small and medium enterprises (SMEs). For example, the Bank of Industry (BOI) in Nigeria has adopted various intervention programs targeting the digital economy, creative industries, and green energy technologies, aimed at stimulating innovation and entrepreneurship (BOI, 2022). However, conceptual critiques of development banks often focus on issues of governance, political interference, and inefficiency. Poorly governed development banks may succumb to clientelism, favoring politically connected borrowers and accumulating non-performing loans that undermine their sustainability (Ibrahim & Alabi, 2019). Moreover, without clear performance metrics and strong oversight, development banks risk becoming passive institutions that neither catalyze innovation nor deliver on their developmental mandates (Chandrasekhar, 2020). In recent years, there has been a resurgence of interest in development banking, especially in the context of financing sustainable development goals (SDGs) and post-COVID-19 economic recovery. The global reappraisal of state-led

financing mechanisms highlights the relevance of development banks as facilitators of structural transformation, particularly in low- and middle-income countries where access to affordable finance remains limited (UNCTAD, 2021).

In Nigeria, the conceptual significance of development banks lies in their potential to fill financing gaps in strategic sectors such as manufacturing, agro-processing, and technology-based enterprises. Despite the establishment of various DFIs, including the Development Bank of Nigeria (DBN) and the Nigerian Export-Import Bank (NEXIM), questions persist regarding their effectiveness in driving innovation and industrial competitiveness (Adeleye & Esan, 2023). Hence, a thorough understanding of the conceptual framework surrounding development banks is essential for assessing their developmental impact and for designing reforms that enhance their operational efficiency and developmental outcomes.

Technical Innovation

Technical innovation is broadly defined as the application of new or significantly improved technologies, products, or processes to enhance productivity, competitiveness, and socio-economic outcomes (OECD, 2018). It encompasses both tangible advancements such as machinery, digital tools, and software and intangible elements, including new knowledge, processes, and organizational practices (Archibugi & Filippetti, 2018). In the context of developing economies like Nigeria, technical innovation is critical not only for driving industrial development but also for addressing persistent development challenges such as unemployment, low productivity, and import dependency (Adeleye & Esan, 2023). The conceptualization of technical innovation is rooted in Schumpeterian theory, which emphasizes innovation as a fundamental engine of economic change and growth.

Contemporary frameworks often distinguish between incremental and radical innovations. Incremental innovations involve gradual improvements to existing technologies, while radical innovations introduce entirely new paradigms that transform production and consumption patterns (Dosi & Nelson, 2016). In Nigeria, the bulk of innovation tends to be incremental, driven by necessity entrepreneurship and informal sector adaptations rather than structured R&D (Egbetokun et al., 2017). This reflects broader systemic weaknesses, including underinvestment in R&D, weak linkages between research institutions and industry, and an underdeveloped intellectual property rights (IPR) regime (Oyebanji et al., 2022). Technical innovation is also influenced by the broader national innovation system (NIS) a conceptual framework that captures the institutional and policy environment within which innovation occurs. Effective NIS includes universities, research centers, government agencies, financial institutions, and private firms, all interacting to produce, diffuse, and apply new knowledge (Lundvall, 2016). In Nigeria, however, the innovation ecosystem is fragmented, with weak coordination among actors and limited state capacity to incentivize and regulate innovation activity (Adegbite & Akinwale, 2020). Digital technologies have further expanded the conceptual boundaries of technical innovation. Innovations in information and communication technologies (ICTs), artificial intelligence (AI), and renewable energy systems are increasingly central to economic transformation. The digital economy presents significant opportunities for Nigeria to leapfrog traditional development trajectories, provided that foundational constraints such as broadband access, digital literacy, and regulatory frameworks are effectively addressed (World Bank, 2021).

Importantly, technical innovation is not solely a function of technological input, but also of institutional support and financing mechanisms, such as development banks and public R&D investments. Empirical studies have shown that innovation thrives where financial constraints are minimized and where firms have access to long-term, risk-tolerant capital (Crespi & Zuniga, 2016; Lee, 2020). This highlights the interdependence between innovation and development financing, particularly in contexts where market-based finance is limited or inefficient. In sum, technical innovation is a multidimensional and dynamic concept that intersects with economic policy, institutional development, and financial systems. For Nigeria, the imperative is to strengthen its innovation systems, improve policy coherence, and leverage both public and private financing mechanisms to translate innovation potential into tangible economic outcomes.

Theoretical Review

Schumpeterian Innovation Theory

The theoretical foundation of this study is anchored in Schumpeterian Innovation Theory, originally advanced by Joseph Schumpeter in 1911, in his seminal work *Capitalism, Socialism and Democracy* (1942). Schumpeter conceptualized innovation as the central engine of economic development and postulated that economic progress is driven not by the mere accumulation of capital, but through the “creative destruction” that innovation engenders. In his view, entrepreneurs are the agents of innovation, introducing new combinations of resources such as new products, production methods, markets, or organizational forms that disrupt the equilibrium and generate dynamic economic transformation. The major assumption of Schumpeterian theory is that innovation is both an endogenous and discontinuous process, inherently linked to entrepreneurial activity and institutional

support. It emphasizes that access to finance is a necessary though not sufficient condition for innovation to occur (Schumpeter, 1942). The theory also assumes that innovation emerges in a systemic manner, shaped by structural conditions such as access to capital, institutional frameworks, and policy environments (Aghion et al., 2015). This theoretical position has evolved into a broader Schumpeterian framework that highlights the importance of national innovation systems, public financing mechanisms, and knowledge spillovers in stimulating technical change (Mazzucato & Penna, 2016).

The relevance of Schumpeterian theory to this study is multidimensional. First, it offers a conceptual lens through which the relationship between development banking and technical innovation can be understood. In developing countries like Nigeria, the private sector is often constrained by limited access to affordable long-term capital, inadequate infrastructure, and high innovation risks. These constraints create a financing gap that development banks are institutionally designed to bridge. From a Schumpeterian perspective, development banks can serve as innovation enablers, particularly by financing projects that involve high uncertainty and long gestation periods but hold transformative economic potential (Crespi et al., 2021). Second, Schumpeterian theory highlights the role of state-led financing in correcting market failures associated with innovation, such as underinvestment in R&D, information asymmetry, and externalities. This theoretical orientation aligns with recent empirical research emphasizing the catalytic role of development finance institutions (DFIs) in fostering innovation ecosystems, especially in emerging economies (Luna-Martínez et al., 2023; Griffith-Jones & Ocampo, 2018). Development banks, by offering concessional financing, technical assistance, and risk mitigation instruments, effectively reduce innovation barriers and enhance the

absorptive capacity of firms to adopt and generate new technologies.

Furthermore, the theory underlines the interdependence between financial structures and innovation outcomes, suggesting that the structure of financial institutions and their strategic orientation can significantly influence the innovation trajectory of a country (Lee, 2020). In the Nigerian context, where innovation is often necessity-driven and informally organized, the presence of well-functioning development banks such as the Bank of Industry (BOI) or the Development Bank of Nigeria (DBN) can enhance innovation capabilities by channeling resources to underfunded but high-potential sectors such as manufacturing, ICT, and green energy. In essence, Schumpeterian theory provides a robust explanatory framework for analyzing how institutionalized financial mechanisms, particularly development banking, interact with structural innovation constraints in developing economies. It also supports the core hypothesis of this study: that development banking is positively associated with the advancement of technical innovation in Nigeria, particularly when it is targeted, strategic, and aligned with national innovation objectives.

Financial Intermediation Theory

The Financial Intermediation Theory was initially formalized by Gurley and Shaw (1960) and later expanded by Diamond and Dybvig (1983). It posits that financial institutions act as intermediaries that facilitate the flow of funds from surplus units (savers) to deficit units (borrowers), thereby stimulating investment and economic activity. The theory assumes that intermediaries reduce transaction costs and information asymmetries, thereby increasing the efficiency of resource allocation in the economy. By pooling resources and managing risk, financial intermediaries (e.g., development banks) promote productive investments, particularly

in high-risk but high-return sectors like technology and innovation (Diamond & Dybvig, 1983).

The relevance of this theory to your study lies in the role that development banks play as specialized financial intermediaries. In Nigeria, development banks are expected to bridge financing gaps for sectors that commercial banks might consider too risky particularly technological innovation and startup ventures. Thus, the theory helps explain how effective intermediation by development banks can promote innovation and support national development goals. Recent literature supports this application. For instance, Eze and Uchenna (2023) showed that efficient financial intermediation by development finance institutions led to increased funding of tech-focused SMEs in Nigeria. Likewise, Ibrahim and Lawal (2021) found that development banking significantly contributed to R&D funding in sectors like agriculture and ICT, areas often underserved by private capital.

In conclusion, both Schumpeter's Theory of Innovation and the Financial Intermediation Theory offer rich explanatory frameworks for analyzing the relationship between development banking and technical innovation in Nigeria. While Schumpeter's theory highlights the centrality of innovation in economic development, the intermediation theory underscores how development banks act as catalysts by providing access to capital, thereby enabling innovation to thrive. Integrating these theories provides a holistic lens through which the mechanisms and effectiveness of innovation financing can be empirically examined.

Empirical Review

Osarosee and Laoye (2025) investigated how technopreneurship influences FinTech start-up growth in Nigeria. Using surveys and inferential statistics, it was found that technical innovation and entrepreneurial

acumen significantly enhanced market reach. The study concluded that technopreneurship drives financial inclusion and economic growth. However, the study failed to assess how development banks could finance FinTech innovations.

Famakin et al. (2024) investigated the effect of innovation on the growth of quantity surveying firms in Nigeria. Using a correlational research design, data were collected from 180 firms and analyzed with regression models. Results showed that innovative practices improved productivity and client satisfaction. The conclusion emphasized the strategic value of innovation. However, no analysis of how development banks could support innovation adoption in professional services.

Nwodo et al. (2024) studied the effect of technological capability on the competitive advantage of industrial firms in South-East Nigeria. Surveying 385 staff and using linear regression, they found a strong link between R&D investment and market dominance. It was concluded that innovation capability is key to industrial growth. However, they ignored the enabling role of development banks can fund R&D for competitive advantage.

Ogunkoya et al. (2024) aimed to evaluate how technological innovation affects firm performance in Nigeria Consolidated Breweries. A purposive sampling of 102 respondents was used with descriptive statistical tools. The study reported that technological learning significantly improved operational efficiency. They concluded that innovation enhances organizational competitiveness. However, the research did not analysis on how development banking fosters innovation in the manufacturing sector. Ndaghu et al. (2023) examined the role of technological innovation in boosting agricultural productivity during Nigeria's transition from oil dependency. Using ARDL models, the study revealed that innovation

had a long-run positive impact on agricultural output. The study concluded that innovation is crucial for rural development. However, they omitted how development banks in agriculture-related innovation.

Obayi et al. (2023) assessed how innovations in technology affect vocational and technical education in Nigeria. Using qualitative content analysis, they discovered that digital integration improved student employability and skill development. The authors concluded that innovation reforms are essential for a future-ready workforce. However, the study ignored how development banks could support educational innovation initiatives.

Oyedele (2022) studied the impact of financial innovation on insurance company performance in Nigeria. A sample of 150 senior executives was surveyed, and data were analyzed using structural equation modeling. The findings showed that innovation improved service delivery and customer satisfaction. It concluded that innovation drives performance in the financial sector. The role of development banks in supporting financial innovations in insurance was not discussed.

Okpalaoka et al. (2022) examined the impact of technological innovation capabilities on the performance of manufacturing SMEs in Lagos State. Using a survey research method, data were analyzed through regression analysis. They found that research and development (R&D) capabilities had a significant effect on profitability and market expansion. The study concluded that innovation capabilities are crucial for SME sustainability. However, no link was established between development banking and the provision of innovation resources.

Nwosu et al. (2022) explored the relationship between banking innovation and sustainable development in Nigeria across the pre- and post-COVID periods. Using econometric analysis on CBN data, the study found that mobile and digital banking had a positive

influence on human development indices. The conclusion emphasized that banking innovation is a vital tool for inclusive development. Yet, the study overlooked development banking despite their critical role in innovation funding.

Ejemeyovwi et al. (2021) explored how ICT adoption and innovation influence financial development across Sub-Saharan Africa, including Nigeria. Using panel data econometrics, they observed that innovation had a significant positive effect on financial system growth. The study concluded that innovation policies are essential for digital transformation. However, the study was not specific to Nigeria and omitted the development banking context.

Methodology

The study of the association between development banking and innovation was carried based on ex-post facto research design, hence the use of secondary data in the analysis. The covariance analysis approach was employed in the study with specific techniques of Pearson correlation and covariance. The study, because of the normality of the variables of the study employed two normality-compliant methods of ordinary and ordinary uncentered Pearson correlation and covariance.

The data used are quantitative in nature and annual infrequency and are obtained from the World Bank's World Development Indicators. Innovation was proxied with the Number of scientific and technical journal articles while development banking was measured as the Number of development banks. Data on innovation were obtained from World Development Indicators while Central Bank of Nigeria's Statistical Bulletin was the source of data on development banking.

The covariance analysis was used to obtain different measures of association (covariances and correlations) and associated test statistics for the series in a group. The study computed

the measures of association are ordinary Pearson product moment, ordinary uncentered Pearson product moment, ordinary Pearson

co-variance test, and ordinary uncentered Pearson co-variance test.

Results and Discussion

Descriptive Statistics

Summary Statistics

Table 1 presents the descriptive statistics for the study.

Table 1: Descriptive Statistics

	INNO	DEVB
Mean	3045.716	5.142857
Maximum	7899.950	6.000000
Minimum	884.8300	4.000000
Std. Dev.	2052.578	0.803432
Skewness	0.941242	-0.258250
Kurtosis	2.921451	1.648482
Jarque-Bera	4.141570	2.442269
Probability	0.126087	0.294895
Observations	28	28

Source: Authors' computation using Eviews 10

Common sample descriptive statistics was computed using observations for which there are no missing values in any of the series in the group and the summary as presented in Table 1 reveals that the average scientific and technical journal articles and number of development banks in Nigeria was about 3046 and 5 respectively in the study period. The

minimum and maximum scientific and technical journal articles were roughly 885 and 7900 respectively while that of number of development banks were 4 and 6 respectively. Going by the Jarque-Bera statistics, both variables (innovation and development banking) are normally distributed.

Trend Analysis

Figure 1 presents the trend of the variables of the study.

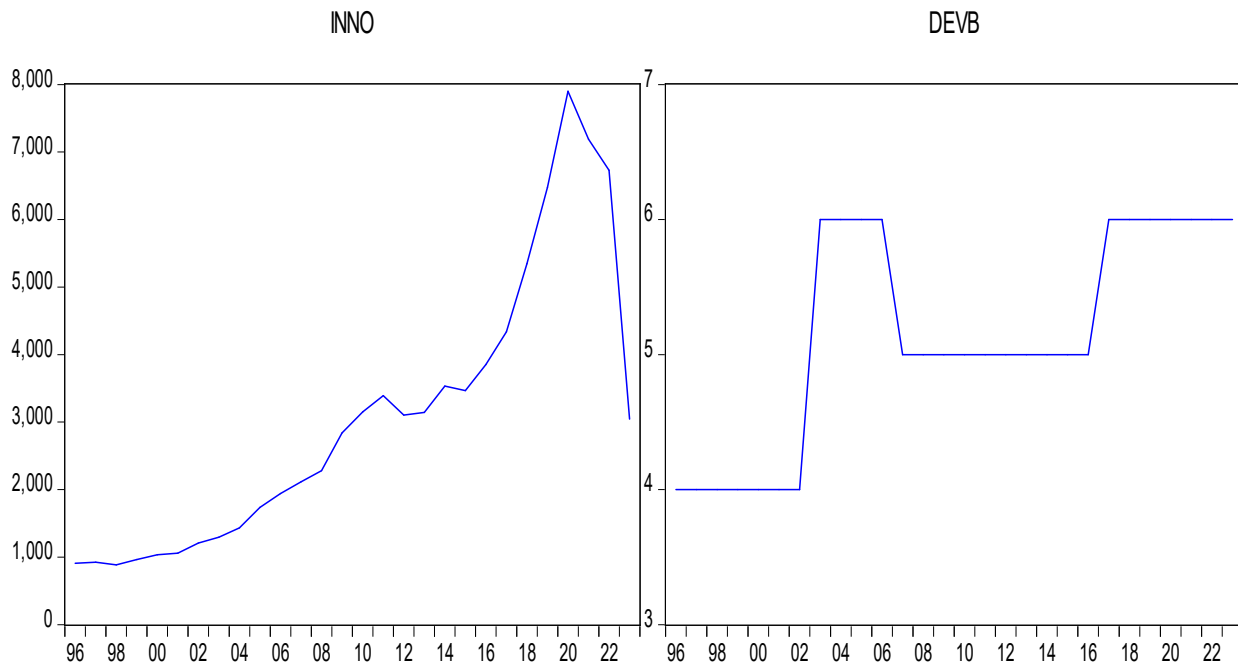


Fig. 1: Trend Analysis of number of scientific and research journals and numbers of development banks in Nigeria from 1996-2023

Source: Authors' design using Eviews 10

The trend analysis of the variables of the study as presented in Figure 1 shows an upward trend in the number of scientific and technical journals in Nigeria from 1996 to

2020 until after it started nose-diving. However, a zig-zag trend was noticed in the number of development banks in Nigeria in the study period.

Empirical Analysis

Correlation Analysis

Table 2 summarizes the Pearson correlation analysis based on the normality methods of

ordinary and ordinary uncentered methods/approaches.

Table 2: Pearson Correlation Analysis of Development Banking and Innovation in Nigeria

[I]. Ordinary Pearson Moment Correlation			[II]. Ordinary Uncentered Pearson Moment Correlation		
Coefficient	INNO	DEVB	Coefficient	INNO	DEVB
INNO	1.000000		INNO	1.000000	
	-----			-----	
DEVB	0.634592*	1.000000	DEVB	0.877388*	1.000000
	[0.0003]	-----		[0.0000]	-----

Note: Values in [] are probabilities; * denotes statistically significant at 1% since p-value is less than 0.01

Source: Authors' computation using Eviews 10

In the ordinary Pearson correlation analysis of development banking and innovation in Nigeria in Table 2(Panel I), it can be seen that the development banking is positively correlated (0.634592) and statistically significant ($p < 0.01$) in its relationship with innovation. Likewise, the ordinary uncentered Pearson ordinary correlation analysis in Table

2 (Panel II), development banking has positive (0.877388) and significant ($p < 0.01$) correlation with innovation in Nigeria.

Covariance Analysis

Table 3 summarizes the Pearson co-variance analysis based on the normality methods of ordinary and ordinary uncentered approaches.

Table 3: Pearson Covariance Analysis of Development Banking and Innovation in Nigeria
Covariance Analysis of development banking and innovation in Nigeria

Pearson Covariance Ordinary			Pearson Covariance Ordinary uncentered		
	INNO	DEVB	Probability	INNO	DEVB
INNO	4062608.		INNO	13338992	
	-----			-----	
DEVB	1009.134	0.622449	DEVB	16672.81	27.07143
	[0.0003]	-----		[0.0000]	-----

Note: Note: Values in [] are probabilities; * denotes statistically significant at 1% since p-value is less than 0.01

Source: Authors' computation using Eviews 10

In the ordinary Pearson co-variance analysis of development banking and innovation in Nigeria as reported in Table 3(Panel I), development banking has a positive co-variance (1009.134) with innovation and is also statistically significant ($P < 0.01$). In the same vein, Pearson ordinary uncentered co-variance analyses in Panel II of Table 3 indicate there is a positive covariance (16672.81) between development banking and innovation and this is statistically significant different from zero at 1% level of significance.

Discussion of Findings

In the study of the association between developmental banking and innovation in Nigeria based on covariance analyses, the study established the existence of a positive relationship between development banking and innovation in Nigeria. Specifically, the Pearson ordinary correlation test reveals a weak ($r < 50\%$) association between development banking and innovation but a very strong correlation between the two was

established in the Pearson ordinary uncentered correlation analysis. Since in both cases, the relationship was found to be statistically significant and positive, then it can be said that there is direct link between development banking and innovation in Nigeria. **By this finding, the null hypothesis of no significant relationship between development banking and innovation in Nigeria, is rejected in this study.** The alternative hypothesis that there is significant relationship between development banking and innovation in Nigeria, is upheld.

Conclusion and Recommendations

This study empirically explored the relationship between development banking and innovation in Nigeria during the period, 1996-2023 using Pearson correlation and covariance tests. The study established the existence of a positive relationship between development banking and innovation in Nigeria. Specifically, the Pearson correlation analysis (ordinary and ordinary uncentered) reveal a strong association between development banking and innovation. Since in

both cases, the relationship was found to be statistically significant and positive, then it can be said that there is positive relationship between development banking and innovation in Nigeria. Thus, to improve, innovation,

particularly as it relates to the publication of scientific research journal articles, development banking is key.

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Cybersecurity and Firm Performance: Bridging the Gap between Protection and Profitability

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Abstract

In an increasingly digital economy, cybersecurity has transitioned from a mere information technology concern to a critical component of organisational strategy. This paper conceptually explores the relationship between cybersecurity practices and firm performance. It argues that robust cybersecurity strategies not only mitigate risks but also contribute positively to business outcomes, enhancing consumer confidence, ensuring operational continuity, and promoting competitive advantage. Key themes discussed include the concept of cybersecurity, Cybersecurity as a driver of strategic advantage, Governance and regulatory impacts, we also consider the various cybersecurity framework and lastly conclusion and recommendations. This paper aims to help practitioners and scholars understand the multifaceted impact of cybersecurity on organisational efficacy.

Keywords: *Cybersecurity, Governance, vulnerabilities, strategic advantage, operational viability.*

Introduction

The digital transformation of businesses has unlocked new opportunities for growth and efficiency, but it has also ushered in a wave of cyber threats that pose significant risks to organisations. High-profile security breaches have demonstrated the vulnerabilities underlying even the most seemingly secure infrastructures, leading to increased scrutiny from stakeholders regarding firms' cybersecurity measures. As organisations grapple with these challenges, the question arises: how does cybersecurity influence firm performance.

In today's hyper-connected world, businesses face unprecedented opportunities and challenges stemming from rapid technological advancements. The proliferation of digital platforms, cloud computing has revolutionized how organisations operate, providing avenues for innovation, efficiency, and customer engagement. However, this digital transformation has also exposed firms to a complex and evolving landscape of cyber threats (Saeed, et al., 2023). High-profile data breaches, ransomware attacks, and other malicious cyber activities have become alarmingly commonplace, with statistics indicating that cybercrime costs the global economy trillions of dollars annually (Gordon, et al., (2018). Against this backdrop, the imperative for effective cybersecurity practices has never been more pressing. Stakeholders, including customers, investors, regulators, and employees, are increasingly aware of the potential repercussions of inadequate cybersecurity measures. Acknowledging this reality, firms must navigate a dual challenge: addressing the barrage of cyber threats while simultaneously leveraging cybersecurity as a strategic asset that can enhance overall performance.

This study posits that cybersecurity is not just a shield against potential threats but also a catalyst for firm performance. By examining the nuanced interplay between cybersecurity

practices and organisational success, we aim to provide a comprehensive framework that elucidates how sound cybersecurity investments can yield significant returns. Evidence suggests that firms prioritizing cybersecurity can foster greater customer trust, ensure uninterrupted service delivery, and differentiate themselves in competitive markets. Moreover, as regulatory scrutiny intensifies, compliance with cybersecurity standards becomes increasingly intertwined with firm reputation and operational viability (Saeed, et al., 2023).

Literature Review

Concept of Cybersecurity in Organisations

The defence of internet-connected devices and services against malevolent attacks by hackers, spammers, and cybercriminals is known as cybersecurity. This approach is used by businesses to guard against identity theft, ransomware attacks, phishing tactics, data breaches, and financial losses. Cybersecurity also refers to any technologies, practices and policies for preventing cyberattacks or mitigating their impact (Lopatova, 2021). The goal of cybersecurity is to defend against ransomware, other malware, phishing scams, data theft, and other cyberthreats by safeguarding computer systems, apps, devices, data, financial assets, and individuals. Cybersecurity is a crucial part of an organization's entire risk management plan at the corporate level. Cybersecurity Ventures predicts that between 2021 and 2025, global spending on cybersecurity goods and services would surpass USD 1.75 trillion. Job growth in cybersecurity is also strong. The US Bureau of Labor Statistics projects that "employment of information security analysts is projected to grow 32% from 2022 to 2032, faster than the average for all occupations (Saeed, et al., 2023). Because cyberattacks and cybercrime have the potential to disrupt, harm, or even destroy communities, businesses, and

individuals, cybersecurity is crucial. Successful cyberattacks lead to identity theft, personal and corporate extortion, loss of sensitive information and business-critical data, temporary business outages, lost business and lost customers and, in some cases, business closures (Berry, et al., 2018). Cyberattacks have an enormous and growing impact on businesses and the economy. By one estimate, cybercrime will cost the world economy USD 10.5 trillion per year by 2025. The cost of cyberattacks continues to rise as cybercriminals become more sophisticated.

Cybersecurity as a Driver of Strategic Advantage

Cyber security is now a key differentiator in a world that is becoming more interconnected; it is no longer merely a question of risk management. To succeed in the market, information security must be utilized as a strategic instrument. The majority of leaders consider cybersecurity to be a means of thwarting threats. But in today's intensely competitive digital economy they should be thinking about cybersecurity as a strategic advantage that not only protects business value, but enables new business value (Castillo, et al., 2018). It is not unexpected that dangers are the main emphasis in order to preserve company value. In today's ever-changing threat landscape, modern digital firms transcend conventional boundaries and give rise to new attack vectors. Companies are dealing with a surge of cybercrime that is getting more sophisticated and intense. According to a recent article in Forbes, "Corporate and home computers have been hit with an average of 4,000 ransomware attacks every day this year, a 300% increase over 2015," citing United States Department of Justice sources (Saeed, et al., 2023). The greatest chance for growth will arise when we make cybersecurity a key element of our digital plans, even while we still need to work hard to safeguard important data and assets.

The fact that cybersecurity flaws stifle innovation is one of its main drawbacks. Indeed, according to a Cisco poll, 71% of participants stated that cybersecurity threats and risks impede organizational innovation. Organisations that have any doubt about their cybersecurity capabilities delay important digital initiatives and risk falling behind competitors (Saeed, et al., 2023).

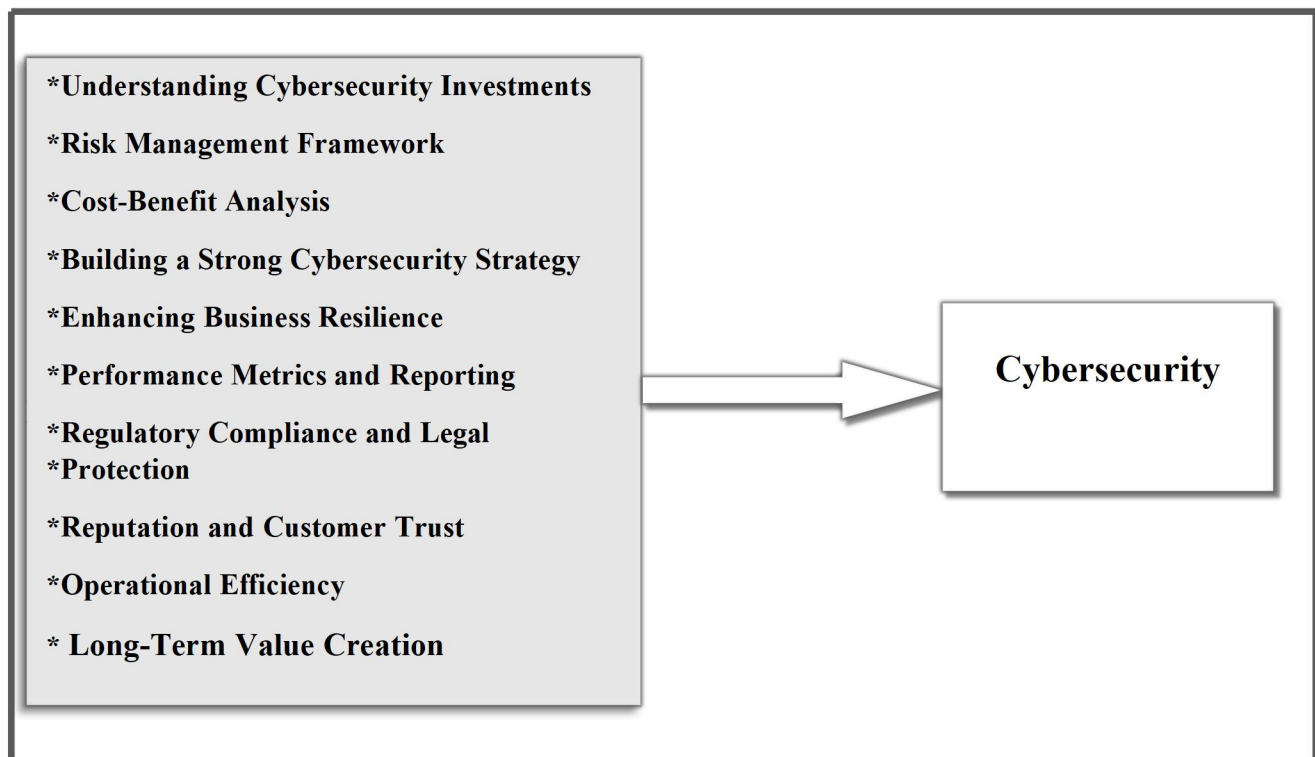
Governance and Regulatory Impacts

Safeguarding sensitive data within your organization and preserving stakeholder trust depend on effective cyber security governance. Legal liabilities, financial losses, and harm to one's reputation can all arise from poor governance. Lebogang, Tabona, and Maupong (2022) evaluated national cybersecurity strategies across Africa, highlighting Nigeria's initiatives as part of a broader continental effort to secure cyberspace. In line with this, Ikuero (2022) detailed the Nigerian government's establishment of a national Computer Emergency Response Team (CERT), Sectoral Computer Security Incident Response Teams (CSIRTs), and the formulation of the National Cybersecurity Policy and Strategy (NCPS) through the Office of the National Security Adviser (ONSA), aiming to enhance cybersecurity coordination within the country. Despite these efforts, Nte, Enoke, and Teru (2022) identified weaknesses in Nigeria's cyber laws and policies, noting the national documents, while comprehensive in some areas, failed to address all aspects of cyber security concerns. The banking sector, as a critical component of Nigeria's economy, has adopted key strategies to bolster cybersecurity defences against escalating cyber threats. According to Reis, Oliha, Osasona, and Obi (2024), Nigerian banks are battling threats like ransomware, phishing, and insider assaults by using advanced security technologies, training their employees, and working with international cybersecurity

organizations and the government. Additionally, the digital economy's growth in Nigeria necessitates robust cybersecurity measures due to increased cyber-attack risks (Ukwuoma, Williams, & Choji, 2022). The rise of cybercrime on social media has prompted research into common scams, tactics used by cybercriminals, and recommendations for enhancing cybersecurity awareness and protective measures (Damilolo, Emmanuel, & Ngoc, 2023). Furthermore, the study by Garba, Siraj, and Othman (2022) focused on assessing cybersecurity awareness among university students in Northeastern Nigeria, indicating a need for comprehensive education on various cybersecurity aspects. International perspectives on cybersecurity strategies provide useful insights for Nigeria.

Sabillon (2022.) discussed phases in unifying national cybersecurity strategy models, emphasizing the importance of developing international strategies, alliances, and cooperation. Similarly, cybersecurity strategies for SMEs in the Nordic Baltic Region, focusing on awareness, training, and financial incentives (Falch et al., 2023), offer potential lessons for Nigerian enterprises. Cybersecurity in Nigeria faces challenges including legal and policy gaps, threat evolution, and the need for greater awareness and education. Strengthening Nigeria's cybersecurity infrastructure requires a multifaceted approach encompassing policy reform, technological advancements, international cooperation, and comprehensive education and training programs.

Cybersecurity Framework



Investing in cybersecurity is vital for organisations in today's digital landscape. A comprehensive framework that elucidates how sound cybersecurity investments can

yield significant returns involves several key components of which understanding cybersecurity investments should be the first step. These may include software solutions

(firewalls, intrusion detection systems), hardware (secure servers), personnel training, compliance programs, and incident response planning. These can be of great benefits to the organisation through prevention of data breaches and associated costs, and can also involve enhanced brand reputation and customer trust.

Risk management framework can be achieved through assess the specific cybersecurity risks to the organisation, including the potential impact of data breaches, financial loss, and reputational damage and organisations are to regularly conduct assessments to evaluate vulnerabilities and potential threats to inform investment decisions. On another hand, cost-benefit analysis should also help to calculate the costs associated with investing in cybersecurity technologies, staff training, and policies and can help reduced likelihood of data breaches, lower recovery costs, and avoidance of regulatory fines.

Organisations are also advised to building a strong cybersecurity strategy to establish clear cybersecurity policies and procedures that align with business objectives and compliance requirements and should focus on high-impact areas, such as data protection, network security, and employee training, to maximize the return on investment. Enhancing business resilience to develop and regularly update an incident response plan to minimize damage during a cyber event, thereby protecting assets and maintaining operations.

Business continuity planning is another key framework of cybersecurity that ensure that business operations can continue or quickly recover after a cybersecurity incident, further supporting operational resilience. Performance metrics and reporting help to gauge the effectiveness of cybersecurity investments (e.g., number of incidents detected, time to respond). Regulatory compliance and legal protection help ensure compliance with laws and regulations, and also avoiding legal penalties. Reputation and

Customer Trust here strong cybersecurity measures can enhance consumer confidence, leading to increased customer loyalty, retention, and acquisition. Organisations known for robust cybersecurity practices can differentiate themselves in the marketplace. Operational Efficiency can lead to greater efficiency in operations by automating monitoring and response processes thereby reducing the risk of cyber incidents minimizes disruptions, allowing employees to focus on their core tasks.

The final stage of the framework can lead any organisation to long-term value creation. Consider cybersecurity as a long-term investment in organisational resilience and sustainability, ultimately contributing to growth and profitability. A strong cybersecurity posture allows businesses to innovate and explore new technologies without the fear of exposing sensitive data. A well-structured approach to cybersecurity investment not only protects against risks but also drives significant financial and strategic returns. Organisations can unlock value through improved resilience, enhanced reputation, regulatory compliance, and operational efficiencies, ultimately leading to better overall performance and competitive advantage in the market.

Review of Related Theories

The relationship between cybersecurity and firm performance is increasingly recognized in both academic literature and practical business applications. Theoretical frameworks help to understand how investments in cybersecurity can influence overall firm performance. Here are some key theoretical bases that support this relationship.

Resource-Based View. The RBV posits that firms possess unique resources and capabilities that can provide a competitive advantage. Cybersecurity measures, such as advanced technologies and skilled personnel,

can be viewed as strategic resources. Firms that effectively leverage these resources may not only protect themselves from cyber threats but also enhance their reputation, customer trust, and ultimately their financial performance.

The Resource-Based View (RBV) of the firm plays a significant role in understanding the relationship between cybersecurity and firm performance. According to RBV, firms that possess unique resources and capabilities can achieve a competitive advantage. In the context of cybersecurity, this includes not only technological assets (like firewalls, intrusion detection systems, etc.) but also human resources (such as skilled cybersecurity professionals) and organisational processes related to risk management and incident response (Dornheim, et al., 2023).

Moreso, effective cybersecurity measures can serve as a differentiator in the market. Firms that are perceived as having strong cybersecurity practices may attract more customers and partners, leading to enhanced market positioning and reputation. This competitive edge can positively influence firm performance through increased sales, customer loyalty, and reduced risk of financial loss from cyber incidents. Cybersecurity is essential for safeguarding valuable intangible assets such as customer data, intellectual property, and brand reputation. The ability to protect these assets effectively helps maintain operational continuity and reduces potential costs associated with data breaches and cyber threats (Amar, 2016). Investing in cybersecurity can lead to long-term cost savings by minimizing the risk of cyberattacks, which can be expensive in terms of both direct losses and reputational damage. By proactively managing cybersecurity risks, firms can avoid significant expenditures that would arise from breaches, thus enhancing overall financial performance. Firms that prioritize cybersecurity are often better

positioned to innovate and adopt new technologies. By ensuring a secure environment for digital operations, they can explore opportunities in e-commerce, cloud computing, and digital transformation without compromising security, thereby contributing to sustained performance improvements. Resource-Based View emphasizes that effective cybersecurity is not just a defensive measure but a strategic asset that can enhance firm performance by creating competitive advantages, protecting valuable resources, and enabling innovation. Firms that invest in and cultivate strong cybersecurity capabilities are likely to see improvements in their overall performance (Koniagina, et al.,2023).

Theory of Planned behaviour: According to TPB, attitudes, perceived behavioural control, and subjective norms all have an impact on an individual's behaviour. Organisational culture and employee behaviour towards cybersecurity can impact a firm's security posture. A positive attitude towards cybersecurity, reinforced by training and leadership support, can lead to better security practices, reducing vulnerabilities and enhancing firm performance. The A helpful framework for comprehending how attitudes, subjective standards, and perceived behavioural control affect people's intentions and behaviours—including those pertaining to cybersecurity in businesses—is offered by the Theory of Planned behaviour (TPB). Employees and management are more inclined to take proactive steps, such following security procedures or attending training sessions, when they believe cybersecurity is important and advantageous.

A positive attitude can lead to a culture of security awareness, enhancing overall firm performance by reducing vulnerabilities (Koniagina, et al.,2023). The behaviour of colleagues and leadership can significantly impact individuals' actions regarding cybersecurity. If there is a strong cultural

norm that emphasizes the importance of cybersecurity, employees are more likely to comply with security measures.

This collective approach can lead to improved firm performance as a result of reduced risk exposure. Employees' perceptions of their ability to implement cybersecurity measures (perceived behavioural control) can influence their actual behaviour. If employees feel empowered and equipped with the necessary resources and training to manage cybersecurity practices, they are more likely to act in ways that support firm performance, such as reporting incidents, following protocols, or adopting secure practices (Gordon, et al., 2018). According to TPB, intentions are the most immediate predictor of actual behaviour. If employees intend to adopt cybersecurity best practices due to favorable attitudes, supportive norms, and a sense of control, it can lead to better security outcomes, thereby enhancing overall firm performance. Firms that embed cybersecurity into their organisational culture and encourage positive behaviours through training and leadership support will likely see long-term improvements in performance. Enhanced cybersecurity can lead to reduced incidents of data breaches, lower compliance costs, and improved customer trust—all contributing to better financial performance and competitive advantage. Theory of Planned behaviour suggests that fostering positive attitudes towards cybersecurity, establishing supportive norms, and enhancing employees' perceived control can significantly influence intentional behaviours that ultimately affect firm performance (Castillo & Falzon, 2018).

Innovation and Technology Adoption Theories: These theories examine how organisations adopt new technologies and the innovation process. Firms that adopt cutting-edge cybersecurity technologies may not only mitigate risks but also gain operational efficiencies and reduce costs, contributing to

improved performance through innovation. According to Amar (2016), the relationship between cybersecurity and firm performance can also be examined through the lens of innovation and technology adoption theories. This theory explores how new technologies, including cybersecurity solutions, spread within organisations. Businesses are frequently better able to safeguard their assets when they successfully use cutting-edge cybersecurity solutions (such as firewalls, intrusion detection systems, and encryption). Successful adoption can enhance firm performance by mitigating risks associated with cyber threats and improving overall operational efficiency (Castillo & Falzon, 2018). TAM highlights how crucial perceived utility and ease of use are to the uptake of new technology. If employees find cybersecurity tools user-friendly and useful in their daily activities, they are more likely to adopt them. Higher adoption rates can lead to stronger security measures, which ultimately support better firm performance by reducing the likelihood of security breaches.

Incorporating advanced cybersecurity measures can lead to innovative business models and practices (Brock & Levy, 2013). For instance, firms that offer enhanced security features may differentiate themselves from competitors, thereby attracting more customers and increasing market share, ultimately contributing to better performance. Innovation and technology adoption theories suggest that there is a positive relationship between effective cybersecurity measures and firm performance. By embracing and properly implementing innovative cybersecurity solutions, firms can not only protect their assets but also enhance their overall competitiveness and operational efficiency in the market. The interplay between cybersecurity and firm performance is multifaceted and can be understood through various theoretical lenses. As businesses increasingly operate within digital

environments, recognizing the importance of cybersecurity investments not only helps in risk mitigation but also supports overall strategic objectives and enhances competitive advantage (Brock & Levy, 2013). In summary, effective cybersecurity practices contribute positively to firm performance by protecting assets, fostering stakeholder trust, and enabling innovation.

Conclusion and Recommendations

According to the study's findings, Nigeria has acknowledged the significance of cybersecurity since enacting the Cybersecurity Act 2015 in response to the recent rise in cybercrimes in the nation. The work made a theoretical contribution to the academic literature. The study provided data on Nigerian internet and mobile subscribers as well as the nation's digital online activity. It presented informants' scholarly opinions on how cybercrimes affect Nigeria's digital economy and national security. Theoretically, the study was successful in establishing a relationship between the growing empirical data from the field of study and the numerous existing claims regarding cybersecurity and national security issues. In order to avoid

cybercrimes in Nigeria, the study also has policy implications for the introduction of specific cybersecurity regulatory ideas. The following is a list of the suggestions: The public should be made aware of the necessity of preventing the online disclosure of security codes and other important information by the government and other organizations in charge of ICT regulations; People should be encouraged to notify the organizations in charge of managing cybersecurity policies about any questionable transactions; To make it easier to identify threats, experts should be hired to teach current employees in the appropriate agencies cybersecurity technicalities; Quarterly workshops and media campaigns should be held to inform the public, businesses, and government organizations on the mechanisms of cybercrime and how to take precautions; In order to discourage future criminal activity, those found guilty of cybercrime should face harsh penalties under the Cybersecurity Act of 2015. To facilitate the identification of suspicious calls and transactions, a databank for mobile phones and internet users should be established. This will allow thieves to be caught as soon as they launch an attack.

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Venue Attributes and Wedding Banquet Choice: An Empirical Evidence of Couples in Lagos State Nigeria

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Abstract

Studies that examined the association between venue attributes and wedding banquet choice in respect of Lagos State, Nigeria is under reported. The current study therefore filled this research gap. The study adopted a quantitative research design, hence used structured questionnaires to collect data from 323 couples in each of the 37 selected events centers in the 20 LGAS in Lagos State. Data that were collected was analysed using Partial Least Squares Structural Equation Modeling. The result show that three of the six tested hypotheses, four of the relationships were proven to be supported and two failed to support. By confirming the link between venue attributes and wedding banquet choice, hence this study offers an insightful report on the venue attributes that stimulates wedding banquet choice in Lagos State. Therefore, managers and operators of events centre business in Lagos State should give quality attention to the seating capacity of their facilities, consider accessible location, institute affordable and friendly tariff structure, and ensure undisrupted power supply system to attract and sustain wedding function patrons in their facilities. This research contributes to the sustainability and continued growth of the Nigeria events center industry; and contributes to the broader base of consumer behaviour and wedding events literature.

Keywords: Venue Attributes, Wedding Banquet Choice, Lagos State, Events Industry, PLS SEM.

Introduction

Hosting events is considered as a fundamental part of the society and a complex phenomenon (Moufakkir & Pernecky, 2014). According to Quinn (2013), the awareness and usage of event centers to hosting events is on the rise. It is estimated that a billion events take place every year, having a significant impact on the global genuine progress indicators (GPI) (Silvers, 2008; Tassiopoulos, 2020). Globally, the business of hosting

events contributed about US\$1.5 trillion to the global gross domestic product (GDP) in 2017 (Oxford Economics, 2018). In the United Kingdom, facilities that host events otherwise known as event centers worth £42.8 billion in 2016 (Baan, 2019). According to Lock (2021) the market size of event centers in the United States was valued at US\$4.89 billion. Event centers sub sector supports on an average 252,000 direct and indirect jobs and contributed US\$7.7 billion to South Africa's

GDP in 2019 (South Africa National Convention Bureau, 2020). Pegged at US\$20 billion, the events industry in Nigeria is estimated to be among the most extravagant in the world (Ndiomewese, 2017), hence often times, a venue could be priced for as high as ₦4 million. Report has it that an average Nigerian company or middle-class family spends over \$15,000 per event. With Lagos State alone reportedly hosting over 20,000 events monthly in 2015, with earnings amounted to about \$300,000,000 annually according to association of professional party organizers and events center managers of Nigeria (Ndiomewese, 2017). Even more revealing is the fact that venue rentals take up about 5% of event costs -- more reason it is baffling how little scholarly attention is given to popular indices to securing venues among event centers patrons.

It is pertinent to emphasised that, the contributions of weddings to sustainable events center business cannot be over emphasized. Wedding reception is often customarily held at a banquet facility often called events center after the signing of the marriage certificate at the government marriage registrar (Lau & Hui, 2010; Dianna, 2019). This denotes that events center is a key element in wedding event planning. According to a recent global survey of brides, intended couples spend between US\$12,343 and US\$14,006 (i.e., 40% to 50%) of their wedding budget to hire venue used for the wedding reception (Price, 2021). In Nigeria, staging wedding reception in an events center is fast becoming an important component of the Nigerian marriage ceremonial culture. Forbes reports that Nigerian elites spend an average of 2 million dollars on their dream weddings (Thisday Newspaper, 2025). In Lagos State, depending on its location, size and features, wedding venues can go for between US\$1,000 to US\$20,000 per day (Thisday Newspaper, 2025).

The choice of a venue for wedding banquet is therefore a complex decision influenced by many factors. Hence, must reflect the needs and preferences, and personalities of the prospective couples (Van der Wagen, 2005; Bowdin et al., 2006). It is pertinent to state that the proliferation of event centers and facilities for different events especially wedding banquet in Lagos State in recent time is a genuine response to the increasing demand for professional event management services by prospective couples. Sustaining the growing trend of event centers' business in Nigeria and Lagos State in particular requires the understanding of the needs of the event centers' patrons especially the intending couples in respect of the venue attributes and how it impacts on their choice of the venue for wedding banquet. Hence, this provides event centers' owners and managers with the required information to develop and market their product offerings that best cater to the needs of the market. To the best of our knowledge, the existing event management literature in the emerging countries particularly Nigeria has virtually not empirically determined and published studies on couples' behaviour with regard to choose venue for wedding banquet. To fill this gap, this research aims to examine the relationship between venue attributes, and wedding banquet choice among Nigerian couples in Lagos State.

Literature Review

The Concept of Venue Attributes

Van der Wagen (2005) sees venue attributes as the unique specifications, including the facility's location, capacity, creative theme or image, availability, and accessibility that contribute to the total experience of the customers. Callen and Hoyes (2000) defined venue attributes as a compendium of services and designs such as the facility's convenience, cleanliness, lighting, decoration, audio equipment, accommodation, and price capable

of attracting and meeting the needs of the customers. Bello and Bello (2019) defined venue attributes as those venues-bond amenities with aesthetic values used as the basis for banquet facility marketing and a focal point for customers' activities and spending. Venue attributes is also defined as human features and designated permanent amenities, which are controlled and managed for the enjoyment, amusement, and entertainment of the visiting public (Bello & Bello, 2017). Mazlina et al. (2015) defined venue attributes as those exceptional fixed and movable criteria that shape the selection of a banquet facility among the patrons. The index in the above definitions shows that venue attributes is seen as the mixture of the different elements that defined the quality and the appealing nature of the banquet facility.

The Meaning of Wedding Banquet Choice

Wedding banquet choice is defined as the selection of a spot over the other due to uniquely identified facilities or features for a wedding reception (Tromczynski & Stanfar, 2006; Le Falher et al., 2015). The concept is seen as the selection of a site with the specific purpose of hosting wedding events (Olanga et al., 2015). Wedding banquet choice is defined as a series of decisions that involve an individual's cognitive processes to select a venue for a wedding event (Lau & Hui, 2010). It explained the selection of a venue to meet a definite wedding reception need or function satisfactorily (Pike, 2008; Saayman, 2006). According to Yoo and Zhao (2010), wedding banquet choice is defined as the decision-making process of selecting a venue for a wedding event (Yoo & Zhao, 2010; Mair & Thompson, 2009). It explained the decision-making process involved in selecting a venue over another based on implicit cognition and environmental variables for a wedding event (Lau & Hui, 2010; Guan et al., 2015).

Theoretical Underpinning: The Choice-sets Model

The choice-sets model has been widely employed in consumer research to explaining individual's decision-making process (Jang et al., 2009). The model has received a great deal of attention due to its simplicity, practical advantages, and theoretical soundness. Therefore, the model is often used to explain the destination selection process among couples (Sirakaya & Woodside, 2005; Jang et al., 2009). The model is recently been applied to banquet venue choice among intending couples. The model, therefore, opined that intending couples evaluate different elements such as venue-related and personal attributes before their final decision on the choice of a venue for a wedding banquet (Callan & Hoyes, 2000; Lau & Hui, 2010; Guan et al., 2015). This model is being applied in the current study to explaining venue-related attributes in the context of the banquet facility choice among the intending couples in Lagos state.

Empirical Review and Hypothesis Development

Sitting Capacity and Wedding Banquet Choice

The sitting capacity of the venue explains the condition in which the venue has the available space to accommodate the guests (Callan & Hoyes, 2000; Wells, 2007). Sitting capacity is one of the main attributes that is considered to be important when one chooses a venue facility for a wedding (Comas & Moscardo, 2005; Wells, 2007). The capacity of a venue is identified as the main attribute when deciding on a venue facility for a wedding (Lau & Hui, 2010; Tassiopoulos, 2010). Van der Baan (2018) determined the attributes that contributed to the wedding venue selection of prospective brides in the Gauteng province of South Africa. The result shows that the sitting capacity of the venue facility is the third most important choice attribute.

Overall Maintenance and Wedding Banquet Choice

The overall maintenance of the venues' buildings and facilities is important to the acceptance of the overall image of a venue (Saayman, 2000; Chan, 2010). The results of the selected attributes of a venue for a wedding banquet among Hong Kong prospective wedding couples indicated that the overall maintenance of the facility is the most important requirement contributing to the perfect wedding venue selection (Lau & Hui, 2010). In a study on creating marketing strategies for the wedding business unit of Amari Atrium Hotel, it was reported that the extent of venue facility maintenance is one of the most important requirements contributing to the perfect wedding venue selection (Suvagondha & Soparat, 2008). Van der Baan (2018) determined the attributes contributing to the wedding venue selection of prospective brides in the Gauteng province of South Africa. The result shows that the overall maintenance of the venue facility is the most important choice attribute.

On-site Accommodation and Wedding Banquet Choice

On-site accommodations are the rooms where the bride dresses and stays overnight, including hosting the invited guests (Rodgers & Wolfaardt, 2015). Accommodation facilities at the venue premises deliver a good impression to the wedding guests (Comas & Moscardo, 2005). Callen and Hoyes (2000) investigated event venue choice indicators for different types of events and observed that wedding organisers consider on-site accommodation as the deciding factor. Van der Baan (2018) determined the attributes contributing to the wedding venue selection of prospective brides in the Gauteng province of South Africa. The result shows that on-site accommodation is

one of the most important choice attributes of the venue facility.

Location / Accessibility and Wedding Banquet Choice

Location refers to the physical position of the venue and its accessibility. A good location increases the value of the venue facility (Callan & Hoyes, 2000), hence convenient for the guests attending the wedding. Callen and Hoyes (2000) determined event venue choice attributes for different types of occasions and observed that wedding organisers consider location/accessibility as the deciding factor. Lau and Hui (2010) examined the selection attributes of wedding banquet venues among Hong Kong prospective wedding couples. The study found price and location as the determining factors. Van der Baan (2018) determined the attributes contributing to the wedding venue selection of prospective brides in the Gauteng province of South Africa. The result shows that location is one of the most important choice attributes of a venue facility for a wedding.

Cost / Affordability and Wedding Banquet Choice

The cost/affordability attribute explains the financial value of the venue rental, food and beverage, setting package, and equipment expenses (Lau & Hui, 2010). Lockyer (2005) reviewed several studies and finds that cost/affordability is the most important consideration in the selection of event centers. Callen and Hoyes (2000) investigated the requirements of event organisers when choosing unusual venues for types of events, and observed that wedding organisers consider the cost of the facility as the most determining factor for event center choice. Lau and Hui (2010) examined the selection attributes of the wedding banquet venues among Hong Kong prospective wedding couples. The study found cost/affordability as one of the determining factors. Seebaluck et al.

(2015) examined the push and pull motives for the choice of Mauritius as the wedding destination. The study illustrated that reasonable costs of a wedding venue are a major pull factor. Comas and Moscardo (2005) opined that prospective wedding couples confessed that the price of the venue facility is one of their biggest considerations when deciding on wedding banquet venues.

Power Supply Capability and Wedding Banquet Choice

Power is a very important factor at a venue during an event. It is therefore important to know the capability of the venue to manage power outlets so that power failures can be avoided during the event is one of the major indicators for banquet facility choice (Tasssiopoulos, 2005). During larger events, an electrical technician should attend, in case additional power needs occur during the event

(Shone & Parry, 2004). The venue must be able to supply adequate lighting to enhance the guests' well-being (Lin, 2011). In their study of prospective wedding couples' choice of a venue for a wedding, it was reported that the power supply capability of the facility influences the decision of the couples (Callan & Hoyes, 2000).

Operational Framework

In this study, a venue facility choice model that explains the attributes that influence couples to choose a venue facility for a wedding in Lagos state is proposed. The hypothetical model shows six attributes as independent variables that predict the choice of a venue for the wedding reception. The consideration of these attributes, whether conscious or unconscious determines the final choice of a venue among the couples in Lagos state as shown in Figure 1.1.

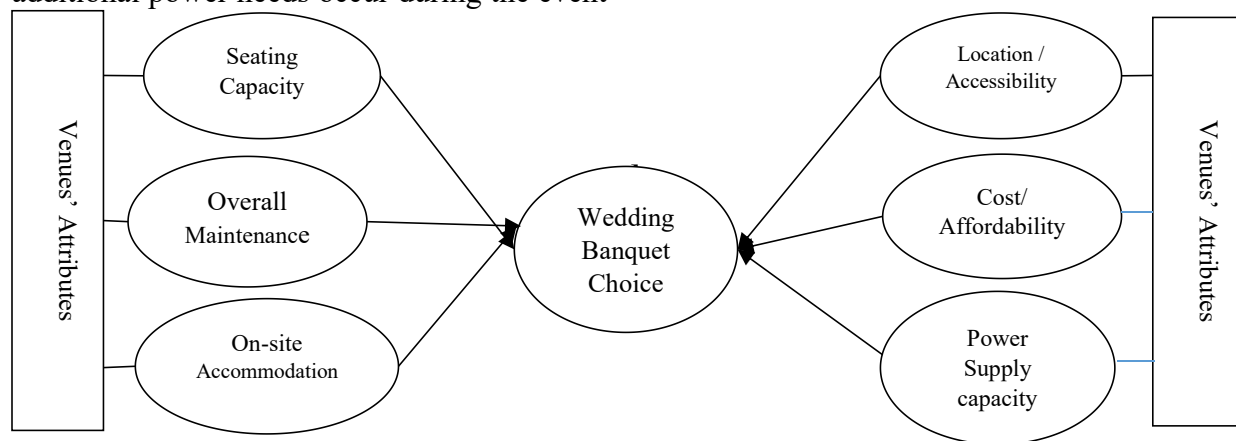


Figure 1: Showing Venues' Attributes Model for Wedding Banquet Choice by Couples in Lagos State.

Research Methodology

Research Design

This study used copies of a structured questionnaire to gather relevant data to determine the relationship between venues' attributes and venues' choice for a wedding function in Lagos State, hence a quantitative research design.

Instrumentation

The 42 items related to venue attributes were derived from the study of Van der Baan (2018) and modified into 24 relevant items used in this study with venues' sitting capacity having 4 items; On-site accommodation- 7 items; Venues' location/accessibility - 5 items; Cost/affordability - 5 items, and Power supply capability - 3 items. Furthermore, a 6-item

hotel physical environment scale developed by Bello & Bello (2021) was modified and used to measure overall venue maintenance attributes in this study. In addition, a 5- items hotel choice scale in Bello (2018) was adapted for wedding banquet choice by the couples in Lagos State. Each of the 35- items in the instrument was measured on a 5-point Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree.

Research Population and Sample Size

The research population for this study comprised 65 registered event centers in the 20 LGAs in Lagos State (Registered Hospitality and Tourism Enterprise in Lagos, 2021). The researcher selected 37 of the 65 registered event centers through a systematic random sampling technique. This study, therefore, focused on the couples that patronised the services of the 37 selected event centers for their wedding, thus, an infinite population. To determine the exact sample size for the present study, the suggestion in Freneund and William (2009) in (Bello, 2022) was upheld. Applying this formula, the sample size put at 323 was obtained as follows.

$$n = \frac{(Z_{\alpha/2})^2 PQ}{e^2}$$

$$n = \frac{(1.96)^2 (0.7)(0.3)}{(0.05)^2}$$

$$n = \frac{(3.8416)(0.7)(0.3)}{(0.0025)}$$

$$n = \frac{0.806746}{0.0025}$$

$$N = 323$$

The researcher personally visited each of the 37 selected event centers in the 20 LGAS in Lagos State and, thus, administered the structured questionnaires until the sample size of 323 was met.

Data Analysis

Partial Least Squares Structural Equation Modelling (PLS-SEM) approach that explores the linear relationships between multiple independent variables and single or multiple dependent variables (Hair et al., 2014) was adopted for the analysis of the data collected in this study. This was done with the aid of *SmartPLS v4. Software*. The PLS-SEM relies on pre-specified networks of relationships between constructs and as well their measures (Hair et al., 2014) thus, making it different from the regular regression approach.

Results

Demographic Distribution of Respondents

The gender distribution of the respondents indicates that 63.2% of the respondents are Male and 36.8% are Female. This implied that majority of the respondents that participated in the study are male. In respect to the respondent's marital status, 66.9% of the respondents are Married, 32.2% are Singles, 0.6% are Others and 0.3% are Divorcees. This implies that majority of the respondents that participated in the study are Married, followed by the Singles. The religion distribution of the respondents used in the study includes: Christianity (13.6%), Islam (71.8%) and Others (14.6%). This shows that majority of the participants in the study are Muslims followed by Christians with only very few Others participated. In respect to academic qualification of the respondents, 35.9% bagged National diploma, Master degree (33.4%), and Bachelor degree (30.7%). This shows that majority of the participants in the study are holders of National diploma followed by holders of Master degree, and lastly holders of Bachelor degree.

Assessment of Measurement Model

The hypothesized model of this study was evaluated for its construct reliability including, convergent and discriminants validity using

SmartPLS 4.0 (Hair et al. 2014; Ringle et al., 2005). As part of the requirement for the evaluation of the validity and reliability of the hypothesized model, the researchers examined factor loadings of all items of the study variables. The result of the factor loadings of the initial hypothesized model shows that 9 out of 35 items (i.e., SEC1, OVM1, OVM2, OVM5, OSA1, OSA2, OSA5, OSA6, and OSA7) has factor loadings less

than the acceptable threshold of 0.7 (Hair et al. 2014; 2017). In view of these, the 9 items were deleted from the initial hypothesized model, one item at a time starting from the lowest loading. Having deleted all the items with the low factor loadings, the final hypothesized model yielded a better result hence, fit well with the data as shown in Figure 2.

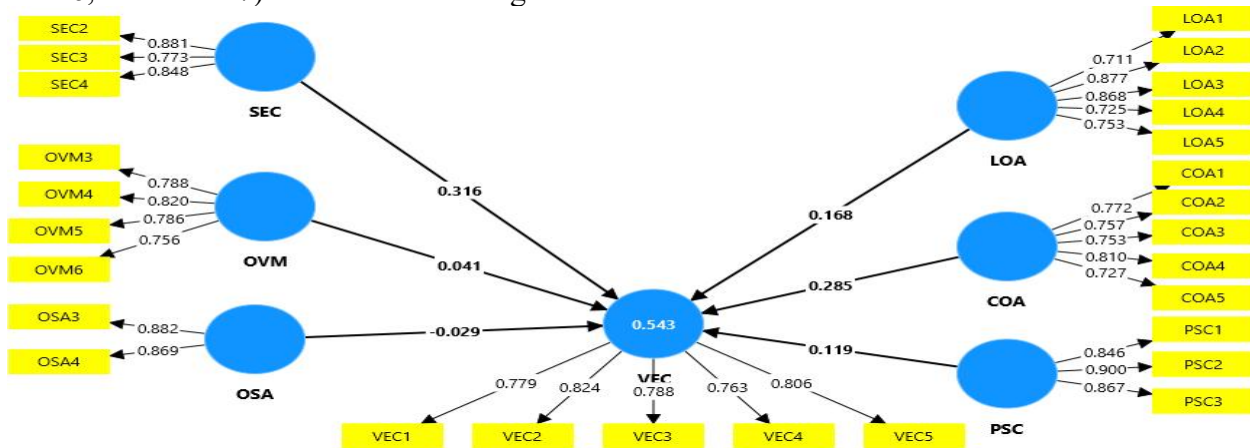


Figure 2. Hypothesised model with fit factor loadings.
Source: Researcher's Computation (2025).

Furthermore, the result of the final hypothesized measurement indicators such as Cronbach alpha (α), composite reliability (CR), and average variance extracted (AVE)

including, factor loadings of all the items in the study variables yielded a better result as presented in Table 1.

Table 1: Results of the measurement model

Latent Variable	Items	Loadings	Cronbach Alpha	Composite Reliability	AVE
Seating Capacity	SEC 2	0.881	0.700	0.874	0.698
	SEC 3	0.773			
	SEC 4	0.848			
Overall Maintenance	OVM 3	0.788	0.799	0.867	0.620
	OVM 4	0.820			
	OVM 5	0.786			
	OVM 6	0.756			
On-site Accommodation	OSA 3	0.882	0.847	0.892	0.766
	OSA 4	0.869			
Location Accessibility	LOA 1	0.711			0.624
	LOA 2	0.877			
	LOA 3	0.868			
	LOA 4	0.725			
	LOA 5	0.753			
Cost/ Affordability	COA 1	0.772	0.824	0.875	0.584
	COA 2	0.757			
	COA 3	0.753			
	COA 4	0.810			
	COA 5	0.727			
Power Supply Capacity	PSC 1	0.846	0.841	0.904	0.759
	PSC 2	0.900			
	PSC 3	0.867			
Wedding Banquet Choice	VEC 1	0.779	0.852	0.894	0.628
	VEC 2	0.824			
	VEC 3	0.788			
	VEC 4	0.763			
	VEC 5	0.806			

Source: Researcher's Computation (2025).

As shown in Table 1, the results of the convergent validity of the final hypothesized model shows that the factor loadings of all the items in the study variables were statistically significant and exceeded the minimum acceptable threshold of 0.7 (Tabachnick & Fidell, 2007). Also, the average variance extracted (AVE) exceed the minimum acceptable threshold value of 0.5 (Hair et al., 2014). In addition, the model was assessed for

the internal consistency of the data hence, Cronbach Alpha (α), and Composite Reliability (CR) values for all the variables meet the required threshold of 0.7. This implies that all the variables in this study have a satisfactory level of internal consistency. In addition, the discriminant validity of the final hypothesized model was assessed to assure external consistency of the data as shown in Table 2.

Table 2: Discriminant validity of the variables

Constructs	Cost/ Affordability	Location Accessibility	On-site Accommodation	Overall Maintenance	Power Supply Capacity	Venue Choice
Cost/ Affordability	0.666					
Location Accessibility	0.074	0.060				
On-site Accommodation	0.614	0.716	0.075			
Overall Maintenance	0.419	0.294	0.088	0.405		
Power Supply Capacity	0.661	0.740	0.086	0.823	0.410	
Seating Capacity	0.708	0.659	0.089	0.625	0.454	0.769
Wedding Banquet Choice						

Source: Researcher's Computation (2025).

In Table 2, the correlation between the latent variables, were compared with the square root of AVEs (Hair et al., 2014). The result shown that the square root of AVEs along the diagonal as shown in Table 2 are lower than the correlations between the constructs. This validates fulfilment of the discriminant validity requirement.

Structural Hypotheses Model Testing

The significance of the path coefficients is determined by the beta values of the coefficient of the regression and t-values which is calculated using the bootstrapping method (Hair et al., 2014). The rule of thumb of critical t-values for a two tailed test of 1.96 (significance level = 5%) is considered to be significant (Hair et al., 2014), hence Figure 3.

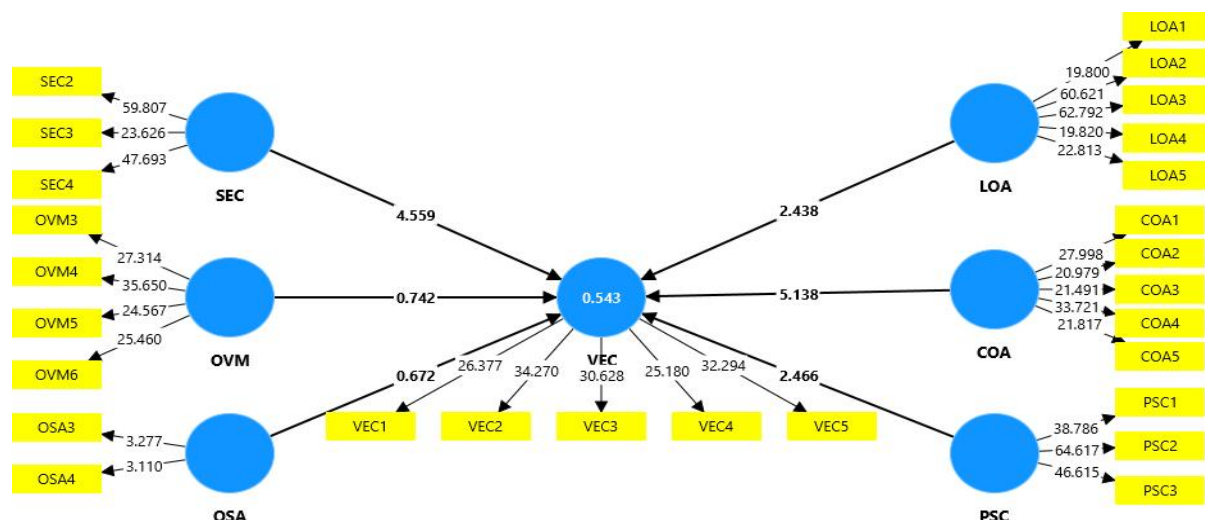


Figure 2. Hypothesized structural relationship model.

Source: Researcher's Computation (2025).

As shown in Figure 3 based on the objectives of this study, six direct hypothesized relationships were tested. The result shows that four of the relationships were proven to be supported and two not supported.

Furthermore, Table 3 show that hypotheses that were supported and accepted have t-value > 1.96 while the rejected hypotheses have t-value < 1.96 hence, show the effect of individual latent constructs (i.e., venue attributes) on the dependent variable (i.e., wedding banquet choice).

Table 3: Summary of direct hypotheses testing

S/n	Hypothesized Path	Path	Standard	t-Value	Findings	f-Square	Effect Size
1.	SEC -> VEC	0.521	0.316	4.559	Supported	0.236	Medium
2.	OVM -> VEC	-0.128	0.041	0.742	Fail to Support	0.015	Small
3.	OSA -> VEC	-0.035	-0.028	0.672	Fail to Support	0.004	Small
4.	LOA -> VEC	0.132	0.168	2.438	Supported	0.022	Small
5.	COA -> VEC	0.326	0.285	5.138	Supported	0.161	Small
6.	PSC -> VEC	0.111	0.119	2.466	Supported	0.032	Small

***P<0.05**

Source: Researcher's Computation (2025).

The study also shows that the R-square value of all the constructs put together have the tendency of influencing 70.0% of changes in

wedding banquet choice. The remaining 30.0% is due to other factors and residuals.

Effect Size

Following Cohen (1988) guideline, the effects sizes of dimensions of the independent variable (i.e., Venue attribute on the dependent variable (i.e., venue choice) shows that, Seating capacity dimension could be viewed as medium. The remaining five dimensions of the independent variable (i.e., Cost/ Affordability, Location accessibility,

On-site accommodation, Overall maintenance, and Power supply capacity), on the dependent variable (i.e., wedding banquet choice) shows small effect size. In line with the argument of Chin et al. (2003), who emphasises that even the minutest strength of f^2 might be considered because, they can affect the dependent variable in their own way.

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A Correlational Assessment of the Impact of Teamwork on Employee Optimum Goal Delivery Among Selected Manufacturing Firms in Nigeria

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Abstract

This study assessed the correlational nexus between teamwork and employee optimum goal delivery in selected manufacturing firms in Nigeria. The study was conceived to ascertain whether teamwork actually contribute to employee performance efficiency and productivity in area of goal delivery and attainment. Correlational research design was employed to examine how teamwork impact employee goal attainment in the organization. Relying on primary data, a self-structured and validated questionnaire was deployed to elicit information from the 202 selected respondents who're employees of the selected manufacturing firms. Prior to the distribution of the instrument, it was pilot examined where overall Cronbach' Alpha reliability value of 8637 was obtained. Statistical tool such as mean, standard deviation, frequency and simple regression examination were applied to test postulated hypothesis of the study. The result indicated that the t-values obtained for teamwork (TeamWk) is 3.39 with a corresponding 0.000 (p-value). This outcome established copiously that teamwork firms has a positive and significant correlation with employee optimum goal delivery. That's to say, teamwork contributes maximally to employee ability towards optimum goals delivery and attainment. The study therefore recommends amongst other things that operators and managers of manufacturing firms should give priority attention to promotion of collaborative culture to enhance performance efficiency, productivity, motivation and firms overall effectiveness.

Keywords: Correlation, Teamwork, Employee Optimum Goal Delivery, Innovation and creativity, Manufacturing Firms.

Introduction

Organizations across the globe are formed with specific goals and objectives, which may include the production of goods and services to address the needs of consumers at various levels for the purpose of generating profits or earnings to address the dividend needs of stakeholders and also to cater for the cost or expenses required for the day-to-day running of such firms. However, this does not come without some perceived setbacks and operational glitches, especially to the

manufacturing concern. The Nigerian manufacturing sector is a vital sector of the overall nation's economy, adding value to economic growth and stability by contributing significantly to job creation, industrial growth, and the development of the economy. Nevertheless, this industry continues to face or encounter persistent challenges like disengaged employees, inefficiencies, low productivity, and waning commitment and motivation on the part of engaged staff, simply because manufacturing firms depend

largely on seamless organization and coordination between and among staff to meet production targets, keep quality standards, and optimize efficiency. Succinctly, in order to address and overcome these obstacles/drawbacks and put operations on the right pedestal, firms operating strategies are placing dire and greater emphasis on teamwork as a strategic driver of operational efficiency and success and employee effectiveness. Cited in Twesigye et al. (2024), teamwork is the most significant aspect of HRM as it acts as a support intention to the business strategy and various HR functions like reward and performance management. Cohen and Bailey (1999), cited in Twesigye et al. (2024), described a team as a group of people who are interdependent in the tasks and who share responsibility for the outcomes of the assigned task.

Mohammad & Shahid (2017) discovered from their study that teamwork has a positive and significant effect on employees' performance. This signifies that teamwork contributes to employee optimum goal delivery. Teamwork is very strategic to every organization's success; this, according to Jones, Richard, and B (2008), teams enable employees to cooperate, transfer knowledge resources, enhance individual skills, and provide constructive feedback without any conflict between individuals. Teamwork is a significant factor for the seamless and smooth functioning of an organization craving growth and development. It promotes innovation and creativity, as members with novel ideas, knowledge, perspicacity, and skills share with team members, thereby leading to an avenue for growth and enhanced task completion time. Peters (1982) averred that real teamwork in every organizational setting helps to establish performance effectiveness to improve productivity in the firm. It facilitates collective problem solving; when colleagues work together objectively, it provides an avenue for them to leverage their shelves of

skills and experience to reach better and greater results compared to individual efforts alone. Employee effectiveness can only be reached or realized at its best when all the working elements of the organization perform together that calls for teamwork (Twesigye et al. 2024).

In obvious terms, teamwork is a crucial and essential tool for employees' performance, growth, productivity, and optimum goal delivery in every economy's workforce, which underscores the significance of this study. It's also worthy of note that employee performance is the driver of organizational effectiveness; the human elements of every organization drive all other resources that keep an organization in a functional state or status. According to Okoh *et al.* (2023), cited in Uzor & Onyemere (2024), human resources (workers) are the vital resources of every organization; as such, they have the potential to make or mar an organization. Akpoyibo (2024) posited that employees' performance is vital to a firm's general success. A firm may acquire abundant physical resources without the efficient contributions of its human resources (employees); all other resources will be inactive. Employees are considered essential resources as a result of their significant role in organizational effectiveness. Twesigye et al. (2024) affirmed that employee effectiveness has been regarded as an eventual effect of an enterprise as well as an employee. Therefore, the performance of employers as it relates to goal delivery is somewhat crucial to the service delivery capacities of organizations. This current study aims to evaluate the interplay between these two variables—factors, that's open communication and teamwork—and their collective effect on workers' ability to reach optimum goal delivery. Apparently, by directing attention on selected manufacturing firms in Nigeria, this study will add value and provide actionable/valuable insights into how

organizational effectiveness might be up-scaled/enhanced by optimizing this practice. This research work is structured to take the form below. Section two focuses on a review of related literature on the employee performance nexus, teamwork, and open communication. The third part presents the study methodology, data, and variable used and model specification. While the fourth section provides clear and unambiguous interpretation and discussion of the model and results, the final part is devoted to conclusion, recommendation, limitations, and suggested areas for future study.

Objective of the study

The researcher's general objective is to assess the correlation between teamwork and employee optimum goal delivery among selected manufacturing firms in Nigeria. While the specific objective is to:

- i. Determine whether teamwork has a significant influence on employee goal optimum delivery.

Research Questions

To facilitate the realization of the above state objective, the following research question was designed.

- i. Does teamwork contribute to employee optimum goal delivery?

Statements of Hypotheses

The following hypotheses would be used in reaching conclusion on the significance of the variables

H_{01-null}: Teamwork has no positive and significance correlation with employee optimum goal delivery.

H_{01-alternative}: Teamwork has a positive and significance correlation with employee optimum goal delivery

Review of Related Literature

Employee Performance

Employee performance is very strategic and significant to every organization's survival because they drive every other resource of the organization. Employee performance has been described by diverse scholars in separate literature, according to J. A. (2007), who considered employee performance as an eventual effect of an organization as well as an employee. Thus, the term has itself been deliberated in the literature, as described by some of the writers/authors, to mean a result generated/achieved by the employees in relation to the roles and expectations that have been given or attached to them. At some other instances, literature has considered it, according to Bommer (2007), as an achievement/accomplishment of an enterprise's objectives and goals via the building blocks of the organization. Employee performance can only be achieved at its best when all the working elements of the organization perform together, which calls for teamwork (Twesigye et al. 2024). Employee performance across the board plays a critical part in a firm's effectiveness, impacting different aspects of the firm's success and effectiveness. It enhances firms' profitability, productivity, competitiveness, and process improvement as well. Employee performance is associated with the physical, behavioural, and cultural results or outputs of people or an individual that align with firm goals and objectives in order to secure appraisal/assessment and acceptance. Without mincing words, organizational successes and glory rest largely on its human element (employee) and their performance, which result from creativity, initiatives, modernization, and greater levels of responsibility and obligation (Thomas & Feldman, 2010; Gilboa, 2008; & Kieffer, 2004). Some studies also posited that there is a wide range of individual benefits that emanate from employee performance. Employee performance, according to Chen

and Wei (2020), is practically the results/outputs of an individual's engagement with an organization both in terms of quantity and quality with the objectives and goals of carrying out their duties and obligations. In a broader perspective, performance can be grouped into two categories: individual performance and team or organization performance, which portray the outcome of individual performance within a team or organization (Chen and Wei, 2020). In particular, Guan & Frenkel (2019) averred that employee performance refers to the output/result of an employee working within a specific enterprise or firm, striving to reach targets or goals set by the enterprise.

Teamwork and Employee Performance:

The Nexus

Teamwork and employee performance have a commendable degree of correlation in relation to organizational effectiveness and competitiveness. In other words, when workers in the organization effectively collaborate and cross-fertilize ideas, they usually achieve greater levels of productivity, creativity, and innovation. This synergistic alliance not only improves individual employee performance but also equally promotes a motivated and positive work climate that encourages and promotes ongoing improvement. Teamwork involves shared duties, responsibility, collaboration, and mutual support, which promote efficiency and goal delivery (achievement). Studies have emphasized that firms that give priority attention to teamwork witness enhanced productivity, profitability, competitiveness, motivation, and job satisfaction among workers. Abdulle & Aydintan (2019) posited that teamwork exerts a high degree of positive and significant influence on employee performance. The duo also posited in another facet that firms around the world are coming to terms with the significance of teamwork and how it results in greater effectiveness

within their organizations. This further stresses the pivotal role and impact of teamwork on employee efficiency and a firm's overall performance. Khan and Mashikhi (2017) posited from their study that teamwork has a significant positive impact on employee performance in the banking sector. Their finding is in congruence with that of Okoh et al. (2023), Manzoor *et al.* (2011), Kemanci (2018), and Hartenian (2003). In another facet, Agarwal & Adjirackor (2016) opined that firms have the opportunity to increase their workers effectiveness by enhancing the quality and capacity of their teams, which will in return enhance the performance level and efficiency of their workers.

Empirical Review

Uzor & Onyemere (2024) assessed the impact of teamwork on employee performance in the Nigerian banking sector. The study adopts the field survey via the adoption of cross-sectional analysis, and a sample size of 200 respondents drawn from Guaranty Trust Bank in Lagos Mainland, Nigeria, took part in the study. Data were generated via the use of a questionnaire specifically designed for the study. The statistical tools used to analyze the primary data include the mean and standard deviation, and SPSS software version 16.0 was deployed for hypothesis testing. The findings revealed that teamwork plays a crucial role in enhancing employee performance and organizational productivity. The study therefore recommended that management of GTB Plc should organize regular team-building activities and engagement to foster stronger interpersonal connections among employees, enhancing trust and collaboration.

Twesigye et al. (2024) investigated the effect of teamwork on employee performance. It was carried out among SMEs in Kampala. The study used a descriptive research design, and data was gathered from 50 respondents

which constitutes the study sample size. A case study design was used to select a sample size of 50 respondents and Purposive and Simple random sampling procedures were used, questionnaire was employed to elicit responses from respondents, the study found that teamwork has a positive correlation with employee performance. The study therefore concludes that the worker productivity increases when team members promote effective communication in the organization. The study recommended that to guaranty effective team work among the employees, there should be a greater balance between employees' needs and organizational needs organization.

Al Salman & Hassan (2016) analyzed the influence of teamwork on employee effectiveness. The study was conceived to determine whether positive correlation exist between teamwork and employee performance. By adopting the descriptive and explanatory research design, primary data were generated from 107 respondents. The instruments used for the study was structured after the 5points Likert scale. Data collected were analyzed by means of descriptive mean, standard deviation and percentages and regression was perfected via SPSS version 20. Findings from the study established a positive and significant correlation between teamwork and employee performance.

Ndekile et al. (2024) assessed the influence of teamwork on project performance among private construction firms in Nigeria. The study was designed to examine the contributions of teamwork to project execution effectiveness. Relying on stratified sampling methods, data were obtained from 654 selected respondents. Data generated was analyzed by means of descriptive and inferential statistics, and the result revealed a significant correlation between teamwork and project outcome. That's teamwork contribute to project execution efficiency and quality

Mohammad & Shahid (2017) investigated the affinity between teamwork and employee performance in selected financial institutions. Relying on quantitative techniques, questionnaire were distributed to 210 selected respondents for the purpose of eliciting desire information for the study formulated hypotheses. Prior to the administration of the study instrument, it was piloted tested with overall Cronbach's alpha reliability value of .728. Data obtained were analyzed by means of SPSS, multiple regression models was specified and implemented and the result indicated teamwork has a positive impact on employee effectiveness.

Material and Methods

This study adopted the quantitative correlational research design to evaluate the correlation between teamwork, open communication, and employee optimum goal delivery. This was found useful for the study because it allows the researcher to obtain both quantitative and qualitative information needed from target respondents. Primary data were gathered via a 12-item questionnaire specifically designed to obtain information on the effect of teamwork and open communication on employee optimum goal delivery. That's to note whether or not teamwork and open communication contribute to employee performance in goal delivery. The instrument was tailored after the 5-point Likert-type scale. A sample of 252 respondents was randomly selected from the study selected manufacturing frims which include Lafarge Africa Plc, Meyer Plc, Chemical and Allied Product Plc, Premier paint Plc, Portland paints and Product Plc, and a questionnaire was thereafter administered to them. From the 252 questionnaires administered, two hundred and two (202) were completed and returned and found usable for the research. The 50 missing copies of the distributed questionnaire were occasioned by circumstances such as 27 not

being properly attended to, 20 copies not being able to be found, and while 3 were mutilated, hence they couldn't form part of the study. However, prior to the distribution of the questionnaire instrument, it was pilot tested using the Cronbach's Alpha Test. This was imperative to establish the internal consistency of the study questionnaire items. Table 1 therefore presents the result of the Cronbach Alpha Test. As shown, the number of scaled items in the questionnaire was 14. This is made up of the 4 items designed to elicit information on the demographic

characteristics of the respondents, and 10 items were set aside to generate reactions on the basic subject of the research. That's teamwork, open communication, and employee optimum goal delivery. The alpha coefficient generated from the examination of reliability was 0.8637, which is above the 0.70 threshold. Given the result obtained, it suggests that the research instrument is internally consistent and reliable. The outcome of the test of internal consistency of the instrument is shown in Table 1 below.

Table 1: Test for Internal Consistency

Diagnostics		Stat.
Ave. Interterm Cov.		
No of Scaled Items		14
Reliability Coefficient		8637

Source: Field Survey, 2025.

Table 2: Demographics of the respondents

S/N	Variables	Categories	Frequency(N=202)	Percentage(%)
1.	Gender	Male	129	63.86%
		Female	73	36.14%
		Total	202	100.0%
2.	Marital Status	Married	189	93.56%
		Single	9	4.46%
		Others	4	1.98%
		Total	202	100%
3.	Age Range	18-35years	60	29.70%
		36-45years	83	41.09%
		46-55years	39	19.31%
		56years and above	20	9.90%
		Total	202	100%
4.	Work Status	Work		
		Full-time Empl.	137	67.82%
		Part-time Empl.	50	24.75%
		Contract/Ad-hoc Empl.	15	7.43%
		Total	202	100%
5.	Work Experience	1-5years	40	19.80%
		6-10years	48	23.76%
		11-15years	52	25.74%
		16-20years	27	13.37%
		21-25years	20	9.90%
		26years and above	15	7.43%
		Total	202	100%

Source: Field Survey, 2025.

Apparently, in Table 2, the demographic information and characteristics of respondents were presented, and it was discovered that 129 (63.86%) and 73 (36.14%) were male and female, respectively. In the facet of age range of respondents, it was found that 60 (29.70%),

83 (41.09%), and 39 (19.31%) fall within the age range of 18-35 years, 36-45 years, and 46-55 years, respectively, while 20 (9.90%) were 56 years and above. On the basis of marital status, it was discovered that the vast majority of respondents were married (189, 93.56%),

with a very small number who were single (9, 4.46%). Those that fall into the categories of others, which include separated, divorced, or cohabiting, were 2 (1.98%). On the facet of work status of respondents, it was discovered that 137, representing 67.82% of the total sample, fall within the categories of full employment, while 50 (24.75%) and 15 (7.43%) represent respondents on part-time and ad-hoc employment, respectively. For years of experience on the job, it was found

that a large number of respondents (52), representing 25.74%, have about 11-15 years of experience, closely followed by 48 (23.76%) and 40 (19.80%), which lucidly established that respondents have spent about 6-10 years and 1-5 years in manufacturing firms. While 27 (13.37%), 20 (9.90%), and 15 (7.43%) have respectively spent about 16-20 years, 21-25 years, and 26 years and above in the manufacturing industry.

Model Specification

$$\text{Employee Optimum goal delivery} = f(\text{HRM Practices})$$

eq. 1

In an attempt to test formulated hypotheses of the study, the following models were subsequently developed as shown algebraically as follows:

Model 1

$$\text{EmpOGD} = f(\text{TeamWk})$$

eq. 2

$$\text{EmpOGD} = \alpha_0 + \beta_1 \text{TeamWk} + \mu_t$$

eq. 3

Variable Description

<i>EmpOGD</i>	=	Employee Optimum goal delivery
<i>TeamWk</i>	=	Teamwork
α_0, β_1	=	Regression coefficients of the model
μ_t	=	Error term.

Test of Hypotheses and Discussion

Hypotheses I

H₀₁: Teamwork has no positive and significance correlation with employee optimum goal delivery.

Table 3: Model Summary for Test of Hypothesis One

EmpOGD	Coeff.	Std.Err.	T	P> t	Decision
TeamWk	0.3876	0.0959	3.39	0.000	Reject
_CONS	2.2318	0.3205	7.28	0.000	
Obs.	202				
F(1, 210)	10.63				
Prob > F	0.0018				
R-Squared (R²)	0.7966				
Adj. R²	0.6773				

Source: Field Survey, 2025.

This study hypothesis 1 was tested by assessing the impact of teamwork on employee optimum goal delivery in the selected manufacturing firms in Nigeria. That's how teamwork contributes to employee's ability to contribute maximally to the organizational progress. Table 3 therefore

shows the outcomes of the test of Hypothesis of the study. The result indicated that the t-values obtained for teamwork (TeamWk) is 3.39 with a corresponding 0.000 (*p-value*). This outcome established copiously that teamwork in the selected manufacturing firms has a positive and significant correlation with

employee optimum goal delivery. That's to say, teamwork contributes maximally to employee ability towards optimum goals delivery. With an adjusted R^2 of 0.6773, it is apparent that only the explanatory variable accounts for 67% of changes in the level of employee performance in goal delivery within the studied firms, with a corresponding R^2 value of 0.79% while the standard error value stood at 0.0968. With such plausible values obtained, it's an attestation that the model specified and subsequently developed in this research followed by the regression result is not only accurate but also very reliable. Again, 10.63 and 0.0018 are the obtained values for the study F_{cal} for the overall model and for the corresponding p-value, respectively. Arising from the above result, therefore, the null hypothesis is rejected. The finding is in congruence with the findings of prior research, *see* Uzor and Onyemere (2024), Ndekile et al. (2024), Mohammad & Shahid (2017), and Al Salman & Hassan (2016)

Summary of Correlation Analysis

Results from the study indicated a firm and strong positive relationship between teamwork and goal delivery ($r = 0.79$, $p < 0.05$). Apparently, the lucid influence of teamwork significantly impacts a firm's efficiency and effectiveness. Indeed, the aim of this correlational evaluation is to provide sterling empirical proof (evidence) on the effect of teamwork on worker optimum goal delivery in the study domain. We expect the result to support and contribute to academic literature, practical administration, and management policies and strategies in the Nigerian manufacturing sector.

Implications of Results

Findings of the study highlight the necessity for manufacturing firms to commit appreciable levels of resources in investment in synergistic and collaborative work climates strategies to up-scale and maximize workers

capabilities and firm's effectiveness. Teamwork fosters knowledge resource sharing, sense of trust, confidence, and acceptance among employees, leading to enhanced innovation and creativity for the benefit of both workers and organizations as well.

Conclusion and Recommendations

This study assessed the impact of teamwork on employee optimum goal delivery among manufacturing firms in Nigeria. While this study agrees that previous studies have established the significance of up-scaling employee performance efficiency and factors that contribute to such optimum goal delivery in the organization, the quest to understand the correlation between teamwork and employee optimum goal delivery potential therefore prompted this present study. By relying on primary data gathered via the deployment of a self-structure questionnaire, information was generated from 202 respondents and analyzed by relevant statistical techniques. The postulated hypotheses were examined at a 5% significant level via the F-statistics. As a result of the outcome generated from the study, the null hypotheses was rejected, resulting in an inference that the study's independent variable (teamwork) has a positive influence on the dependent variable (employee optimum goal delivery). That's to say, teamwork foster a high level of employee performance, commitment, and motivation. It leads to wide-range of acceptance, trust and confidence among employees, and promote innovation, creativity, effective knowledge resource sharing and building enduring workforce.

Recommendations

The outcome/result of this study confirmed that teamwork significantly contribute to employee goal delivery in manufacturing firms. It showed a strong positive correlations. On the basis of this findings, the study

recommends, among other things, that firms should give priority attention to team-building activities, and provide training and development programs to further boost interpersonal, knowledge-sharing, and collaborative skills among workers in the workplace.

Suggestions for Future Study

To further broaden the body of literature, the study suggested that further research can assess and explore industry-specific dynamics and carry out longitudinal evaluations to

measure the long-term effect of teamwork on employee productivity and its corresponding impact on organizational overall productivity, competitiveness, and effectiveness. Additionally, this research is limited to selected firms in the manufacturing industry in Nigeria; as such, it may affect the generalizability of outcomes/results. Therefore, future research should be conducted to expand the scope to integrate other sectors and/or geographical locations or regions.

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Modeling Market Microstructure and Time Series in Nigerian Exchange Limited

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Abstract

Microstructure data typically consist of trades and bid and offer quotes for financial securities that are collected at fine sampling intervals (often within the day). This paper reviews approaches taken to modeling these data. The emphasis is on techniques of stationary multivariate time series analysis: autoregressive and moving average representations of standard microstructure models, vector autoregressive estimation, random-walk decompositions and cointegration. The paper also discusses the challenges posed by irregular observation frequencies, discreteness and nonlinearity.

KEY WORDS: *Microstructure, Bivariate models, Inventory models, Univariate, Time-Series.*

Introduction

Market microstructure is the area of financial economics that focuses on the trading process. Factors both practical and academic are motivating research here. On the practical side, innovation in financial markets has resulted in increased trading volume in standard securities (stocks, bonds, etc.), creation of new types of securities, and greater experimentation with alternative trading mechanisms. From the academic perspective comes a fuller understanding of the role played by trading in the incorporation of new information into

security prices. Empirical work in the area has also benefited from the increasing availability of detailed transaction data.

Microstructure research seeks to address two sorts of questions. The first belong to the study of markets narrowly defined: how should transaction costs be estimated; what are the optimal trading strategies; and, how should markets be organized? The second and broader set of questions arises from the role that the market plays in price discovery (the incorporation of new information into the security price): how can we characterize the determinants of security value that we

loosely refer to as public and private information?

Ultimately these two types of questions are related. The organization of a market may affect the transactions costs, and therefore the net return to an investor, the valuation of the asset and the allocation of real resources (Amihud & Mendelson (1986).

Conversely, the characteristics of an asset (risk, return, homogeneity, divisibility) may favor certain holding patterns among investors and certain market structures (Grossman & Miller (1988).

Empirical microstructure analyses draw on three areas of knowledge. The first is comprised by the formal economic models of individual behaviour that offer substantive predictions about how observable variables should behave. The second area is statistical time series analysis. The third area concerns the "institutional realities: the actual procedures by which individuals and automated systems work to accomplish trades in a particular market.

The theoretical work in market microstructure has centered around several reasonably well-defined paradigms that serve as a common basis for variations. The evolution of thought on security transaction price behaviour has passed from basic martingale models, to non-informational cost models (order processing and inventory control paradigms), and finally to models that incorporate the distinctly informational and strategic aspects of trading. Although this paper will describe the intuitions behind these models, it does not present a rigorous discussion. O'Hara (1994) provides a comprehensive textbook discussion that establishes much of the economic background for this paper.

Present empirical work in microstructure is characterized by a wide diversity of techniques. Market data exhibit a panoply of features that are hostile to statistical modeling: complex dynamics, nonlinearities,

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nonstationarities, and irregular timing to name a few. The impracticality of modeling all of these features jointly, in a specification that can also potentially resolve alternative economic hypotheses, leads to a multitude of more modest models that simply try to capture one or two phenomena relevant to the problem at hand.

To establish a common footing, however, the models considered in this paper are cast in the framework of linear multivariate time series analysis. Most of the statistical techniques discussed here were originally developed and applied to macroeconomic time series. (Lutkepohl (1993) & Hamilton (1994) are excellent textbook presentations. The reader approaching the present paper from a macro perspective will find most of the time series results familiar. But time series analysis is not a mechanical procedure, and the application of any technique to a new problem involves some reflection on the economics of the situation and the nature of the data.

Some issues that cause great difficulty in macro applications are conveniently absent in microstructure data: microstructure observations are exceedingly numerous and the fine time intervals over which the data are collected greatly mitigate the simultaneity induced by time aggregation. On the other hand, microstructure data often exhibit troublesome properties such as discreteness that rarely arise in macro analyses.

Literature Review

Simple Bivariate Models of Prices and Trades

The univariate price models described above are capable of exhibiting dynamics that reflect microstructure phenomena and can also capture the first dichotomy mentioned in the introduction, that between permanent (informational) and transient (market) effects. The models described in this section

encompass trades as well, with a view toward establishing the second important distinction, that between trade-related and -unrelated sources of price variation.

Inventory Model

Buyers and sellers in the simple bid-ask spread model are assumed to arrive independently and with equal probability. Let X_t denote the signed trade quantity, positive if the arriving trader buys from the dealer and negative if the trader sells. The cumulative quantity from time zero through time t is $L_t = \sum_{s=0}^t X_s$. In the paper that introduced the term "microstructure", Garman (1976) pointed out that as t increased, this sum would diverge, implying that the dealer bought or sold (net) an infinite amount. Real-world dealers face capital constraints, however, and would in any event avoid large positions due to risk-aversion. This motivates the need for some sort of inventory control or position management. The inventory control problem in classical microeconomics is one of specifying a restocking strategy subject to order and stock-out costs. The security market dealer, on the other hand has traditionally been supposed to achieve inventory control by shifting the quotes to elicit an imbalance of buy and sell orders. Formal models of this effect include Amihud and Mendelson (1980), Ho and Stoll (1981), O'Hara and Oldfield (1986) and Stoll (1978).

As an illustration, consider a generalization of the simple bid-ask spread model in which quote-setting is depends on the dealer's inventory position and incoming order flow depends on the quotes:

$$m_t = m_{t-1} + w, \quad q_t = m_t - b/I - 1/I, \quad I_t = I_{t-1} - x_t, \\ x_t = -a(q_t - m_t) + v_t, \quad p_t$$

The first equation describes the random-walk evolution of the efficient price. The quotes are summarized by the quote midpoint (the average of the bid and ask

quotes), q_t . This is equal to the efficient price plus an inventory control component, where I_t is the dealer's inventory at the close of period t . Without loss of generality, the dealer's target inventory is assumed to be zero. The quote-midpoint equation specifies that with $b > 0$, the dealer lowers his price if he has a long position. The net demand, x_t , is driven by a price sensitive component ($a > 0$) and a random component. The usefulness of the quote position as an inventory-management tool is based on the demand price elasticity.

Since the dealer is assumed to be the counter party to all trades, the change in inventory is equal to the negative of the net demand. The transaction price is equal to the quote midpoint, plus a cost component ex_t . This cost is proportional to trade size: rather than quoting a bid and offer price, the dealer quotes a linear bid and offer schedule. A trader wanting to buy an amount J_t will be quoted an ask price of $q_t = q_t + c/x_t$, and a trader wanting to sell will be quoted a bid price of $q_t = q_t - c/x_t$. The trade innovation v_t is assumed to be serially correlated, and uncorrelated at all leads and lags with w .

The essential features of this model can be illustrated by examining the impulse response function for a particular set of parameter values. Let $a = 0.8$, $b = 0.04$ and $e = 0.5$, and consider the paths of price and inventory subsequent to a trade shock at time zero of $v_0 = 1$, i.e., a purchase of one unit from the dealer. These paths are graphed in Figure 2. The buy is associated with an immediate price jump due to the cost component. Reversion is not immediate, however, subsequent to the trade, the dealer has an inventory shortfall and must raise his quotes to elicit an incoming sell order. As the sell orders arrive (in expectation), the dealer resets the quotes to the initial level. The inventory path reflects the initial depletion caused by the purchase (from the dealer)

and the subsequent sales (*to* the dealer). At the end of the adjustment process, both price and inventory have completely reverted. There is no permanent price impact of a trade in this model because trades are independent of information.

This is entirely trade-driven. As in the simple bid-ask model, the buyer pays the half-spread cxr . The second term depends on the

The permanent component of the price change is W_r , which is due entirely to public information. The pricing error is:

$$s_t = p_t - m_t = cx_t - bI_{t-1} \quad (2.2)$$

dealer's previous inventory position. If the dealer happened to have an inventory surplus, the buyer's cost would be reduced. If both pr and Ir are observable, the model may written as:

$$\frac{3}{4}Ir = -cit + (2c-b)Ir_{-1} + (b-c)It - z + w_t \text{ and } !, = (1-ab)/1_{-1} - vI.$$

Formally, this is a bivariate vector autoregressive (VAR) model, with a contemporaneous recursive structure, which may be estimated directly by least squares. There is sufficient structure here to recover both w_t and Sr from current and past observations.

Among the various sorts of microstructure data available, however, dealer inventory data are about the rarest. Implicit in these data are the dealer's trading strategies and trading profits, both of which are usually kept private. If Ir is not known, then inference must proceed solely from prices. On the basis of the univariate time-series representation of the price changes, the structural model is under-identified. Two important structural parameters are identified, however: the variances of the random-walk and pricing error components. Due to the paucity of inventory data, there are few analyses of pure inventory control models. In a U.S. S.E.C. (1971) study, Smidt presents some results for NYSE stock specialists based on daily positions and price changes. Ho and Macris (1984) estimate a transaction level model for an American Stock Exchange options specialist. Most recent studies allow for the possibility

of asymmetric information in addition to inventory control, and these are discussed below.

Asymmetric Information

The models considered to this point have assumed that all market participants possess the same information. This sort of public information may be thought of as instantaneous news releases, in response to which bid and offer quotes would adjust with no necessity of trading. The most important recent developments in theoretical microstructure, however, have been models that allow for heterogeneously informed traders. If a trade might be motivated by superior information, the occurrence of a trade (a public event in most models) will communicate to the market something about this private information. Some studies that initially addressed this phenomenon in microstructure settings are Bagehot (1971), Copeland and Galai (1983), Glosten and Milgrom (1985), Kyle (1985) and Easley and O'Hara (1987). O'Hara (1994, Ch. 3) provides an overview. A simple model of private information with fixed transaction costs can be given as:

$$m_t = m_{t-1} + w_t$$

$$\begin{aligned}
wl &= u + gxI \\
qt &= ml - l + ul \\
Pl &= q + ext
\end{aligned}
\tag{2.3}$$

Relative to the earlier models, the novelty here is in the random-walk innovation, WI . It is now composed of two components. The first, ul , is assumed to reflect updates to the public information set. The second, gxt , with $g > 0$, reflects the market's estimate of the information $\sigma_w^2 = \sigma_u^2 + g^2 \sigma_x^2$, e trade. For this component to be serially uncorrelated, it must be the case that x_t is serially uncorrelated, i.e., we are back to assuming that buy and sell orders arrive randomly. This model is a variant of one suggested by Glosten (1987).

Actual transaction prices are subject to a bid-ask spread related to the direction of the trade. There are two ways of interpreting the ext term in the price specification. First, if the magnitude of the trade is fixed, say $x_t \in \{-1, +1\}$, then c is one-half the bid-ask spread ($S/2$), with transactions occurring at the bid and offer prices ($q_t = qI - S/2$ and $qt = qI + S/2$). Alternatively, if trade size is continuous, then c gives the slope of the dealer's linear bid and offer schedule. The dynamic behaviour of prices and trades may be illustrated by the impulse response function based on parameter values $c = 0.5$ and $g = 0.2$, subsequent to an initial buy order of one unit ($xa = 1$). These are graphed in Figure 3. The initial price jump simply reflects the bid-ask bounce, but in contrast with the inventory control model, the reversion is not total. Of the initial 0.5 price jump, 0.2 is the $s_t = p_t - m_t = (c - g)x_t$

The pricing error is entirely trade driven. Relative to the simple bid-ask model with no private information, however, St is reduced by the information content of the

The return series is given by:

$$\Delta p_t = p_t - p_{t-1} = u_t + cx_t - (c - g)x_{t-1} \tag{2.6}$$

content, which remains permanently impounded in the stock price. By assumption there are no serial dependencies in trades: the initial purchase engenders no subsequent order flow effects.

The evolution in the efficient price now reflects both public and private information components, so

(2.4) which isolates the non-trade and trade-related components of the efficient price change. A useful summary measure of the relative importance of trades in explaining movements in the efficient price is the proportion

$$R_{w,x}^2 = g^2 \sigma_x^2 / \sigma_w^2 \tag{2.5}$$

The R^2 notation denotes the usual "proportion of total variance explained." This measure generalizes beyond the present model, and is a useful proxy for the extent of asymmetric information.

The private information effects in this model reflect the market's beliefs about the probabilistic structure of the private information, not the actual level of private information. That is, the price impact of a particular trade depends only on the market's general beliefs about extent and nature of private information, and not directly on the actual information possessed by the trader. A model of this sort cannot be used to identify, for example, illegal insider trades in a sample of data.

The pricing error is

trade, gxt . It is generally assumed that $c > g$ because the dealer is setting the half-spread to recover both information costs g and additional order processing costs.

If trades and prices are observable, this may be estimated directly. Early transaction-based estimations of trade impacts on price are Marsh and Rock (1986), Glosten and Harris (1988), and Hasbrouck (1988).

When trades are not observed, however, the inference must proceed solely on the basis of transaction prices. This model superficially resembles the simple bid-ask model considered in section 2.3. Like the earlier model, it possesses an MA(1) representation of the form (2.6). Here, however, the two parameters of the MA model $\{\theta, \sigma^2\}$ are insufficient to identify the four parameters of the structural model $\{c, g, \sigma^2, \theta\}$. The random walk variance is identified as before: $\sigma^2 = (1 + \theta^2) \sigma^2$;

$\sigma^2 = \sigma^2 + \theta^2 \sigma^2$. In contrast with the earlier model, however, we cannot assume that the pricing error is uncorrelated with the increment to the efficient price.

In summary, based on knowing the parameters of the return process for this model (autocovariances or, equivalently, the moving average parameters), we can compute the random-walk (implicit efficient price) variance. Neither the pricing error variance nor derived measures such as the spread, however, are identified in the absence of further restrictions. Unfortunately, neither of the two identification restrictions considered above is particularly attractive, as they involve a choice between suppressing all public information or alternatively all private information.

Methodology

Vector Auto regressions (VARs)

A vector auto regression is a linear regression specification in which current values of all variables are regressed against lagged values of all variables. The inventory and asymmetric information models discussed in the last section, for example, can be specified as bivariate vector autoregressions. More general and flexible models can be obtained by extending the number of lags in estimation. VARs are relatively easy to estimate (least squares usually suffices) and interpret (via the impulse response functions or other transformations considered below). Their value in microstructure studies also rests,

however, on their ability to characterize very general time series models. It is useful at this point to outline the assumptions underlying this generality, and also the ways in which they might be violated in microstructure applications.

The broad applicability of VARs ultimately rests on the World theorem. A zero-mean vector time series Y_t is said to be weakly stationary (covariance stationary) if the autocovariances do not depend on t , $E y_t y_{t-k}' = r_k$. The World theorem states that a zero-mean weakly stationary nondeterministic process can be written as a convergent vector moving average (VMA) process (possibly of infinite order):

$$y_t = e_t + B_1 e_{t-1} + B_2 e_{t-2} + \dots = B(L) e_t, \quad (3.1)$$

Where the e_t are serially uncorrelated homoskedastic increments with covariance¹ matrix Σ and L is the backshift operator, $L(J) = (I - J)$ (Hamilton (1994) and Sargent (1987)).

This is nothing more than the innovations representation of the process. This section assumes that the conditions of the World theorem are satisfied. The stationarity

assumption will be examined in greater detail in section 5.

Suppose that we are working with price changes and trades (as in the model of 2.4), so that the state vector is

$$y_t = \begin{bmatrix} \Delta p_t \\ x_t \end{bmatrix} \text{ and } e_t = \begin{bmatrix} u_t \\ v_t \end{bmatrix}; \text{Var}(e_t) = \Omega = \begin{bmatrix} \sigma_u^2 & 0 \\ 0 & \sigma_v^2 \end{bmatrix} \quad (3.2)$$

The orthogonality of the residuals is based on the economic assumption that contemporaneous causality flows from trade to the transaction price. This characterized all of the simple structural models discussed in the last section. It is easy to contemplate market structures in which this assumption

might be violated, but in many settings it is a reasonable approximation.

If all of the roots of the polynomial equation $\det(B(z)) = 0$ lie outside of the unit circle, then the VMA representation is said to be invertible, that is, it may be reworked to give a (possibly infinite) convergent VAR representation:

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \dots + e_t = A(L)y_t + e_t. \quad (3.3)$$

In microstructure applications, the invertibility assumption is commonly violated by over differencing or cointegration. As noted in section 3.4, over differencing is a real possibility when the model involves inventories, but the data contain only trades (the first difference of the inventory). Cointegration arises when the state vector includes two or more price variables for the same security (like the bid

and ask quotes, or the transaction price and either quote), and is discussed further in section 8. All of the simple models discussed in the preceding sections may be represented in the form (4.3).

A minor inconvenience arises because all of the bivariate VAR models in the last section include a contemporaneous term on the right hand side:

$$Y_t = A_1 y_t + A_2 Y_{t-1} + A_3 y_{t-2} + \dots + e_t;$$

It is easy to rework this into the form (4.3) by noting

$$Y_t = (I - A_1)^{-1} A_1 y_t I^{-1} + (I - A_1)^{-1} A_2 y_{t-1} + \dots + (I - A_1)^{-1} e_t;$$

2

Estimating the model in the form that includes the contemporaneous term is a convenient way of forcing orthogonality on the estimated residuals. Most econometric texts, however, employ the form (4.3), and this will be used here as well. There are several

ways of computing the VMA (4.1) from the VAR. Conceptually, the simplest procedure involves simulating the behaviour of the system subsequent to one-unit initial shocks (Hamilton (1974).

Analysis Time

The microstructure models studied in the earlier sections were implicitly cast in real time, sometimes referred to as "calendar

time" by macro econometricians or "wall-clock time" by microstructure students. In the interest of simplicity we implicitly took the time subscript t in the usual sense, as an index of equally-spaced points in real time.

The stationarity assumptions necessary to support inference were assumed to hold with respect to this time index.

Timing considerations in actual markets, however, are considerably more involved. Markets do not usually operate continuously. The few that are in principle open twenty-four hours per day exhibit strong concentration of activity. Furthermore, trades usually take place at random times throughout the market session. This section discusses ways in which more realistic notions of time can be incorporated into statistical models.

Deterministic Time Considerations

Some of the time properties of markets appear to be deterministic, like the regular or predictable seasonalities encountered in macro time series. Two related examples in microstructure data are market closures and intraday patterns. In most markets, trading takes place continuously during organized trading sessions.

In between are periods of nontrading, typically over a lunch break, overnight, or over a weekend or holiday. If we are interested only in the behaviour of the market during a trading session, we may drop from the sample all observations that span trading sessions, e.g., we might ignore an overnight return. If the aim of the analysis is a comprehensive model of the market evolution during periods of trading and nontrading, however, the econometrician must first take a position on whether or not the market evolution is time homogeneous, i.e., whether prices (security values) behave in the same way during trading and nontrading periods. If homogeneity is assumed, then we are taking the view that the timing of the observations in our sample is merely an artifact of some sampling process that is not related to the behaviour of the system. Obviously for models in which trading plays a central role (such as those involving

asymmetric information), time homogeneity is not an attractive assumption.

In testing less refined hypotheses, however, the conjecture might be a workable approximation. This motivates consideration of how time homogeneity is empirically examined.

Most of what we know about the role of time in microstructure data derives from the analysis of price-change variances (rather than means). This reliance on second moment properties characterizes not only the analysis of trading vs. nontrading periods, but also most of the work done on intra-trading session evolution. The reasons for this emphasis are the ones raised in Section 2.1: if the price follows a random walk, the precision of variance estimates is improved by more: frequent sampling, the precision of mean estimates is not.

In U.S. equity markets, at least, the hypothesis that the return variance per unit time is constant over trading and nontrading periods is easily rejected (Fama (1965), Granger and Morgenstern (1970), Oldfield and Rogalski (1980) and Christie (1981)). Based on an analysis of returns computed using daily closing prices, French and Roll (1986) estimate that the return variance per unit time is at least an order of magnitude higher when the market is open than when it is closed. This is due in part to the fact that production of public information (such as news releases) is more likely to occur during normal business hours, but it is also due to the role of trading itself in the price discovery process.

As a general rule, microstructure data exhibit distinctive behaviour at the beginning and end of trading sessions. Most notably, return variances per unit time exhibit "U"-shapes, i.e., elevations at the session endpoints. Marked intraday patterns are also found in measures of trading activity such as transaction frequency, trading volume rates and bid-ask

spreads (Jain and Joh (1988), McInish and Wood (1990), McInish and Wood (1992) and Wood, McInish and Ord (1985)).

Stochastic Time Effects

Although trading processes unfold in continuous time, they are marked by discrete events (e.g., trades or quote revisions). The determination of these occurrence times is at least in part random. Ideally, then, how should these processes be modeled from a purely statistical perspective? Furthermore, what is the economic significance of the occurrence times? Specification of continuous-time models that allow for random intervals between events is difficult. There is a well-established literature on the analysis of irregularly spaced time series. (See Parzen (1984), Jones (1985), and the references therein.) It is commonly assumed in these models that the irregularity is a property of the observational process per se, i.e., that the underlying process evolves homogeneously in real time, and that the irregular observation times are either fixed or are at least exogenous to the evolution of the process. In microstructure applications both of these assumptions are problematic, the former on account of intraday volatility patterns and the latter for reasons yet to be discussed. Nevertheless, this approach does achieve an appealing unity in capturing the discrete and continuous time aspects of a simple model. Furthermore, the techniques used to specify and estimate these models may yet be generalized to more complicated and realistic situations. From an economic perspective, time deformation in market data is usually assumed to result from variation in the "information intensity" of the market, the rate at which the informational primitives (public and private signals) evolve. This is difficult to operationalize because these primitives, with the exception of sharply defined events like press conferences, are

rarely observed. Also, in most theoretical models, the informational primitives are exogenous, implying that the resulting time deformation would also be exogen. Other economic considerations, however, strongly suggest endogenous time effects. A market-maker, for example, might diminish the frequency of incoming order arrival simply by widening the bid-ask spread. This sometimes occurs in response to a particularly significant informational announcement. In this instance, the econometrician relying on trade frequency as a proxy for informational intensity will draw exactly the wrong inference. Easley and O'Hara (1992), Easley, Kiefer and O'Hara (1993, 1994) and Easley, O'Hara and Paperman (1995) discuss these effects and suggest empirical tests. Strategic quote-setting behaviour that can also lead to trade frequency effects is discussed by Leach and Madhavan (1992, 1993).

5. Conclusion And Recommendations

From a statistical perspective, the current state of the art falls considerably short of a plausible comprehensive model of transactions data. But statistical models in this area must be ultimately judged by their implications for the economic questions. From an economic perspective, the standing questions are those of how information enters market prices, how traders should behave (private welfare) and how markets should be organized (social welfare). Studies of trade-price behaviour have yielded a modest understanding of the first issue. It is an empirical fact that trades seem to explain part but not all of price changes. This confirms the existence of private information and establishes the importance of trading for the revelation or incorporation of this information. Answers to the other two fundamental questions, however, remain elusive. Trading strategy in most markets remains the province of human judgment,

guided by experience and intuition, beyond the limits of existing normative models, even outside the realm of most ex post performance measurement excepting that of the roughest sort ("Did our investment strategy make money, net of trading costs?"). Nor have academic efforts to define economically efficient trading arrangements been particularly successful. While we have garnered greater insights into the workings of existing markets, we have yet to create yardsticks capable of ranking potential alternative arrangements. No consensus on these questions among academics, practitioners and regulators has yet emerged. It is certainly to be hoped that improved econometric models will provide useful in sign.

Recommendations

Incorporating realistic time effects into microstructure models is a difficult task that is likely to call forth more and better research efforts. But if time *per se* is not the focus of a particular analysis, the econometrician needs to match the method to the immediate problem and the data. For investigating broad hypotheses about intraday patterns in market data and associations in these patterns, it appears sufficient to rely on data aggregated over fixed time intervals (e.g., hours). For investigating causal relations (such as trade price impacts) that would be obscured by aggregation, the econometrician should lean toward modeling the data purely in event time, intuition of the formal time deformation approach: the "clock" of the process is assumed to be events.

Summary and Directions for Further Study

This paper has attempted to provide an overview of the various approaches to modeling microstructure time series. Rather than recapitulate these developments, it is

perhaps more useful to return to the questions that motivated them. It was claimed in the introduction that microstructure models can potentially examine both narrow questions of trading behaviour and market organization and also broader issues of valuation and the nature of information. The present paper has focused, however, almost exclusively on the former. This emphasis can be justified on the grounds that any study using market transaction data must employ methods that reflect the market realities. But as a practical matter the economic importance of security valuation and the implications for the allocation of real assets almost certainly outweighs the welfare improvements that might result from modest changes in the trading mechanisms for most securities. It is therefore appropriate to briefly indicate the some of the ways in which microstructure studies can illuminate aspects of corporate finance.

The classic event study measures the impact of a public information event by the associated change in the security price. The insight of the asymmetric information models is that when the "event" is a trade, the price reaction summarizes the market's estimation of the private information behind the trade. Studies of the price impact of trades, the spread (under certain assumptions), or the summary $R_{i,t,x}$ measure introduced in section 3.2 thereby broadly characterize the market's beliefs about the magnitude of information asymmetries. Since these beliefs cannot usually be measured directly, the window offered by microstructure data may well be the only vantage point. Recent studies that explore asymmetric information in the vicinity of corporate announcements include Foster and Viswanathan (1995) (takeover announcements) and Lee, Mucklow and Ready (1993) (earnings announcements). Neal and Wheatley (1994)

discuss the asymmetric information characteristics of closed-end mutual funds.

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International Public Sector Accounting Standards Adoption and the Quality of Financial Reporting in Nigeria

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Abstract

The development of any accounting system requires consideration of the underlying purpose of that system. In Nigeria, government accounting processes have been conducted within the general framework of the principles of fund accounting but the application of these principles to financial reporting has been a major challenge. This study examined the implications of adoption of International Public Sector Accounting Standards on the quality of financial reporting of public sector in Delta State. Primary source of data and regression statistical tool was employed. Findings revealed that International Public Sector Accounting Standards adoption would increase the level of accountability of financial reporting of public sector organisations. In addition, it was found that applying International Public Sector Accounting Standards would make the results of financial reporting of public sector organisations more transparent. The study concludes that the International Public Sector Accounting Standards have the potential to give a better financial integrity assurance. The study recommends reforms in the public financial management and strengthening of legislative capacity to balance the executive power. Therefore, the adoption of International Public Sector Accounting Standards is expected to influence the operating procedures and reporting practices of public sector in Nigeria.

Keywords: *International Public Sector Accounting Standards; Financial reporting; Public sector; Accountability; Transparent reporting*

Introduction

In recent years, improving the quality of government financial reporting has remained a top priority worldwide, particularly in emerging countries such as Nigeria. The lack of openness, full representation, accountability, comparability, relevance and trustworthiness in financial reporting has historically led to criticism of the caliber of financial reporting generated by public sector organizations. Inconsistencies, a lack of comparability, and the limited utility of

financial reports for stakeholders, including investors, legislators, and the general public have frequently resulted from traditional public sector accounting processes. Organizations in the public sector has been criticized for falling short of international best practices. On the other hand, a number of accounting scandals, including corruption, embezzlement, inadequate accountability, and inadequate infrastructure development, have emerged as a result of the public sectors' poor

financial reporting quality in Nigeria (Oluwagbuyi & Olowolaju, 2022).

The incapacity to compare government accounts with those of the private sector, or even to compare the financial statements of two nations or even two states within the same nation, or to compare municipal governments within the same state. The production of government financial statements using a cash basis is another significant challenge. Transparent reporting is hampered by government financial statements that do not include asset values and, in fact, do not compute depreciation. Lack of essential accounting data for financial reporting using the cash basis. In the meantime, the main goal of financial reporting is to give enough financial details about an entity's economic existence as well as pertinent data that can be used to make decisions (Saleh, et al., 2021).

The International Accounting Standard Board (IASB, 2019) states that financial reporting should give users valuable information about an entity's financial status so they can make informed financial decisions. To regulate government accounting in light of the aforementioned, the International Public Sector Accounting Standards Board (IPSASB) released a set of accounting standards known as International Public Sector Accounting Standards (IPSAS). At its meeting on July 28, 2020, the Federal Executive Council (FEC) gave its approval for Nigeria to implement the International Public Sector Accounting Standards (IPSAS) rules.

Regardless of the entity, the main objective of financial reporting is to demonstrate the entity's accountability for the services entrusted to it and to offer information that will be helpful to a wide range of users in making and reviewing decisions about resource allocation. The accrual accounting system is the only way to achieve these objectives. The long-term economic impact of political actions on financial statements is

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reflected in accrual accounting methods. Cash accounting simply cannot do this. Thus, the main motivation behind IPSAS for public sector financial reporting has been the necessity for the creation of a uniform accounting standard.

With the exception of the commercial public sector, all Public Sector Entities (PSEs) worldwide are permitted to use IPSAS when preparing their financial accounts. The overarching goals of IPSAS are to increase financial accounting transparency, facilitate data comparison among companies, and establish consistent accounting standards for public sector organizations worldwide. This study will assist in assessing how much Delta State has benefited from the vast advantages of IPSAS for financial reporting, as well as how it has affected the caliber of financial reporting in the Delta State public sector. Thus, this study examines how IPSAS affects the caliber of public sector financial reporting.

Literature Review

International Public Sector Accounting Standards (IPSAS)

The International Public Sector Accounting Standards (IPSAS) started in the 1980s when the International Federation of Accountants (IFAC) established the Public Sector Accounting Committee (IPSAC) in 1989 to develop accounting standards for the public sector. In 1999, IFAC established the International Public Sector Accounting Standard Board as a separate entity to develop and issue IPSAS, a set of high-quality accounting standards issued by the International Public Sector Accounting Standard Board (IPSASB), an independent organ of the International Federation of Accountants (IFAC), for use by public sector entities worldwide in the preparation of financial statements.

With an emphasis on international standards and best practices, IPSASB launched a new era in public sector accounting in 2000 with

the release of the first standard, IPSAS 1 "Presentation of financial statements." From 2000 to 2010, IPSAB developed and issued a number of IPSAS, including standards on revenue recognition, asset recognition, and disclosure requirements. Currently, there are 44 accrual basis International Public Sector Accounting Standards (IPSAS). The IPSASB also established a thorough outreach and consultation process to make sure the standards satisfied the needs of users and implementers. As IPSAS gained recognition and acceptance, countries and organizations started adopting the standards, and today, over 100 countries have adopted or are in the process of doing so.

The Federal Executive Council (FEC) at its meeting of 28th July, 2020 approved that Nigeria should adopt the provisions of the: International Financial Reporting Standards (IFRS) and International Public Sector Accounting Standards (IPSAS). IFRS have been credited with providing a more transparent and accurate financial overview of listed companies around the world, using accrual accounting as approved to cash accounting. The overall objective of IPSAS is to have uniform standards for accounting at public sector organization around the world, to enable comparison of data across organizations and improve financial accounting transparency.

IPSAS have the following benefits: to build confidence of donor agencies, improves service delivery, enhances Public-Private Partnership (PPP), boots peer review mechanism of financial reports among the three tiers of government and government of other countries, other benefits of adoption are better access to financing through either bond releases or international financing from organizations such as the International Monetary Fund and the World Bank. Delta State government fully transited into IPSAS accrual in 2017.

Financial Reporting

Communication of financial statements and other relevant financial data from a company or organization to its stakeholders and other information consumers is known as financial reporting. Providing high-quality information about reporting organizations that is utilized for economic decision-making is the primary goal of financial reporting. According to Egolum et al. (2021), financial reporting is the official procedure of disclosing a company's financial activity. For any market player, it has been seen as a vital resource. Financial reporting is the process that culminates in the compilation and presentation of financial reports pertaining to the organization as a whole, for use by parties both internal and external to the enterprise.

Financial reporting is the process by which a business or organization communicates its financial statements and other pertinent financial data to its stakeholders and other information consumers. The main objective of financial reporting is to provide high-quality information regarding reporting entities that is used for economic decision-making. Egolum et al. (2021) see financial reporting as the formal process of revealing a business's financial operations. The process of compiling and presenting financial reports about the entire organization for use by stakeholders both inside and outside the company is known as financial reporting.

Theoretical Framework

The theory of agency-principal This hypothesis was the basis for this inquiry and relates to a concept that is used to explain the interaction between the Principal and his Agent. In essence, the principal supplies and employs his agent to make certain financial decisions and transactions on his behalf. The Principal, the agent's line manager, employs the agent. In the public sector, "agency theory" refers to the study of the relationship between a principal (such a government

agency or elected politician) and an agent (like a government employee or contract).

The term "agency dilemma" refers to situations in which the decisions made by the agent (elected officers) may be detrimental to the principal (citizens) because they do not advance common interests; however, increasing transparency and accountability - for example, by making public financial information available under specific desired characteristics - is one way to persuade politicians to act in the best interests of their constituents (Jensen & Meckling, 1976). This would allow the owner to control the agent and provide incentives or penalties as necessary. Agency theory examines the link between agents (employees/public servants) and principals (government/public) and how it impacts responsibility (Parker et al., 2018; Gordon et al., 2020).

Empirical Studies

Saleh et al. (2021) looked at the problems and difficulties associated with putting International Public Sector Accounting Standards into practice. Examining previous research and information on the difficulties and barriers faced by different developing nations while implementing IPSAS was the research's methodology. According to the study's findings, there are three categories of challenges that countries face while putting IPSAS into practice:

Resource limitations include a lack of qualified finance and accounting staff, as well as inadequate IT infrastructure and support; accounting and reporting issues related to the intricacies of revenue, expense, liability, and asset recognition and quantification; and executive leadership commitment to ensuring successful change management initiatives. The research revealed that the obstacles encountered during the implementation of IPSAS in developing nations are remarkably alike and can be grouped into the mentioned challenges.

The effects of accounting reform and the adoption of IPSAS in Greece were examined by Chytis et al. (2020). By distributing a questionnaire to elected officials in charge of financial management and reporting as well as officers and employees in the finance departments of 325 Greek municipalities, a survey research methodology was used. The research data were analyzed using both descriptive and inferential statistics. Additionally, it was determined that Greek municipalities are not ready for the adoption of IPSAS and the accounting reform. All things considered, Greece is in an early stage, with delays in the implementation of implemented measures. The report suggested reforming all aspects of public administration, including regulators, standard-setters, and institutions.

The use of International Public Sector Accounting Standards in Nigeria was investigated by ThankGod et al. (2021). The study used a literature evaluation of earlier research. According to their literature research, the need to determine the extent of IPSAS acceptance and implementation in Nigeria as well as the need to create globally standardized accounting standards served as the impetus for this investigation. IPSAS has become a major force in the worldwide government accounting scene amid requests for increased financial accountability and transparency in government. The Federal Executive Council of Nigeria approved the adoption in July 2010, and it went into effect. Adedeji (2024) investigated how the quality of financial reporting in South Western Nigeria and the adoption of IPSAS were mediated or moderated by contingency considerations. The public service in the six states of southwest Nigeria is the main subject of the study. The study has 400 respondents in total, with the majority of the respondents being public sector professionals such as accountants and auditors. A well-structured survey was made and disseminated. The

structural equation modeling result revealed that IPSAS implementation influence the caliber of financial reporting is largely determined by contingency factors within the sample states.

Elugom and Onyeka (2023) investigated how IPSAS affected public sector accountability. The researcher directly collected data from the sampled respondents using a questionnaire. The generated data was analyzed using straightforward tables of the percentages. The results showed that IPSAS adoption has raised openness in the public sector and greatly enhanced accountability. In summary, the public sector now has a higher degree of responsibility and value relevance thanks to the adoption of IPSAS.

John et al. (2023) explored the relationship between IPSAS implementation and financial reporting quality in Cross River State, Nigeria. Survey research design and purposive sampling method were adopted. The population considered in this study was made up of middle and top-level management staff of Cross River State Ministry of Finance, totaling 35. Primary data were collected through administering questionnaires to a sample of 19 respondents who were accountants in the Ministry of Finance. Simple Percentage and Pearson correlation were used as data analysis techniques. The results of the analyses indicated that IPSAS implementation has a significant positive relationship with faithful representation and reliability of financial reports.

Bello et al. (2022) Centered on the effect of global public sector accounting standards on the financial reporting accuracy of public health institutions in Nigeria. A survey research design was chosen for the study to collect primary data effectively with the help of a carefully designed tool, enabling statistical analysis. The survey was created to collect information from experienced and informed employees regarding the impact of international public sector accounting

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standards on the financial reporting accuracy of chosen federal health institutions in Nigeria. Analysis of variance and ordinary least square were utilized for inferential purposes. The study's results indicated a robust model with an R^2 of 93.4%, showing a high level of financial reporting quality in the chosen FHIs, primarily influenced by IPSAS, accruals, aggregation, and materiality in the Financial Statements.

Similarly, Tawiah (2022) use large panel data of 107 developed and developing countries to examine the impact of the International Public Sector Accounting Standards (IPSAS) adoption on governance quality. The results show that IPSAS has a positive and significant influence on governance quality, suggesting that IPSAS ensure accountability and transparency between the government and its citizens. Findings provide empirical evidence to policymakers and regulators in pursuing global harmonization of governmental accounting through adopting IPSAS, especially in developing countries.

Since its adoption in 2014, Edwin et al. (2020) have studied the impact of International Public Sector Accounting Standards (IPSAS) on public sector accountability and transparency in Nigeria. Using the analytical discourse technique, a qualitative study of the agencies in the five states of southeast in Nigeria was conducted. The study found that IPSAS implementation has not resulted in accountability and transparency. Also, the study discovered that the fundamental elements for a complete adoption of IPSAS include political will, the use of accrual bases of accounting, and internet facilities, all of which were deficient in our study area.

Nzewi and Faith (2020) determined effect of international public sector accounting standards (IPSAS) on Delta State ministry of finance. A sample of one hundred and eighty five (185) was drawn from a population of three hundred and forty three (343) staff from Delta State Ministries, Departments and

Agencies (MDAs). Data obtained was analyzed using five point likert's scale and the formulated hypotheses were tested. From the analysis of the data the adoption of International public sector accounting standards leads to accountability and transparency among public officers in the ministry.

Research Methods

In this study, cross-sectional survey research design method was adopted. The study was carried out in Delta State public service with selection of three key ministries where application and practice of accounting is more

dominant. The three ministries were Ministry of Finance, Office of the Accountant General, and Ministry of Economic Planning, Asaba, Delta State. The target population for this study is employees of the three ministries.

Using proportional method, a sample size of two hundred and seven (207) was employed and questionnaire containing closed-ended questions were used. The questionnaire was designed on a 5-point scale of strongly agree, agree, disagree, undecided and strongly disagree. The items of questionnaire were tested for reliability using Cronbach Alpha method with coefficients as shown below:

Table 1: Cronbach Alpha Results

Variables	Nature of Variables	No of Items	Coefficients
IPSAS Accountability	Independent	5	0.5110
IPSAS Transparency	Independent	5	0.5316
IPSAS Comparability	Independent	5	0.4988
Quality of Financial Reporting	Independent	5	0.4251

Source: SPSS Output from Fieldwork, 2025.

Furthermore, the following empirical models were used in ascertaining the relationship between IPSASs and quality of financial reporting

$$FRQ = f(IPSAS) \quad (1)$$

$$FRQ = f(IPSAS\ AC, IPSAST, IPSASCOM) \quad (2)$$

$$FRQ = \beta_0 + \beta_1 IPSAS_i + \beta_2 AC_i + \beta_3 IPSAST_i + \beta_4 IPSASCO + \mu_i \quad (3)$$

Where: FRQ = Financial Reporting Quality; IPSASAC = IPSAS Accountability; IPSAST = IPSAS Transparency; IPSASCOM = IPSAS Comparability; $\beta_1 - \beta_4$ = Coefficient of independent variables; μ = Error term

Results

Table 2: Demographic Profile of Respondent

Profile	Frequency	Percentage
Gender		
Female	73	37
Male	127	63
Total	200	100
Age		
25-30	69	18.8
31-40	86	27.5
41-& above	55	16.6
Total	200	100
Marital Status		
Single	60	37.7
Married	100	38.3
Divorced	20	6.1
Widowed	20	6.1
Total	200	100
Working Experience		
10-15 years	78	29
16-25 Years	67	22
26-30 Years	38	12
31-& Above	29	11
Total	200	100
Area of Specialization		
Accountant	127	75.
Auditor	72	25
Total	200	100
Educational Qualification		
Diploma	63	35.5
First Degree	102	51
Master	32	16
PhD	13	28.2
Total	200	100
Professional Body		
ICAN	66	33
ANAN	41	20
CITN	34	17
ACCA	59	30
Total	200	100

Source: SPSS Output from Fieldwork, 2025.

Table 2 reveals that 127(63%) of the respondents were male as against 73(37%) of their female counterparts. This indicates that there are more male than females in the selected ministries. It shows that 69 respondents, representing 20.8% between 25-30, 86 representing 28% were within the ages of 31-40, 55 representing 17% were within the ages of 41 above. The numbers of respondents aged between 31 and 40 are the highest which implies that there are more of matured youths in the ministry.

Furthermore, it shows clearly that there are more married respondents than single ones. 60 (37.7%) of the respondents are single, 100(38.3%) are married, 20(6.1%) are divorced while the remaining 20(8.3%) are widowed. This implies that most of the respondents are married. This means that the selected public servants are marital responsible. The results shows that 78 representing 24.3% has 10-15years, 67 representing 29.7% had worked for 16-25 years, 38 representing 12% had worked for 25-30years representing 29 (12.1%) of the workers had put in above 31 years.³²; this

implies that most of the selected worker being matured adults with good working experience; thus, validating their level of responsibility towards their jobs.

The result reveals that 128 (62%) of the respondent are accountants while 72(38%) are auditors. This implied that the sampled ministries have good numbers of accountants and auditors that can ascertain the impact of IPSAS on financial report quality in the public sector. The result shows that, 63(35.5%) of the respondents had diploma qualification, 102(51%) of the respondents had first degree qualification, while 32(29.4%) of the respondent had Master Degree and 13(8.2%) had PhD. It could be noticed that majority of the respondents had good educational background thereby putting them in a position to give the right answers to the diverse questions contained in the questionnaire. Out of the 200 respondents, 59(29.%) had ACCA qualification , 41(20.5%), ANAN qualification 34 (17.%) and CITN and 66 (33%). However, it was found that majority of the respondents had ICAN.

Table 3: Accountability of IPSAS and Quality of Financial Reporting

S/ N	Survey Question	Options	Frequency	Percentage	Mean	Remark
1	IPSAS adoption implementation enhances government functionaries to be accountable on the management of the public assets.	Strongly disagree	43	21.5	2.77	Not Sig.
		disagree	68	34		
		Disagree	10	5		
		Undecided	49	24.5		
		Agree	30	15		
		Strongly Agree				
2	Accountability helps to guarantee users of financial statement that the accounting information provided accurately represents the economic value of the organization.	Strongly disagree	20	10	3.71	Sig.
		disagree	21	10.5		
		Disagree	8	4		
		Undecided	99	49.5		
		Agree	52	26		
		Strongly Agree				
3	Accountability enhances auditors to assure investors and donors that the organization's funds are properly managed.	Strongly disagree	42	21	3.41	Sig
		disagree	12	6		
		Disagree	16	8		
		Undecided	82	41		
		Agree	48	24		
		Strongly Agree				
4	Accountability enhances disclosure of cost of funding programs and activities.	Strongly disagree	3	1.5	3.86	Sig
		disagree	30	15		
		Disagree	20	10		
		Undecided	85	42.5		
		Agree	62	31		
		Strongly Agree				
5	Accountability enables investors to rely more on the public sector financial statement prepared in line with IPSAS.	Strongly disagree	21		4.2	Sig
		disagree	32			
		Disagree	8			
		Undecided	100			
		Agree	39			
		Strongly Agree				

Source: Analysis of Field Survey, 2025.

Financial reporting is a communication of financial statements and related information from a business enterprise to third parties (external users). The main objective of financial reporting is to provide high-quality information on reporting entities, which can be used for sound economic decisions making (IASB, 2010). The result for IPSAS adoption

implementation enhances government functionaries to be accountable on the management of the public assets, shows that 43 respondents strongly disagree, 68 respondents disagree, 10 respondents undecided and 49 respondents agree while 30 respondents strongly agree. The mean response 2.7 implies that the sampled

respondents disagree with the claim that IPSAS adoption implementation enhances government functionaries to be accountable on the management of the public assets.

From Table 3, Accountability helps to guarantee users of financial statement that the accounting information provided accurately represents the economic value of the organization shows that 20 respondents strongly disagree, 21 respondents disagree, 8 respondents are undecided and 99 respondents agree while 52 respondents strongly agree. The mean response of 3.7 implies that the respondents agreed with claim that Accountability helps to guarantee users of financial statement that the accounting information provided accurately represents the economic value of the organization. The result for Accountability enhances auditors to assure investors and donors that the organization's funds are properly managed shows that 42 respondents strongly disagree, 12 respondents disagree, 16 respondents undecided and 82 respondents agree while 48 respondents strongly agree with mean response of 3.41 showing that the sampled

respondent agreed that Accountability enhances auditors to assure investors that the organization's funds are properly managed.

The result for accountability enhances disclosure of cost of funding programs and activities shows that 3 respondents strongly disagrees, 30 respondents disagree, 20 respondents are undecided and 85 respondents agree while 62 respondents strongly agree. The mean response 3.86 implies that respondents agreed that accountability enhances disclosure of cost of funding programs and activities. The result in Table 3 reveals that accountability enables investors to rely more on the public sector financial statement prepared in line with IPSAS shows that 21 respondents strongly disagree, 32 respondents disagree, 8 respondents undecided and 39 respondents agree while 100 respondents strongly agree. The mean response 4.12 shows that the respondents agreed with the claim that Accountability enables investors to rely more on the public sector financial statement prepared in line with IPSAS.

Table 4: IPSAS Transparency and the Quality of Financial Reporting

S/n	Scale Items	Options	Frequency	%	Means	Remark
1.	Financial reports are presented annually as required by regulatory bodies of accounting	Strongly disagree	18	9	3.71	Sign.
		disagree	30	15		
		Disagree	6	3		
		Undecided	84	42		
		Agree	62	31		
		Strongly Agree				
2	IPSAS adoption will communicate value relevant to beneficiaries of financial reporting.	Strongly disagree	30	15	3.56	Sign.
		disagree	23	11.5		
		Disagree	10	5		
		Undecided	78	39		
		Agree	59	29.5		
		Strongly Agree				
3	The organization annual report extensively provides prompt information on corporate governance issue to the public.	Strongly disagree	23	11.5	3.66	Sign.
		disagree	26	13		
		Disagree	20	10		
		Undecided	58	29		
		Agree	73	36.5		
		Strongly Agree				
4	IPSAS adoption make the financial reports to be more comprehensive and relevant to the users.	Strongly disagree	31	15.5	3.72	Sign.
		disagree	35	17.5		
		Disagree	8	4		
		Undecided	62	31		
		Agree	64	32		
		Strongly Agree				
5	IPSAS adoption enhances the implementers and preparers of financial statement to meet up with reporting requirements deadlines.	Strongly disagree	47		2.49	Not Sign.
		disagree	62			
		Disagree	19			
		Undecided	40			
		Agree	32			
		Strongly Agree				

Source: Analysis of Field Survey, 2025

The result on financial reports is presented annually as required by regulatory bodies of accounting. as presented in Table 4 shows that 18 respondents strongly disagree, 30 respondents disagree, 6 respondents undecided and 84 respondents agree while 62 respondents strongly agree with mean responses of 3.71 implies that the respondents agreed with the claim that Financial reports are presented annually as required by

regulatory bodies of accounting. The result on IPSAS adoption will communicate value relevant to beneficiaries of financial reporting in table 4.4.2 indicated that 30 respondents strongly disagree, 23 respondents disagree, 10 respondents are undecided and 78 respondents agree while 59 respondents strongly agree with mean responses of 3.82 which signifies that the respondents agreed with the claim that IPSAS adoption will

communicate value relevant to beneficiaries of financial reporting

The result on organization annual report extensively provides prompt information on corporate governance issue to the public in Table 4 shows that 23 respondents strongly disagree, 26 respondents disagree, 20 respondents are undecided and 58 respondents agree while 73 respondents strongly agree. The mean response of 3.16 indicated that the respondents agreed with the claim that the organization annual report extensively provides prompt information on corporate governance issue to the public. The result on IPSAS adoption makes financial reports to be more comprehensive and relevant to the users in Table 4 revealed that 31 respondents strongly disagree, 35 respondents disagree, 8 respondents

undecided and 62 respondents agree while 64 respondents strongly agree.

The mean responses of 3.72 imply that respondents agreed with the claim that IPSAS adoption make the financial reports to be more comprehensive and relevant to the users. The result on IPSAS adoption enhances the implementers and preparers of financial statement to meet up with reporting requirements deadlines in table 4.4.2 revealed that 47 respondents strongly disagree, 62 respondents disagree, 19 respondents undecided and 40 respondents agree while 32 respondents strongly agree. The mean response 2.49 indicates that the respondents disagreed with the claim that IPSAS adoption enhances the implementers and preparers of financial statement to meet up with reporting requirements deadlines.

Table 5a: Model Summary on IPSAS Adoption and Financial Report Quality

Model	R	R Square	Adjusted R Sq.	Std. Error of Est.	Durbin-Watson
1	.984 ^a	.968	.967	1.31845	2.153

Source: Analysis of Field Survey, 2025

Table 5b: ANOVA Summary on IPSAS Adoption and Financial Report Quality

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16064.794	5	3212.959	1.84883	.000 ^a
	Residual	533.660	307	1.738		
	Total	16598.454	312			

Source: Analysis of Field Survey, 2025

Table 5c: Regression Coefficients on IPSAS Adoption and Financial Report Quality

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.641	.294		-2.180	.030
IPSAS ACCOUNTABILITY,	-.029	.041	-.028	-.712	.007
IPSAS TRANSPARENCY	-.151	.044	-.127	-3.400	.001
IPASA COMPARABILITY	-1.346	.109	-1.072	-10.439	.000

Source: Analysis of Field Survey, 2025

From the result summary as presented above, $R = 0.984$ $R^2 = 0.968$ $Adj\ R = 0.967$ $F\text{-statistics} = 1.8488$, $P = 0.000$. The result showed significant relationship between IPSAS Adoption and the quality of financial reporting, R^2 of 0.968 means that 96.8% variation in the quality of financial reporting is as a result of changes in application of IPSAS in public sector accounting system. All the independent variables except IPSAS comparability which showed strong negative correlation between the dependent variable. All variable are significant and negatively correlate with quality of financial reporting of public sector ($P .566 > 0.05$) are significant at 95 % level of significant but negatively correlate with quality of financial reporting. This showed that there is statistical significant relationship between IPSAS and quality of financial reporting. IPSAS accountability ($P\ 0.022 < 0.05$, $-.521$) though significant has negative relationship with quality of financial reporting. Also the result revealed that IPSAS transparency ($P\ 0.001$, $.151$) has significant and positive relationship with quality of financial reporting.

The F statistics (1.8488) which show the group significance of the variables shows that

all the explanatory variables are jointly statistically significant in explaining the change in the the quality of financial reporting and the Durbin-Watson stat 2.153 show the absence of serial correlation of the independent variables. There is a robust and significant relationship between IPSAS Adoption and quality of financial reporting of Public Sector in Delta State.

A simple linear regression analysis was carried out to investigate relationship between IPSAS accountability on quality of financial reporting of Public Sector in Delta State. As expected, the results of the regression as shown in Tables 4.6.1 and 4.6.2 indicated that IPSAS accountability are accounted for approximately 84% of the variance in the quality of financial reporting of Public Sector in Delta State ($R^2 = .845$, $F\ (5.29) = 311$, $p = .000$). Table 6b showed that IPSAS accountability contributed positively and significantly to the regression model. Specifically, the results showed a negative and significant relationship between IPSAS accountability on quality of financial reporting of Public Sector in Delta State, $\beta = -1.068$, $p < .05$.

Table 6a: Model Summary on IPSAS Accountability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872 ^a	.845	.844	1.72019

Source: Analysis of Field Survey, 2025

Table 6b: Regression Coefficients on IPSAS Accountability and Financial Report Quality

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.430	.283		-8.580	.000
	IPSA ACCOUNTABILITY	-1.068	.015	.972	-72.790	.000

Source: Analysis of Field Survey, 2025

From our decision rule, $R^2 = 0.845$ is greater than 0.40 hence there is a significant relationship between IPSAS accountability on quality of financial reporting of public sector and P-value $0.00 < 0.05$, hence we reject H_0 and accept the alternative, H_A which state that IPSAS accountability has significant effect on the quality of financial reporting of public sector. This implies that identified IPSAS accountability indicators has significant positive relationship with the quality of financial reporting of public sector. Furthermore, this study corroborate with the study carried Toyemi, Sunday and Ibitoye (2022) who considered the effect of IPSAS on accountability and transparency selected states in Nigeria and found that the implementation of IPSAS has positive effect on accountability and transparency as well as the relevance of financial reports. The study also conform with Enyinna, Eke and Ajabor (2023) that IPSAS has a significant impact on the disclosure of financial information,

transparency, and accountability in public sector financial reporting in E do State and that IPSAS has a significant influence on the comparability of financial reports

A simple linear regression analysis was carried out to investigate the impact of IPSAS Transparency on quality of financial reporting of Public Sector in Delta State. As expected, the results of the regression as shown in Tables 4.6.3 and 4.6.4 indicated that IPSAS Transparency on accounted for approximately 76% of the variance in IPSAS the quality of financial reporting of Public Sector in Delta State ($R^2 = .766$, $F(8.29) = 311$, $p = .000$). Table 4.5.3 shows that IPSAS Transparency contributed negatively and significantly to the regression model. Specifically, the results showed a negative and significant relationship between IPSAS Transparency and the quality of financial reporting of Public Sector in Delta State, $\beta = -1.040$, $p < .05$.

Table 7a: Model Summary on IPSAS Transparency and Financial Report Quality

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 ^a	.766	.746	1.34088

Source: Analysis of Field Survey, 2025

Table 7b: Regression Coefficients on IPSAS Transparency and Financial Report Quality

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.975	.204		4.776	.000
	IPSAS TRANSPARENCY	-1.040	.011	.983	-94.450	.000

Source: Analysis of Field Survey, 2025

From our decision rule, $R^2 = 0.766$ is greater than 0.40 hence there is a significant relationship between and IPSAS Transparency and the quality of financial reporting of public sector in Delta State and P-value $0.00 < 0.05$, hence we reject H_0 and accept the alternative H_1 , which state that IPSAS Transparency had no significant effect on the quality of financial reporting of public sector. This implies that level of IPSAS Transparency will determine the quality of financial reporting of public sector in Delta State.

The implication of this result is that, management should pay close attention to level of IPSAS Transparency because it has the high positive relationship with the quality of financial reporting of public sector which means it could substantially reduce the quality of financial reporting of public sector, while other factors will decrease it if the objective of improving the quality of financial reporting of public sector is to be achieved entirely. This means that overall; IPSAS Transparency has positive impact on the quality of financial

reporting of public sector. This is consistent with the study conducted by Alkhanbbaz and Suresh (2023) that investigated the impact of the adoption of IPSAS on the relevance of financial information in the public sector of India and posited that that a positive relationship exist between the adoption of IPSAS and relevance of financial information in India and concluded that the adoption of IPSAS promotes the relevance of financial information in the Indian public sector.

A simple linear regression analysis was carried out to investigate the impact of IPSAS Comparability on the quality of financial reporting of public sector. As expected, the results of the regression as shown in Tables 4.6.5 and 4.6.6 indicated that IPSAS Comparability accounted for approximately 85% of the variance in quality of financial reporting of public sector ($R^2 = .851$, $F(6, 311)$, $p = .000$). Table 4.5.5 shows that IPSAS Comparability contributed negatively and significantly to the regression model. Specifically, the results showed a negative and significant relationship between IPSAS

Comparability and the quality of financial reporting of Public Sector in Delta State, $\beta = -1.012$, $p < .05$.

Table 8a: Model Summary on IPSAS Comparability and Financial Report Quality

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875 ^a	.851	.851	1.61795

Source: Analysis of Field Survey, 2025

Table 8b: Regression Coefficients on IPSAS Comparability and Financial Report Quality

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.410	.232		1.771	.078
IPSAS Comparability	-1.012	.013	.975	-67.651	.000

Source: Analysis of Field Survey, 2025

From our decision rule, $R^2 = 0.851$ is greater than 0.40 hence there is a significant relationship between IPSAS Comparability and the quality of financial reporting of Public Sector in Delta State and since P-value $0.000 < 0.05$, we reject the null hypothesis (H_0) and accept the alternative hypothesis, (H_1) which state that IPSAS Comparability has a significant impact on quality of financial reporting. The implication of this result is that, management should pay close attention to .This means that overall, IPSAS Comparability has positive impact on the quality of financial reporting of public sector. This finding is supported by the result of the work of Abata and Suara (2022) who posited that before the adoption of IPSAS, the financial statements of local governments in Lagos state were not comparable, timely and understandable; but, following the adoption of IPSAS, the financial reporting quality of local governments with respect to timeliness, comparability and understandability improved.

This study is equally consistent with the work of Olaru (2023) and Beredugo (2021); whose study revealed a positive association between IPSAS Adoption and quality of financial reporting.

Conclusions and Recommendations

This study examined the implications of adoption of International Public Sector Accounting Standards (IPSAS) on the quality of financial reporting of public sector organisations in Nigeria. From the findings of the study, it was observed that adoption of IPSAS is expected to increase the level of reliance on public sector financial reporting in Nigeria. It was established that IPSA based standards will enable the provision of more meaningful information for decision makers and improve the quality of financial reporting system in Nigeria. In addition, it was found that the accrual-based IPSAS has the potential to give a better financial integrity assurance compared to cash or modified cash based

accounting. The study affirmed that with IPSAS, budget and accounting categories at the national level could have a common set of classifications that conform to international standards that facilitate policy analysis and promote accountability. From the result and findings of the present study, the study recommends:

- (i) That the state government should implement practical and adequate reforms in public sector management to transfer to the accrual basis of accounting feasibly. Therefore, Nigerian government needs to improve the existing financial management mechanism and policy to enable the implementation of accrual-based accounting.

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Forensic Accounting and Cybercrime: Evidence from Nigerian Banking Industry

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Abstract

This paper explores the relationship between forensic accounting and cybercrime in Nigeria's banking sector, utilizing secondary data and qualitative analysis. Grounded in fraud prevention and perceived pressure/incentive/motive theories, the study reveals a concerning rate of cybercrime, resulting in substantial financial losses and compromised customer data. To combat this, the study advocates for the integration of forensic accounting, robust cyber security measures, and effective regulatory implementation. Recommendations include investing in cyber security infrastructure and enforcing regulations like the Cybercrime Act. Furthermore, promoting digital financial services, financial literacy, and good corporate governance can help mitigate cybercrime's impact. The study also highlights the importance of engaging forensic accountants and building capacity in cyber security and digital forensics to stay ahead of emerging threats.

Keywords: Forensic accounting, Cybercrime, Nigerian banking industry, Cybercrime investigation, Digital forensics

Introduction

Nigeria's banking industry is under siege from a new breed of thieves: cybercriminals. These digital outlaws can drain your bank account, steal your identity, and shake the very foundations of our financial systems. But there's a beacon of hope in this dark landscape: forensic accounting. These financial detectives use their expertise to track down the culprits and bring them to justice. The banking sector plays a pivotal role in sustaining economic stability. However, Nigerian banks have faced a decade-long surge in fraudulent activities through cyber space, eroding public trust and threatening financial stability, ultimately harming shareholders' interests (Adeyemi & Fagbemi, 2023).

The accounting profession's shift towards forensic accounting, as seen in countries like the US, UK, and Malaysia (Hassan & Sanni, 2023), presents an opportunity for Nigeria to bolster its banking sector's integrity and public trust. Unlike conventional accounting methods, which have proven inadequate in detecting and preventing fraud (Okoye, 2013), forensic accounting offers a specialized approach to addressing financial crimes. With their advanced technical expertise, forensic accountants can complement traditional auditing roles (Crumbley, 2012), filling the gap in detecting and preventing fraud, and ultimately contributing to a stable financial system. By adopting forensic accounting practices, Nigeria can potentially mitigate the impact of fraudulent activities and restore confidence in its financial sector.

The integration of forensic accounting tools is essential for financial institutions to meet stakeholder expectations and prevent fraudulent activities (Krstic, 2009). Forensic accounting plays a critical role in detecting and investigating financial crimes, such as embezzlement and complex transactions (Marianne, 2005). By adopting robust forensic accounting practices, financial institutions can promote a culture of accountability and transparency, reducing the risk of financial crimes.

In Nigeria's banking sector, the surge in fraudulent activities has underscored the importance of forensic accounting (Adeyemi & Fagbemi, 2023). Traditional audit methods are no longer sufficient to detect and prevent fraud, given the complexity of modern banking transactions (Centre for Forensic Studies, 2010). This study highlights the significance of forensic accounting in uncovering and mitigating cybercrime in Nigeria's banking industry, ultimately contributing to a safer and more secure banking environment. By leveraging forensic accounting, financial institutions can better protect themselves and their customers from the devastating effects of cybercrime.

Literature Review

Forensic Accounting

The field of forensic accounting has its roots in the mid-20th century, when Peloubet (1946) first conceptualized it as a means to apply accounting expertise to legal issues. Since then, forensic accounting has evolved to incorporate a range of skills and techniques, including accounting, auditing, and investigation (Dada, Owolabi & Okwu, 2013; Zysman, 2004). This field plays a critical role in detecting and preventing financial crimes, and its applications are diverse.

Forensic accounting is a multifaceted discipline that involves analyzing financial data, identifying irregularities, and providing expert testimony (Oyedokun et al., 2019). It

requires specialized skills and knowledge, including the ability to interpret financial transactions and identify potential fraud (Enofe, Utomwen, & Danjuma, 2015). By combining accounting, auditing, and investigative techniques, forensic accountants can help resolve legal disputes and promote financial integrity (ACFE, 2008; AICPA, 2006). Ultimately, forensic accounting is a powerful tool for preventing and detecting financial crimes, and its importance cannot be overstated (Umar, 2020).

Cybercrime

Cybercrime involves using computers, electronic devices, and networks to commit unauthorized acts, such as data theft, fraud, and system sabotage (Slavin, 2020). This encompasses various crimes, including phishing, credit card fraud, and online money laundering (Oloruntoba & Oyedokun, 2023). To combat cybercrime, forensic accounting procedures are employed, utilizing digital forensic tools to collect, examine, and analyze data (Thankaraja & Somasundaram, 2019). These tools enable forensic accountants to investigate cybercrime cases effectively and gather evidence to support potential fraud or cybercrime cases (Gutmann, 1996). By leveraging these techniques, forensic accountants can help mitigate the effect of cybercrime.

Cybercrime refers to criminal activities that utilize computers or networks as tools, targets, or platforms, encompassing a range of offenses from hacking and denial-of-service attacks to traditional crimes facilitated through technology. These crimes can have significant impacts, such as disrupting critical infrastructure, compromising sensitive information, and crippling systems (Nayak, 2013). Various types of cybercrime exist, including hacking, virus dissemination, phishing, cyberstalking, identity theft, and software piracy, among others (Goni et al., 2022). These crimes can cause widespread

disruption and harm to individuals, organizations, and societies.

The advent of information and communication technology (ICT) has given rise to cybercrime, as individuals, organizations, and governments increasingly rely on digital systems (Onuora et al., 2017). This dependence on technology has created vulnerabilities, allowing criminals to exploit digital platforms for illicit activities (Ebelogu et al., 2019). Cybercrime can be categorized into two main types: cyber-dependent crimes, which require the internet or ICT systems to function, and cyber-enabled crimes, which are traditional offenses amplified by technology (Europol, 2019; Alvarez, 2021).

Cyber-dependent crimes include activities like malware creation, hacking, and service denial attacks, while cyber-enabled crimes encompass a range of offenses, such as economic crimes, malicious communications, and child exploitation (Europol, 2019; Alvarez, 2021). Individuals, organizations, and governments face various cybercrime threats, including cyber-theft, cyber-terrorism, hacking, and malware attacks (Ibikunle & Odunayo, 2013; Bandakkanavar, 2020; Kaspersky, n.d.; Kumudene, 2021; Love, 2018; Muhammad & Kiru, 2017). These threats can result in significant financial and reputational damage.

Theoretical Framework

The paper hinged on two (2) theories- fraud preventive theory and perceived pressure/incentive/motive theory

Fraud Preventative Theory

The Fraud Preventative Theory, introduced by Ajzen & Fishbein (1980), suggests that understanding the intentions behind an individual's behaviour can help predict and thwart fraudulent undertakings. According to this theory, intentions are the best predictor of planned behaviour, and identifying the antecedents of these intentions can provide

valuable insights into preventing fraud (Ajzen & Fishbein, 1980). In the context of banking, forensic accounting services play a crucial role in preventing and detecting fraud. These services provide litigation support, helping to quantify economic damages and resolve disputes (Akintoye, 2008; Kankpang et al., 2018). Bank statements are essential in maintaining accountability and serving as an audit trail for transactions (Goosen, Beaver & Landsman, 1999). By leveraging forensic accounting facilities and maintaining accurate records, banks can reduce the risk of deceit with protect their customers' interests. This proactive approach can help prevent fraudulent behaviour and promote a secure banking environment.

Forensic litigation support provides assistance in legal disputes, helping to quantify economic damages and resolve conflicts (Akintoye, 2008). Digital forensics involves the preservation, collection, and analysis of digital evidence to facilitate the reconstruction of events (Carrier, 2003). Studies have explored the responsibilities of forensic accounting with the use of information technology in auditing and financial investigations (Moorthy et al., 2011). However, the impact of forensic ICT on the financial performance of commercial banks in Nigeria remains a distinct area of research, warranting further investigation through field surveys and primary data collection.

The Fraud Prevention Theory offers valuable insights into the human side of cybercrime in Nigeria's banking industry. By understanding what drives individuals to engage in cybercrime, forensic accountants can develop effective strategies to prevent and detect these crimes. This theory highlights the benefits of considering the human factor in cybercrime prevention, allowing forensic accountants to create targeted training programs that educate bank employees on cybercrime risks and security protocols. By combining technical expertise with an understanding of human

motivations, forensic accountants play a very important role in protecting the integrity of Nigeria's banking system. This approach can help reduce the risk of cybercrime and promote a safer banking environment. Ultimately, the theory provides a framework for forensic accountants to proactively address the root causes of cybercrime and develop practical solutions to mitigate its impact.

Perceived Pressure/Incentive/Motive Theory

Pressure is a significant factor in committing fraud, and it can manifest in various forms. The motivations behind fraudulent behaviour can be diverse and complex. Research suggests that pressure can stem from various sources, including personal, professional, and external factors (Lister, 2007; Vona, 2008). Financial difficulties, personal greed, addiction, and other issues can create an environment where individuals may feel pressured to commit fraud (Vona, 2008). Additionally, pressure can be driven by financial, social, or political factors (Murdock, 2008), and can also be linked to employee motivation and personal gain (Rae and Subramanian, 2008). Studies have categorized these pressures into different types, such as economic, job-related, and personal pressures (Albrecht et al., 2008), or as stemming from obligations, personal issues, or corporate pressures (Chen & Elder, 2007).

These pressures can contribute to an individual's likelihood of committing fraud. Pressure can have a dual effect, driving creativity and efficiency when goals are achievable, but potentially leading to misconduct when goals seem unattainable (Hooper & Pornelli, 2010). When pressure becomes an all-consuming force, individuals may resort to questionable activities, including fraud. Personal pressures, such as financial strain, can push individuals to steal. Organizational pressures, including incentives

like bonuses and share price targets. This also facilitates pressure to dishonest behaviour (Singleton et al., 2006; Kenyon & Tilton, 2006). These pressures can take many forms, and understanding their impact is crucial in preventing and detecting fraud.

Understanding what drives individuals to commit cybercrime is crucial in the fight against cybercrime in Nigeria's banking industry. Forensic accountants can use the Perceived Pressure/Incentive/Motive Theory to recognize pressures that may push someone to involve in cybercrime, such as financial difficulties or personal greed. By recognizing these pressures, they can develop targeted strategies to prevent and detect cybercrime. This might involve analyzing financial transactions for suspicious patterns or using digital forensics to investigate incidents.

By understanding the motivations behind cybercrime, forensic accountants can also create effective training programs to educate bank employees on cybercrime risks and security protocols. By applying this theory, forensic accountants can play a vital role in keeping Nigeria's banking system safe and protecting customers' sensitive information. This approach can help reduce the risk of cybercrime and promote a safer banking environment.

Methodology

This research utilized a qualitative methodology to examine the intersection of forensic accounting and cybercrime investigation within Nigeria's banking sector. A comprehensive review of existing literature was conducted, drawing from prominent databases such as Google Scholar, JSTOR, and ScienceDirect, as well as industry reports and research publications. The search strategy employed relevant keywords to identify pertinent studies and reports.

The collected data underwent thematic analysis, revealing key patterns and relationships that shed light on the role of

forensic accounting in combating cybercrime. The study's findings offer valuable insights into the development of effective strategies for investigating and preventing cybercrime, with implications for both practice and future research. Although the study's scope is limited to the Nigerian banking industry, its findings can inform context-specific solutions and provide a foundation for further investigation into the application of forensic accounting in cybercrime investigation.

Analysis and Discussion

Cybercrime in the Nigerian Banking Industry

The banking industry's increasing reliance on technology has brought about a new wave of threats - cybercrime. Imagine someone hacking into your online banking account, stealing your hard-earned money, or identity. This is a harsh reality many face today. Cybercrime in banking refers to the use of technology to commit crimes such as hacking, phishing, and malware attacks. These crimes can compromise sensitive customer data, disrupt banking services, and cause significant financial losses.

Nigeria's banking sector has undergone significant transformations, including a major restructuring exercise in 1986 that led to an increase in commercial banks and improved services (Ifokobonk, as cited in Ogunwale, 2020). The introduction of internet banking in the late 1990s revolutionized financial services, enabling transactions such as online payments, electronic fund transfers, and automated teller machine payments (Ogunwale, 2020). However, the widespread adoption of internet banking has also led to a rise in cybercrime activities, with Nigerian banks facing attacks from cybercriminals who steal or transfer funds without authorization (Ogunwale, 2020).

Nigeria's financial institutions have seen a surge in cybercrime threats due to their increased reliance on the internet and

technology. This has led to various crimes such as theft, phishing, hacking, and fraud, resulting in significant losses. In 2018, Nigerian financial institutions lost over ₦15 billion to cybercrime and electronic fraud, with annual customer deposit losses estimated at ₦1.9 billion. It's projected that by the year 2030; about \$6 trillion will be lost to cybercrimes globally, including Nigeria, mainly through phishing and identity theft (Ogbonnaya, 2020). Fraudulent undertakings led to significant financial losses for Nigerian banks, with ₦3.5 billion lost in just three months of 2020, marking a considerable rise from the previous year (Eleanya, 2021). The widespread adoption of digital technologies has fueled the surge in cybercrime, including spamming, credit card scams, and phishing attacks, which pose substantial threats to the banking sector's stability and customer trust (Eze, 2021).

The Nigerian banking sector is vulnerable to the adverse effects of cybercrime, according to recent studies. Research by Fadairo-Cokers and Ibrahim (2021) revealed that cybercrime hinders online banking and ATM transactions, often due to inadequate financial knowledge and limited understanding of digital platforms. Furthermore, Muhammad and Kiru (2017) emphasized the need for Nigeria to strengthen its anti-cybercrime efforts, identifying factors such as low literacy rates and ineffective governance as significant contributors to the issue.

To combat identity duplication and fraudulent activities, the Central Bank of Nigeria implemented the Bank Verification Number (BVN) initiative, which aimed to address losses totaling ₦203 billion over a 14-year period. Despite this effort, Nigerian banks still suffered significant losses, with ₦12.30 billion lost to internet fraud between 2014 and 2018 (Ogunwale, 2020). While existing research has extensively examined cybercrime threats in the banking sector, there remains a knowledge gap regarding the dynamics

between bank insiders and external cybercriminals. This study seeks to investigate the nexus between bank employees and outside perpetrators in cybercrime, as well as the efficacy of current prevention and detection measures (Faboyede et al., 2023).

Cybercrime significantly impacts the banking system, affecting both financial losses and customer trust. To combat this, banks must invest in robust cyber security measures, including security protocols, transaction monitoring, and customer education (Faboyede et al., 2023). Effective implementation of regulations, such as Nigeria's Cybercrimes Act 2015, can also help reduce cybercrime rates (Ogunwale, 2020).

Forensic Accountants and Auditors in Cybercrime Investigation

Forensic accountants and auditors play a crucial role in cybercrime investigation by utilizing specialized techniques to identify and analyze digital evidence. They extract and analyze data from digital sources like emails, transaction logs, and network traffic, using advanced data analytics and digital forensic tools to uncover fraudulent activities and patterns indicative of financial crimes (Ali, 2024). This expertise is essential in tackling cyber-enabled crimes, which involve sophisticated techniques and advanced technology.

Forensic auditing involves in-depth investigation of financial and non-financial data to identify and evaluate suspected fraud or illegal activity. This process leverages various analytical techniques, such as statistical analysis, predictive analytics, and machine learning, to detect suspicious patterns or evidence of fraud (Bierstaker, Brody & Pacini, 2006). Forensic auditors collect data from various sources, including financial transactions, emails, and digital logs, which are then analyzed using forensic software and advanced technologies.

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Forensic accountants possess expertise in conducting detailed interviews and analyzing complex financial transactions to uncover the truth (Okpo & Simeon, 2023). They provide services to corporations, attorneys, and government, helping to estimate losses, identify perpetrators, and track down assets (Coenen, 2005). Their primary goal is to determine where money went, how it got there, and who was responsible for it (Degboro & Olofinola, 2007).

The application of technology during forensic accounting has revolutionized the uncovering and substantiation of monetary scam. Artificial intelligence (AI) enables efficient data analysis and automation of routine tasks, such as document review and transaction matching. Blockchain technology provides a transparent and immutable digital ledger, ensuring the integrity and accuracy of financial data (Bierstaker et al., 2006). This technology allows forensic auditors to analyze big data quickly and accurately, detect suspicious patterns, and identify anomalies that may indicate fraud.

Forensic accountants and auditors are vital in preventing and detecting fraud and corruption within organizations, essentially acting as financial crime scene investigators (Honigsberg, 2020). They collaborate with law enforcement agencies to investigate and prosecute cases (Rahman et al., 2023). By leveraging their skills and expertise, forensic accountants can help bring financial criminals to justice and prevent future crimes. Effective fraud prevention strategies are crucial to protect organizations from financial and reputational losses. Implementing strong policies and procedures related to financial management, payments, and monitoring of financial transactions is essential (KPMG, 2013). Regular internal controls and division of responsibilities, where financial tasks are undertaken by different individuals, can help reduce the risk of fraud (PricewaterhouseCoopers, 2016). By

combining these elements with technology, such as data security systems and anomaly detection systems, organizations can reduce the menace of fraud and protect their assets and reputation (Deloitte, 2019; BCA, 2021).

Conclusion

The threat of cybercrime looms large over Nigeria's banking sector, with devastating financial consequences and erosion of customer confidence. The industry has witnessed a surge in cyber-attacks, resulting in substantial monetary losses, with a notable example being the over ₦15 billion lost to cybercrime and electronic fraud in 2018 (Ogunwale, 2020). The increasing reliance on digital banking has created an environment conducive to cybercrime activities, including hacking and malware attacks, which can compromise sensitive data and disrupt financial services (Ogunwale, 2020).

Forensic accountants and auditors are essential in the fight against cybercrime, employing specialized skills to identify and analyze digital evidence (Ali, 2024). By harnessing advanced data analytics and digital forensic tools, these professionals can uncover patterns indicative of financial crimes and detect anomalies that may indicate fraud (Bierstaker, Brody & Pacini, 2006). The integration of technologies like artificial intelligence and blockchain can enhance the efficiency and accuracy of forensic audits, enabling the detection of suspicious patterns and anomalies (Bierstaker et al., 2006).

To effectively combat cybercrime, banks must prioritize robust cyber security measures, including security protocols and customer education (Faboyede et al., 2023). The effective implementation of regulations, such as Nigeria's Cybercrimes Act 2015, can also contribute to reducing cybercrime rates (Ogunwale, 2020). By establishing strong policies and procedures, organizations can mitigate the risk of fraud and protect their

assets and reputation (KPMG, 2013; PricewaterhouseCoopers, 2016).

Recommendations

A comprehensive approach is necessary to protect Nigeria's banking industry from cyber threats. This involves investing in robust cyber security measures, including advanced threat detection systems and customer education initiatives. Collaboration between the government and banking industry is crucial in implementing effective regulations and staying ahead of emerging threats (Sanusi, 2012).

Digital financial services can play a vital role in promoting financial inclusion in Nigeria, particularly in rural areas. By leveraging mobile phones and other digital platforms, the Central Bank of Nigeria can reach underserved populations and promote economic growth. Financial literacy programs are also essential in educating citizens on safe online banking practices and reducing the risk of cybercrime (Nkechika, 2022).

Promoting good corporate governance is critical for the stability and growth of Nigeria's banking industry. This involves addressing broader societal issues like corruption and poor leadership, while implementing strong policies and procedures related to financial management and transaction monitoring. By combining these efforts with technology, banks can reduce the risk of fraud and protect their assets (Adegbite, 2012).

To effectively combat financial crimes, forensic accountants and auditors should be engaged to utilize specialized techniques and analyze digital evidence. Building capacity and expertise in cyber security and digital forensics is essential for the government and banking industry to stay ahead of cyber threats and promote a safer financial system. This requires a collaborative effort to develop and implement effective strategies for detecting and preventing financial crimes.

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Customer Patronage and Petroleum Products Retail Outlets: A Study of Warri and Environs

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Abstract

In a competitive and dynamic market, the petroleum industry strives to maintain and expand its market position as a petroleum dealer. The awareness of renewable energy has influenced consumer behaviour towards trends, eco-friendly environments, and technology, prompting companies to develop products and improve services to meet changing customer needs and foster retention and loyalty. The study created a conceptual model to analyze factors influencing customer patronage of petroleum products retail outlets in Delta State. The study was based on the theory of reasoned action (TRA) and the patronage behaviour theory. Thus, 400 respondents sampled from management, staff, and consumers of petroleum products in Warri and its surroundings were collected and analyzed using SPSS version 25. The study employed descriptive and inferential statistics, Simple Linear Regression and Multiple Linear Regression for hypotheses tests to establish the connection between independent and dependent variables. The results indicated that factors such as pump price, outlet proximity, dispensing pump assurance, and product quality significantly influence consumers' loyalty towards petroleum products retail outlets in Delta State. Consequently, operators of petroleum retail outlets should devise strategies to build trust, sustain their market position, and remain competitive in this rapidly changing business landscape.

Key words: Midstream Petroleum, Downstream Petroleum, Consumer Patronage, Petroleum Marketers, Competition, Service Marketing, Delta State.

Introduction

The oil and gas sector in Nigeria can be divided into two main parts: the upstream and the downstream. The upstream involves exploring and drilling crude oil, while the

downstream includes importing, exporting, re-exporting, shipping, transportation, processing, refining, storing, distributing, and marketing products (Ogwo & Agu, 2016). The downstream sector is where most visible

marketing activities take place. Over time, the government has implemented various measures to streamline downstream activities, such as regulation and subsidy regimes (Ogwo & Agu, 2016). Nigeria ranks as one of Africa's primary oil producers reversing 37.50 billion barrels on 2.19 million per day production capacity (Komolafe, 2024). Nigeria generated N7.93 trillion (USD 26 billion) from oil exports between January and July 2018, constituting approximately 86% of the country's total export earnings (Ogbunamiri & Agu, 2022). Additionally, downstream reform has been implemented at various times to drive economic growth and achieve developmental objectives (Ogwo & Agu, 2016).

The distillation of petroleum yields several by-products, including Premium Motor Spirit (PMS), Dual Purpose Kerosene (DPK), Aviation Turbine Kerosene (ATK), Household Kerosene (HHK), Automotive Gas Oil (AGO), and High Pour Fuel Oil (HPFO), Low Pour Fuel Oil (LPFO). Ogwo & Agu (2016) highlighted the significance of petroleum products such as lubricants (engine oils, grease), asphalt, bitumen, and petrochemicals. These products play various vital roles for individuals, industries, and society as a whole. The primary uses of petroleum products include fuel for engines (such as plants, automobiles, generators, and vessels), lubrication, heating, lighting, and raw materials for manufacturing other goods. Generally, demand for white petroleum products is higher due to their various applications in human activities and essential needs. The Nigerian Midstream and Downstream Petroleum Regulation Authority (NMDPRA) reported in Adejoke (2023) that, in Q2 2022, Nigerians consumed 14 million litres of diesel, compared to approximately 66.8 million litres of PMS per day.

The Nigerian National Petroleum Company Limited is in charge of the majority of petroleum product imports. Nevertheless,

middlemen are employed by the Pipeline and Products Marketing Company (PPMC) and other private depots for activities such as distribution, storage, standardizing, etc. Additionally, according to DAPMA (2020), there are over 7000 registered filling stations dispersed throughout Nigeria, along with over 80 private depots and tank farms (<http://nigerianinfofinder.com>). Various petroleum product retail outlets, comprising major and independent marketers with multiple stations dispersed throughout the nation, market these products to consumers. Prominent oil marketers include NNPC, Mobil, Total, Oando, MRS, Forte, and Conoil, to name a few. A few are international oil corporations also engaged in petroleum exploration and production. In light of this, the Nigerian National Petroleum Company Limited expanded the number of significant oil marketers in Nigeria with over 7000 retail outlets from 10 in 2013 to 18 in 2018 and 27 in 2022 (Okechukwu & Akintayo, 2022). Given the generally consistent quality of petroleum products and the industry's deregulation, which has resulted in price competition, the competition among petroleum product marketers can be fierce.

Customer attraction, retention, and satisfaction with petroleum products (Rosemary, 2019) have become critical to the long-term viability of petroleum marketers (Anyanwu, 2018). Marketing academics concur that customer loyalty and satisfaction—which result from their perception of value and quality—are the primary drivers of profitability (Ogwo & Agu, 2016). Because petroleum product prices were set during regulation, marketers of petroleum products typically sell a limited number of products at roughly the same price. According to Integrity (2024), premium motor spirit (PMS, gasoline/petrol) sells for N1,300 per litre in Nigeria, kerosene (DPK) costs N2,300, diesel (AGO) costs N2,000, and cooking gas costs N1,300 per kilogram. The cost of

lubricants (engine oil, grease) varies depending on the brand. The cost of services varies depending on the retail location. Price has thus become a crucial factor in petroleum products marketing following the federal government's recent deregulation policy (removal of subsidies). Imperatively, the rational consumer may prefer to shop at a retail location with a low pump price if other factors influencing customer preference are held constant by petroleum product retail outlets.

Petroleum product marketing is not without its difficulties. Because our local refineries are no longer in operation, petroleum product marketers are now limited to importing, resulting in sporadic shortages and high prices for petroleum products. Another problem with petroleum product marketing in Nigeria is the quality of the products. Petroleum products are produced with national standards and specifications, which can vary from one country to another.

Customers are thus, frequently unhappy when petroleum products imported do not meet Nigerian quality (specification) expectations. Furthermore, some petroleum product marketers adulterate their products, which could jeopardize property and human safety and unhappiness. Another obstacle to the marketing of petroleum products is union activity. For instance, the Petroleum Tankers Drivers Union (PTD) has the right to terminate its membership at any time, which would completely stop the marketing of petroleum products.

The location of retail outlets is severely restricted by the volatile nature of petroleum products. It could be difficult for marketers to obtain approval for the locations of their depots or retail stores. In addition to removing them from their target market, this puts them at risk for theft and other security issues. Amidst the obstacles and rivalry in the petroleum product marketing industry, marketers must contend with certain

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challenges frequently contemplated by petroleum product consumers. Product adulteration, trust, accuracy of the dispensing pump, product availability, non-uniform pricing (different pump prices), restrictions on the location of retail outlets for petroleum products, and variations in the layout and atmosphere of retail outlet spaces are the main challenges (Akpevwe, 2020; Ogwo & Agu, 2016). The manners and appearance of sales associates are also important factors that impact a customer's preference for a specific retail location (Ogwo & Agu, 2016). Customers also consider the price at the pump of petroleum products because they spend a reasonable disposable income on these purchases.

Direct consumer sales of refined petroleum products are the main business activities of a filling station, a retail location for petroleum products. Additionally, they provide services like car wash, vulcanizing, mini-mart, lube bay, and customer convenience (Onoruese 2018). Depending on the capacity and services provided, there are various retail locations for petroleum products, such as mega stations, filling stations, floating stations, peddlers, and service stations.

Theoretical Review and Hypotheses Development

To gain a deeper understanding of consumer behaviour and loyalty in the petroleum industry in Nigeria, the study created a conceptual model to analyze important variables that impact patronage of retail outlets selling petroleum products in Delta State.

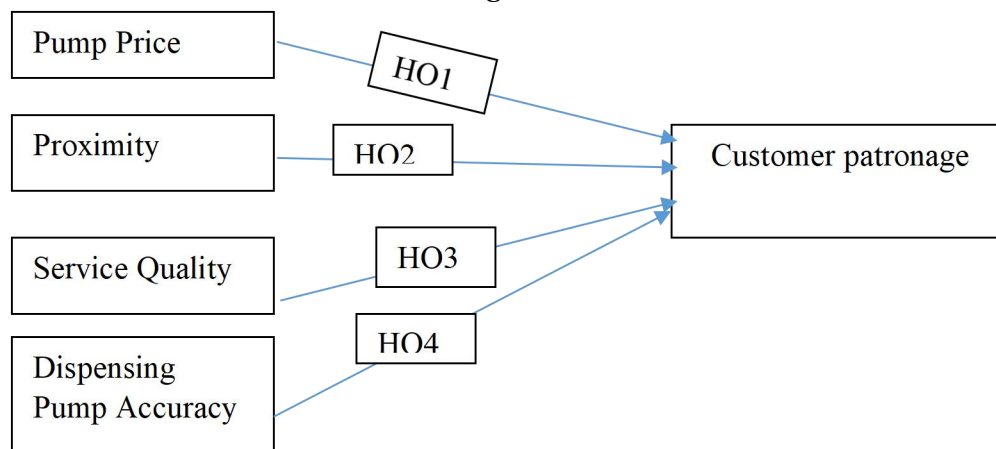
The Theory of Reasoned Actions (TRA)

Ajzen and Fishbein (1975, 1980) developed the Theory of Reasoned Action (TRA), which explains an individual's voluntary behaviour as the underlying motivation behind an action. The hypothesis was evolved to provide a clearer understanding of the relationship

between viewpoints and goals, which is influenced by behaviour attitude and social standardizing observations. It claims that attitudes toward behaviour and emotional standards—mentalities imposed by reference groups—provoke expectations and behaviour change. The idea that mental attitude is influenced by desires or convictions regarding attributes of the thing or activity and the evaluation of those traits led to the creation of the Theory of Reasoned Action (Ajzen and Fishbein, 2015). Reasoned action theory, helps to explain why some customers prefer a particular outlet to another. Besides, consumers can make purchase of a particular product or services based on expected outcome such as confidence (Akazue et al., 2024), which brings about positive change toward a retail outlet. Furthermore, the TRA suggested that consumer behaviour be

determined by their intention. Consumer intention in this context, is the extent to which an individual is ready to engage in a particular behaviour (Ajzen and Fishbein, 2015, Fishbein, 2017). Thus, TRA is influenced by viewpoints, resolutions, experience, purpose, and aspirations formed by the arrangement of beliefs, and culminates in the setting of a value based on behaviour (Ameachi, 2017; Akazue et al., 2024). Because it clarifies the fundamentals of consumer patronage, including the intention to support a specific brand or business based on attitudes, volitional control, and subjective norms, this theory is relevant to the research as a customer's intention to buy is influenced by more than just the product; it is also shaped by their prior experiences, level of satisfaction, and surroundings.

Figure 1: Model of Petroleum Products Retail Outlet and Customer Patronage



Conceptual Model 2024

Petroleum Products Retail Outlet 's and Pump Price

economic good or service (offering) is the unit of measurement or exchange rate. Prices, therefore, are determinants that affect demand for or the purchase of goods and services (Okofu 2021) and are related to the benefit perceived they will receive (Kotler and Armstrong, 2018), which can be advantageous to competitors (Shoham et al., 2018). Musa (2020) conducted a study to ascertain customers' preferences regarding gasoline consumption in Sokoto State. The study opined that product pricing, marketing campaigns, location, personnel, and tangible proof influence consumer spending. Umukoro (2017) and Etokudo (2018) have conducted comparable studies that demonstrate the impact of price on customer loyalty and repeat purchase decisions. Thus, the following hypothesis that:

HO 1: *There is no significant relationship between petroleum products retail outlet's pump price and customer patronage of petroleum products.*

Petroleum Products Retail Outlet 's and Proximity

The success of a business may determined by location or site. In this context, proximity refers to the physical area, ambient conditions, layout, sanitation, accessibility, ease of use, physical evidence, safety, and cleanliness—all of which can entice customers to make a purchase (Saduwa, 2017; Ogbunamiri & Agu, 2022). Accordingly, proximity includes time efficiency, ease of purchase, and the associated transportation costs (Anne, 2019). Thus, customers will choose the closest retail location to them while all other variables are competitive. Aaron et al. (2022) discovered that customer preference and satisfaction at Malaysian gas stations were convenience, marketing, and other factors stations. Therefore, the hypothesis that:

In a market economy, the price of any

HO 2: *There is no significant relationship between petroleum products retail outlet's proximity and customer patronage of petroleum products.*

Petroleum Products Retail Outlet's and Service Quality

One way to measure service quality is how well a business or organization understands the needs of its clients and meets their expectations. A ratio that indicates how well a service meets or exceeds expectations in terms of tangibility, assurance, responsiveness, satisfaction and experience is known as service quality. However, to improve productivity, service quality must surpass customers' expectations (Udoh 2018). In the investigations by Ahmed (2017) and Aaron et al. (2022) to examine the factors influencing customer satisfaction at gas stations in Malaysia, the studies discovered that customer patronage of gas stations correlates with service quality.

Also, Negi (2019) observed that patronage of gas stations in Ethiopia correlated with customer trust. Again, Magnus (2020) noted that capacity storage and timely product regularity determine customer patronage. Therefore, the hypothesis is that.

HO 3: *There is no significant relationship between petroleum products retail outlet's quality service quality and customer patronage of petroleum products.*

Petroleum Products Retail Outlets' and Dispensing Pump Accuracy

Trust, or the assurance, conviction, and confidence that consumers place in a company's goods or services, is one of the elements in the retailing of petroleum products (Muhammad et al., 2019; Geng, 2018). Consumers behaviour to use a product or service is predicted on users trust (Okofu et al, 2024; Okofu, et al., 2023). In this study,

customer loyalty captured the dispensing pump's validity, trust and dependability. Accordingly, reasonable customers would consider the dispensing pump's accuracy because it's likely to be included in measuring customer satisfaction. Fasanmi et al. (2022) examined customer patronage and trust towards Bovas gas stations in Ilorin, Kwara State. The analysis showed a strong correlation between customer loyalty, staff civility, and the accuracy of the dispensing pump and product quality. Thus the hypothesis that:

HO 4: *There is no significant relationship between petroleum products retail outlet's dispensing pump assurance/accuracy and customer patronage of petroleum products.*

Petroleum Products Retail Outlets and Customer patronage

Customer patronage refers to a customer's consistent, positive reinforcement from a seller through repeated purchases of goods, services, or brands (Dawn, 2018; Kotler, 2019). Therefore, marketers focus on patronage to win and survive in a highly competitive environment (Mark, 2023). They are interested in patronage to increase customers satisfactions (Okofu et al., 2024), mitigate switching behaviour due to the availability of new products, dissatisfaction, and price sensitivity (Kotler & Keller, 2018). According to Anyanwu, Ibekwe, and Okereafor (2021), a patron is a customer who makes purchases from a specific business, is not price sensitive, and speaks well of a good or service. Consumer loyalty is a marketer's pledge to stay away from what rivals are offering (Kotler & Keller, 2018). Okeke (2020) noted that client loyalty and satisfaction are crucial for the survival, existence, and firm success of both present and future patronage. Customer loyalty is essential for businesses looking to cut costs and boost profitability (Kotler & Armstrong, 2018). According to some researchers,

factors that increase consumer loyalty include price, brand, trust, service quality, product quality, and loyalty programs (Negi, 2019; Fasanmi et al., 2022; Inne, 2021; Rosemary, 2019 and Musa, 2020).

Research Methodology

The judgmental sampling technique was employed since willing respondents were selected based on the study's objectives. A sample of 400 was determined as a basis of previous studies, with comparable circumstances, to be sufficient for the investigation (Akpevwe, 2020). The study sample comprised customers, employees, and management of specific retail outlets selling petroleum products located on Warri/Sapele Road, Ugbwangwe, Ubeji, Market Road, Airport Road, NPA Expressway, PTI Road, Effurun/Sapele Road, Osubi, Okuokoko, Enerhen road, and Udu road. A structured hard-copy questionnaire was administered among the available respondents, while multiple regression, descriptive statistics and SPSS version 25 were utilized for data analysis. Cronbach Alpha generated on the adopted items was inclusive, with a value of 0.836 for internal consistency, above the suggested cutoff of 0.7 (Hair, Risher, Sarstedt, & Ringle, 2019).

Regression Model

Dependent variable	Independent variables
CUSPATRO	$f(\text{PR, PRO, SERVQTY, DISPUMP})$
$\text{CUSPATRO} = \beta_0 + \beta_1 \text{PR} + \beta_2 \text{PRO} + \beta_3 \text{SERVQTY} + \beta_4 \text{DISPUMP} + \epsilon_i$	
Where;	
CUSPATRO	= Customer patronage of petroleum product retail outlet.
β_0	= Intercept of regression line
$\beta_1 - \beta_4$	= Partial regression coefficient of the independent variable

PR = Pump price of retail
outlet
PRO = Proximity of retail
outlet to consumer
SERVQTY = Quality of
service/Quick Service to customers

DISPUMP = Dispensing Pump
Accuracy/Assurance
 ϵ_i = error term or stochastic
varia

Result and Discussion

Determinants of the independent variables on Patronage of Petroleum Product Retail Outlets

Table 1 Mean and Standard Deviation of Customers' Patronage

Construct	Measuring Statement	Mean (X)	Std Dev (SD)
Price			
	PR 1	3.160	1.3129
	PR 2	3.1225	1.13389
	PR 3	3.0100	.65266
Overall Mean		3.0975	0.69665
Proximity			
	PRO 1	3.0375	1.29819
	PRO 2	3.1500	1.33678
	PRO 3	3.1050	1.23604
Overall Mean		3.0975	.98000
Service Quality			
	SERVQTY 1	2.9700	.93342
	SERVQTY 2	3.1300	1.06109
	SERVQTY 3	2.7900	1.11085
Overall Mean		2.9633	.64742
Dispensing Pumps Accuracy			
	DISPUMP 1	3.2025	1.22689
	DISPUMP 2	3.2975	1.22587
	DISPUMP 3	3.1328	1.07034
Overall Mean		3.2083	.86450
Customer Patronage			
	CUSPATRO 1	2.855	1.43815
	CUSPATRO 2	2.730	1.14472
	CUSPATRO 3	2.885	1.24927
Overall Mean		2.820	0.7798

Sources: *Field Work (2023), Using SPSS version 25*

To determinants the patronage of petroleum product retail outlets the mean and standard deviation was described using pump price,

proximity, service quality, and dispensing pump accuracy. The mean value of each item was accepted if it is greater than or equal to 3.0 criterion. On the contrarily, any mean below 3.00 criterion indicates unfavourable

disposition towards the petroleum retail outlet constructs.

Table 1's overall mean index of the pump price, proximity, and dispensing pump accuracy of retail outlets selling petroleum products showed 3.0975, 3.0975, and 3.2083 indicating customers' favorable dispositions, which can draw them to a specific retail outlet and bolster their confidence in the amenities provided. Nonetheless, the patronage rate of 2.9620 and service quality of 2.9633, respectively, indicated a negative attitude towards a specific retail petroleum outlet. Price, proximity, dispensing pump, and

service quality had standard deviations from tables 1 of 0.69665, .98000, .86450, and .64742, respectively.

4.1 Analysis and Interpretation of Results

The hypotheses developed tested the study's model specification, with multiple regression analysis. For the test of significance, 5% (0.005) was the critical value. Thus, if the computed p-Values (sig) are higher than the 0.05(5%) level of significance, the null hypotheses would not be rejected, and vice versa. The test's summary result is shown below.

Table 2 Petroleum Products Retailing and Customers' Patronage Model Summary^b

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.842 ^a	.787	.785	.18781	1.838
a. Predictors: (Constant), SERVQTY, DISPUMP, PRICE, PROXIMITY					

a. Predictors: (Constant), SERVQTY, DISPUMP, PRICE, PROXIMITY

b. Dependent Variable: CUSTPATRO

Table 3 Petroleum Products Retailing and Customers' Patronage ANOVA^a

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.953	4	16.988	404.476	<.001 ^b
	Residual	8.959	396	.022		
	Total	76.912	400			
a. Dependent Variable: CUSTPATRO						
b. Predictors: (Constant), SERVQTY, DISPUMP, PRICE, PROXIMITY						

a. Predictors: (Constant), SERVQTY, DISPUMP, PRICE, PROXIMITY

b. Dependent Variable: CUSTPATRO

Table 4 Petroleum Products Retailing and Customers' Patronage Coefficient

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.781	.055		14.200	.000
	PR	.394	.020	.404	19.700	.000
	PRO	.097	.022	.138	4.409	.000
	SERVQTY	.190	.026	.223	7.307	.000
	DISPUMP	.154	.028	.320	5.500	.000
	D.W	R Square	Adjusted R Square	Overall Std Error	F	Sig.
	1.838	0.787	0.785	0.18781	404.476	0.000

a. Dependent Variable: CUSTPATRO

Sources: SPSS version 25 Output

The regression equation is thus: $CUSPATRO = \beta_0 + \beta_1 PR + \beta_2 PRO + \beta_3 SERVQTY + \beta_4 DISPUMP + \varepsilon_i$

Therefore: $CUSPATRO = .781 + .404PR + .138PRO + .223SERVQTY + .320DISPUMP + .055$

Where:

CUSPATRO = Customer Patronage

PR = Pump Price

PRO = Proximity

SERVQTY = Service/ Quality

DISPUMP = Dispensing Pumps Accuracy

The strength of the regression model is demonstrated by Table 2, where the combined elements of price, proximity, service quality, and dispensing pump accuracy in the regression model predict and explain 78% of the systematic variations in the customer patronage of petroleum products retail outlets. The regression model's goodness of fit with an R-squared value of .787 indicated approximately 78%. It illustrates how these factors affect patronage in a nation where the government has deregulated petroleum products. The implication is that customer satisfaction and value for money will probably be high. Also, the standard error at (.18781) indicates how far the actual value deviates from the expected value. This

suggests that there is no auto-correlation, or serial correlation, in the model displayed by the regression model with a Durbin Watson-statistic value of 1.838. As a result, the model's results are genuine, legitimate, and trustworthy in decisions making about retail locations for petroleum products.

All of the components in the regression model collectively explained about 79% of the systematic variations in the customer patronage of retail outlets selling petroleum products, even after the model adjusted for the degree of freedom. The empirical model finding has a high degree of goodness-of-fit, making it appropriate for developing policies specifically designed to address, maintain, and raise the number of customers who

frequent Nigerian retail locations selling petroleum products.

The F-statistic of 404.476 at a p-value of .000, or less than the 5% critical value, in Table 3 suggests a significant linear relationship between the retail outlets selling petroleum products and customer patronage in this study. The model is statistically predictive between the independent and dependent variables, as indicated by the p-value of .000.

The coefficients relating each construct to customer patronage in Table 4 have predictive significance, represented by a value of .000 and a constant of .781 for the expected dependent variable (customers' patronage). It indicates that each independent variable is well-liked and has a favourable disposition by customers' patronage in retail fuel stations selling petroleum products. Again, the regression model's coefficients showed the strengths of the relationship and directions between retail locations and Nigerian consumers' spending.

A one per cent change in the pump price will result in an approximate 40% increase or decrease in customer patronage, according to coefficient value for PR of .404 in Table 4. The results also showed that fewer products would be bought at higher prices and more purchases at lower prices. Since the price at the pump and customer patronage are significantly correlated, it implies that there may be a 40% negative or positive impact on customer patronage relative to the quantity demanded for every #1 change in the pump price of petroleum products. Thus, consumer spending is influenced by the petroleum products pumped price. As a result, the alternative hypothesis is accepted and the null hypothesis rejected. The results are consistent with those of Etokudo (2018) and Musa (2020), who found that consumers will choose retail locations for petroleum products with lower pump prices. Customers' expectation is to patronise retail establishments with the

lowest pump prices after fuel subsidy removal, which raised the price of petroleum.

Additionally, Table 4 coefficient value for PRO is .138, which shows that a one percentage change in PRO will translate into a 13.8% change in customer patronage. The data analysis revealed a positive correlation between customers' proximity and patronage. According to Table 1, the mean is 3.0975 points higher than the 3.00 mean criterion, indicating that customers are more amenable to proximity. The analysis implies that consumers of petroleum products will be more drawn to nearby retail locations than farther outlets. Also, there is a moderate influence on purchase, as indicated by a computed t-statistics of 4.409 and significant at 0.000, which is less than the critical value of 0.05 (5%). Thus, the rejection of the null hypothesis. Again, only a 13% impact on customer patronage, according to the regression coefficient of 0.1308, has a weak but positive relationship. However, the results are consistent with those of Adiele (2018), Akpan (2015), Inne (2021), and Musa (2020). When a retail location is closer to the customer, and all other factors are competitive, time efficiency, ease of purchase, and the cost of transportation related to the purchase process can influence consumers' behaviour.

The results regarding service quality in Table 4 showed that the coefficient value for service quality was .223. This means that a one percent change in service quality will determine customer patronage of 22.3%. The mean for service quality is 2.9633, below the 3.00 criteria mean, and the mean for standard deviation, is .64742, both are extremely low. This implies that consumers in the study area have a negative attitude regarding the accuracy of the dispensing pumps. Customers may not care about the responsiveness or attitude of the pump attendant because other factors affect their decision to use a particular filling station or because pump attendants' attitudes are consistent across the board.

Additionally, table 4 t-Statistics shows 7.307 significance at 0.000, less than the 5% critical value of 0.05. It indicates a strong correlation between client loyalty and service quality. Again, the regression coefficient showed 0.22, meaning that a change in the quality of the services could affect customer patronage by as much as 22%. The results corroborate those of Magnus (2020) and Aaron et al. (2022), who found that retail outlet responsiveness affects consumers' purchases of petroleum products. Put differently, customer patronage is influenced by the service quality provided.

Lastly, the coefficient values for pump accuracy show .320, meaning that a one percent change in dispensing pump accuracy will translate into a roughly three-quarters increase or decrease in customer patronage. The coefficient table used to calculate the t-statistics shows that the t-statistics of 5.500 significant at 0.000 are less than the critical

value of 0.05 (5%). The outcome showed a positive relationship, indicating that customer patronage and petroleum dispensing pump accuracy are significantly correlated. In addition, the average petroleum dispensing pump accuracy is 3.2083, above the 3.00 mean criteria, indicating that customers have a positive attitude regarding the pump accuracy directed towards a specific retail location. The dispensing pump's perceived accuracy and assurance with customer patronage have a positive correlation, as indicated by the regression coefficient of 0.3220. According to the coefficient, there could be a 32% impact on customer patronage from any modification or deviation in accuracy. When all else is equal, filling stations that build trust will have an advantage over rivals because customers want to receive value and satisfaction for their purchases.

Conclusion and Recommendations

The research looked at a few key variables affecting the retail sales of petroleum products in Warri, Delta State. Nevertheless, the following judgment was made, along with some suggestions: The petroleum industry is highly competitive, and to boost patronage, marketers should focus on factors like pump price, outlet proximity, dispensing pump accuracy, and service quality. This will help businesses stay in business, attract new clients, and endure in the volatile deregulated petroleum sector. Given how competitive the petroleum product marketing industry is, particularly in the post-subsidy era, it is advised that retailers of petroleum products focus on competitive pricing strategies at the individual outlet level to draw in and keep more customers (sales).

The factors found in this study served as instruments to highlight how important it is for businesses and decision-makers to increase consumer support for their different organizations. Task-force committees should

monitor filling station petroleum marketers to ensure that accurate dispensing pump facilities are maintained, as this will boost customer loyalty and confidence. Customers will develop a mental image of the brand and value that will result in positive customer relationships.

Based on data analysis, it is clear that to improve customer patronage and draw in new business, petroleum product retail outlets in Delta State, Nigeria, need to build individual customer trust in price, pump accuracy, and responsiveness. According to the study, marketers of retail locations for petroleum products should make sure that their service offerings enhance customers' experiences by providing lube bay services, vulcanizing, enough space, smart, well-dressed attendants, convenient restrooms, and mini-marts.

The study concluded that while several factors influence a customer's decision to return, service quality and trust are not overemphasised in this day of consumerism and information sharing caused by ubiquitous

mobile technology. Therefore, to create and maintain a positive brand image, petroleum marketers should provide pump attendants with sufficient orientation and training to provide quality service through responsive service and civility.

Furthermore, pump attendants should be paid at least the minimum wage because both rich and poor people shop at the same markets. Also, wealthy patrons should be kind enough to extend their generosity to pump attendants by giving them some change or tip-off as a sign of support. Customer and service station owners' positive attitudes and moral support will significantly raise services provided and lower employee chum.

Customers should follow instructions and behave obediently, such as when driving in and out, lining up, and politely conversing with staff members to lessen unfavourable sentiments.

Finally, the government should form committees to keep an eye on marketers who are selling tainted goods, endangering the

public and, in the worst case, killing people in explosions. Committees should be authorised to revoke licenses, impose severe fines, or even imprison violators.

Limitations and further studies.

The study only looks at white petroleum products that fall under the downstream sub-sector of Nigeria's petroleum industry; it leaves out the upstream portion, which consists of oil exploration and drilling activities. An additional constraint of the research is that, although there are over 7000 registered filling stations, the study only included 400 samples of retail outlets selling petroleum products in Warri and its surroundings, while using just one analytical technique.

The study suggests that additional variables, a variety of analytical techniques, and an examination of marketers in the petroleum upstream sector should all be included in future studies.

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Environmental and Social Practices as Determinants of Financial Performance of Listed Industrial Goods Firms in Nigeria

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Abstract

Environmental and social credentials have become a global trend; hence have become vital because companies need to spread awareness of their responsibilities for sustainable growth and their multi-dimensional effect on the society. In this study, we examined if environmental and social practices are determinants of financial performance of listed industrial goods firms in Nigeria. The dependent variable is financial performance (proxied by profit margin) and the independent variable is environmental and social practices. Ex-post facto research design was used and ten (10) listed industrial goods firms were sampled. Data was obtained from the annual reports and accounts of the publicly listed firms from 2012-2023 and data collected was analyzed via descriptive and inferential statistics. The panel least square regression result indicates among others that environmental and social practices have statistically significant influence on financial performance of listed industrial firms in Nigeria. On the basis of the findings, the study recommends among others, the need for Nigerian government to improve environmental and social performance evaluation systems aimed at improving corporate performance and be able to meet with global best practices. ,

Keywords: Environmental practice; Social practice; Financial performance; Industrial goods
JEL Classification: M41; M49

Introduction

Due to the need for businesses to increase their knowledge of their multifaceted impact on society and their obligations for sustainable growth, environmental and social values have gained international attention and are becoming more and more important. According to Kaakeh and Gokmenoglu (2022), companies are adopting sustainability strategies, which have resulted in an unavoidable change in business models and management practices. This is because sustainable development in all areas of activity is increasingly being demanded to become a mandatory requirement at the global

level (Chang & Lee, 2022; Chien, 2023). Businesses are using the best strategies to maximise stakeholder value and reach their financial objectives (Al-Amosh et al., 2022). The growing efforts made by businesses to accurately evaluate their dedication to sustainability and global long-term development goals are thus indicative of the practical use of this innovative paradigm (Chang & Lee, 2022). In order to share and/or disclose information on business sustainability with stakeholders, companies who are eager to publish information on their social and environmental practices do so (Chang & Lee, 2022). Focussing on metrics to gauge an organization's performance in

tackling social and environmental concerns or putting policies into place that affect corporate governance, is one of the direction of this approach (Veenstra & Ellemers, 2020). Social and environmental metrics are now crucial for businesses and investors. As a result, while choosing portfolios, shareholders are increasingly taking ethical and environmental standards into account. They can use the information to guide investments that can benefit the company and its shareholders in both social and environmental ways (Orsato et al., 2015; Tiron-Tudor et al., 2022).

Environmental, social, and corporate governance indicators are among the parameters that financial and management professionals use to distinguish between different possible investments. These are all justifications for businesses to take non-monetary goals into account when conducting their operations (Noja et al., 2024). The need to prioritise both short-term and long-term goals, and occasionally forgo optimising short-term financial performance in order to meet pressing social and environmental goals, makes it difficult for business managers to strike a balance between raising financial performance and the complex and high expectations of various stakeholders. According to Veenstra and Ellemers (2020), this balance is frequently reached when reducing the adverse effects of business activities on the environment and society does not compromise financial performance.

Many studies have looked at the connection between financial performance and social and environmental practices, but most of them have only looked at one aspect, like social and environmental governance practices (Kouaib et al., 2020; Kaakeh & Gokmenoglu, 2022; Mu et al., 2022). Due to their breadth and comprehensiveness, the integrated assessments of two aspects (environmental and social practices) are seen to be somewhat difficult to handle. In light of this, the current

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study attempts to close the gap and tackle this issue by examining the relationship between social and environmental practices and the performance of listed industrial products companies using a fresh, all-encompassing methodology.

Review of Related Literature

Environmental Practice

Due to the impact of pollution, stakeholders, both internal and external, have recently become more interested in the environmental performance of private organisations (Jasch, 2006). While external stakeholders include communities impacted by local pollution, environmental activist groups, government regulators, shareholders, investors, consumers, suppliers, and others, internal stakeholders, such as employees, may be impacted by pollution in the workplace (Jasch, 2006). Therefore, the enterprise must apply best management practices to reduce waste, hazardous waste, water discharge, spills, air emissions (greenhouse gases, ozone-depleting compounds, carbon dioxide), and its influence on biodiversity.

The management of the company should also make sure that natural resources are used as efficiently as possible during the production process. Support for cutting-edge technology and product innovation could improve environmental performance since it shows how well a business can reduce environmental costs and burdens for its clients, opening up new markets through eco-friendly technologies and processes or long-lasting, eco-designed, dematerialised products (Noja et al., 2024). According to Melnyk, Sroufe, and Calantone (2003), improved environmental performance can draw in new stakeholders and increase the firm's value.

In addition to avoiding the negative business effects of contamination, including good environmental practices into operational activities can result in reasonable cost savings (IFAC, 2005). The accounting literature has

seen a significant surge in study on environmental performance in line with the aforementioned concerns. Al-Tuwaijri, Christensen, and Hughes (2004) examined the environmental effects of business operations, including the release of toxic wastes that have been recycled, the amount of pollution in water that has been discharged, non-compliance with environmental regulations, and environmental ratings of companies created by outside organisations.

Numerous techniques have been tested by researchers (Jalaluddin, Sulaiman & Nik-Ahmad, 2010; Henri & Journeault, 2010) to evaluate the environmental performance of the scope of pollution control efficiency and to improve the performance of the organisation. However, Elsayed and Paton (2005) employed three different metrics to assess economic or corporate performance: return on equity, return on assets, and Tobin's Q. Their research shows that financial performance is less affected by environmental performance.

Social Practice

Businesses should be socially accountable since improperly managed environmental activities will have an impact on the environment, people, and profits. Numerous books have been written about how businesses can be socially responsible (Indarawati, Ruhanita & Nor, 2016). The performance demonstrates that what counts is what businesses can do as a result of accepting social responsibility and embracing a responsiveness mindset. Therefore, the business should be socially conscious and attentive to social issues in order to foster trust and loyalty among its employees, clients, and the general public.

Product responsibility, community, human rights, diversity and opportunity, employment quality, health and safety, and training and development are all indicators of a socially conscious business (Noja et al., 2024).

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According to Barnett and Salomon (2012), companies with low social practices outperform those with moderate social practices in terms of financial performance, whereas companies with high social practices outperform those with moderate social practices. According to Indarawati, Ruhanita, and Nor (2016), this bolsters the theoretical claim that stakeholders have the ability to turn social duty into financial gain. Product responsibility, community, human rights, diversity and opportunity, employment quality, health and safety, and training and development are all indicators of a socially conscious business (Noja et al., 2024).

Wagner (2010) discovered that there is no direct correlation between social practice and economic performance according to this perspective. Advertising appears to be the sole way that corporate social performance and economic performance are positively correlated (Noja et al., 2024). It demonstrates how important it is to inform pertinent stakeholders—such as customers, NGOs, or regulatory bodies—about socially conscious initiatives in order for businesses to stay competitive.

Financial Performance

For many years, there has been a lot of discussion on how environmental management practices affect business economic performance and competitiveness. Financial performance can be directly reflected in both financial and non-financial indexes. Non-financial indicators include market share, sales area, and customer count, whereas financial indices include sales, profitability, inventory turnover, and return on equity (Earnhart & Lizal, 2010). By generating fair returns through a targeted and open long-term communications plan with its shareholders, the company can also retain a devoted following. Dependability and customer satisfaction result in realistic and sustained revenue growth (Noja et al., 2024).

Economic performance is typically linked to company environmental management policies. Adopting innovative environmental practices, such as reducing pollution sources and operating in more environmentally friendly methods, can lower trash disposal costs and penalties, which can help businesses financially (Aragón-Correa et al., 2008). The empirical study on economic, social, and environmental performance, however, produced contradictory results. According to Orlitzky, Schmidt, and Rynes (2003), there is little evidence of a weak link and some for a weak but statistically significant positive link between economic success and the environment. The results range from negative to negligible to moderately or even significantly positive. Margolis and Walsh (2003) stated that the majority of research points to a favourable link between economic and environmental performance.

Theoretical Framework

The stakeholder idea served as the foundation for this investigation. In 1970, the discipline of management adopted stakeholder theory, which Freeman progressively expanded in 1984 to include corporate accountability to a wide spectrum of stakeholders. According to Wheeler, Colbert, and Freeman (2003), the sociology and organisational fields combined to create stakeholder theory. Stakeholder theory is, in fact, more of a broad study tradition that integrates philosophy, ethics, political theory, economics, law, and organisational science than it is a formal, cohesive theory. "Any group or individual who can affect or is affected by the achievement of the organization's objectives" is the definition of stakeholder theory.

Stakeholder theorists contend that managers in organisations have a network of ties to serve, including suppliers, employees, and business partners, in contrast to agency theory, which holds that managers work and serve the stakeholders. According to agency theory, this

network group is significant in addition to the owner-manager-employee relationship (Freeman, 1999). Freeman (1999), on the other hand, argues that stakeholder theory aims to address the group of stakeholders who deserve and need management's attention. However, the firm is a system with stakeholders, and the organization's goal is to generate income for its stakeholders, according to Omoye and Wilson-Oshilim (2018).

Since stakeholder theory focusses on the nature of these interactions in terms of both procedures and consequences for the enterprise and its stakeholders, Freeman (1984) argues that the network of relationships with numerous organisations might influence decision making processes. All stakeholders' interests have inherent value, according to this theory, which focusses on managerial decision-making. It is not expected that one group of interests will predominate over the others. We used agency theory to investigate the connection between financial, social, and environmental performance. According to the agency theory, businesses have a legally obligatory fiduciary obligation to prioritise the demands and expectations of their shareholders in order to increase wealth as a means of providing incentives for them (Ifeani et al., 2016).

From the standpoint of shareholders, businesses ought to fund initiatives that optimise profits while reducing expenses. Other goals would reduce the effectiveness of the company. From a short-term standpoint, companies aim to maximise shareholder value. However, from a stakeholder perspective, businesses must satisfy a wide range of stakeholders, including workers, consumers, suppliers, financiers, communities, governmental entities, political parties, trade associations, and trade unions, in addition to shareholders (Ifeani et al., 2016). Stakeholder relationships are crucial in expressing social and environmental responsibility, which

benefits businesses (Barnett & Salomon, 2012).

To achieve long-term existence and prosperity, organisations must satisfy the various stakeholders, each of whom has distinct expectations for the performance of the company. Sustainability practices, or ESG practices as articulated through ESG reporting, are expected by core groups of stakeholders. In addition to regulatory enforcement, firms are under pressure from their many stakeholders to meet demands for various forms of performance (Omoye & Wilson-Oshilim, 2018). This study's foundation is agency theory, which explains how companies should operate by maximising shareholder value and stakeholder welfare, respectively. Through financial performance

metrics like ROE or return on invested capital (ROIC), agency theory shows how to maximise shareholder value. We can investigate ESG practices, where businesses protect stakeholders' interests; the framework describes the one-way relationship between economic performance and ESG practices.

Methodology

This study adopted *ex-post facto* research design. The study population comprised of twelve listed industrial goods firms in Nigeria and the purposive sampling was employed in selecting ten (10) listed industrial firms on the Nigerian Exchange Group (NGX) Limited. The study used secondary data sourced from annual reports of the sampled companies from

2012-2023. The model specification is as given as follows:

$$PM = f(ENV, CSR, FSIZ) \quad \text{eq. 1}$$

The model is expanded into econometric form;

$$PM_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 CSR_{it} + \beta_3 FSIZ_{it} + e_{it} \quad \text{eq. 2}$$

Where: B_0 = Intercept; $\beta_1 - \beta_8$ = are the parameters to be estimated in the equation; PM = Profit Margin; ENV = Environmental Practice; CSR = Social Practice; FSIZE = Firm Size; i = Firm intercept; t = Time intercept (in this case 10 years); e = Stochastic error term

Table 1: Variable Description and Measurements

Variable	Expression	Measurement	Author/Year
Profit Margin	PM	net profit over divided by total asset	Andrew (2021); Chip (2021)
Environmental Practice	EVD	Dummy variable (1 or 0)	Nina & Cyrielle (2014);
Social Practice	CSR	Dummy variable (1 or 0)	Nina & Cyrielle (2014)
Firm Size	FSIZ	Natural logarithm of total assets at end of fiscal year	Nisan, (2014)

Source: Field Study, (2025)

Results and Discussions

Table 2: Summary Statistics

	PM	EVD	CSRD	FSZ
Mean	-0.418047	56.25000	51.66667	7.333749
Median	-0.334086	62.50000	50.00000	7.275292
Maximum	0.056730	62.50000	60.00000	7.792330
Minimum	-1.177719	37.50000	40.00000	7.032656
Standard Deviation	0.397517	10.87071	5.550885	0.214816
Skewness	-0.464661	-1.154701	0.054820	0.702632
Kurtosis	1.983542	2.333333	2.950413	2.633564
Jarque-Bera	9.484128	28.88889	0.072399	10.54521
Probability	0.008721	0.000001	0.964448	0.005130
Sum	-50.16563	6750.000	6200.000	880.0499
Sum Square Deviation	18.80439	14062.50	3666.667	5.491356

Source: Field Study, (2025)

Table 2 presents the descriptive statistics for the different variables of the study with an observation of 120 (10 firms x 12years). Mean is the most commonly used measure of central tendency. The standard deviations show the deviation/dispersion/variation from the mean. It is a measure of risk, the higher the standard deviation, the higher the risk. The standard deviation is a measure that summarizes the amount by which every value within a dataset varies from the mean. It is the most robust and widely used measure of dispersion. skewness is the measure of how

much the probability distribution of a random variable deviates from the normal distribution. The result delineates that probability distribution for CSRD (0.054820) and FSZ (0.702632) is positively skewed distribution, while the probability distribution for PM (-0.464661); and EVD (-1.154701) is a negatively skewed distribution. The probability values of Jarque-Bera Statistics shows that EVD=28.88889; CSRD=0.072399 and LFSZ=10.54521 are statistically significant at 5% except CSRD.

Table 3: Pearson Correlation Matrix

	FM	EVD	CSRD	FSZ
FM	1.0000			
EVD	0.04442	1.0000		
CSRD	0.36127	-0.52223	1.0000	
FSZ	-0.53089	0.12529	-0.48258	1.0000

Source: Field Study (2025)

From the findings on the correlation analysis, the study revealed a positive relationship between CSRD, and FM by correlation factors of 0.665, 0.525, respectively, while a negative association exists between EVD (-0.391); FSZ (-0.890) and FM. Multicollinearity is the occurrence of high intercorrelations among two or more independent variables in a multiple regression model. Multicollinearity can lead to wider confidence intervals that produce less reliable probabilities in terms of the effect of independent variables in a model (Frost, 2021).

Table 4: Panel Least Square Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.065871	0.964026	3.180279	0.0019
EVD	-0.013270	0.001319	-10.06426	0.0000
CSRD	0.026374	0.002858	9.229395	0.0000
FSZ	-0.599148	0.116318	-5.150935	0.0000
R-squared	0.930185	Mean dependent var		-0.418047
Adjusted R-squared	0.927757	S.D. dependent var		0.397517
Sum squared residual	1.312825	Schwarz criterion		-1.477954
Log likelihood	100.6460	Hannan-Quinn criter.		-1.546932
F-statistic	383.0536			
Prob(F-statistic)	0.000000			

Source: Field Study (2025)

Table 4 is the regression analysis to test the relationship between environmental, social and profit margin. Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 4.3, the value of adjusted R squared was 0.93, an indication that there was variation of 93% on profit margin due to changes in environmental and social practices. This implies that only 93% changes in profit margin of the firms could be accounted for by independent variables while 7% was explained by unknown variables that were not included in the model.

The F-statistic of the regression is equal to 383.0536 and the associated F-statistical probability is equal to 0.00000, implies that environmental social practices have statistically significant effect on profit margin of the industrial goods. Since the P-value of 0.000 is less than the critical value of 5% (0.05), then, it would be upheld that environmental practice has significantly affect financial performance of industrial firms in Nigeria at 5% level of significance.

This result is in line with Omoye and Wilson-'Oshilim (2018) who found that firm size have significant and positive relationship with environmental practice. But Nur, Suganthi and Yuen (2023) results showed that individual environmental score has a negative impact on ROA but a positive impact on ROE and Tobin's Q. Also the study of Kim and Lee (2023) results showed a negative association between earnings announcement and ESG scores (i.e., earnings announcement on Friday and firms that omit preliminary earnings announcements)

Furthermore, the study revealed that the probability of the slope coefficients indicate that; P-value = 0.000 < 0.05). The co-efficient value of; $\beta_1 = 0.026374$; $t = 9.229395$, implies that social practices is positively related to financial performance, and also statistically significant at 5%. This result agreed with Rahmatulloh, and Suranta (2023) who revealed that the social and environmental index exerts a positive and statistically significant influence on ROA, ROE, and Tobin's Q. Furthermore, it is noteworthy that earnings management does not possess the capacity to moderate the relationship between ESG and company performance.

This result is not in conformity with Nur, Suganthi and Yuen (2023) results indicates that social disclosure on its own has an insignificant negative influence on all variables and governance has a positive but insignificant impact on all variables (ROA, ROE and Tobin's Q). Also the study of Kim and Lee (2023) results showed a negative association between earnings announcement and environmental, social and governance practices.

Conclusion and Recommendations

The study investigated the influence of environmental and social practices on financial performance of listed industrial goods firms in Nigeria. Data obtained were analyzed with descriptive and inferential statistics. The panel least square regression result indicates among others that environmental and social practices have statistically significant influence on financial performance of listed industrial firms in Nigeria. On this note, the study concludes

that environmental and social practices are determinants of financial performance of listed industrial goods firms in Nigeria. On the basis of the findings, the study recommends among others, the need for Nigerian government to improve environmental and social performance evaluation systems aimed at improving corporate performance and be able to meet with global best practices. ,

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Amnesty Programme and the Sustainable Peace and Development of the Niger Delta Region of Nigeria

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Abstract

The Niger Delta region of Nigeria, where oil multinational corporations (MNCs) conduct the nation's oil exploration activities, is plagued by environmental degradation from gas flaring and oil spills. With the strong cooperation of the oil multinational corporations, the country's successive administrations not only ignored the people and other non-governmental groups' pleas for attention to the region, but also occasionally responded with crackdowns and repression. The crisis escalated when the locals in this area resorted to self-defense by bombing, kidnapping, and capturing foreign workers and other employees of the oil multinational corporations in return for cash ransom. The government created the amnesty program in 2009 as a way out of the quagmire because it could no longer stand the humiliation, the decline in daily oil output, and the significant financial loss. This study examines the impact of the amnesty program on long term peace and sustainable development in the Niger Delta. Using a qualitative data analysis approach and a historical research methodology, the study is grounded in conflict transformation theory which argues among other things, that all social groups should have equal access to the Amnesty program in order to establish a system of peace, regardless of their ethnic background or affiliation. To satisfy the Niger Deltas' demands for unfettered rights, all tiers of government— local, state, and federal—must carry out their obligations to the people. The federal government and its National Security Agencies (NSAs) should take adequate action to combat insecurity and the spread of weapons across the country.

Keywords: *Amnesty, Niger Delta, Disarmament, Demobilization, Reintegration, Development.*

Introduction

The concept of amnesty is not new. The word "amnesty" is a Greek word that comes from "amnestia," which is defined as an act of grace in which the state's supreme authority restores those who may have committed any offense against it to the status of innocent persons (Novus homo). It goes beyond a pardon in that it erases all legal reminders of the offenses. It is also the government's act of power to pardon people, particularly for political offenses, and to absolve them of the

guilt or punishment associated with those offenses (Ikelegbe & Umokoro 2014).

Different types of amnesty programs exist. Delinquent taxpayers amnesty get a onetime chance to settle their accounts by paying taxes and interest without facing criminal penalties. Tax amnesty may help governments generate more income, but it may also enrage law abiding taxpayers who don't like it when tax defaulters receive tax incentives. The goal of the amnesty policy was to lessen France's overcrowded prison system. However, governments all around the world now

regularly implement such policies (Ogannah, 2009).

Amnesties, which target common crime, are now a common part of presidential campaigns. Historically, they were utilized as a tool for national reconciliation following political crises. The goal of the so called housing amnesty initiative is to give the populace access to inexpensive housing. Although the concept of amnesty is not new to Nigerians, the current amnesty program's scope and significant financial implications is to assist end insurgency in the oil rich Niger Delta region. It was for this intent the Nigerian government made the decision to implement the approach (Akinwale, 2010).

According to Watts (2006), the Nigerian scenario serves as an example of how oil based development fails. The Nigerian government was unable to ignore the Niger Delta issue any longer, primarily because crude oil, which provides roughly 90% of the country's foreign earnings, has steadily grown to be the foundation of the Nigerian economy. Crude oil production in the Niger Delta hit a record low of 700,000 barrels per day during the height of youth unrest. This is because young people in the Niger Delta actively participated in activities that disrupted the region's exploration process, such as vandalizing oil sites, kidnapping oil workers, and bunkering. Following extensive discussion, the Late Umar Ya'Adua administration chose to implement a new policy known as the "Presidential Amnesty Program" in order to help provide a solution to the threat of violence in the Niger Delta region (Ejovi, & Ebie, 2013).

Statement of the Problem

The goal of the Niger Delta insurgents' amnesty was to bring about a lasting peace and foster an atmosphere that would hasten sustainable development. It was a tactic used to put an end to militancy or insurgency and restore peace to the unstable Niger Delta

region of Nigeria in order to enable the continuous oil exploration and consequently increased revenue for the Nigerian state and to generate revenue that would be used to address a variety of issues related to underdevelopment in the Niger Delta region. It was therefore intended to clear the Niger Delta of the militant youths in order to protect the oil industry in the region. This study examines how the amnesty program has brought about peace and sustainable development to the Niger Delta region. The statement of problem for the study is: What are the noticeable consequences of the amnesty program in the Niger Delta region of Nigeria?

Research Method

This study employed a qualitative approach, utilizing a historical research design that relied on secondary data sources and content analysis.

Conceptual and Literature Review

The Amnesty Program

The Presidential Panel on Amnesty and Disarmament of Militants in the Niger Delta made recommendations that served as the basis for the amnesty program for the region. The panel was established on May 5, 2009, to carry out the NTDC's recommendations on giving Niger Delta militants amnesty. Then, on June 25, 2009, President Umaru Yar'adua declared amnesty for the insurgents in the Niger Delta. Section 175 of the 1999 constitution, which grants the President of the Federal Republic of Nigeria certain powers, was a major source of support for the declaration (Iyabobola, 2015).

1. I hereby offer everyone who has directly or indirectly taken part in the commission of crimes related to militant activity in the Niger Delta amnesty and unconditional pardon.

2. The pardon will take effect when the affected individuals surrender and turn over all weapons, ammunition, and equipment, as

well as complete the renunciation of militancy forms listed in the schedule hereto, at the closest collection center set up for government purposes in each of the Niger Delta states.

3. Everyone currently facing charges related to militant activity will be eligible for the unconditional pardon granted under this proclamation.

4. This declaration will no longer be in force as of Sunday, October 4, 2009. None of the militants were forced to accept the offer of amnesty by the proclamation of the amnesty program. Only those who willingly accepted the offer were given contracts by the government, and they were thereafter subjected to a proper and non-coercive DDR procedure (Iyabobola, 2015).

There was a 60-day opportunity for the militants to turn in their weapons (i.e., accept the offer of amnesty). August 6–October 4, 2009, was the time frame for the 60 days. There are four parts to the amnesty scheme. These include the DDR, infrastructure, petroleum, and environmental subcommittees. Nonetheless, peace and stability in the Niger Delta are directly impacted by the DDR component (Iyabobola, 2015).

Ndutimi Alaibe, the Federal Government's National Coordinator and Chief Accounting Officer, claimed that in order to calm the unrest in the Niger Delta, the Nigerian federal government granted militants amnesty in 2009. The then President responded to the security issues by implementing a fundamental reduction in the level of violence occurring. Following stakeholder deliberation, it was determined that the militants needed to surrender their weapons. That served as the foundation for the amnesty, which was intended to maintain, stabilize, and solidify the security situation in the Niger Delta region as a necessary condition for fostering regional economic growth (The Daily Independent, June 3, 2012). The Niger Delta saw around seven years of comparatively calm conditions

following President Umaru Musa Yar'adua's 2007 proclamation of amnesty (Igbini, 2020).

The amnesty procedure raised a lot of problems. First, all three elements of the process must be integrated and carried out for "disarmament, demobilization, and reintegration" (DDR) to be successful. Reintegration, which should involve resettlement, training, alternative jobs, etc., was not thoroughly planned for in the Niger Delta's current approach. The willingness of certain oil firms to help with technical training to improve the employability of those granted amnesty was one possible resource that was not utilized. Second, it was likely that just a small portion of the weapons that were in use were turned in, and it's unclear even if the weapons being turned in were utilized by the militants. This is true of most DDR programs worldwide. Third, a DDR process must be a component of a larger peace process in order to be fully successful.

DDR is unlikely to be successful if the militants' and other Delta residents' complaints were not addressed. Fourth, inviting foreign monitors as witnesses with the guarantee that the weapons surrendered were rendered useless will boost the trust of many militants in the disarmament process. The administration, however, opposed foreign observers. Fifth, some militants believed that the amnesty process is being used to incite conflict among the militants. What is the government's plan at the conclusion of the amnesty program, one could wonder? Are there going to be real peace talks with the demobilized militants? What happens if the main insurgent leaders reject the amnesty?

The area was once more besieged by militants known as "the Niger Delta Avengers" in May 2016. Utilizing the Delta's intricate, creek filled terrain to keep one step ahead of the Nigerian soldiers pursuing them, they operated in groups, carried small arms and explosives, blow up pipelines, and sabotage

installations in order to destroy oil infrastructures.

Militants: Disarmed and Registered

Disarmament is the process by which former combatants turn in their weapons and ammunition at specified locations or camps, signifying the end of hostilities. Amnesty in the Niger Delta has helped a sizable portion of militants give up their weapons and accept peace. In accordance with the amnesty granted 30,000 members of various militant groups from the nine (9) oilproducing states that made up the Niger Delta turned in their weapons and ammunition and registered at the various arms collection centers for the demobilization process. In particular, it further demonstrates that in the first phase, 20,049 militants were disarmed and registered; in the second phase, 6166 militants were disarmed and registered; and in the third phase, 3,642 militants were disarmed and registered. While precise numbers on the number of militants in the Niger Delta states are not given, the literature recorded the total, which is used for the third phase appropriately demonstrating that, by the conclusion of the third stage, the states of Bayelsa, Rivers, and Delta had the most number of militants disarmed (Lanre and Shaibu, 2019).

Ex-militants were Demobilized and Reintegrated

Demobilization, according to Egwu (2013), is the process of leaving combat and militarized life behind and returning to civilian life. It entails dismantling and disbanding paramilitary and non-state fighting units, which are typically gathered in camps for a change in life orientation that includes professional and non-violent life counseling. Reintegration, on the other hand, entails reintegrating former fighters or militants into society through profitable training and empowerment aimed at achieving self-empowerment and economic independence as

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well as the peaceful and civil responsibilities that former combatants should play in society. By providing support in the form of education, professional training, microcredit, skills development, and help to return to peaceful and sustainable livelihoods, reintegration helps to meet the unique needs of former combatants, veterans, and disabled combatants as well as their families and communities.

According to the study, demobilization (transformational training and counseling in various camps) and reintegration of the former militants by attending to their specific needs and those of noncombatants in the area are two more significant areas where the Amnesty program has helped to build peace in the Niger Delta. Approximately 15,434 were changed as part of the peacebuilding process to help former militants reintegrate into civilian life between June 2010 and May 2011. 6,067 exmilitants were reintegrated through formal education between 2013 and 2014; 2,500 went to universities; 13,000 took part in skill- building programs at domestic and international training facilities; 113 worked in welding fabrication and the maritime industry; and others in various domestic and international agencies. Niger Delta ex-militants and noncombatants who were beneficiaries of the Amnesty program's reintegration component received specialized and vocational training, as did the numerous international organizations that served as the scheme's human infrastructure building component, a proliferation of noncombatants and former soldiers in formal education (B.Sc., M.A., M.Sc., MBA, M. Engr., and L LM courses) Primarily postgraduate degree programs offered by international universities in various academic fields. The United States of America (USA), Sweden, Cyprus, Dubai, Malaysia, Belarus, and the United Kingdom (UK) are the training host nations, correspondingly. However, the majority of the Niger Delta recipients under the Amnesty

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scheme were housed in Universities in the UK and Malaysia (Lanre and Shaibu, 2019).

Government Financial Contributions for Reintegration of Transformed Ex-militants.

There is general agreement that the Federal Government of Nigeria, in its endeavor to establish peace in the Niger Delta, has contributed billions of dollars to the Amnesty program through the annual budget from 2009 to 2018 in order to ensure that the DDR scheme results in enduring peace in the area. The program's budgetary contributions and allocations made it clear that the Federal Government was financially committed to peace building in the Niger Delta. In addition to the government's demonstrated financial commitment to the Amnesty program, data regarding finances shows that ex-militants protested in 2015 in response to grievances or concerns that the government intended to discontinue the monthly payment, as well as the low funding for the program. However, the Amnesty Office was able to pay all of the ex-militants' backlog of stipends through the end of 2016, thanks to the increase in funding in 2017. In addition to giving the former militants a monthly salary of between N65,000 to N66,000, the Amnesty program has continuously provided for reintegration activities (Premium Time, Wednesday, August 22, 2018) (Lanre and Shaibu, 2019).

Prospects and Challenges Facing the Implementation of the Amnesty Program in Nigeria

According to government reports, the country's oil production increased from 800,000 barrels per day (during the 2006-2008 periods) to 2.3 million barrels per day after the ceasefire brought about by the amnesty declaration. This is because the security situation in the oil region has improved. A daily increase of 1.5 million barrels translates into daily revenue of \$124.45 million for the national coffers.

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Additionally, other businesses used the occasion to fix some of their damaged oil facilities. Undoubtedly, the amnesty program is anticipated to enhance the nation's currently poor level of human capital development. Nigeria is ranked 156th out of 187 countries and territories with a 2011 Human Development Index (HDI) score of 0.459, which includes the three fundamental components of human development: a long and healthy life, access to information, and a respectable level of living (UNDP 2011).

The "resource curse" argument, which holds that resource-rich economies like Nigeria, Congo, Angola, etc. are more vulnerable to poor management, underdevelopment, and violence, may be disproved if the amnesty program in Nigeria is carried out properly. With effective institutions and sound governance in place, the resource curse can be avoided, as demonstrated by the examples of the UK and Norway, two significant oil exporting nations. Despite the program's successes, elders in the Niger Delta region called for the dissolution of the Presidential Amnesty Committee after reports from the group established in January 2010 to examine the DDR's rehabilitation component showed certain shortcomings. Among these are the following: the overabundance of registered ex-militants; the ongoing detention of multiple militants; some training centers operating with subpar facilities and falling short of acceptable standards; and the fact that approximately 80% of the budget was allocated to paying consultants and contractors, with only 20% going toward the rehabilitation of the ex-militants (Obi & Rustad, 2011).

NwajiakuDahou (2010) commented on the shortcomings of the amnesty program, saying: "Among the many flaws of the Amnesty program are: Lack of a wider political settlement involving the larger Niger Delta population that has borne the costs of conflict, vast differences in compensation between

former militant commanders and foot soldiers, restricted access to rehabilitation training and allowances for those who turned in weapons after the deadline, inadequate training provision, limited employment opportunities, and the politically motivated staffing of organizations tasked with implementing and coordinating the amnesty program." Five new committees were established to address postamnesty programs and expedite development difficulties in the Niger Delta after the Federal Government abolished the Presidential Committee on Disarmament and Amnesty for Militants in the Niger Delta on December 2, 2009. These included the Environmental Remediation Committee, the Oil and Gas Assets Protection Committee, the Disarmament and Reintegration Committee, the Presidential Monitoring Committee on Amnesty, and the Infrastructural Committee. Poor execution of the amnesty package is one of its main problems (Olubayo & Olubisi, 2012).

The amnesty scheme was not carried out as suggested in the Niger Delta Technical Committee's report. The consultations took place at the highest levels of the federal government, with top government officials of Niger Delta origin and Niger Delta elites/elders negotiating with the militant commanders, instead of holding open talks or signing a formal peace agreement with the militants (Obi & Rustad, 2011). Since the militants on the ground feel deceived and ignored by the government, this topdown, non-inclusive strategy, implemented by militant leaders who are only interested in what is profitable to them or for their own personal advancement, poses a severe threat to the amnesty program. The failure of earlier unsuccessful development initiatives like the Niger Delta Development Board (NDDDB), Niger Delta Basin Development Authority (NDBDA), and Oil Mineral Producing Area Development Commission (OMPADEC) based on a topdown approach demonstrates

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that the Nigerian government has not really learned anything from them.

Adopting a bottomup strategy that incorporates aspects of democracy, accountability, equity, and active public participation from all stakeholders—including grassroots individuals, militants, youth organizations, women's groups, and civil society—is necessary to achieve sustainable peace and development in the Niger Delta. Additionally, compared to the 26,358 militants who registered for the amnesty program, the overall number of weapons and ammo turned in by the militants—1,798 rifles, 1,981 guns of various sorts, 70 RPGs, 159 pistols, one spear, and six cannons—is undoubtedly low. The numerous strikes that militants have taken out even after the disarmament exercise demonstrate how armed the region is. The region is extremely hazardous and vulnerable to a return to violence as long as there are a lot of weapons in circulation, hence the disarmament program needs to be strengthened (Olubayo & Olubisi, 2012)

Amnesty, Militia Insurgency and Violence in the Niger Delta?

There is ample evidence that, in spite of the Amnesty program's enormous achievements and contributions, violent attacks on multinational oil companies (MNOCs) continued to occur between October 2010 and 2016, which is essentially the post-amnesty period. There is ample proof that the Amnesty program was tangled with issues of violent attacks and revival associated with the Movement for the Emancipation of Niger Delta (MEND) in Bayelsa state, Delta state, and Abuja, the Nigerian capital. Even yet, it was noted that the program's largest beneficiaries were in Delta and Bayelsa States. The activities shown in Tables 1 as well as the reemergence of militant organizations under the MEND banner are proof that the

Amnesty program was unable to stop violence or establish a peace regime in the Niger Delta.

Table 1: Evidence of Militia resurgence and violent attacks 2010-2016

S\N	Date	Millitia Attack\Millitant Organisation	Outcome
1	10 th October 2010	Nigeria's 50th independence Celebration. Allegedly MEND	Detonation and blast of 2 car bombs killing 2 persons and wounding 36 others
2	October, 2010	Agip Pipeline in Bayelsa. MEND	Explosion
3	March 5, 2010	Post Amnesty Conference at Warri, Delta State. MEND	Car bombing near event. 1 person killed and 11 injure
4	November 8, 2010	Raid on Oil rig and kidnapping of seven foreign staff. MEND	Kidnapping of seven staff
5	November 15, 2010 .	Attack on Exxon Mobil Oil platform. MEND	Kidnapping of seven Nigerian workers.
6	February 4, 2012	Attack/ bombing of Agip trunk pipeline. Allegedly MEND	Bombing of Agip trunk Pipeline
7	March 20, 2013	Attack on Oil Pipeline. Allegedly MEND	Bombing and Destruction
8	April 13, 2013 .	Attack on Shell oil well in Nembe L.G.A, Bayelsa State. Allegedly MEND	Bombing and destruction
9	July 4, 2013	Attack on oil pipeline. Allegedly Militants affiliated to MEND	Bombing and Destruction
10	December 20, 2013	Attack on Oil Plant	Kidnapping of 4 South Korean
11	January 15, 2014.	Agip facility in Nembe- Brassanbiri, Bayelsa. Allegedly New group of MEND trainee fighters	Kidnapping of vessel staff. Hostages released (Ransom allegedly paid)
12	October 14, 2016	Attacks on pipeline Niger Delta Avenger (NDA)	Bombing and Destruction
13	October 25, 2016	Attacks on pipeline Niger Delta Avenger (NDA)	Bombing and Destruction
14	November 16, 2016	Attacks on pipeline Niger Delta Avenger (NDA)	Bombing and Destruction

Source: Authors compilation 2024

There is ample evidence that, in spite of the Amnesty program's enormous achievements and contributions, violent attacks on Multinational Oil Companies (MNOCs) continued to occur between October 2010 and 2016, which is essentially the post amnesty period. There is ample proof that the Amnesty

program was entangled with issues of violent attacks and revival associated with the Movement for the Emancipation of Niger Delta (MEND) in Bayelsa state, Delta state, and Abuja, the Nigerian capital. Even yet, it was noted that the program's largest beneficiaries were in Delta and Bayelsa states.

The activities shown in Tables 1 as well as the reunification of militant organizations under the MEND umbrella reveal that the Amnesty program was unable to stop violence or establish a peace regime in the Niger Delta.

Even worse, Ikelegbe and Umukoro (2016) found that in addition to MEND's violent operations, there have been occasional outbreaks of new and resurgent militia activities, including those of John Togo in the western Delta in 2011, Keiti Sese's camp at Foropa in Bayelsa state in 2010, Coastal Revolutionary Forces, and the Idiot Family in Bayelsa state in 2014. Additionally, the same MEND was found to have been involved in various criminal operations, including piracy, oil theft, and sailor kidnapping, between 2011 and 2014—a time that could be described as a new face of militancy (Ejovi & Ebie, 2013). Despite a drop following the 2009 Amnesty, maritime and waterway piracy has sharply increased since 2011. Between December 2012 and March 2013, attacks occurred on 39 vessels and coastal craft in Nigerian waters, resulting in approximately 7 fatalities and 33 hostages taken.

In 2013, there were 29 piracy incidents in Nigerian waters, including two hijackings, the boarding of 11 ships, attacks on 13 vessels, and attempted attacks on three more. The Niger Delta Avengers (NDAs) also carried violent attacks in 2016 by bombing and demolishing Chevron installations and oil pipelines in Warri (Ejovi & Ebie, 2013).

Theoretical Frame Work

Conflict transformation theory

In the realm of peace building, conflict transformation theory is a relatively recent development. Nonetheless, a lot of the well-known ideas of conflict management and conflict resolution are incorporated into the theory's foundation. Conflict transformation is viewed as a reconceptualization of the field to make it more relevant to modern conflict circumstances, rather than a completely new

method, due to its ideological connection to these (Miall, 2004). The nature of modern conflicts has changed, making this rethinking essential. For instance, the majority of modern wars takes place inside national borders and are exacerbated by structural factors such as unequal power dynamics and the allocation and appropriation of resources.

Additionally, many modern confrontations are drawn out and characterized by intermittent intervals of violence and quiet, as noted by Smith (2004). Conflict in this situation arises in waves, rising sharply until some compromise is made, then sharply declining (nearly to the point where conflict is no longer evident), and then rising once again. In the end, protracted conflicts damage society and cause complex emergencies in addition to upsetting social stability. Three separate theoretical processes are embodied in the conflict transformation approach: conflict transformation (Lederach, 1995), conflict management (Bloomfield & Reilly, 1998), and conflict resolution (Deutsch & Coleman, 2000).

"Positive and constructive handling of difference and divergence" is how Bloomfield and Reilly (1998) defined conflict management. Instead of promoting strategies for eliminating conflict,... tackles the more practical issue of conflict management: how to resolve it in a positive manner, how to unite opposing sides in a collaborative process, and how to create a workable, realistic, cooperative system for the constructive management of differences. Violent conflicts, according to theorists and practitioners in this tradition, arise from disagreements over values and interests ingrained in the social structure. These distinctions cannot be eliminated since they are ingrained in both macro and micro social structures, including historical experiences, institutional ties, resource appropriation and distribution, current power coalitions, racism, ethnicity, tribalism, egos, and so forth. The best course

of action for society is to control the dispute and keep it from getting worse to the point where it might interfere with daily operations. .

As noted by Miall (2004), there are times when a historic compromise may be reached that leads to the temporary suspension or renunciation of violence in order to promote peace. Therefore, achieving political settlements via the use of the resources of a few important actors who are strong enough to put pressure on the disputing parties to reach a settlement or steer the inevitable conflict in the right directions is the aim of conflict management. In contrast to conflict management theory, conflict resolution theory emphasizes the role of knowledgeable but helpless outsiders who work outside of the political system to help disputing parties comprehend, investigate, evaluate, challenge, reframe, and synthesize their interests and perspectives.

Conflict management theorists' systemic approach is criticized by theorists in this lineage as being ineffective and unable to resolve disputes because it fails to take into account the depths of identity and community from which conflicts originate. They contend that individuals engaged in identity based disputes are frequently unwilling to engage in compromise negotiations; rather, it is necessary to investigate the conflict's origins in order to develop innovative solutions that the disputing parties might have overlooked because of their deeply held beliefs.

Accordingly, conflict resolution basically entails assisting the disputing parties in shifting from harmful zero-sum interactions to constructive ones (Deutsch & Coleman, 2000). This method has been critiqued by Lederach (2003) due to its "definitiveness" or "finality" and the way it uses terminology that "implies finding a solution to a problem." Consequently, it obsesses about "ending something that is not desired" rather than creating "something that is desired." The goal

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of conflict transformation is to create the kind of peace that all parties involved want. Therefore, conflict transformation goes beyond conflict management and conflict resolution theories that only reframe positions and identify positive outcomes. It also addresses the creation of a new system, procedure, or method that integrates and uses the benefits of ending a conflict to promote peace.

It explores the nature of the conflicting parties, including their operational structures, historical experiences, and relationships that extend conflicts beyond specific sites. Lederach (2003) defines it as envisioning and responding to "the ebb and flow of social conflict as life giving opportunities for creating constructive change processes that reduce violence, increase justice in direct interaction and social structures, and respond to real life problems in human relationships." It is a "process of engaging with and transforming the relationships, interests, discourses, and, if necessary, the very constitution of society that supports the continuation of violent conflict," according to Miall (2004). Conflicts may be changed from their virulent, destructive form to circumstances that are acceptable to all parties involved by affecting and influencing these domains (i.e., both the epicenter of conflict, such as the web of relational patterns, including the history of lived episodes from which new episodes of conflict emerge, and the actual fighting).

Theoretically, this NDAP analysis might be examined under the heading of conflict transformation. The theory provides a framework for talking about the Niger Delta conflict's cause or causes as well as the best ways to alter the intricate dynamics of the conflict in the delta. Using this method, it is common to see the NDAP as being caught in the middle of a significant conceptual divide: the need for order in light of current realities, particularly declining oil revenue and the

potential impact of the delta violence on Nigeria's economic and political stability; and a historical legacy of ecological abuse combined with structural violence that has sparked massive rage, protests, and violence. The NDAP must foresee and address the multitude of factors that led to the conflict in the first place, including the coercive structural cracks, if it is to bring about enduring peace. Conflict transformation, as a result of peace building, denotes a qualitative shift from a state of violence to one of peace with little to no chance of reversal. The conflict itself, certain facets of the socio historical and political system in which it takes place, the individuals engaged, and the connections between adversaries are all transformed by this change system (Notter and Diamond, 1996). Ebiede (2017), asserts that peace is ultimately the result of transformation at the several levels. Thus, it is clear that the Niger Delta is threatened by the current oppressive sociopolitical structures, inequality, lack of legal economic access, pollution, extreme poverty, illegal oil bunkering, and class and ethnic differences in human development. To address these issues, more serious peace building efforts are needed to transform the infrastructures that are required to achieve a relatively successful outcome.

Conflict transformation, a byproduct of peace building, denotes a qualitative shift from a state of violence to one of peace with little to no chance of reversal. The conflict itself, certain elements of the socio historical and political system in which it takes place, the individuals involved in the conflict, and the relationships between adversaries are all transformed by this change system (Notter and Diamond, 1996). Ebiede (2017), asserts that peace is ultimately the result of transformation at these several levels. Thus, it is clear that the Niger Delta is threatened by the current oppressive sociopolitical structures, inequality, lack of legal economic access,

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pollution, grinding poverty, illegal oil bunkering, and class and ethnic differences in human development. To address these issues, more serious peace building efforts are needed to transform the infrastructures required to establish a comparatively successful peace system.

Discussion of Findings

The amnesty was exclusive:

Without any formal negotiation or mediation process that could have explicitly stated the other essential elements of the peace process that the amnesty deal was backing, the federal government forced the Niger Delta amnesty arrangement on the people of the region. The amnesty agreement was founded on the idea that the Federal Government, which was denied unrestricted access to the Niger Delta's oil resources, was the target of any crimes the militants in the region may have committed. This is because the Nigerian amnesty agreement did not adhere to the best international standards for empowering victims, particularly the communities in the Niger Delta that have been devastated by oil exploration and by the numerous military operations that have occurred there. The victims (and not just the Federal Government in this instance) were given the opportunity to come forward and describe the crimes committed against them in other parts of the world. These were included in the amnesty.

The Nigerian Government amnesty only targets militants and disregards the victims of hostage taking and militancy in the area. Presumably because they lacked the means of violence, mothers and children who had lost fathers, sons, and houses due to the fighting were left out of the amnesty package. The militants' arms surrender and renunciation of violence did not relieve the discontent of the entire people, given the grassroots' exclusion from the sustainability of the existing calm in the region. The Niger Delta deprivation did not affect only militants. The focus on only

former militants and the amnesty scheme could exacerbate the resentment of those who refrained from using force against the Nigerian government. This leads us to the conclusion that the frustrations that fuel insurgency were not addressed; violence may erupt or recur in the area. Therefore, resolving these annoyances is necessary for the region to achieve peace. The government's empowerment program might have been applied to all local residents in the area; if not, it might give the false impression that crime is profitable to those who have been left out and could encourage others to pick up arms in order to get attention.

Only militants were eligible for the government's empowerment program, which included training and employment prospects. Addressing the militants alone while ignoring the region's appalling poverty, underdevelopment, and predicament will not resolve the issue or accomplish the amnesty's goal. The appalling state of affairs, the region's poverty and underdevelopment, and corporate and governmental poor governance all contributed to the militancy and subsequent criminality in the area. These factors will undoubtedly mark the end of the amnesty program. Only a small portion of the Niger Delta's population— 31,224,577 million according to the 2006 population estimate— are militants currently being reintegrated under the program (Nigerian News Census, 2006). The Niger Delta population has to be lifted out of the "poverty trap," which is characterized by a declining environment, bad health, poor education, inadequate infrastructure, and a low level of living.

Conclusion

The goal of the amnesty for Militants in the Niger Delta was to bring about a lasting peace and foster an atmosphere that would hasten sustainable development. The study evaluated and discussed the amnesty contributions to

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peace building in the Niger Delta, specifically how militants were disarmed and registered throughout the region; how many former militants were demobilized and reintegrated through formal education, vocational training, and specialized training; and the significant financial commitment made by the Federal Government of Nigeria through various budgetary contributions to the Amnesty program since 2009 to the present. . Nevertheless, evidence from 2010 to 2016 demonstrated that the Amnesty program did not prevent insurgency and violent attacks, including piracy, oil theft, and kidnapping in the Niger Delta, despite the funding allocated to it.

Fascinatingly, the reasons behind this resurgent threat were found and categorized into sociopolitical, socioeconomic, and environmental issues. This classification largely showed that the DDR peace building efforts lacked the framework necessary to deal with the underlying causes of the issues. Therefore, the Niger Delta amnesty program undoubtedly represents a temporary crisis management win, but the Niger Delta issue has not yet been resolved. The initiative disregarded fundamental principles of global best practices for resolving disputes and promoting peace. Although it was promoted as a "comprehensive" DDR exercise, reintegration was hardly mentioned. No provisions were made for institutional reform, dialogue, mediation, or reconciliation. Unresolved local level conflicts within and between communities continued to be open wounds and a haven for violent attacks, revival, and radicalization.

Recommendation

Regardless of their ethnic background or affiliation, all social segments should have equal access to the Amnesty program in order to build a peace system. All levels of government— local, state, and federal— should fulfill their duties to the populace in

order to allay the Niger Deltas' demands for unrestricted rights.

Insecurity and the spread of weapons should be addressed appropriately nationwide by the federal government and its National Security Agencies (NSAs). If not, peace building would continue to be difficult. To achieve the desired stability in the Niger Delta, the government and all other entities involved in the implementation should adhere to the provisions of the amnesty deal with ex-militants.

The fundamental principles of international good practice and diplomatic tools for conflict resolution, such as the availability of mediation, dialogue, reconciliation, or institutional reform to handle local level

conflicts within and between communities, should be acknowledged and utilized by amnesty programs.

Peace building efforts in the Niger Delta should involve sufficient cooperation between the government and regional players, such as militant commanders, regional politicians, and traditional authorities. Before acting in a way that may breed mistrust, the federal government should discuss matters.

The government should provide microcredits to the trained Niger Deltas so they can practice the skills they have learned. Government representatives and contractors must demonstrate transparency and accountability as duty givers or holders.

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Financial Regulation, Control and Accountability in the Nigeria's Public Sector (A Case Study of Delta State)

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Abstract

The research work examined financial regulation, controls and answerability to the Nigerians; taking a case study of Delta state. Data were source primarily through Questionnaires drawn from staff of public ministries who has Accounting back ground with sampling and Judgmental techniques from 350 respondents. Chi-Square and Chrombach Alpha were used to test the hypotized parameters. Findings revealed significant relationship between accounting records and financial regulations but insignificant relationship of accountability. Base on these findings, the study recommends among others that the government should enshrine in the constitution a mandatory and annual rendering of accounts to the citizens by the executive and political office holders handling government resources and funds.

Keywords: Financial Regulation, Financial Controls, Accountability, Public Ministries, Accounting Records, Nigerians, Delta State.

Introduction

The government of any nation is vex with the responsibilities of providing essential goods, services, security and welfare for the citizenry with the objective of having a peaceful and a stabilized society. The various sources of government revenue meant to meet up with the demands of the people ought to be prudently managed in order for the government to meet the set goals. But more often than none, her difficulties in discharging her responsibilities effectively and efficiently can be attributed to the lackadaisical attitudes of handling government financial resources, especially the public and political office holders. Government institutions unlike the private institutions are characterized with recklessness in spending and management of

public fund and also are careless in giving its stewardship functions to the citizenry. Shafiu and Modid (2020) in the same vein opined that Nigeria's public services are characterized by reckless spending and misappropriation of funds. The scenario has encouraged embezzlement in all aspect of Nigeria's government. The word embezzlement simply put is to make away with, siphon off funds or inventories placed in one's custody. Similarly, Ajibolade and Oboh (2017) asserted that Nigeria has failed to fulfill her obligations at the grassroots due to excessive external control from the states which invariably has lead to massive embezzlements and reckless spending and at the same time has created restricted access for other levels of government development.

The government of Nigeria has instituted some regulatory agencies like the Independent Corrupt Practice and other related Offences Commission (ICPC), Economics and Financial Crime Commission (EFCC), the due process and others, established to check mate the fraudulence, misuse of Financial and other assets in the country. Duke and Agbaji (2017) reiterating said the agencies saddled with the tasks of collecting and remitting revenue to the government seldom discharge their responsibilities as expected and are in one way or the other involved in the huge public sector accounting fraud. Consequently, the inability of the government in meeting up with the demands of the citizenry, the improper managing of its finance and accountability has in no small way doubt whether the various regulatory institutions are performing their functions or whether the various book-keepings are dully followed and complied with. More so whether various persons in authority at government institutions, required giving account of their stewardship to the citizenry are doing so.

This research work attempts to find out the reasons for the anomalies which are inhibiting the government from rendering the services effectively and efficiently in the Nigeria's public sector taking a case study of Delta State.

Research Questions

1. Are there appropriate Accounting records and control in Nigeria's public sectors?
2. To what extent does the regulatory agents' in Nigeria implementing regulatory control of finances in Nigeria's public sectors?
3. Do the Nigeria's public Office holders give account of their stewardship annually to the citizenry?

Hypotheses

1. Significant accounting records and control in Nigeria's public sector does not exist.

2. Significant regulatory financial control does not exist in Nigeria's public sector.
3. Stewardship accounting does not exist in Nigeria's public sector.

Review of Related Literature

Akinwum and Akinola (2019) examined the usefulness of financial control and accountability in Nigeria's public sector with a case study of Owo in Ondo State. Questionnaires were used for the primary data while data for the secondary data were collected from the CBN statistical bulletin on federally generated revenue and expenditure incurred. Chi-square and simple linear regression were used to analyze the data. It was discovered that a positive relationship existed between revenue generated and expenditure incurred. It was therefore recommended that financial control should be strengthened to improve accountability in Nigeria's public sector.

Olaoye , Ogbebor and Elelu (2021) investigated how financial direction affect accountability practice of public sector accounting in Nigeria. Data were collected by questionnaires with a population of 2, 125 for Lagos of Ogun state working in account & finance department and a cross-sectional research design was employed using SPSS 200 test statistics for the data analyses. Finding revealed that financial direction affects accountability in Nigeria Public sector. Based on this it was recommended to make improvement on the existing physical control assets for ensuring effective financial control. Onuorah and Appah (2012) examined the management of public fund in Nigeria. Data were collected from CBN statistical bulletin 1961-2008 on federal and state government revenue and expenditure account. It was discovered that accountability is poor in Nigeria. The study recommends that improvement of public sector accounting and auditing standards

Shruti and Einar (2020) investigate the impact of the European banking authority's guidelines on internal governance through sure dish financial regulation on the bank's risk organization along the three lines of defense model of internal control through an analysis of 41 interviews with more than 2,100 pages of internal and external documents. The findings was that whilst intra and inter-organizational accountability mechanisms have strengthened under the changed organizational structure through the implementation of financial regulation, challenges to effective transparency remain and may have ambiguous consequences for 120th organizational and regulatory aims. Samuel and Olaoye (2021) examined the effects of financial control practices on accountability in Nigeria's public sector using cross- sectional survey research design and questionnaires method. Data were analyzed with the aid of SPSS 20.0 version software. The study showed that financial control has a significant influence on accountability as well as a significant influence on responsibility of Nigeria's public sector. It was recommended that existing physical control assets should be strengthened in order to enhance effective financial control and improve on accountability. Okoro E.O (2021) evaluates the financial control and accountability in public sector organization in Abia State ministry of finance. The Data were analyzed with description statistics such as frequency, percentage and correlation coefficient. Findings revealed an insignificant relationship between internally generated revenue and book-keeping records. Based on these findings, the study recommended annual Audit reports to checkmate resource utilization in the Ministries.

Conceptual review

The concept of Financial Regulation

Solabomi and Collins (2017) defined Financial Regulation as laws that govern banks, investment firms, and insurance companies and protect them from financial risk and fraud which must be balance within operational efficiency

Trisha (2020) defined financial control as procedures, policies, and means taking by an Enterprise in monitoring, direction, allocation, and controls the usage of its financial resources.

Accountability

Kenton (2021) said accountability means a willingness to be transparent and allowing others to observe and evaluate one's performance. Similarly, Demsetz (1972) and which was updated by Akinwunmi (2019) asserted that it is an expression of duties carried by some other person as being effective and efficiently done

Theoretical review

Agency theory

Agency theory was propounded by Alchian and Demsetz in 1972; reviewed in 1976 by Jensen and Mucking and was updated by Carol M.K in 2021. It explain that the principals provide the capitals for the business while the agents are involve in the day to day running of the business but the risk is purely bore by the principals

Public Interest Theory

Public Interest theory was propounded by Stephen Balley in 1962 updated in 2018. It postulates that government seeks the protection and benefits of the citizenry at large in allocation of resources and welfares

Stewardship theory

Stewardship theory was propounded by Demselz (1972) and updated by Carol in (2021). It postulated that the responsibility of caring for something for the benefit of another

person or group of people is the concern of responsible accounting. The person or group of persons rendering service or giving a task to perform must carefully take up the responsibility seriously knowing that he will be called upon at any time in point to renders account.

This study however, is anchor on the stewardship theory as it bothers on taking responsibility for services rendered and to give account of one's stewardship to others

and without compelling; reports conscientiously to the group, association or people he is representing at a specified time period.

Methodology

Data collection method

We used primary data which was sought via Questionnaires and employed the survey design method

Table 3.0: Question one: Appropriate book-keeping and controls do not exist in Nigeria's Public sectors.

S/N	Interviewees	Agreed	Disagreed	Undecided	Total
1	Executive Officials	4	32	2	38
2	Professional Accountants	2	37	1	40
3	Book Keepers(Clarks)	4	12	6	22
Total		10	81	9	100

Table 3.1: Question Two: Proper regulatory financial control is not applicable in ministries.

S/N	Interviewees	Agreed	Disagreed	Undecided	Total
1	Executive Officials	4	32	2	38
2	Professional Accountants	1	40	1	42
3	Book Keepers(Clarks)	10	7	3	20
Total		15	79	6	100

Table 3.3: Question Three: The Nigeria's officials seldom give annual account of their stewardship.

S/N	Interviewees	Agreed	Disagreed	Undecided	Total
1	Executive Officials	5	25	2	32
2	Professional Accountants	45	2	1	43
3	Book Keepers(Clarks)	26		3	25
Total		10	81	9	100

Test of Hypothesis

The cross tabulation Chi-Square was employed to test the hypothesis. However, the

Chrombach Alpha was used in testing the variables. The result of the Chrombach Alpha test is show on table:

Reliability Test:

Table 3.4

Reliability Statistics

Cronbach's Alpha	N of Items
.729	3

Source: The Researcher using SPSS 23

The Chronbach Alpha test result is quite high with a 72.9% value. It therefore connotes that there is an internal consistency between the

variables derived via the questionnaire. The variables are therefore reliable for testing the hypotheses.

Test of Hypothesis One:

H₀₁: Significant accounting records and control in Nigeria's public sector does not exist.

Table 3.5: Appropriate book-keeping and controls do not exist in Nigeria's Public sectors * Interviewees Crosstabulation

			Interviewees			Total
			Book Keepers	Professional Accountants	Exec Officials	
Appropriate accounting records and controls do not exist in Nigeria's Public sectors	Undecided	Count	6	0	2	8
		Expected	1.6	3.4	3.0	8.0
	DISAGREE	Count	12	40	32	84
		Expected	16.8	35.3	31.9	84.0
	AGREE	Count	2	2	4	8
		Expected	1.6	3.4	3.0	8.0
	Total	Count	20	42	38	100
		Expected	20.0	42.0	38.0	100.0
		Count				
		Expected				

Source: The Researcher Using SPSS 23

Table 3.6: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.773 ^a	4	.001
Likelihood Ratio	17.329	4	.002
Linear-by-Linear Association	4.068	1	.044
N of Valid Cases	100		

Source: The Researcher Using SPSS 23

The result of the chi-square showed a P-value of 0.001 and this is lower than 5% . Also majority of the respondents disagree with the statement "Appropriate accounting records and controls do not exist in Nigeria's Public

sectors" therefore we reject the null hypothesis for the alternative which states that there is significant accounting records and control in Nigeria's public sector.

Test of Hypothesis Two

H₀₂ Regulatory financial control does not exist in Nigeria's public sector.

Table 3.7: There is no proper regulatory control of account and Finances in the Public sector. * Interviewees Crosstabulation

			Interviewees			Total
			Book Keepers	Professional Accountants	Exec Officials	
There is no proper regulatory control of account and Finances in the Public sector.	Count		3	1	2	6
	Undecided	Expected	1.2	2.5	2.3	6.0
	Count					
	DISAGREE	Count	7	40	32	79
	Expected		15.8	33.2	30.0	79.0
	Count					
	AGREE	Count	10	1	4	15
	Expected		3.0	6.3	5.7	15.0
	Count					
	Total	Count	20	42	38	100
			Expected	20.0	42.0	38.0
			Count			100.0

Source: The researcher's Computation using SPSS 23

Table 3.8: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.384 ^a	4	.000
Likelihood Ratio	28.335	4	.000
Linear-by-Linear Association	3.924	1	.048
N of Valid Cases	100		

Source: The researcher's Computation using SPSS 23

The Chi-square result of 3.8 reveals a P-value of 0.000. Also, the cross tabulation result on table 3.7 confirmed their disagreement to the statement "That improper regulatory control of account and Finances existed in the

ministries". Therefore the null hypothesis is rejected for the alternative which states that "There is significant regulatory financial control in Nigeria's public sector."

Test of Hypothesis Three

H0₃: Stewardship accounting does not exist in Nigeria's public sector.

Table 3.9: The Nigeria's ministries officials seldom give annual account of their stewardship to the citizens * Interviewees Cross tabulation

			Interviewees			Total
			Book Keepers	Professional Accountants	Exec Officials	
The Nigeria's Public Office holders seldom give annual account of their stewardship to the citizens	Count		3	1	6	10
	Undecided	Expected	2.0	4.2	3.8	10.0
	Count		0	2	27	29
	DISAGREE	Expected	5.8	12.2	11.0	29.0
	Count		17	39	5	61
	AGREE	Expected	12.2	25.6	23.2	61.0
	Count		20	42	38	100
	Total	Expected	20.0	42.0	38.0	100.0
	Count					

Source: The researcher's Computation using SPSS 23

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.827 ^a	4	.000
Likelihood Ratio	74.924	4	.000
Linear-by-Linear Association	23.495	1	.000
N of Valid Cases	100		
Source: The researcher's Computation using SPSS 23			

The Chi-Square test revealed a significant difference between the respondents with a P-value of 0.000 however this difference is tilted towards the acceptance of the statement "The Nigeria's ministries officials seldom give annual account of their stewardship to the citizens". This is shown on the cross tabulation table. Therefore the alternate hypothesis is rejected for the null; in this case which states that "There is no significant

stewardship of accounting in Nigeria's public sector"

The Summarized Findings

Firstly, the chi-square test result showed a P-value of 0.001 and this is lower than 5% significant level which led to the acceptance of the alternative hypothesis which states that there exist a significant accounting records and control in Nigeria's public sector.

Secondly, the Chi-square result of 3.8 reveals a P-value of 0.000 with the cross tabulation result of 3.7, confirming the respondent's disagreement; which led to the acceptance of the alternative which states that significant regulatory financial direction existed in Nigeria's public sector.

Thirdly, the Chrombach Alpha test and the Chi-Square result revealed a significant difference between the respondents with a P-value of 0.000 which led to the rejection of the alternate hypothesis that significant stewardship of accounting existed in Nigeria's public sector

Conclusion

In spite of various accounting records and regulatory control processes instituted in all Nigeria's public sectors to regulate and patterns ways of doing Businesses and giving of accounts, the citizenry are denied proper

accountability of government activities because the government officials especially the politicians disregard the prudential stewardship function of accountability for their selfish interest to embezzle and misappropriate funds melt for public functionaries.

Recommendation

Internal control measures should be strengthening in order to control the inflow and outflow of funds in ministries.

The various regulatory agencies in Nigeria should work in harmony to checkmate fraud and misappropriation of funds.

The government should enshrine in the constitution a mandatory and annual rendering of accounts to the citizens by the executive and politicians handling government resources and funds

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Corporate Governance Attributes and Tax Aggressiveness of Listed Industrial Goods Companies in Nigeria

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Abstract

This study investigated the effects of corporate governance on tax aggressiveness in Nigeria. The study was done using fifteen (15) companies drawn from healthcare, natural resources and construction/real estate from 2013–2022. Ex-post facto design was used and secondary data (board remuneration, board gender diversity, board independence and board ownership structure) were obtained from the yearly audited annual reports of the selected companies. To account for unobserved heterogeneity, endogeneity and serial correlation problems linked with panel data, the generalized method of moments was employed in testing the relevant hypotheses. The study demonstrates that corporate governance significantly influences tax aggressiveness. It is suggested that executives or the board's remuneration should be increased in order to further influence tax aggressiveness. Also, board ownership structure was found to negatively affect tax aggressiveness; hence there is the need for companies to reduce shares of CEOs in such a way that it does not prevail over total number of directors' shares. This would enable companies attract additional directors with more resources that can influence tax aggressiveness.

Keywords: Corporate governance, Board remuneration, Board independence, Board gender diversity, Board ownership structure.

Introduction

Corporate governance refers to policies and procedures adopted by firms to achieve certain sets of objectives, corporate missions and visions with regard to different stakeholders. Corporate governance influences good corporate management of organizations including the reduction of tax liability (Abdul-Wahab, 2019). Good corporate governance must be established to safeguard stakeholders in the company, maintain variables for control, and prevent collapse and a protracted economic downturn in pursuing commercial objectives. Corporate governance is the process by which

stakeholders hold firm management responsible for their stewardship to restrain corporate excesses (Al-Farooque, Buachoom & Sun, 2020). Corporate governance refers to the division of rights and responsibilities between the principal and agents; it is a system of corporate monitoring and provides a framework for putting the corporation's objective in place.

The term tax aggressiveness is used to describe a variety of acts taken by people and businesses to minimize their tax obligations. This can include doing things that are technically lawful but skirt the legal boundaries set by the tax code, like taking

advantage of tax regulations and deductions to reduce taxable income (Lanis, Richardson & Taylor, 2017). Aggressive tax behaviour can encompass a broad scope, from lawful tax planning to dishonest tax avoidance. A company may choose to take a more tax-aggressive stance to boost profits, reduce its tax liability, or take advantage of tax breaks and rebates (Oyeleke, Erin & Emeni, 2016). The payment of taxes is the responsibility of both individuals and corporations.

When a company takes advantage of legitimate tax laws to lower its tax burden, it is referred to as being tax aggressive (Salawu & Adedeji, 2017). Tax is a financial charge or other levy imposed upon a taxpayer (an individual or legal entity) by a state or the functional equivalent of a state (Okoye & Akenbor, 2010). The key objective of this study is to examine the effect of corporate governance on tax aggressiveness in Nigeria using four variables; gender diversity, board size, CEO duality, and ownership structure to proxy corporate governance and effective tax rate was used to proxy tax aggressiveness in Nigeria. However, the precise objectives are to: investigate the effect of gender diversity, board independence, board ownership, and board remuneration on tax aggressiveness in listed industrial goods companies

Corporate governance influences good corporate management of organizations including the reduction of tax liability. Onyali and Okafor (2018) observe that corporate governance attributes is interrelated with board size, managerial ownership, board independence, ownership concentration, board diversity, audit committee size, amongst others. Olayinka and Francis (2016) Pniowsky, (2018) found a positive relationship between corporate governance and tax avoidance.

To this effect, the following hypotheses were formulated:

H₀₁: There is no significant link between board gender diversity and tax aggressiveness of listed industrial goods companies

H₀₂: There is no significant link between board Independence and tax aggressiveness of listed industrial goods companies

H₀₃: There is no significant link between board ownership structure and tax aggressiveness of listed industrial goods companies

H₀₄: There is no significant link between board remuneration and tax aggressiveness of listed industrial goods companies

Literature Review

Corporate Governance

Most definitions of corporate governance emphasize a mechanism aimed at mitigating issues arising from the separation of ownership and control. Uwuigbe, Olusanmi, and Iyoha (2015) describe corporate governance as a system encompassing various practices and institutions, such as accounting standards, financial disclosure rules, executive compensation guidelines, and board size and composition, all designed to safeguard the interests of a corporation's owners. Uniamikogbo Bennee and Adeusi (2019) define corporate governance as the system through which organizations are guided and managed. The board's duties are overseeing management, ensuring the smooth operation of the business, setting strategic objectives, providing leadership to achieve them, and reporting progress to shareholders. Boards are subject to relevant laws and regulations.

In Nigeria, the legal and regulatory framework for corporate governance compliance is established through a blend of voluntary and mandatory measures, including the Companies and Allied Matters Act 2015 as amended, the Investment and Securities

Act 2017, the Securities and Exchange Commission (SEC) 2011, the Corporate Governance Code, and various industry-specific governance codes. The committee led by Atedo Peterside on corporate governance, commissioned by the Securities & Exchange Commission in Nigeria, led to the publication of the 2015 SEC Corporate Governance Code and the current revision of the SEC Code from 2011. Regulators have issued industry-specific codes for companies under their jurisdiction, such as the CBN Codes 2017 for banks and other financial institutions, PENCOM Codes 2016 for pension fund administrators, and NAICOM Codes for insurance companies.

- **Board Gender Diversity**

Considering that women tend to be more risk-averse and cautious than men, the gender composition of a firm's board of directors is believed to impact corporate policies and outcomes. Odoemela, Ironkwe and Nwaiwu (2016) suggest that companies with female directors exhibit lower absolute discretionary accruals or earnings management, attributed to their conservative nature compared to male counterparts (Adams & Ferreira, 2018). Nonetheless, this may not universally apply. Irawati, Maksum, Sadalia and Muda (2019) found evidence indicating that gender diversity on the board can reduce tax optimization. Thus, board gender diversity may either decrease or increase tax aggressiveness. Consequently, the study proposes the hypothesis: Board gender does not significantly influence tax aggressiveness.

- **Board Independence**

Granting boards of director's autonomy can establish efficient control mechanisms. External members, in particular, can ensure both competence and independence simultaneously (Onyali & Okafor, 2018). It is noteworthy that a higher proportion of outside (non-executive) directors on the board is

associated with a reduced likelihood of tax aggressiveness (Bhagat & Bolton, 2016). However, this may not always hold true in practice. Therefore, the study posits the hypothesis: Board independence does not significantly influence tax aggressiveness.

- **Board Ownership**

The ownership structure refers to the institution or organization that predominantly holds a company's shares (Aguilera, Desender & de Castro, 2012). It serves as the primary factor influencing shareholder wealth and the overall effectiveness of business operations. A well-structured ownership model ensures that no single authority can exert undue influence over the company's decisions solely based on ownership, as all shareholders have the opportunity to vote on significant matters crucial to the firm's functioning.

Consequently, this minimizes conflicts between owners and their representatives, thereby enhancing business performance (Al-Farooque et al., 2020). Ownership structure can be categorized as public, private, institutional and managerial ownership (Kibiel & Akenbor, 2014). For the purpose of this study, institutional and managerial ownership are focal points of analysis.

- **Board Remuneration**

Board remuneration refers to the compensation and benefits provided to members of a company's board of directors for their service and contributions to the organization. This compensation package typically includes various components such as retainer fees, meeting fees, committee fees, equity-based compensation, annual incentive awards, benefits, and director insurance (Zemzem & Khaoula, 2013). Effective board remuneration practices are crucial for attracting and retaining qualified directors, aligning their interests with those of

shareholders, promoting strong corporate governance, and driving long-term value creation for the company.

Tax Aggressiveness

Tax Aggressiveness, also referred to as “Tax Sheltering” or “Tax Planning,” has been defined in various ways by scholars. Hoffman (1961) defines tax aggressiveness as “the taxpayer’s ability to organize his financial affairs in such a way as to suffer a minimum tax liability.” Generally, tax aggressiveness is understood as the practice of arranging one’s financial affairs to defer, reduce, or eliminate the amount of taxes owed to the government (Pniowsky, 2018). In countries like Nigeria, Canada, the US, and many others, tax aggressiveness is permissible only when it conforms to the regulations outlined in the Income Tax Act (ITA).

Moreover, to minimize tax liability within the framework of regulatory guidelines, tax aggressiveness is acknowledged as the preferred strategy. According to Fallan, Hammervold, and Gronhaug (1995), tax aggressiveness can be achieved by adjusting tax rates across different tax environments and business activities, as well as by utilizing certain tax incentives provided for in tax laws. Additionally, Hoffman (1961) emphasizes the distinction between tax evasion and tax avoidance to gain a clear understanding of the concept of tax aggressiveness.

Failing to differentiate between these two concepts could result in questioning the permissible limits of tax aggressiveness, potentially leading to severe legal consequences such as penalties for non-compliance with tax regulations. Therefore, it can be concluded that the key terms to delineate the difference between tax avoidance and tax evasion are “legal” and “illegal” (Abdul-Wahab, 2019).

Theoretical Framework

Agency theory comprises a set of principles governing the management of contemporary corporations, particularly those with numerous shareholders. In such corporations, individuals possessing relevant professional expertise are entrusted to manage and direct collective capital for future gains, regardless of share ownership. Originating from economic theory, agency theory was initially formulated by Alchian and Demsetz (1972) and further developed by Jensen and Meckling (1976). This theory offers valuable insights into scrutinizing the relationship between owners and managers, especially in cases where managers lack ownership of corporate resources.

The crux of agency theory revolves around entrusting resources to agents expected to produce both qualitative and quantitative reports, aligning business owners’ and managers’ interests to achieve organizational goals. According to Kiel and Nicholson (2013), agency theory entails separating control from ownership, indicating that professional managers oversee a firm on behalf of its owners. It suggests that agents possess more information than principals, potentially hindering the principal’s ability to monitor whether the organization operates in their best interest. Managers, endowed with superior knowledge and expertise compared to owners, may prioritize personal interests over shareholders’ interests.

Methodology

This study used quantitative method by means of cross-sectional design covering a period from 2013-2022. It entails a study of publicly listed companies on the floor of the Nigerian Exchange Group (NGX), which were drawn from the Healthcare, Natural Resources and Construction/Real Estate sectors. The variables comprised four corporate governance variables (board gender diversity, board independence, board ownership structure and board remuneration) and one (1) tax aggressiveness variable – effective tax rate. Thus, the independent variables are corporate governance variables while the dependent variable is tax aggressiveness.

The population of this study comprised all publicly listed Healthcare, Natural Resources and Construction/Real Estate companies on the floor of the Nigerian Exchange Group (NGX) as of 31st December 2023. In NGX, there are seven (7) healthcare publicly listed companies, nine (9) construction/real estate and nine (9) natural resources, totalling twenty-five (25) publicly listed healthcare, natural resources and construction/real estate companies as at 31st December, 2023 (The Nigerian Exchange Group, 2024). Hence, the population was made up of twenty-five (25) publicly quoted listed healthcare, natural

resources and construction/real estate companies.

Given the nature of companies in these sectors under investigation, a sample of five (5) companies each were selected from each sector, hence totaling a sample size of fifteen (15) healthcare, natural resources and construction/real estate companies in Nigeria. The sampling technique was based on the inclusion and exclusion criteria; criterion employed was hinged on companies with spontaneous board remuneration and those without spontaneous board remuneration as well as management with tax aggressive behaviour.

This study used secondary source of data collection; the secondary data provides reliable information for the researcher to investigate how corporate governance variables relates with tax aggressiveness of publicly listed companies on the NGX as well as a means of providing solution to the identified problems in the course of the study. The secondary source of data collection include the yearly audited annual reports and accounts of the selected Healthcare, Natural Resources and Construction/Real Estate companies covering 2013-2022. Given the dependent and independent variables of the study, the following empirical models were estimated as follows:

$$\text{ETR} = (\text{BREM}, \text{BOWNS}, \text{BGD}, \text{BIND})$$

Eq.3.1

$$\text{ETR}_{it} = \alpha_0 + \beta_1 \text{BREM}_{it} + \beta_2 \text{BOWNS}_{it} + \beta_3 \text{BGD}_{it} + \beta_4 \text{BIND}_{it} + \varepsilon_{it}$$

Eq.3.2

Where: ETR is effective tax rate; BREM is board remuneration; BOWNS is board ownership structure; BGD is board gender diversity; BIND is board independence; α is regression constant; ε is error term; i is individual companies; t is time dimension. Furthermore, to validate the direction of causality and resolve the endogeneity problem associated with panel data, one lagged value was observed; the lag was observed on the right hand side of equations 3.1-3.2 using and

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Z (a vector of company-level control factor) as follows:

$$\text{ETR}_{it} = \alpha_0 + \beta_1 \text{BREM}_{it} + \beta_2 \text{BOWNS}_{it} + \beta_3 \text{BGD}_{it} + \beta_4 \text{BIND}_{it} - 1 + \gamma Z_{it} + \varepsilon_{it}$$

Eq.3.3

Data obtained were analyzed using descriptive, diagnostic and inferential statistics. This study used a dissimilar methodological approach such as the Generalized Method of Moments (GMM) because it accounts for unobserved

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heterogeneity, endogeneity and serial correlation problems.

Results

Table 4.1: Summary Statistics

Statistics	ETR	BREM	BOWNS	BGD	BIND
Mean	-16.188	1.5000	0.0065	17.315	0.5941
Median	-11.735	0.6573	0.0002	15.640	0.5833
Standard Deviation	5.5318	2.2614	0.0565	7.3636	0.1491
Kurtosis	3.7325	8.3151	4.9489	2.9645	4.8643
Skewness	-11.193	2.4299	11.938	0.5142	0.1174
N	150	150	150	150	150

Source: Computed by the Researcher (2025)

Table 4.1 revealed that ETR has a mean of -16.188; this indicates that the selected companies on the average have -16.2 percent overall tax expenses by prior-year accounting income tax. Besides, BREM recorded a mean of 1.5, indicating that board remunerations received on the average, a pay rise of ₦1.5 yearly. Also, BOWNS, BGD and BIND recorded mean values of 0.0065, 17.315 and 0.5941 respectively; this implies that the selected companies have approximately 0.65 percent CEO shareholdings compared to the total number of directors on the board, BGD (17.3%) indicates that the board had approximately 17% females compared to males on the board while BIND had a 5.9 percent proportion of non-executive director. The BGD is low and quite expected as most companies have more males than females on their board

The standard deviation revealed relative changes in the variables revolving around 0.0565 to 7.3363. The standard deviation for BREM (2.261) and BOWNS (0.0565) showed relatively low dispersion of board compensation and board ownership structure of the companies in Nigeria. The skewness values for BREM (2.429), BOWNS (11.938), BGD (0.514) and BIND (0.117) are positive; this suggests that in Nigeria board remuneration, board gender diversity, board ownership structure, board independence and effective tax rate moved in same direction. Also, kurtosis values for ETR (3.73), BREM (8.315), BOWNS (4.948), and BIND (4.864) were more than 3 (leptokurtic distribution), except BGD (2.964) that is less than 3 (platykurtic distribution).

Table 4.2: Pearson Correlation

Parameters	ETR	BREM	BOWNS	BGD	BIND
ETR	1.0000				
BREM	0.0264	1.0000			
BOWNS	-0.0052	-0.0377	1.0000		
BGD	-0.1143	-0.0104	-0.0425	1.0000	
BIND	-0.0940	-0.0101	0.0519	0.0064	1.0000

Source: Computed by the Researcher (2025)

Table 4.2 showed that BOWNS, BGD and BIND are negatively correlated with ETR

except BREM that is positively correlated with ETR; this implies that there is negative

relationship between BOWNS, BGD, BIND and ETR while a positive relationship exists

between BREM and ETR of the selected companies in Nigeria.

Table 4.3: Variance Inflation Factor (VIF)

Parameters	VIF	1/VIF
BOWNS	1.01	0.9941
BIND	1.00	0.9972
BGD	1.00	0.9979
BREM	1.00	0.9984
Mean VIF	1.00	

Source: Computed by the Researcher (2025)

Table 4.3 showed that the mean VIF is 1.00, which is less than the VIF threshold of 10.0; this indicates that there is absence of

multicollinearity in the model of corporate governance and tax aggressiveness of the selected companies in Nigeria

Table 4.4: Breusch-Pagan/Cook-Weisberg Test for Heteroscedasticity

Chi1(1)	=	279.71
Prob. > chi2	=	0.0000

Source: Computed by the Researcher (2025)

The Breusch-Pagan/Cook-Weisberg result is 279.71 with Prob.>F of 0.0000, which is less than 0.05% significance level, suggesting the absence of heteroskedasticity problem in the

model of corporate governance and tax aggressiveness of the selected companies in Nigeria; hence, the data does not contain unequal variances.

Table 4.5: Generalized Method of Moments Panel Estimation Results

Parameters	Equation
	ETR
L1	0.0156*** (14.08)
L2	0.0499*** (5.19)
BREM	0.2818*** (7.71)
BOWNS	-0.0228*** (-7.10)
BGD	-0.0769*** (-7.71)
BIND	-0.0383*** (-6.38)
Constant	7.17*** (22.10)
R-Squared	0.81
P-Value	0.0000

Source: Computed by the Researcher (2025) *significant at 5%**

Table 4.5 showed the GMM panel estimation results which was used to ascertain the impact of corporate governance variables (BREM, BOWNS, BGD& BIND) on tax aggressiveness (ETR). Table 4.6 demonstrates that the coefficients BOWNS, BGD and BIND were negative; hence, there is negative significant impact of BOWNS, BGD and BIND on ETR of the selected companies in Nigeria while a positive significant impact was found between BREM and ETR.

Furthermore, it was found that BREM, BOWNS, BGD and BIND jointly explained about 81% of the systematic variation in ETR. Also, a change in BREM, BOWNS, BGD and BIND would result to approximately 0.28%, 0.8% and 0.4% decrease in ETR except BREM that would lead to 28% increase in ETR. First, given the t-value of -7.71, the null hypothesis was rejected while the alternate hypothesis was accepted; this suggests that there is significant relationship between board gender diversity and tax aggressiveness of listed industrial goods companies in Nigeria; however, the relationship was found to be negative.

Second, given the t-value of -6.38, the null hypothesis was rejected while the alternate hypothesis was accepted; this indicates that there is significant relationship between board independence and tax aggressiveness of listed industrial goods companies in Nigeria; however, the relationship was found to be negative. Third, given the t-value of -7.10, the null hypothesis was rejected while the alternate hypothesis was accepted; this implies that there is significant relationship between board ownership structure and tax aggressiveness of listed industrial goods companies in Nigeria; however, the relationship was found to be negative.

Finally, given the t-value of -7.71, the null hypothesis was rejected while the alternate hypothesis was accepted; this implies that there is significant relationship between board remuneration and tax aggressiveness of listed

industrial goods companies in Nigeria; however, the relationship was found to be positive.

Conclusion and Recommendations

This study investigated the effects of corporate governance on tax aggressiveness. Two (2) important questions have been usually raised; the first is if efficient corporate governance can increase tax aggressiveness and second if companies with inefficient board would result to decreased tax aggressiveness; while findings seems to be mixed in the management literature, some researchers have the conviction that corporate governance efficiency would increase the likelihood tax aggressiveness.

In this study, we employed a sample of fifteen (15) companies drawn from healthcare, natural resources and construction/real estate from 2013–2022 to provide insights on the relationships between corporate governance and tax aggressiveness. The study demonstrates that corporate governance significantly influence tax aggressiveness of the publicly listed healthcare, natural resources and construction/real estate companies in Nigeria. On the basis of the findings of the study, the following recommendations are made:

- (i) The study suggests that board remuneration should be increased in order to further influence tax aggressiveness.
- (ii) Board ownership structure was found to negatively affect tax aggressiveness; hence there is the need for companies to reduce shares of CEOs in such a way that it does not prevail over the total number of directors' shares. This would enable companies attract additional directors with more resources that can influence tax aggressiveness.
- (iii) Board gender diversity was found to negatively influence tax aggressiveness; thus, companies should ensure that there is adequate balance in number of female

directors on the board in order to positively influence tax aggressiveness behaviour

(iv) Board independence was found to negatively influence tax aggressiveness; thus,

companies should ensure that there is suitable proportion of non-executive director on the board in order to positively influence tax aggressiveness behaviour

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The Relevance of Environmental Communication and Solutions Journalism in the Quest for Sustainable Environment in Nigeria: The need for a synergy

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Abstract

In the face of escalating environmental degradation in Nigeria, the relevance of environmental communication and solution journalism cannot be undermined, as they have emerged as pivotal to fostering a sustainable environment in Nigeria. However, this paper examines the melting pot between environmental communication and solutions journalism in a bid to know their relevance in the quest for sustainable environmental development in Nigeria.. Also, the paper x-rays the prospects and challenges of environmental communication and how they impinge on effective reportage of environmental issues. The Agenda setting Theory is the theoretical framework the study is anchored on. Data for the paper were gathered using the library research method. From the findings of the study, it was also discovered that environmental communication has been very effective in reporting environmental problems as it has brought about environmental literacy geared towards educating the people on activities that affects the environment as well as telling them what they should do to ensure a sustainable environment. The paper also found that solutions journalism has always brought solutions and spurs climate action when stories lay emphasis on both environmental problems and actionable solutions. Finally, the paper recommends inter-alia that environmental journalists should always ensure that information disseminated in his course of reportage are geared towards fostering a more comprehensive approach to understanding and addressing the multifaceted challenges posed by environmental degradation and journalists who practice the solutions genre of journalism should always emphasise constructive reporting on social problems and potential solutions to environmental degradation issues. With this, the essence of solutions journalism will not be defeated.

Keywords: Environmental Communication, Climate Change, Solution Journalism, Deforestation, Environmental Degradation, Sustainable Development

Introduction

In today's world, the environment in which we live is so fundamental to our well-being and our future that it is expected of a responsible and a responsive media to give a reasonable amount of attention. As a genre of journalism that tends to unveil social problems with the aim of analysing their positive and negative effects on the society via evidence-based reporting, solution journalism as well as solution journalist is saddled with the responsibility of reporting issues that bothers on our environment.

The environmental journalist can exert positive influence on our environment cum society and consequently make useful impact on the future of our environment via solutions journalism. As noted by Gore (1991), the responsibility of giving an account of what is happening today, is not just only what is expected of the media but why it is happening, its effects on the society today, tomorrow and possible solution. This is an onus that directly falls on the mass media. According to Archibald (2010) environmental reporting is bedeviled with lack of important information. The little information available is centered on crises, limited sources information and other problems. In the face of all these pitfalls it is only little research that has been done on how environmental reporters operate and much is not known about the hurdles they encounter in the course of their reportage.

Generally, the environmental reporters face different types of problems which could be physical attack, death threat or imprisonment. For instance, journalists who want to embark on investigating the causes of global warming in some countries may receive death threat (Nwabuee, 2007). However, environmental journalists are expected to advocate for positive changes to improve the quality of the planet. According to Zazueta (2009), it is the responsibility of the journalist to educate the people about the serious state of the environment and employ the power of the

media to bring about positive changes to improve the quality of the air, water, wildlife and natural resource. With this, it is apparent that it is not just enough to report environmental hazards especially in an era of climate change.. a reportage of the environmental problems alongside the possible solutions which is the essence of solutions journalism becomes apt. as explained by Deborah Douglas quoted in Nowakowski (2024), solutions journalism gives the people a sense of hope, efficiency and a space for the inherent dignity of everybody in our community rather than problematising every situation like the traditional journalism.

Sustainable development in Nigeria is influenced by different factors including socio-economic practices, governance structure and environmental policies. The United Nations Sustainable Development Goals (SDGs) provide a framework for integrating environmental sustainability into development planning. However, achieving these goals remains a challenge due to issues such as corruption, inadequate infrastructure and insufficient public participation (Adewale et al., 2021). The need for innovative and effective communication strategies to sensitise various stakeholders about sustainable practices is greater than ever.

The prospects of integrating environmental communication and solutions journalism into Nigeria's sustainable development are promising. With the Nigeria's youth population being increasingly active on social media, there is an opportunity to use these platforms for advocacy and change (Nwosu, 2018). Moreover, enhancing community-based initiatives through participatory communication can empower local communities to adopt sustainable practices (Ribot, 2024). However, numerous challenges hinder progress. These include limited access to education and information, prevailing negative media reports, weak regulatory

frameworks and lack of cooperation among stakeholders (Udo & Igbokwe, 2020). Furthermore, the pervasive influence of political and economic interests often complicates environmental messaging and undermines sustainability efforts (Eneh et al., 2019).

By and large, environmental communication and solutions journalism stresses the importance of audience participation. By integrating principles from social science such as audience segmentation and participator frameworks, journalists can develop stories that resonate deeply with different demographics thereby enhancing the relevance and impact of environmental communication (Cameron, 2020).

Statement of the Problem

In recent years, environmental degradation has emerged as one of the most pressing challenges facing Nigeria, manifesting in issues such as deforestation, pollution and climate change impacts. Despite the growing recognition of these environmental issues, effective communication strategies are often lacking, resulting in a disconnection between environmental challenges and the necessary public engagement in addressing them. According to UN Environment (2015), effective communication strategies can promote better environmental decision-making and encourage behavioural change among individuals and organizations. This transparent communication of scientific knowledge and environmental risks is essential in overcoming public apathy and misinformation (Bucchi & Nonino, 2019).

In view of the above, it seems that a possible confluence of environmental communication and solutions journalism will present a powerful paradigm to enhancing sustainable environmental practices, through a critical examination of their respective roles. With this, the quest is, to what extent has the integration of environmental communication

and solutions enhanced public awareness, engagement and advocacy for sustainable environmental initiatives? Again, how has their synergy contributed to a more informed and proactive society in the face of environmental challenges? These questions and more are the focus of this paper.

Objectives of the Research

The objectives of this study are to:

1. To find out the extent has environmental communication been used to reporting environmental problem
2. Ascertaining the effectiveness of solutions journalism in discovering and proffering solutions to environmental risk issues

Research Questions

1. To what extent has environmental communication been used to reporting environmental problem?
 1. How effective is solutions journalism in discovering and proffering solutions to environmental risk issues?

Literature Review

The concept of environmental communication and solutions journalism

Environmental communication refers to the utilization of communication to bring to bear, issues that affects the environment in order to safeguard or promote the environment (Nwabuee, 2007). Meisner (2015) explains human interaction with the environment. This interaction is a broad one. It ranges from face communication mass communities to general decision-making and environmental media coverage. To Flor (2004), environmental communication entails the employments of communication approaches, principles, strategies and techniques to manage and protect the environment. As defined by environmental communication scholars, it involves the demonstration and exchange of messages related to policies,

ecological risks and sustainability efforts (Cox, 2010). This domain examines the role of the media, discourse and public perception in shaping environmental attitudes and informing policy-making.

Solutions journalism is an approach to reporting that focuses on the responses and solutions to social problems rather than merely highlighting issues. It is a type of journalism that encourages a more informed public dialogue and inspires action by showcasing real-world examples of positive change. According to Nowakowski (2024) solutions journalism tends to provide answers or solutions to pressing social problems and then evaluate the efficacy of such intervention. It made you understand how your proposed solution is working or how it could work. Also known as construction journalism, solutions journalism is a practice focused on reporting about responses to social problems rather than solely on the problems themselves. As formulated by the solutions journalism Network (2013), this approach provides evidence-based nuanced stories that highlight effective responses and promote civic engagement.

Sustainable development is a concept that integrates the need for economic growth, social equity and environmental protection, ensuring that development benefits current and future population. According to Stern (2007), sustainable development involves a multi-faceted approach that spans environmental integrity, social equity and economic viability. Succinctly put, sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission and Development, 1987). The United Nations has emphasised that sustainable development requires “transferring the world for the better in ways that inclusive, sustainable and resilient development will be attained (United

Nations , 2015, sustainable Development Goals).

In Nigeria, environmental degradation has reached critical levels, manifesting through deforestation, oil pollution, waste management and biodiversity loss. These environmental issues not only threaten the ecological balance but also significantly impact public health, agriculture and economic development (Nwankwo et al., 2021). Despite the government policies and international commitments towards environmental sustainability, there exists a glaring gap in effective environmental communication that hampers public awareness and engagement (Okonkwo & Jiboku, 2020). However, reporting the environment as a core issue for the society set numerous challenges for journalists. According to some analysis and interviews made, Zazueta (2009) supplies the challenges of environmental reporting as follows:

- Lack of environmental and scientific training.
- Unavailability or limited access to government information on environmental conservation
- Threats to life and professional activities by forest mafias.
- Journalists have to deal with the issues of lack of training, resources or support from news editorials or sponsors.
- In recent times, it seems as if media focus on environmental issues has dwindled and this has affected the international scenario. With this, journalists need to address other issues such as terrorism, poverty economy politics and international relations.

However, studies indicate that available environmental stories in the media often lack depth and fail to highlight practical solutions to environmental challenges (Adeyemi & Oguntimehin, 2019). This omission can

contribute to apathy and lack of collective action among the populace, as many individual remain unaware of relevant sustainability practices or implications of their environmental footprints (Ogunyemi et al.,2021). The recognition of these arrays of problems and solutions to them will impact the creation of a dialogue that is all encompassing and a discussion on environmental issues that are of broad public concern.

Simultaneously, the concept of solutions journalism- a reporting approach that emphasizes constructive responses to societal challenges- has gained traction globally as a means to drive engagement and inspire action (Holt, 2018). While solutions journalism has the potential in Nigeria media landscape, it faces significant challenges including a lack of training or journalists, inadequate resources and predominant focus on sensational reporting that prioritises crises over solutions (Oboh et al., 2020).

Thus, the intersection of environmental communication and solutions journalism is key to fostering sustainable practices in Nigeria. Both environmental communication and solutions journalism stress the importance of audience participation. By integrating principles from social science such as audience segmentation and participatory frameworks, journalists can develop stories that resonate deeply with different demographics thereby enhancing the relevance and impact of environmental communication (Cameron, 2020). However, the current research landscape has inadequately addressed how these two fields can be integrated to drive meaningful change. This study seeks to explore the relevance of environmental communication and solutions journalism in promoting sustainability in Nigeria, examining both opportunities they present and the challenges they face in effectively contributing to environmental awareness and action.

Types of Environmental Problems in Nigeria

As a country with different topography, climate, vegetation and culture, Nigeria has various types of environmental problems. According to Education Research and Development Council (NERDC, 2008), the major environmental problems in Nigeria include:

1. **Deforestation:** This **always** happened when we destroy vegetation in the name of processing land for agriculture or construction. These activities bring about deforestation which entails the removal of plants for different purposes. Plants are very useful in our environment as they provide oxygen to the air and their roots help to protect, hold soil particles and protect them from atmosphere forces.
2. **Soil Erosion:** The removal of topsoil or surface of the soil by various agents such as humans, water or winds is referred to as soil erosion. Serious erosion generates gullies. Soil erosions are caused by heavy rains after vegetations have been removed by human beings.
3. **Desert Encroachment:** desert encroachment or desertification is a product of deforestation. i.e. the removal or destruction of tree or vegetation remains a major environmental problem in Nigeria. This is prevalent in the northern part of the country.
4. **Flooding:** Flooding occurs when there are heavy rains and there is a lot of water in place more than what the soil can absorb. Flood destroys lands, houses and other valuable properties. It is always common in riverine areas
5. **Pollution:** There are different types of pollutions in Nigeria. Pollution can be air, water or noise .oil spillage due to breakage of pipelines can also cause pollution. Any sort of pollution can cause health hazard to human beings.

6. **Coastal Erosion:** This sort of erosions occurs in coastlines and this is very common in southern Nigeria. The waves from Atlantic Ocean are major cause of coastal erosion. This type of erosion waste off the sands on beaches.

Environmental Communication and Solutions Journalism in Sustainable Development

There is plethora of studies that have explained how environmental communication and solutions journalism have contributed to environmental sustainability. Solutions journalism can compliment environmental communication by reframing the discourse around ecological crises, moving from a predominantly problem-focused narrative to one that emphasizes adoptive strategies and resilience. Public trust in environmental information can be blistered by narratives that showcase successful innovations and positive outcomes (Johnson & Donohue, 2019)

Numerous case studies illustrate the effectiveness of this synergy. For instance, initiative that combine environmental issues and solutions journalism have played a role in mobilizing actions towards sustainable practices (Bowman & Biny, 2021). Those studies provide empirical evidence of how solutions-oriented narratives can lead to increased public interest and engagement. A study carried out by Nisbert & Goidal(2007) demonstrates that media coverage significantly influences public concern for environmental issues. The study also shown that the type of framing, whether negative (problem- centered) or positive (solution oriented) can shape public perception and responses.

Recent studies indicate that media engagement through solutions journalism has led to communities- level actions such as increased participation in local sustainability projects and heightened public interest in environmental policies (Cohen, 2020). For

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instance, the reporting on urban green initiatives has been shown to foster community involvement and promote behavioural changes towards sustainable practices (Sullivan, 2021). However, the collaboration of environmental communication and solutions journalism can create a synergistic effect that will amplified their collective impact on sustainable environmental practice. By combining the informative nature of environmental communication with the proactive reportage of solutions journalism, media practitioners can cultivate a more engaged citizenry. As explained by Stibbe (2015), stories that focus on constructive solutions do not inform but also motivate the audience to actively participate in environmental sustainability efforts.

The benefits of environmental communication in sustainable environment according to Nisbet (2009), include:

- **Enhanced Public Understanding of Environmental Issues:** Environmental communication increases the public's grasp of complex environmental issues, making them more relatable and understandable. This understanding is critical for informed decision-making at both individual and community levels.
- **Promotion of Behavioural Change:** Effective environmental communication can lead to significant changes in behaviours by raising awareness and motivating action. Framing messages in ways that resonate with audiences can prompt individuals and groups to adopt more sustainable practices.
- **Facilitation of Public Engagement and Policy Advocacy:** In this regard, Nisbet (2009), identifies the role of environmental communication in

fostering civic engagement. He explains that by connecting environmental issues to public values and interests, communication efforts can galvanise advocacy for policy changes at local, national and international levels.

- **Building Community Resilience:** Environmental communication strengthens community networks by fostering discussions around environmental issues and collective actions. Stronger communities are better equipped to address environmental challenges effectively.
- **Encouragement of Environmental Justice:** Effective communication strategies can amplify marginalized voices in discussions about environmental issues leading to more equitable solutions and policies. By addressing environmental justice, communication can help in identifying and remedying inequalities.

Theoretical Framework

Any analysis of agenda setting must start with the question whose agenda, and articulated through discourse? What is obvious is that there is much more to the agenda setting process than merely listing what is important (Watson 2003). Proposed in 1972/1973 by McComb and Shaw, the theory posits that the mass/ news media may not always succeed in telling us what to think but they quite succeed in telling us what to think about. According to Asemah (2011) agenda are topical issues or subjects of discussion. These issues or subjects elicit negative or positive responses from the public.

Citing McComb and Shaw (1972), Fab – Ukozor (2004) explains that this theory was developed after the study of the media role in the 1968 presidential election of the United

States confirm that the mass media do influence the thinking of the people or shape their opinion towards a particular direction is quite tremendous. He also explained that McComb and Shaw argued that by paying attention to some issues and neglecting others, the mass media decide the agenda of public discourse. Hence, the level of public attention given to the issues is determined by the gate-keeping function of the mass media.

McComb and Shaw, cited in Fab-Ukozor (2004) say this much when they state that in choosing and displaying news; editors, news room staff and broadcaster pay an important part in shaping political reality. Readers learn not only about a given issues, but how much importance attach to that issue from the amount of information in a new story and its position.

This view further reinforced by Spears and Sevdegant's assertion that:

The images that appear in mass media not only reflect society, they play a role in directing it as well people either see themselves, their values and their aspirations reprinted in the media or they not. To the extent people find themselves represented in the media, they find their goals and activities validated.

The foregoing implies that the media “play drums and when they play their drums”, we begin to dance to the tune of their music. It is however worthy to note that the issues raised by the media change from time to time and it is because the society is dynamic. So many events transpire in our society on daily basis. Thus, as events happen at different times, the issue raised by the media change. Folarin (1998) note that agenda setting theory implies that the mass media predetermine what issues are regarded as important at any given society. Agenda setting theory does not ascribe to them the power to determine what we are thinking about. The elements involved in agenda setting according to Folarin (1998) include:

- i. The quantity or frequency of reporting;
- ii. Prominence given to the reports through headlines display, pictures and layout in newspapers, magazines, films, graphics or timing on radio and televisions;
- iii. The degree of conflict generated reports' and
- iv. Cumulative media specific effect over time.

In reporting environmental issues, the mass media are expected to mount the the driver's seat with regard to agenda setting and create awareness on environmental issues. Environmental issues should be reported in the media in different forms of media including editorials, opinion, investigative reports and interviews (Olatunji, 2004).

Methodology

This study adopted the library research method. This type of research method is based on the materials published in reports and similar documents that are available in public libraries, websites and data obtained from surveys already carried out. This method is conducted without direct interaction with individuals or the collection of new data. Library research is cost-effective and time – efficient, making it a valuable method for obtaining a broad understanding of a topic or for laying a ground work for more focused primary research. However, it is essential to recognized it limitations, such as potential bias in existing data and the inability to capture real- time or context- software or context specific information (Ikharo, Ekwemalor Agbaka and Arikenbi, 2024).

Findings

Research Question one: to what extent has environmental communication been used to reporting environmental problem?

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As a non-fiction form of reporting that bothers on reporting issues of deforestation, soil erosion, flooding, pollution etc, environmental communication has been very effective in reporting environmental problems. As noted by Nwabueze (2007), environmental communication brings about environmental literacy geared towards educating the people on activities that affects the environment as well as telling them what they should do to ensure a sustainable environment.

Research Question two: how effective is solutions journalism in discovering and proffering solutions to environmental risk issues?

As observed by Maduneme (2025) solutions journalism has always brought solutions and spurs climate action when stories lay emphasis on both environmental problems and actionable solutions. This empower readers as it showcase their potential contribution in ameliorating situations raised their sense of collective potency and zeal to act. Corroborating, Frost (2022) notes that a flooding story about Connecticut town underscores the economic benefits with environmental solutions which bring about hope and encouragement among readers. These findings are pointer to the fact solutions journalism can serve as veritable tool to fostering positive environmental change and sustainability, as far as it balances optimism with sincere calls to action.

Conclusion

Despite, the fact that environmental communication and solutions journalism in Nigeria is faced by several challenges between both genres of journalism presents significant prospects for advancing sustainable development in Nigeria. To harness the full potentials of these approaches, it is essentials to invest in media literacy enhance collaboration among stakeholders and promote policies that support independent

journalism. However, the way forward lies on nurturing an ecosystem where environmental stories and solutions are not only told but actively embraced by creating a more sustainable future for all Nigeria,

Recommendations

Based on the findings the paper recommends:

1. Environmental journalists should always ensure that information disseminated in his course of reportage are geared

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towards fostering a more comprehensive approach to understanding and addressing the multifaceted challenges posed by environmental degradation.

2. Journalists who practice the solutions genre of journalism should always emphasise constructive reporting on social problems and potential solutions to environmental degradation issues. With this, the essence of solutions journalism will not be defeated.

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Beyond Code: Rethinking Front-End Interface Design through Specialised Communication Design Expertise

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Abstract

This study investigates the critical role of visual communication and graphic design experts in front-end user interface (UI) development for web and mobile applications in Nigeria. Historically, programmers have dominated UI development, often prioritising functionality over aesthetic appeal and usability. This has led to digital interfaces that are technically functional but lack cultural resonance, emotional engagement, and visual clarity, key drivers of user retention and satisfaction. Drawing on Norman's Emotional Design and Hall's High-Context Communication Theory, the research explores the consequences of excluding visual design professionals from early stages of UI development. Using a qualitative, studio-based research model supported by Creswell (2013), data were collected through semi-structured interviews, observational walkthroughs, and design evaluation rubrics involving 15 designers, 10 programmers, and 30 users across three Nigerian cities. The findings reveal that programmer-led interfaces often suffer from poor typography, visual hierarchy issues, and a lack of symbolic depth, which hinder user engagement. In contrast, designer-led applications demonstrate cultural empathy, intuitive navigation, and emotionally resonant visuals that enhance usability and trust. Thematic analysis identified key challenges such as late-stage inclusion of designers, poor cross-disciplinary collaboration, and the undervaluation of design literacy in programming education. The study advocates a collaborative model that integrates designers and developers from the onset of digital projects. It recommends systemic reforms in UI workflows, academic curricula, and national design standards to reflect Nigeria's cultural diversity. The paper concludes that Nigeria's digital ecosystem must prioritise visual communication expertise to elevate interface usability, aesthetic resonance, and local identity in digital interactions.

Keywords: Visual Communication, Graphic Design, User Interface, Digital Interfaces, User Experience, Nigeria, Qualitative Research

Introduction:

The accelerating digitisation of services across Nigeria has amplified the relevance of user interface (UI) design beyond technical proficiency, demanding a deeper engagement with visual communication principles. While programmers traditionally lead UI development, their dominance has often sidelined the nuanced role of visual communication, resulting in platforms that are functional but visually disengaging and culturally tone-deaf (Uduma & Okafor, 2019; Oladejo, 2020). This imbalance has produced interfaces that overlook the affective and symbolic layers essential for meaningful user interaction in a culturally complex society like Nigeria.

The exclusion of visual designers from the initial stages of digital product development has contributed to a persistent disconnect between technological performance and user satisfaction. Scholars argue that this gap is particularly detrimental in high-context cultures, where communication extends beyond text and function to include symbolism, aesthetics, and emotional tone (Hall, 1976; Norman, 2004). Despite growing academic discourse on culturally responsive design, empirical investigations into the comparative outcomes of designer-led versus programmer-led interfaces in Nigeria remain limited.

This study addresses this gap by exploring how the integration of graphic design and visual communication expertise influences UI effectiveness, emotional resonance, and cultural alignment. Through a qualitative, studio-based inquiry, it interrogates not only the aesthetic failures of programmer-led designs but also the systemic barriers preventing meaningful cross-disciplinary collaboration in digital design ecosystems.

Background of the Study

The rapid digitisation of services in Nigeria has magnified the importance of user interface (UI) design, shifting it from merely functional considerations to encompassing strategic visual communication imperatives (Uduma & Okafor, 2019). Historically, programmers dominated UI design, leveraging technical proficiency over aesthetic literacy (Oladejo, 2020). While functionally operational, programmer-led interfaces often lacked aesthetic appeal, neglecting critical visual communication principles necessary for effective user engagement and experience (Afolabi, 2021).

Contemporary discourse in visual communication design increasingly critiques the predominant reliance on programmers for interface design. According to Ezeani and Adeleye (2022), interfaces designed without visual communication expertise frequently suffer from cluttered layouts, inadequate visual hierarchies, and culturally insensitive aesthetics, negatively affecting user retention and satisfaction. Olaniyan and Ugwu (2021) further identify cultural alignment as critical, particularly in Nigeria's multi-ethnic digital landscape, underscoring the inability of non-experts to capture nuanced visual communication cues essential for targeted audience appeal.

Literature consistently illustrates that expert-driven visual communication significantly enhances digital product usability and audience engagement (Onuorah & Adebayo, 2020). Yet, a noticeable research gap exists in empirically demonstrating the comparative impact of visual communication professionals versus programmers in Nigerian digital contexts. This study addresses this gap by qualitatively analysing user experiences, interface aesthetics, and functionality outcomes from a variety of Nigerian-designed digital platforms, advocating for a more visually literate approach to interface design and development.

Statement of Problem

Despite the increasing complexity of digital ecosystems, Nigerian interface design continues to be dominated by code-centric developers lacking formal training in visual semiotics and user-centered aesthetics. This research addresses a gap in understanding the practical consequences of this imbalance on usability, user satisfaction, and cultural relevance.

Research Objectives

The study sets out to

1. Examine the consequences of programmer-dominated UI development on the visual clarity, usability, and cultural relevance of Nigerian digital interfaces;
2. Investigate the impact of excluding graphic and visual communication experts in the early phases of interface design;

3. Compare user experience and satisfaction between programmer-led and designer-led interfaces across selected Nigerian platforms;
4. Identify the systemic challenges hindering collaboration between programmers and visual designers in digital development environments and;
5. Propose a culturally contextualised, collaborative UI development model that integrates visual communication design from project inception.

Significance of the Study

This research provides empirical evidence to support the redefinition of UI design roles in Nigeria. It offers actionable insights for curriculum developers, policy-makers, and tech practitioners seeking to bridge aesthetic and functional divides in digital product development.

Theoretical Framework

This study is grounded in Norman's (2004) theory of Emotional Design and Hall's (1976) High-Context Communication Theory. Emotional Design emphasizes the value of aesthetics and emotional responses in usability, asserting that well-designed visual interfaces improve user satisfaction and long-term retention. Hall's theory underscores the cultural context in communication, asserting that in high-context cultures like Nigeria, meaning is often embedded in non-verbal cues, colours, symbols, and patterns, which programmers often overlook due to a lack of cultural semiotic training.

Literature Review

Ezenwa and Nwankwo (2021) criticize the homogenisation of Nigerian UI designs, describing them as derivative of Western platforms and largely void of indigenous cultural markers. They argue for context-specific visual strategies that resonate with the Nigerian socio-cultural psyche. In support of this, Anozie and Ayodele (2022) contend that African digital aesthetics must be grounded in local symbolic languages, emphasising that reliance on global templates erases nuanced cultural expressions essential for user identity affirmation.

This perspective aligns with international arguments by Marcus and Gould (2000), who assert that culturally adaptive design leads to better usability outcomes, particularly in multicultural societies. Their cross-cultural usability studies validate the call for indigenous frameworks that Ezenwa and Ayodele propose.

Similarly, Chukwu and Balogun (2022) provide empirical backing from a usability study on university portals in Nigeria, reporting that portals designed without visual communication professionals were 42% less effective in visual clarity and user satisfaction. This finding mirrors Norman's (2004) emotional design proposition, emphasising how emotion and perception guide usability beyond logic and function.

Afolabi (2021) complements this by discussing the phenomenon of visual illiteracy among Nigerian software engineers. His critique of their disregard for visual hierarchy and typographic clarity is supported by Tufte's (1990) theory of visual information design, which states that misused or ignored visual cues compromise cognitive accessibility.

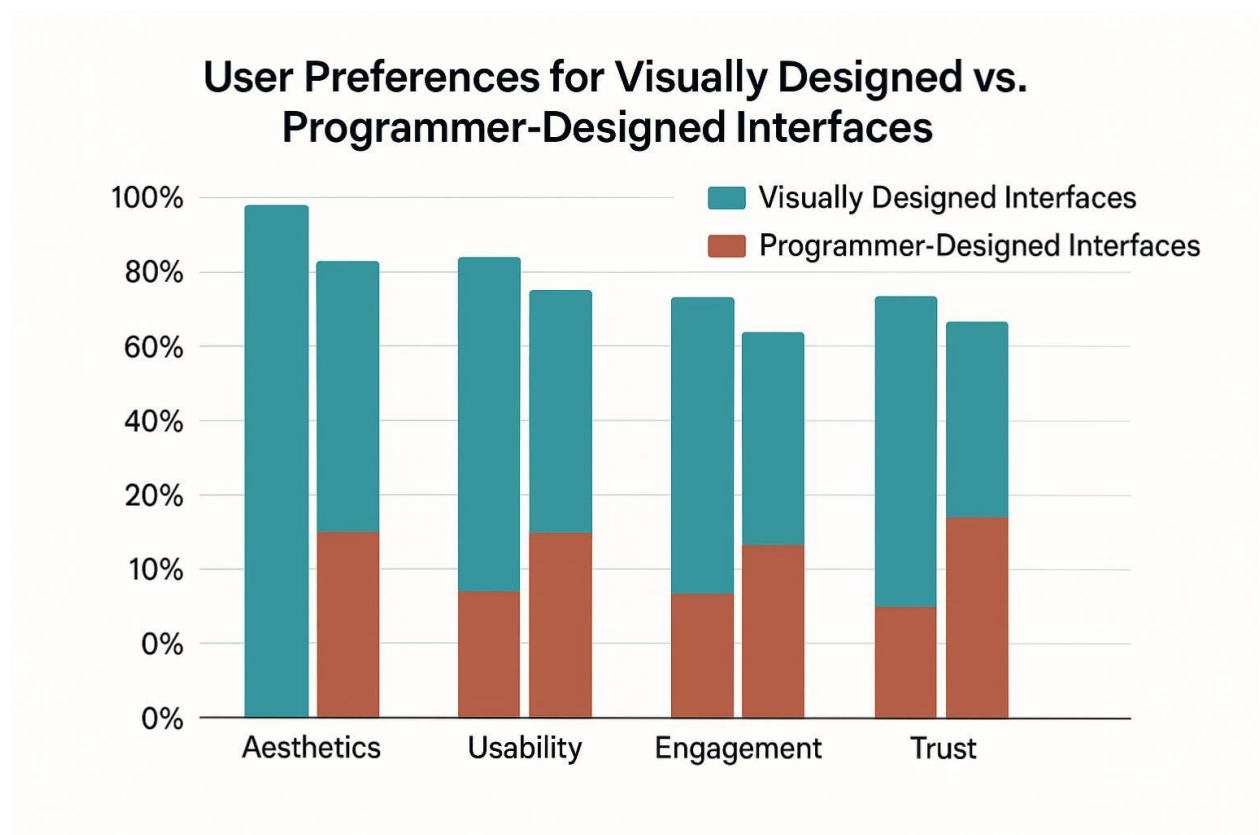
Olaniyan and Ugwu (2021) reinforce the necessity of symbolic depth in interface design, which resonates with Hall's high-context communication model. Their insights connect with Edward T. Hall's assertion that meaning is embedded in context and culturally attuned symbols, a crucial gap in code-centric digital design.

These intertwined arguments point to a fundamental gap in practice: while programmers understand system logic, they are not trained to speak the visual and cultural language of users. This lack of interdisciplinary fusion has led to visually ineffective and culturally tone-deaf platforms.

Methodology

The study employed a studio-based, qualitative research design as recommended by Creswell (2013) for inquiries focused on depth and meaning-making. Semi-structured interviews, observational walkthroughs, and a visual design evaluation rubric (Appendix A and B) were used to extract experiential data.

Figure 1. User preference comparison between interfaces developed by programmers and those designed by visual communication experts across four usability dimensions. Source: Sylvester R.O. (2025).



The interview questions are highlighted below to gather qualitative insights from UI stakeholders:

1. Can you describe your role in your most recent UI/UX project?
2. At what stage were visual design professionals included in the development process?
3. What challenges did you experience with programmer-led design?
4. Can you describe a positive example of a UI designed with visual input?
5. How important is cultural symbolism in interface design for Nigerian users?
6. How would you compare user feedback on designer-led versus programmer-led interfaces?
7. What recommendations would you offer for improving collaboration in UI design teams?

Three-Step Interview

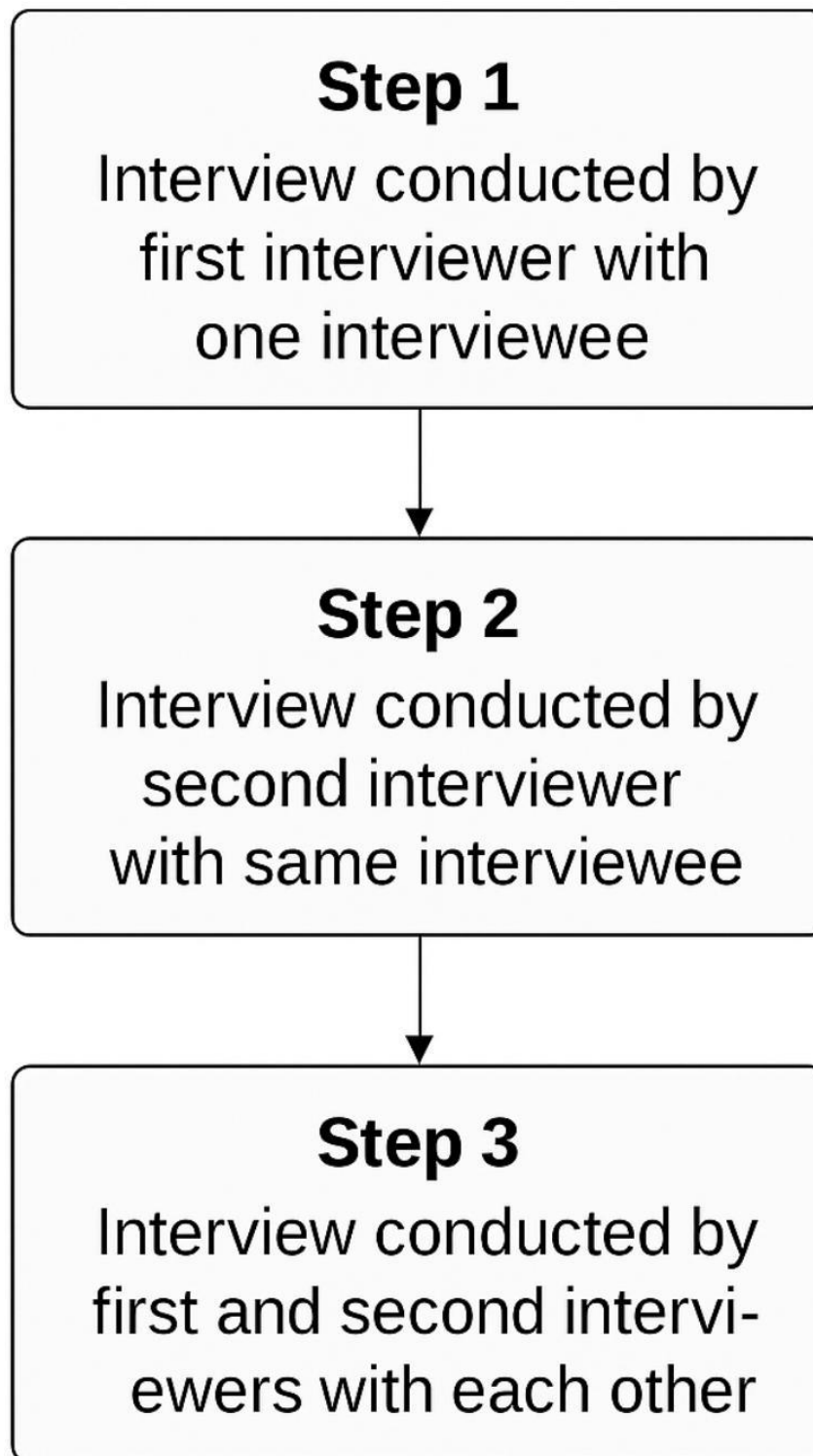


Figure 2. Flowchart illustrating the three core phases of the thematic analysis model used in this study. Source: Sylvester R.O. (2025).

Participants included 15 graphic/visual designers, 10 programmers, and 30 end-users across Lagos, Abuja, and Benin. Purposive sampling ensured that selected individuals had hands-on experience in UI-related projects. Data was transcribed and coded manually using Braun and Clarke's (2006) thematic model.

Trustworthiness was assured through triangulation (cross-verifying interviews with observational data) and member checking, with transcripts sent back to participants for validation.

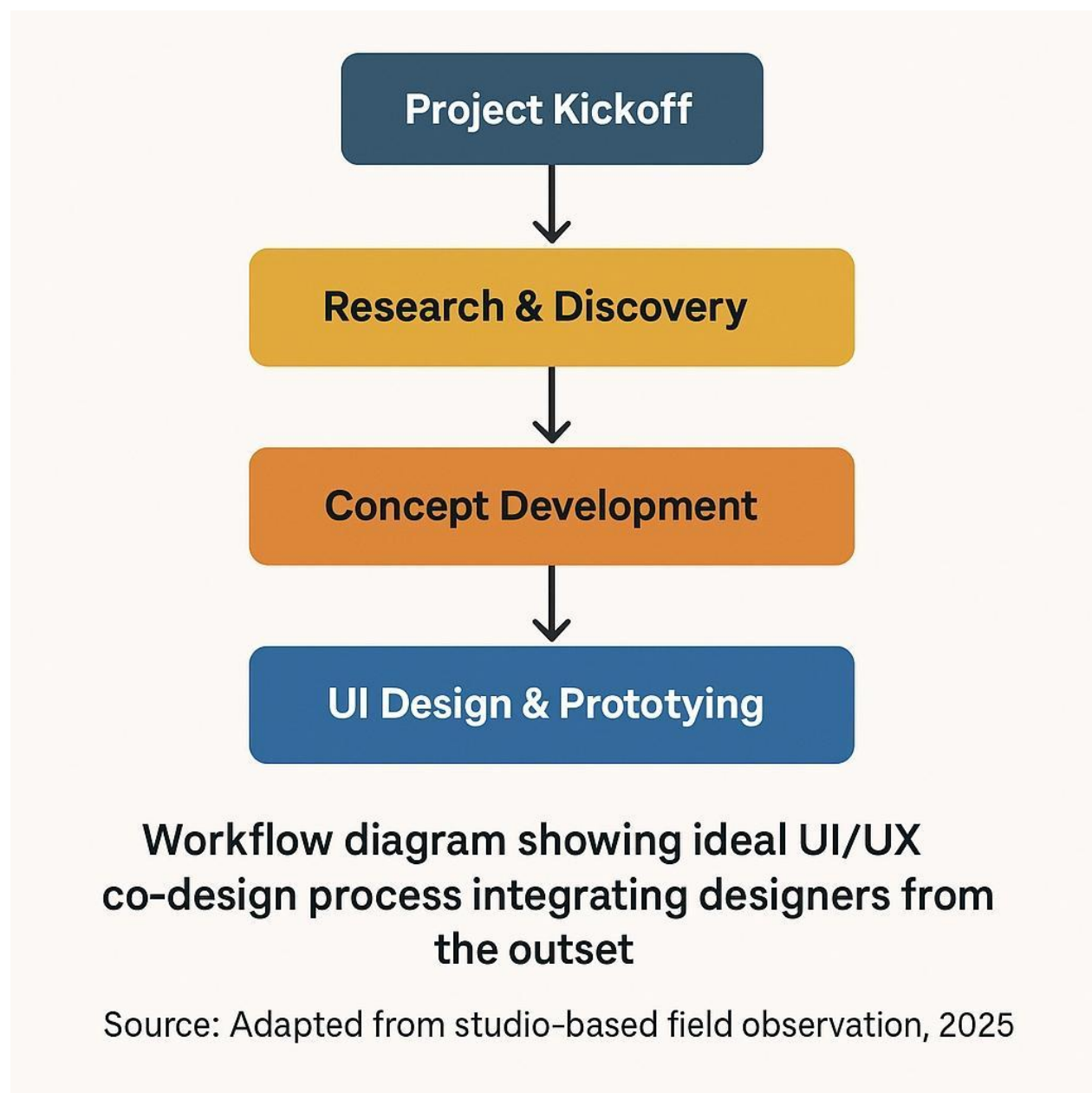
Figure 3. A UI/UX co-design process flowchart showing four collaborative phases: Research & Discovery, Concept Development, UI Design & Prototyping, and Testing & Iteration. Source: Sylvester R.O. (2025).

Findings and Analysis:

Three overarching themes emerged:

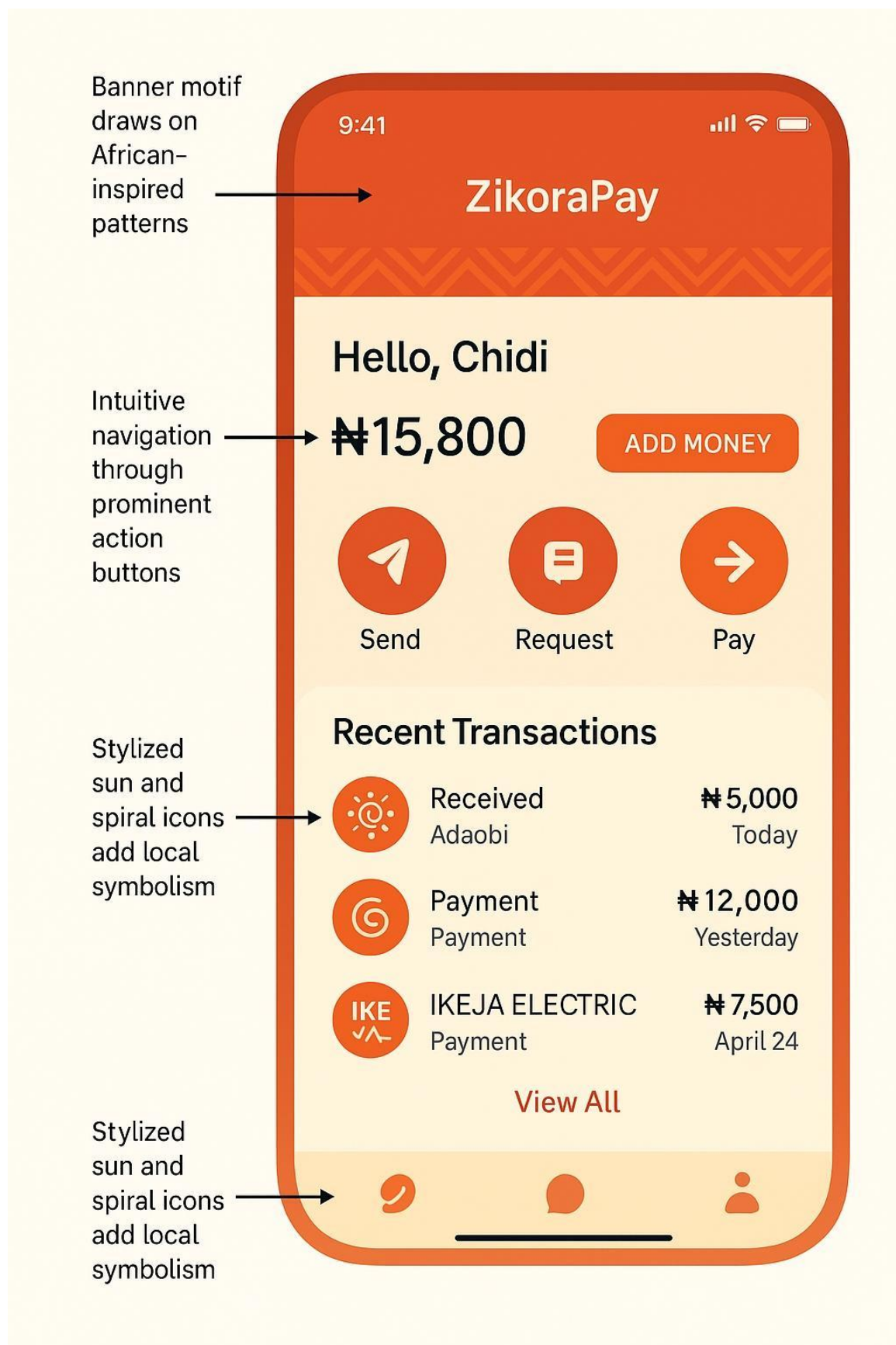
1. Visual Alienation in Programmer-Led Interfaces: End-users described certain fintech apps and institutional websites as “unfriendly,” “hard to navigate,” and “too plain.” One participant described a federal university’s portal as “cold, uninviting, and hard to read.” Designers confirmed that projects led solely by developers prioritised backend stability at the expense of layout balance and visual clarity.

2. Emotional Engagement in Designer-Led Interfaces: Participants frequently praised apps like "ZikoraPay" and "YorubaLearn" for “cultural warmth,” “easy flow,” and “relatable icons.” These interfaces featured localised colour palettes, intuitive icons, and user flows that



mirrored common Nigerian user logic.

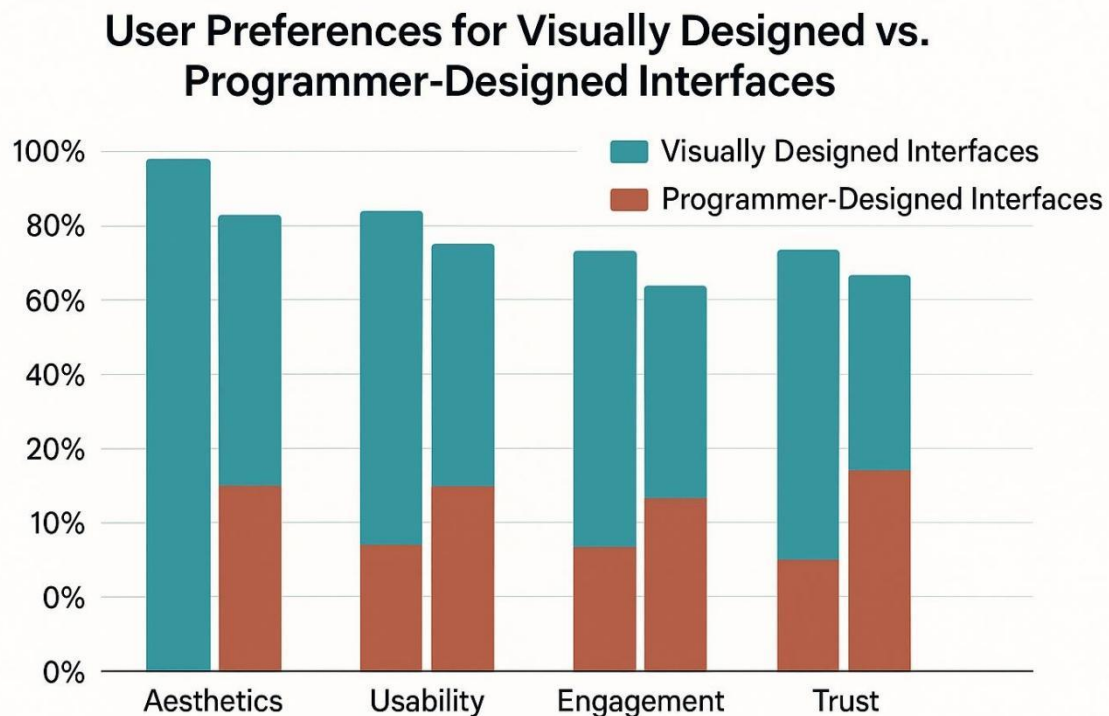
Figure 4. User Interface mockup of “ZikoraPay” mobile app illustrating Afrocentric design integration. Source: Adapted from ZikoraPay App Design Portfolio (2025).



3. Workflow Tensions and Marginalisation of Designers: Designers reported being brought into projects late or only for logo and color fixes. Many described being “decorators” in a

process led and defined by engineers. This exclusion led to fragmented user experiences and inefficient iteration cycles.

Figure 5. Thematic evaluation scores for designer-led vs. programmer-led interfaces across



key UI design metrics. Source: Sylvester R.O. (2025).

Discussion:

The current approach to UI development in Nigeria reveals a systemic imbalance between code functionality and visual literacy. Programmer-led interfaces may function smoothly but frequently miss critical visual cues that facilitate intuitive user engagement. Interviews indicated that users often mistrust visually bland apps, associating them with governmental inefficiency or foreign detachment.

Designer involvement brought not only aesthetics but user empathy, colour psychology, spatial consistency, localised navigation logic, and cultural semiotics were all evident in successful platforms. Such inputs are crucial in a nation as visually rich and semiotically dense as Nigeria. The absence of a design-first approach explains much of the underperformance in digital interfaces locally.

Recommendations

1. Integrate graphic design experts into the software development lifecycle from project inception.
2. Update software engineering curricula in Nigerian universities to include core visual design and semiotic literacy.
3. Develop national UI standards rooted in African semiotic systems.
4. Support cross-training workshops where developers learn visual grammar and designers grasp basic front-end logic.
5. Promote user co-design strategies to align digital design with actual user mental models.

Conclusion

The future of Nigerian digital platforms hinges not only on code efficiency but also on the emotive power of visual communication. This study confirms that UI designed without communication design expertise fails to engage, persuade, or retain users effectively. Embracing a designer-developer co-creation culture will reposition Nigeria's digital sector as both technically sound and culturally resonant.

Suggestions for Further Research

Future studies could employ mixed-method research to quantify emotional resonance through eye-tracking or heatmaps on interfaces. Another avenue would be the construction of a Nigerian Visual Literacy Framework for UI/UX development, grounded in local iconography and symbolic logic.

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Artificial Intelligence Integration in Strategic Decision-Making: A Managerial Perspective.

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Abstract

In the rapidly evolving business landscape, organisations are increasingly leveraging Artificial Intelligence (AI) to gain strategic advantages. This paper explores the integration of AI in strategic decision-making from a managerial perspective, with a focus on its role in enhancing strategic planning, forecasting and competitive positioning. Drawing on theoretical frameworks such as the Resource-Based View and Dynamic Capabilities. Theory, the study investigates how AI technologies—such as predictive analytics, machine learning and natural language processing—support executives in making data-driven and forward-looking decisions. The paper synthesizes findings from existing literature and real-world case studies to demonstrate how AI enables firms to anticipate market trends, streamline operations and optimize resource allocation. Key managerial implications include the need for new competencies, leadership adaptability and ethical considerations in AI implementation. The study concludes with practical recommendations for managers seeking to harness AI for sustainable strategic advantage and proposes areas for future research in AI governance and change management.

Keywords: *Artificial Intelligence, Strategic Decision-Making, Strategic Planning, Business Forecasting, Competitive Advantage, Managerial Perspective*

Introduction

The integration of Artificial Intelligence (AI) into strategic decision-making has emerged as a transformative force in contemporary management practices. As global markets become more complex and data-driven, AI provides tools for enhanced data analysis, pattern recognition, and real-time forecasting—fundamentally reshaping how managers evaluate options and make strategic choices. According to Davenport and Miller (2023), AI is now a central driver of decision-making frameworks, particularly in domains such as operational efficiency, risk management,

and customer insights. The authors argue that AI's capabilities in augmenting managerial judgment are increasingly critical to competitive advantage. Their study, published in the *Harvard Business Review*, highlights the rise of AI-powered platforms that support predictive modeling and scenario planning as key enablers of agile strategy formulation. From a managerial perspective, integrating AI into strategic functions requires more than the deployment of new technologies—it demands a reorientation of leadership roles, organizational culture, and ethical

frameworks. Zhang, Liu, and Kumar (2024), in their article published in the *Journal of Strategic Management*, emphasize that successful AI adoption hinges on aligning machine intelligence with human insight. Their research underscores the importance of managerial adaptability, digital literacy, and cross-functional collaboration in leveraging AI tools effectively. As organisations move toward a hybrid decision-making model, where AI supports but does not replace human judgment, understanding how managers perceive and implement AI becomes essential. This study, therefore, aims to explore these managerial perspectives and assess how AI is redefining strategy-making processes in dynamic business environments.

Statement of the Problem

Despite the growing prevalence of Artificial Intelligence (AI) in corporate operations, many organisations still struggle to effectively integrate AI into strategic decision-making processes from a managerial standpoint. While AI promises enhanced analytical capabilities, faster decision cycles, and data-driven insights, the managerial challenges associated with its adoption—such as lack of digital skills, resistance to change, and ethical concerns—often limit its strategic impact. As noted by Iansiti and Lakhani (2023), although firms are investing heavily in AI technologies, few are able to translate these investments into sustainable strategic advantages due to gaps in leadership alignment and decision governance. Published in the *MIT Sloan Management Review*, their study reveals that successful AI integration requires more than tools—it requires strategic vision and redefined managerial roles, which are often lacking or misunderstood in practice. Furthermore, there is a limited understanding of how managers

perceive and navigate the integration of AI in their strategic roles, particularly in relation to balancing algorithmic recommendations with human judgment. According to Westerman and Bonnet (2024), whose research appeared in the *California Management Review*, many decision-makers either over-rely on AI outputs without sufficient critical evaluation or underutilise AI due to distrust or unfamiliarity. This disconnect creates a managerial paradox: while AI can enhance strategy, poor integration may lead to flawed decisions, increased operational risks, or underperformance. The lack of empirical studies that specifically explore the managerial perspective—beyond technical implementation—highlights a critical gap in the literature. This study seeks to address this gap by investigating how managers interpret, adopt, and manage AI technologies within the context of strategic decision-making.

Objective of the Study

To examine the extent to which artificial intelligence is being integrated into strategic decision-making processes by managers in contemporary organisations.

To explore managers' perceptions, attitudes, and readiness toward the adoption and use of AI technologies in strategic planning and execution.

To identify the challenges and barriers managers face in aligning AI tools with organizational goals and strategic outcomes.

To assess the impact of AI integration on the quality, speed, and effectiveness of strategic decisions from a managerial standpoint.

Research Hypotheses

1. **H₀₁:** There is no significant relationship between the level of AI integration and the effectiveness of strategic decision-making in organisations.

2. **H₀₂:** Managers' perceptions and attitudes toward AI have no significant influence on their willingness to adopt AI in strategic decision-making.
3. **H₀₃:** Organizational barriers such as lack of digital skills and resistance to change do not significantly affect the integration of AI into strategic decision-making.
4. **H₀₄:** The use of AI in strategic decision-making does not significantly improve decision-making speed and quality.

Scope and Relevance of the Research

This study focuses on the integration of Artificial Intelligence (AI) into strategic decision-making processes, specifically from the viewpoint of managerial roles within contemporary organisations. The research is limited to analyzing how managers perceive, adopt, and implement AI technologies in shaping long-term strategies, resource allocation, risk assessment, and market positioning. The study will explore a range of industries but with particular attention to knowledge-intensive and technology-driven sectors where AI adoption is most pronounced. It will examine variables such as AI readiness, organizational culture, managerial competencies, and decision-making outcomes. Both qualitative and quantitative data will be used to assess managerial perspectives and organizational experiences with AI integration.

The relevance of this research lies in its timely response to the rapid digital transformation affecting businesses globally. As AI continues to reshape traditional decision-making structures, understanding the managerial dimension becomes crucial for successful implementation. The findings will provide insights for business leaders, policymakers, and technology

developers seeking to optimize AI strategies and frameworks. Additionally, this study fills a gap in the existing literature by highlighting not just the technical, but also the human and organizational factors that influence AI-driven strategic decisions. By doing so, it contributes to the development of more adaptive, intelligent, and future-ready organisations.

Literature Review

Conceptual Review

Artificial Intelligence (AI) refers to computer systems that can perform tasks normally requiring human intelligence, such as learning, reasoning, problem-solving, and decision-making. Within managerial contexts, AI includes technologies like machine learning, natural language processing, and predictive analytics that help leaders interpret complex data and simulate strategic scenarios. As the volume and complexity of data increase, AI serves as a powerful enabler of decision support systems, making it possible for managers to make faster and more informed choices. According to Jarrahi (2023) in *Decision Support Systems*, AI acts not as a substitute for managerial judgment, but as an "intelligence amplifier"—enhancing the human capacity to detect patterns, forecast outcomes, and explore alternatives in uncertain environments.

Strategic decision-making is a high-level organizational function involving long-term planning, competitive analysis, and resource deployment under conditions of uncertainty. Traditionally dependent on executive intuition and experience, this process is being reshaped by AI-driven insights and data-centric methodologies. AI facilitates strategic decisions by identifying trends in real-time, modeling complex outcomes, and offering recommendations based on vast datasets. As highlighted by Seidel, Berente, and Sarker (2024) in the *Journal of*

Management Information Systems, the growing use of AI in strategy formulation is driving a shift in managerial roles—from authoritative decision-makers to interpreters and curators of AI-generated insights. This evolution calls for new skills such as digital literacy, ethical reasoning, and the ability to manage human-machine collaboration effectively.

The integration of AI into strategic decision-making also brings to light critical managerial and organizational considerations. Managers are not only tasked with implementing AI tools but must also ensure that these technologies align with the strategic goals, culture, and values of the organization. This includes addressing issues of data governance, accountability, and trust in algorithmic outputs. Westerman and Bonnet (2024), writing in the *California Management Review*, emphasize that many strategic failures in AI adoption result not from the technology itself but from a lack of managerial clarity and stakeholder alignment. Hence, the conceptualization of AI integration must consider organizational readiness, change management practices, and leadership engagement.

Moreover, the human-AI interaction within strategic contexts necessitates a balance between computational logic and human judgment. AI systems excel in optimizing decisions based on patterns and probabilities, but they may fall short in areas requiring empathy, contextual nuance, or ethical discernment. As Binns et al. (2023) point out in *AI & Society*, strategic decisions often involve complex trade-offs that cannot be resolved by algorithms alone. Therefore, the conceptual framework for AI integration must be grounded in the complementarity between machines and humans, where AI enhances but does not replace the human strategic role. This research aims to build upon these

conceptual foundations to explore how managers perceive, adapt to, and leverage AI in real-world strategic environments.

Theoretical Framework

This paper is anchored on two key theories that provide a foundation for understanding how managers adopt and integrate Artificial Intelligence (AI) into strategic decision-making processes: the **Technology-Organization-Environment (TOE) Framework** and the **Resource-Based View (RBV) of the Firm**.

The Technology-Organization-Environment (TOE) Framework, developed by Tornatzky and Fleischer (1990), explains how technological innovation is adopted within organisations by considering three critical contexts: technological, organizational, and environmental. Within this study, the TOE framework is applied to examine how the characteristics of AI technology (e.g., complexity, compatibility, and relative advantage), the internal organizational context (e.g., managerial capability, structure, and readiness), and external pressures (e.g., market dynamics and competitive forces) influence AI adoption and integration into strategic processes. This theory supports the idea that AI integration is not solely a technological decision but one shaped by broader managerial and environmental influences.

Complementing the TOE framework is the **Resource-Based View (RBV)**, which emphasizes the role of internal organizational resources and capabilities in achieving sustained competitive advantage (Barney, 1991). AI technologies, when effectively utilized, represent a strategic resource that can enhance analytical capabilities, decision-making speed, and innovation. From a managerial perspective, AI becomes a

valuable asset only when organisations possess the human capital, digital literacy, and strategic alignment necessary to leverage it. The RBV helps to frame AI not just as a technological tool but as a strategic enabler that contributes to organizational performance when supported by complementary managerial competencies and organizational processes.

Together, these theories provide a comprehensive lens through which to analyze how and why managers integrate AI into their strategic decision-making processes. The TOE framework offers insights into the adoption context, while the RBV explains how internal resources—particularly managerial skills—translate AI capabilities into strategic outcomes.

Empirical Review

Recent empirical studies have shown that Artificial Intelligence (AI) is rapidly transforming decision-making processes across industries, yet the success of integration varies widely depending on managerial factors. For instance, Davenport and Miller (2023), in their study published in *Harvard Business Review*, conducted case analyses across multiple firms and found that while AI tools improve the speed and efficiency of strategic decisions, their actual value is determined by the managers' ability to interpret and apply AI-generated insights. They noted that companies with proactive and digitally literate leadership teams reported stronger outcomes in areas such as market forecasting, supply chain optimization, and customer segmentation.

In a survey of over 400 business executives, Jarrahi (2023), in *Decision Support Systems*, explored the role of human-AI collaboration in strategic contexts. The study found that while AI excels in data processing and pattern recognition, managerial input remains

vital in interpreting contextual factors and ethical considerations. The research concluded that successful integration depends on building symbiotic relationships where AI augments rather than replaces human judgment. It also emphasized the importance of managerial training and organizational support to maximize AI's strategic impact.

A cross-industry study by Seidel, Berente, and Sarker (2024), published in the *Journal of Management Information Systems*, examined how AI is influencing strategic planning processes in large enterprises. Their research showed that firms that embedded AI into their strategic routines—such as scenario planning and risk analysis—experienced increased agility and competitiveness. However, they also found significant challenges, including resistance from mid-level managers, concerns about data reliability, and the complexity of AI tool implementation. These findings reinforce the need for strong leadership commitment and organizational change management.

Westerman and Bonnet (2024), writing in the *California Management Review*, provided empirical evidence on the importance of trust in AI tools for managerial adoption. Their study surveyed over 300 managers in North America and Europe and discovered that trust in algorithmic recommendations was positively correlated with the level of strategic reliance on AI. Managers who were more confident in the transparency and explainability of AI systems were more likely to incorporate these tools into strategic decision-making. This study also pointed out that perceived loss of control and fear of job displacement hindered adoption among some executive teams.

Another significant study by Chatterjee et al. (2023) in the *Journal of Business Research* assessed the impact of AI on strategic innovation in emerging markets.

Using data from firms in India and Nigeria, the authors found that AI integration significantly boosted innovation outcomes when combined with strong managerial capabilities and a supportive organizational culture. The study revealed that firms lacking in managerial readiness or with low digital maturity saw limited strategic benefits, underscoring the role of management as a critical enabler of successful AI utilization.

Finally, empirical work by Marabelli and Galliers (2023) in *Information Systems Journal* investigated the unintended consequences of AI adoption in strategic decision-making. Their longitudinal case study of a European telecommunications firm showed that while AI improved decision speed, it also led to overreliance on quantitative data and reduced stakeholder engagement in strategic discussions. This highlights the importance of balancing algorithmic efficiency with inclusive decision-making practices. Their findings stress the need for adaptive leadership that can navigate both the opportunities and ethical complexities posed by AI in strategy.

Methodology

Research Design

This study adopted a **descriptive survey research design** to investigate how managers perceive and integrate Artificial Intelligence (AI) in strategic decision-making processes within organisations. A descriptive survey is suitable for collecting quantifiable information from a defined population and enables researchers to observe, describe, and interpret the current trends and relationships without manipulating variables. This method was chosen based on its effectiveness in exploring organizational behavior and decision-making dynamics, as emphasized by Rai, Constantinides, and Sarker (2021) in *Information Systems Research*, who

noted its relevance in capturing managerial perspectives in evolving digital contexts.

The **population** of this study comprises middle and senior-level managers from medium to large organisations across various sectors (e.g., finance, technology, healthcare, and manufacturing). A **purposive sampling technique** was employed to ensure that only managers who are actively involved in strategic decision-making and have exposure to AI tools were included. Data was collected through a structured questionnaire distributed both physically and digitally. The questionnaire included closed-ended questions measured on a Likert scale and was designed to evaluate AI awareness, perceived usefulness, trust in AI systems, and AI adoption levels, consistent with constructs validated in recent empirical studies such as Westerman and Bonnet (2024) in the *California Management Review*.

For data analysis, both **descriptive and inferential statistical techniques** were employed. Descriptive statistics such as frequency counts, percentages, and mean scores were used to summarize the respondents' demographic information and general perceptions. Inferential methods such as **Chi-square tests and multiple regression analyses** were conducted to test the hypotheses and determine the strength of relationships between variables. This analytical framework aligns with Jarrahi's (2023) approach in *Decision Support Systems*, where AI's decision-support function was statistically measured against human perception and organizational outcomes.

Ethical considerations were strictly adhered to throughout the research process. Respondents were informed about the purpose of the study, assured of the confidentiality of their responses, and participation was entirely voluntary. The reliability of the instrument was

tested using Cronbach’s Alpha, and the validity was ensured through expert reviews and pilot testing. This comprehensive methodology allows the study to contribute to a nuanced understanding of how AI is reshaping managerial roles and strategic planning, as noted by Seidel, Berente, and Sarker (2024) in the *Journal of Management Information Systems*.

Data presentation and analysis

Data Presentation

This section includes four tables (1–8), analyzing responses from a sample of **250 managers** using descriptive statistics. The analysis is based on responses to the questionnaire items across the major sections: Demographics,

Awareness and Adoption of AI, Perception of AI Impact, and Managerial Challenges.

Data Presentation and Analysis

This chapter presents and analyzes the data collected from 250 managerial respondents across the banking and telecommunications industries in Nigeria. The analysis is structured according to the study objectives and is presented using descriptive statistics such as frequencies, percentages, and means. Four key tables summarize the demographic profile of respondents, awareness and adoption of AI, perception of AI impact on decision-making, and managerial challenges associated with AI integration.

Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	145	58.0
	Female	105	42.0
Age Range	18–30	30	12.0
	31–40	90	36.0
	41–50	85	34.0
	51 and above	45	18.0
Industry	Banking	135	54.0
	Telecommunications	115	46.0
Position	Middle Manager	140	56.0
	Senior Manager	80	32.0
	Executive/Director	30	12.0

Source: Field Survey, 2025

Interpretation: Most respondents were male (58%) and aged between 31 and 50 years. Over half (54%) were from the banking sector, with the majority holding middle management positions.

Table 2:
Awareness and Adoption of AI in Strategic Decision-Making

Awareness and Adoption of AI	Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean Score
1. I am aware of the use of AI in strategic decision-making.	112	95	28	10	5	4.2	
2. My organization has adopted AI technologies.	80	105	40	20	5	3.9	
3. I have received training on AI systems.	70	85	55	30	10	3.7	
4. AI is actively used in strategic decisions in my organization.	65	90	60	25	10	3.7	
5. Management encourages AI-driven innovation.	75	110	40	20	5	4.0	

Source: Questionnaire Data, 2025

Interpretation: Respondents demonstrated a high level of awareness of AI (mean = 4.2), and the use of AI in strategic decision-making is growing (mean = 3.7–4.0).

Table 3:
Perception of AI's Impact on Strategic Decision-Making

Perceived Impact of AI on Decision-Making	Statement	Mean Score
AI enhances the quality of strategic decisions.	4.3	
AI improves decision-making speed.	4.1	
AI helps identify market trends.	4.2	
AI supports data-driven decisions.	4.4	
I trust AI for critical decision-making support.	3.8	

Source: Computed from Respondents' Ratings, 2025

Interpretation: Respondents largely agree that AI has a positive impact on decision-making quality, speed, and trend detection. However, there is slightly lower trust in AI when it comes to critical decisions.

Table 4:
Managerial Challenges in AI Integration

Challenges to AI Integration	Statement	Mean Score
Lack of technical knowledge among staff.	4.0	
Resistance to change from employees.	3.8	
High cost of AI integration.	4.2	
Ethical concerns surrounding AI use.	3.7	
Inadequate managerial training.	4.1	

Source: Authors' Fieldwork Analysis, 2025

Interpretation: The greatest challenges to AI integration are the **cost of implementation** and **lack of training**. Ethical concerns and resistance to change are also significant but slightly less emphasized.

Hypothesis Two

H₀₂: There is no significant effect of AI adoption on the quality of strategic decision-making.

Table 5: Chi-Square Test – Awareness vs. AI Integration

Variable Category	Observed Frequency (O)	Expected Frequency (E)
High Awareness & High Integration	90	75
High Awareness & Low Integration	30	45
Moderate Awareness & High Integration	40	35
Moderate Awareness & Low Integration	25	30
Low Awareness & Low Integration	65	65

Source: Field Survey, 2025

Chi-square (χ^2) = 19.62, df = 3, p = 0.0002

Interpretation: The Chi-square test reveals a significant association ($p < 0.05$) between awareness level and integration of AI into strategic decision-making. Managers with higher awareness are more likely to integrate AI tools effectively.

Note: The frequencies are derived from responses obtained through a structured questionnaire administered to 300 managerial staff across sectors.

Interpretation:

Since the **p-value = 0.002 < 0.05**, the result is statistically significant. This means that there is a significant relationship between the level of awareness of AI and its integration in strategic decision-making among managers.

Hypothesis Three

H₀₃: There is no significant relationship between managerial perception of AI and trust in AI-based decisions.

Table 6: Regression Analysis – AI Adoption and Decision Quality

Model	Unstandardized Coefficient (B)	Standard Error	Standardized Beta (β)	t-value	Sig. (p)
(Constant)	1.872	0.412	–	4.544	0.000
AI Adoption	0.652	0.085	0.719	7.670	0.000

Source: Field Survey, 2025

Model Summary:

$R = 0.719$

$R^2 = 0.517$

Adjusted $R^2 = 0.513$

$F(1, 298) = 58.85, p < 0.001$

Interpretation:

The regression analysis shows a strong, positive, and statistically significant relationship between AI adoption and the quality of strategic decision-making ($\beta = 0.719, p < 0.001$). This means that as the level of AI adoption increases, the perceived quality of decisions made by managers also increases. The model

explains approximately 51.7% of the variance in decision quality.

This aligns with findings from **Davenport & Miller (2023)** in *Harvard Business Review*, who noted that AI tools enhance managerial performance by enabling more consistent and data-informed decisions.

Table 7:

Chi-Square Test – Perception vs. Trust
Pearson Chi-square (χ^2) = 9.824
df = 3
p-value = 0.021

Source: Field Survey Computation, 2025

Interpretation: Since the p-value is less than 0.05, we reject the null hypothesis. This implies a significant relationship between perception and trust in AI-based decision-making.

Contingency Table

Perception of AI	High Trust	Low Trust
Positive	85	30
Neutral	45	35
Negative	20	35
Total	150	100

Chi-Square Test Results

Statistic	Value
Pearson Chi-square (χ^2)	9.824
Degrees of Freedom (df)	2
p-value	0.021
Significance Level (α)	0.05

7: Chi-Square Test – Perception vs. Trust in AI-Based Decisions

This chi-square test examines the relationship between managers' **perception** of AI and their **trust** in AI-driven strategic decisions.

Source: Field Survey Computation, 2025

Interpretation:

Since the **p-value = 0.021 < 0.05**, we **reject the null hypothesis**. This indicates a **significant relationship** between how managers perceive AI and how much they trust AI to support or drive strategic decisions. Managers with a more positive perception of AI tend to show higher levels of trust in AI-driven outcomes.

Hypothesis Four

H₀₄: There is no significant effect of managerial training on the successful

integration of AI in strategic decision-making.

Table 8:

Regression – Training vs. AI Integration		
R = 0.59	R ² = 0.348	
F(1, 248) = 20.34	p = 0.000	
β (Training) = 0.62	t = 4.51	p = 0.000

Source: SPSS Output from Primary Data Analysis, 2025

Interpretation: Managerial training significantly influences successful AI integration. Increased training enhances the effectiveness of AI implementation in strategy formulation.

8: Regression – Managerial Training and AI Integration

This regression analysis evaluates whether **managerial training** significantly influences the **successful integration of artificial intelligence** in strategic decision-making processes.

Coefficients

Variable	Unstandardised B	Std. Error	Standardized Beta	t	Sig. (p-value)
(Constant)	1.95	0.27	—	7.22	0.000
Managerial Training	0.62	0.14	0.59	4.51	0.000

Source: SPSS Output from Primary Data Analysis, 2025

Interpretation:

The regression model shows that **managerial training** has a significant and positive effect on AI integration ($p < 0.05$). The R^2 value of **0.348** means that training explains about **34.8%** of the variation in AI integration success. A unit increase in training leads to a **0.62 unit increase** in the effectiveness of AI implementation in strategic decisions.

Discussion of Findings

The findings from this study reveal a significant and positive relationship between artificial intelligence (AI) awareness, training, adoption, and strategic decision-making among managers. The regression analyses demonstrate that managerial training and AI adoption significantly predict successful AI integration and improved decision quality. This supports prior research by Shrestha et al. (2021), who emphasized the need for organizational learning and technical preparedness in effectively integrating AI systems into strategic functions (*MIS Quarterly Executive*). Additionally, the statistically significant relationship between perception and trust aligns with the work of Dwivedi et al. (2023), who concluded that managers' attitudes toward AI impact their willingness to delegate high-stakes decisions to AI systems (*Journal of Business Research*). Moreover, the chi-square results suggest that managers with greater awareness and positive perceptions of AI are more likely to integrate AI tools into their decision processes confidently. These findings reinforce the conclusions of Wamba-Taguimdje et al. (2020), who found that cognitive readiness and organizational culture heavily influence AI adoption in strategic contexts (*Technological Forecasting and Social Change*). The results also highlight the importance of targeted AI training programs, as training was found to have a direct effect on successful integration. This echoes the arguments presented by Rai et al. (2021) in *Information Systems Research*, where they

stressed that AI initiatives must be supported by capacity-building for decision-makers to yield meaningful outcomes. Overall, the study

contributes to a growing body of literature affirming that AI integration is not solely a technological issue but a strategic and managerial one.

Conclusion

This study concludes that the integration of artificial intelligence (AI) into strategic decision-making is both feasible and impactful, provided that certain managerial and organizational conditions are met. Key findings reveal that awareness, training, perception, and adoption of AI tools significantly influence their successful application in strategic contexts. These results are consistent with recent empirical evidence by Dwivedi et al. (2023) in the *Journal of Business Research*, which emphasized that AI's strategic value is realized when aligned with informed leadership and a culture of trust in machine-supported decision-making. Similarly, Shrestha et al. (2021), writing in *MIS Quarterly Executive*, argued that organizational structure and decision authority must evolve to accommodate AI-driven insights, reinforcing the strategic role of AI integration.

Moreover, the research underscores the critical importance of managerial training in enhancing AI assimilation and improving decision quality. The regression analysis confirmed that targeted upskilling significantly predicts better AI integration outcomes, a finding supported by Rai et al. (2021) in *Information Systems Research*. This indicates that beyond technological adoption, managerial competence and mindset play pivotal roles in leveraging AI effectively. In sum, the integration of AI into strategic decision-making is not merely a technological upgrade but a strategic transformation that demands readiness at multiple organisational levels—including training, perception, and trust in AI systems.

Recommendations

Recommendations from the findings are as follows:

To ensure successful adoption of artificial intelligence in strategic decision-making, organizations must **strengthen managerial training and capacity building** by equipping managers with both the technical skills and strategic insights necessary to effectively interpret and apply AI-generated outputs. Continuous professional development is key to maximizing the value AI brings to leadership functions.

Furthermore, it is essential for companies to **develop clear AI integration strategies** that align with overall business objectives. This involves setting specific goals, selecting appropriate technologies, and identifying areas where AI can deliver the greatest decision-making support.

To foster user acceptance, organizations must **promote trust and transparency in AI systems**. Involving managers in the design and testing of AI tools, while clearly defining the roles of humans versus machines, helps build confidence and enhances accountability in AI-supported processes.

Lastly, a successful transformation requires cultivating **an AI-ready organisational culture** that supports innovation, collaboration, and continuous learning. Monitoring and evaluating AI-driven decisions with measurable indicators ensures ongoing improvement and alignment with strategic goals, reinforcing the long-term value of AI in management.

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Digital marketing and consumer preferences: Focus on insurance products marketing in Nigeria

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Abstract

Traditional marketing has been overtaken by digital marketing in recent times. There is renaissance in digital marketing occasioned by social media thus, expectations lie on insurance marketers to leverage on these huge potentials to deliver insurance services to the public via social media platforms. This research work focused on digital marketing and insurance products' marketing in Nigeria. Specifically, the following digital marketing platforms formed the objectives of the study: Whatsapp, Facebook, Instagram and X (Twitter). Sample was drawn from selected commercial hubs in Nigeria (Lagos, Abuja, Port Harcourt and Asaba). Sample size was determined purposively based on availability of the participant as at the time of the research. The instrument for data collection was online survey structured in a 4-point Likert scale format. The findings revealed that Whatsapp and Facebook platforms increased insurance preferences. However, only Whatsapp increased consumer preferences significantly while Instagram and X exerted negative effects on insurance preferences. The conclusion was that Whatsapp is the most prominent platform that consumers of insurance products and services prefer in terms of communication and reputation of the platform. Updating consumers and even non-customers about insurance policies through Whatsapp platform coupled with intensification of Facebook marketing and use of other social media platforms to enhance visibility of insurance products were recommended.

Key words: Consumer Preferences, Facebook, Insurance Marketing, Insurance Patronage, Social Media.

Introduction

The popularity of digital marketing as a business tool has significantly contributed to the growth of most institutions both small and large (Gnidko, 2021). This has been influenced by the new developments in technologically advanced tools and technologies like computers and hand-held gadgets like tablets and smart phones, which have improved social interactions through the different social networking sites (Denisova *et al.*, 2019). These social networking sites help business to facilitate sale transactions, advertising, promotion,

customers' feedback and reviews from clients (Elisashvili, 2021). The social media platforms such as Facebook, Instagram, Twitter, etc. provide good avenues for insurance companies to engage their target market and have a better understanding of their needs (Kwashie, 2021). The concept of understanding the needs of customers is essentially important in the insurance sector due to the high personalization of insurance products. Therefore, once the insurance firms understand their target audience they will be able to develop compelling and high quality products that best suit the needs of

their customers (Delafrouz et al., 2017; Mohseni, Faezy Razi & Khoshnevis, 2021). The history of digital marketing in insurance transaction in Nigeria is not far from tracing. According to Ekugo (2022), the first indigenous insurance company that recorded online platform for buying of insurance and claims payment was Cornerstone Insurance and this was in 2016 which awarded the company the ‘best use of technology insurance company’ same year. AutoGenius, an insurTech founded in 2014 to provide Auto Insurance and Insurance Brokerage services digitally partnered with some insurance companies: AIICO insurance, Custodian and Allied insurance, Leadway Assurance, NEM insurance and Royal Exchange to provide auto insurance to Nigerians (Ekugo, 2022). Cassava, another insurTech registered with NAICOM offers both General and Life Assurance services and pays claims within 48 hours (Adejumo and Tijani, 2022). The Nigeria Insurance Association (NIA) (2017) attributed the continued sub-optimal performance of Nigerian Insurance firms to low patronage, poor implementation of digital marketing strategies among others. The velocity of technological development poses new problems for insurance buyers and administrators because prior technologies are outdated (Chen, Neubaum, Reilly, and Lynn, 2015).

Statement of the Problem

The rationale for this study is not far-fetched. Traditional marketing is fast fading out and digital marketing has become the talk of every business enterprise and insurance industry is not left out. As at January 2024, Nigeria recorded 36.75 million social media users which equates to 16.2% of the country’s population (Statista, 2024a). Whatsapp, Facebook, Instagram, TikTok and X (Twitter) are the most visited social media applications in Nigeria as at third quarter of 2023 (Statista, 2024b). With a population of over 200 million people, Nigeria has a large reservoir of potential insurance consumers in Sub-Sahara Africa.

Thus, the curiosity of the researchers on this topic is that with the increasing digital presence in Nigeria, championed by various social media platforms, there is need to carry out a research on how consumer preferences is affected or influenced by digital marketing with particular emphasis on the top social media platforms. It is general knowledge that a developed insurance market in Nigeria will have spill-over effect on the insurance market of other countries in Sub-Sahara Africa. Thus, baring knowledge of social media effect on insurance penetration in Nigeria will boost policies that will enhance development of the insurance industry not only in Nigeria but the entire Sub-Sahara African region. Also, preliminary search for literature on this topic from various academic databases such as Google scholar, Pubmed, Research Gate, ScienceDirect, etc., reveals that a great number of recent literature were carried out in Asian countries (Pareek, Dua and Mittal, 2022; Kajwang, 2022; Jayanthi and Kumar, 2024; Priya, 2023, etc.). Just about a handful of literature were carried out in Nigeria (Adejumo and Tijani, 2022; Kadri and balogun, 2022). It becomes apparent and a matter of urgent policy implication to go ahead with this research as it offers a veritable ground to understand the digital marketing space in Nigeria and how consumer preferences for insurance products can be understood from the angle of top social media marketing platforms.

Objective of the Study

The main objective of this study is to investigate digital marketing and how it affects consumer preferences with particular focus on insurance marketing and patronage in Nigeria. The specific objectives of this research are to:

1. ascertain the extent to which Whatsapp marketing affect insurance consumers’ preferences in Nigeria;
2. analyze the effect of Facebook marketing on insurance consumers’ preferences;

3. determine the effect of Instagram advertising on insurance consumers' preferences;
4. determine the extent to which insurance consumers preferences change given the effect of advertising via X (Twitter) platform.

Research Hypotheses

As an empirical research, this study formulates five hypotheses from the specific objectives which are to be tested for validity at 5% level of significance. The hypotheses are stated in their null forms as follows:

- H₀₁: There is no significant relationship between Whatsapp marketing and insurance consumers' preferences in Nigeria.
- H₀₂: There is no significant relationship between Facebook marketing and insurance consumers' preferences.
- H₀₃: Instagram advertising has no significant relationship with insurance consumers' preferences.
- H₀₄: There is no significant relationship between X (Twitter) platform and insurance consumers' preferences.

Scope and Relevance of the Research

The scope of this research is adult population in selected commercial cities in Nigeria (Lagos, Abuja, Port Harcourt and Asaba). This scope is considered relevant in this post covid-19 period when Nigeria is struggling on all economic fronts to enhance development that is all encompassing. The field of insurance is relevant to overall development given the fact that it is the industry that ensures the continued survival of every other industry. With the place of Nigeria as the most populous country in Sub-Sahara Africa (SSA), the country boasts of high digital media followership hence insurance business should target

digital platforms in order to increase insurance penetration.

Literature Review

Conceptual Review

The Digital Marketing Institute (DMI, 2023) defines digital marketing as the use of technology to create integrated, targeted, and measurable communications that help to gain and keep customers while building deeper relationships with them. Rizal (2017) noted that digital marketing includes direct marketing and interactive marketing. Direct marketing treats customers as individuals and defines them as not only their character but also their behavior pattern. Interactive marketing functions to overcome individuals and can collect and remember individual responses. According to Panda and Mishra (2021), digital marketing tools such as social media, web solutions, mobile phone marketing and email marketing create a competitive advantage, specifically in regard to the fact that clients will prefer those firms that have become innovative. However, the focus of this research is on social media as a digital marketing tool.

Social media marketing is the adoption of social media platforms to market a product or service and raise its exposure on the Internet (Becker, Nobre, and Kanabar, 2013). Ehiogu and Dim (2021) asserted that employees' of insurance companies find digital platforms as the best form of advancing insurance service delivery. Different communication strategies, summarized in figure 1 below, are considered as preferable on particular social media networks. Facebook, Twitter, Instagram, Whatsapp, TikTok, YouTube, etc. have presented organizations with numerous chances for both social and business contacts (Gilmore *et al.*, 2021).



Fig 1: *Social media platforms*

Facebook is well-known for its sophisticated platform for managing client relationships (Popp *et al.*, 2016). Organizations such as insurance companies may utilize Facebook to create a communication strategy for marketable brands that includes an integrated marketing communications plan (Mangold & Faulds, 2019). Because of the unfettered flow of information, Facebook can help insurance companies contact a broader range of people (Michahelles & Cvijikj, 2013). Whatsapp is another social media platform which enables users to create personalized messages to clients, run advertisements tailored to the needs of clients and follow up marketing leads (Mangold & Faulds, 2019). In addition, Instagram is a social media platform for exchanging images and videos (Muñoz & Towner, 2017). According to Neti (2021), Instagram has helped many organizations engage with potential clients on a more personal basis. Several businesses utilize Instagram to communicate with a new generation of virtual consumers, increasing their reach across marketing channels and recruiting certain types of customers who demonstrate specific behaviors (Gbandi and Iyamu, 2022).

Twitter (X) is well-known for its capacity to deliver brand messaging and prompt customer replies in real time (Culotta & Cutler, 2016). Twitter (X) is a micro blogging and social networking website where individuals and organizations may connect by posting 140-character status updates (Grewal & Levy, 2020). The process of posting contents on Twitter (X) is

called tweeting and tweeting helps organizations to build new business lines, promote and support existing products, and engage in buzz marketing, which is simply an extension of conventional word-of-mouth communication by letting consumers to communicate with one another (Mangold & Faulds, 2019). A more recent social media platform is TikTok which has gained popularity amongst many young Nigerians (Kadri and Balogun, 2022). However, the scope of this study does not include TikTok since its relevance is mostly for entertainment purposes with little emphasis on business aspect of the application.

Theoretical Framework

There are many theories that explain how insurance consumers change their preferences. The main theory in focus here is the Resource-Based View (RBV) theory by Barney (1984). The theory holds that companies have some resources which are internal to them and which they can utilize in order to acquire competitive advantage and achieve better long-term performance. The company's resource-based approach focuses on decisions on the acquisition and application of tangible and intangible resources in the company (Darroch, 2005). Resources in an organization can be virtual resources, financial or physical resources as noted by Mgbomene (2025). Insurance companies in this instance have physical bundles of resources, comprising managerial skills, unique products and a ready growing market to unleash their potentials. The use of social media is one internal resource

which an insurance company can utilize by way of creating dedicated channels, social pages for educational purposes and creating a lasting impression in the minds of people. When an insurance company leverages on social media to change consumer preferences in their favor, we say that they are making efficient use of their internal resources which is the main tenet of the resource based view.

Empirical Review

Empirical research linking digital marketing and insurance consumer preferences in Nigeria have not been many. Adejumo and Tijani (2022) evaluated the impact of digitalization technologies on the insurance industry in Nigeria. Using primary data from questionnaires administered on 70 respondents across the six Geo-Political zones in Nigeria, they found that almost every insurance company in Nigeria has a digital platform and that Nigerian Insurance companies as well as the NAICOM had transformed more than 40% of their services into digital technology. Kadri and Balogun (2022) investigated the effect of digital marketing tools (MC) on the performance of selected Insurance companies in Lagos State, Nigeria. A sample of 598 management staffs of the selected Insurance companies in the State revealed a positive and significant effect of digital marketing tools (social media, web solutions and mobile phone marketing) on organizational performance of selected Insurance companies in Lagos State, Nigeria.

Kajwang (2022) utilized the systematic literature review and studied the role of social media in the insurance industry in Kenya. The review of the different studies revealed that the social media provides a variety of platforms that can help insurance firms facilitate the sale of their products, improve their customers' interaction and build their brand reputation. Pareek, Dua and Mittal (2022) studied consumer behaviour towards social media advertising in India. According to the survey results, people have a positive mindset toward

credible commercials about insurance products via social media advertisements.

The study of Jayanthi and Kumar (2024) examined the impact of social media marketing in insurance sales in India. Their questionnaire analysis revealed that social media marketing presents a paradigm shift for the insurance industry and that by embracing this new era of communication, insurance companies can break free from traditional limitations and connect with consumers in a more meaningful and impactful way. Brucker (2022) analyzed the impact of social media marketing on small independent brokerages of property and casualty insurance. Systematic literature review with in-depth interviews of small business owners in the insurance industry was the method adopted in the research. Findings suggested that social media marketing can create the value needed to gain and retain customers in the insurance industry. Priya (2023) focused on the usage of social media marketing on insurance business performance in India. They found that social media is the new normal for advertisements for the insurance industry. Evidently, to the best of the researchers' knowledge, a comprehensive study of the most followed social media platforms in Nigeria and how they change insuring public preference for insurance products has not been carried out by any previous researcher both in Nigeria and outside of Nigeria. This creates a gap in insurance literature which this present study intends to fill. This will help towards advancing policies that will ensure development of insurance industry in Nigeria and by extension guide other insurance industries in Sub-Saharan Africa.

Methodology

This study adopts the quantitative survey method with the use of primary data. This design encompasses the administration of questionnaire to a sample group, coding of the questionnaire and interpretation of the data gathered. There is little bias involved because the data are not manipulated by the

researchers since they are collected electronically and exported into SPSS software for analysis. The data for this study were collected over a three month period from January 2025 through March 2025. The sample is drawn from selected commercial hubs in Nigeria comprising residents of Lagos, Abuja, Port Harcourt and Asaba. Due to the technical nature of the survey, the non-probability sampling is adopted and the sampling technique selected is purposive sampling technique. Sekaran (2013) proposed that in a non-probability sampling method, a sample size larger than 30 but less than 500 is appropriate for a research. Given this rule of thumb by Sekaran (2013), this study selects a sample size of 361 so as to be able to manage the data effectively.

The inclusion criteria include: the participant should be resident in the selected State, have an insurance policy to buttress their knowledge of insurance and should have at least three social media accounts. Respondents who do not belong to any of the three criteria were expunged from the research.

The questionnaire was designed using Google form and administered to the participants through their social media accounts. The 4-point Likert scale was used in rating the responses and the scale is rated as follows: Strongly Agree (4 points), Agree (3 points), Strongly Disagree (2 points) and Disagree (1 point). Statistical Package for Social Sciences (SPSS) version 21 was the main analytical software used. Data analysis was done using Descriptive Statistics and Inferential Statistics. The descriptive statistics include mean and percentage analysis while Multiple Regression was used as the Inferential Statistics in estimating the model and testing the hypotheses (Egbulonu, 2007). The model that was estimated is a linear model of the form:

$$Y = f(X's) \quad [1]$$

Where Y is the dependent variable and X's is the set of independent variables. By expanding the right hand side, we have:

$$Y = f(X_1, X_2, X_3, X_4) \quad [2]$$

Where: Y = Insurance consumer preferences, X_1 = Whatsapp marketing, X_2 = Facebook marketing, X_3 = Instagram marketing, X_4 = X or Twitter marketing.

Data Presentation and Analysis

Data Presentation

The rating scale adopted is modified from the rating scale of Khan and Jan (2019) and the responses are summarized in Table 1 below:

Table 1: Responses on various social media platforms

a.	Whatsapp Marketing	SA	AG	SD	DA	Mean	Remark
1.	Communication via whatsapp with my insurance provider influences my choice.	113 (31.3)	70 (19.4)	121 (33.5)	57 (15.8)	2.66	Positive
2.	Whatsapp has more reputation than other SM platforms.	80 (22.2)	230 (63.7)	30 (8.3)	21 (5.8)	3.02	Positive
3.	I have security concerns discussing insurance via Whatsapp.	310 (85.9)	43 (11.9)	7 (1.9)	1 (0.3)	3.83	Positive
b.	Facebook Marketing	SA	AG	SD	DA	Mean	Remark
4.	Facebook is open and easy to use.	205 (56.8)	121 (33.5)	32 (8.9)	3 (0.8)	3.46	Positive
5.	I have purchased insurance policy from ads I saw on Facebook.	41 (11.4)	33 (9.1)	258 (71.5)	29 (8.0)	2.24	Negative
6.	Mixing contents with information about insurance on Facebook attracts my attention.	177 (49.0)	144 (39.9)	32 (8.9)	8 (2.2)	3.36	Positive
c.	Instagram Marketing	SA	AG	SD	DA	Mean	Remark
7.	I visit Instagram regularly.	221 (61.2)	56 (15.5)	33 (9.1)	51 (14.1)	3.24	Positive
8.	I skip adverts concerning insurance I see on Instagram.	21 (5.8)	10 (2.8)	128 (35.5)	202 (56.0)	1.58	Negative
9.	I have high potentials of seeing advertisements placed via Instagram handles.	284 (78.7)	51 (14.1)	20 (5.5)	6 (1.7)	3.70	Positive
d.	X (Twitter) Marketing	SA	AG	SD	DA	Mean	Remark
10.	I visit X (Twitter) regularly	156 (43.2)	43 (11.9)	111 (30.7)	51 (14.1)	2.84	Positive
11.	Insurance companies have X(Twitter) presence	34 (9.4)	23 (6.4)	178 (49.3)	126 (34.9)	1.90	Negative
12.	Insurance enquiries are treated with speed via X	6 (1.7)	34 (9.4)	141 (39.1)	180 (49.9)	1.63	Negative

Source: *Online Survey (2024)*

Table 1 shows the responses on the various social media platforms as it relates with insurance products and services. The survey shows that the mean values for whatsapp marketing are all positive i.e. they are greater than 2.5 criterion mean. This implies that the respondents agreed to the statements on whatsapp marketing that whatsapp communication influences their choice (mean = 2.66), whatsapp has more reputation than other social media platforms

(mean = 3.02) and that they have security concerns discussing insurance via whatsapp (mean = 3.83). For Facebook marketing, 71.5% of the respondents strongly disagreed that they have purchased insurance policy from adverts they saw on Facebook (mean = 2.24 < 2.50). Also, the respondents opined that they do not skip adverts they see on Instagram (mean = 1.58). Interestingly, the survey shows that majority of Insurance companies do not have X(Twitter) presence

and that enquiries about insurance are not treated with speed via X(Twitter). Furthermore, Table 2 presents the responses on insurance consumer preferences in

Nigeria as adapted from Scholz, Meissner and Decker (2010).

Table 2: Responses on Consumer Preferences

f.	Consumer Preferences	SA	AG	SD	DA	Mean	Remark
13.	I prefer educational materials about insurance sent to me through social media channels.	196 (54.3)	150 (41.6)	12 (3.3)	3 (0.8)	3.49	Positive
14.	I prefer communicating with my dedicated financial advisor through social media channels.	200 (55.4)	126 (34.9)	5 (1.4)	30 (8.3)	3.37	Positive
15.	I prefer to see all my insurance transactions in one mobile application.	290 (80.3)	70 (19.4)	0 (0.0)	1 (0.3)	3.80	Positive
16.	Inquiries about all insurance matters should be made through social media for ease of response.	35 (9.7)	282 (78.1)	32 (8.9)	12 (3.3)	2.94	Positive
17.	Insurance companies should have a working chat bot to attend to customer enquiries.	250 (69.3)	11 (3.0)	0 (0.0)	0 (0.0)	2.86	Positive

Source: *Online Survey (2024)*

Excerpts from Table 2 shows that the respondents prefer educational materials about insurance to be sent to them through social media channels (mean = 3.49). Additionally, communication through social media, insurance transactions via mobile applications, inquiries about insurance, are all preferences of the respondents. Chat bot are also necessary for insurance companies

to have in their websites to enhance customer interactions.

Data Analysis

The analysis follows the conversion of the likert scale responses into numbers by way of aggregation in order to fit a time series regression analysis. This is justified based on the need to find the relationship between the set of independent variables and the dependent variable.

Table 3: Summary of the Ordinary Least Square Estimates

Variables	Coefficients	t-statistic	p-values	Decision
(Constant)	19.491	14.345*	0.000	
Whatsapp marketing	0.098	4.261*	0.002	Positive and significant
Facebook marketing	0.034	0.631	0.529	Positive but not significant
Instagram marketing	-0.062	-2.818*	0.035	Negative and significant
X(Twitter) marketing	-0.004	-0.069	0.945	Negative but not significant
F-statistic = 14.498 (<i>p-value</i> = 0.043)				
R-squared = 0.787				

Source: *Extracted from Statistical Package for Social Sciences (SPSS) Output*

According to information from Table 3, whatsapp marketing exert positive and significant effect on consumer preferences increasing consumer preferences by 0.098. This means that for every investment in whatsapp marketing by insurance companies, consumer preferences changes by 0.098 units and this is significant given the p -value of $0.002 < 0.05$. In like manner, Facebook marketing increases consumer preferences by 0.034 units but the increase was not significant given the p -value of $0.529 > 0.05$.

Conversely, Instagram and X(Twitter) marketing showed negative effects on

consumer preferences as they have negative coefficients of -0.062 and -0.004 units respectively. In other words, consumer preferences decrease by 0.062 and 0.004 units when insurance companies adopt any of Instagram and X(Twitter) marketing platforms. This shows that the respondents do not have strong preference for Instagram and X (Twitter) marketing platforms for insurance products. The overall strength of the model is estimated at 78.7% meaning that the social media marketing platforms account for 78.7% of the changes in insurance consumers' preferences.

Table 4: Test of hypotheses

Hypothesis	t-statistic	p-values	Decision Rule
H ₀₁ : No significant relationship between Whatsapp marketing and insurance consumer preferences	4.261*	0.002	Reject the null hypothesis
H ₀₂ : There is no significant relationship between Facebook marketing and insurance consumer preferences.	0.631	0.529	Accept the null hypothesis
H ₀₃ : Instagram advertising has no significant relationship with insurance consumer preferences.	-2.818*	0.035	Reject the null hypothesis
H ₀₄ : There is no significant relationship between X (Twitter) platform and insurance consumers preferences	-0.069	0.945	Accept the null hypothesis

Source: *Extracted from Statistical Package for Social Sciences (SPSS) Output*

We reject hypothesis one and three i.e. H₀₁ and H₀₃ since their respective probability values (0.002 and 0.035) are less than 0.05 critical value. We therefore conclude that Whatsapp marketing and Instagram marketing have significant effects on insurance consumer preferences. However, while Whatsapp marketing significantly increased consumer preferences, Instagram significantly decreased consumer preferences for insurance products.

The second and fourth null hypotheses (H₀₂ and H₀₄) are accepted since their probability values (0.529 and 0.945) are greater than 0.05 critical value. Therefore, we conclude that there is no significant relationship

between Facebook marketing, X (Twitter) marketing and insurance consumer preferences.

Discussion of Findings

The analysis revealed that Whatsapp and Facebook exerted positive effects on insurance consumer preferences. While the positive effect of Whatsapp marketing was significant, the positive effect of Facebook marketing was not significant. The implication of this is that there is high preference for marketing of insurance products through Whatsapp platform as it is the social media platform which the respondents mostly prefer in terms of

communication with insurance providers and in terms of strong reputation. Facebook also has easy use and access and can be used to advertise insurance products but its usage by insurance companies in Nigeria is very limited hence the non-significant effect it has on consumer preferences. The positive effect of these two social media platforms on insurance preferences corroborates the findings of Kajwang (2022), Adejumo and Tijani (2022) and Kadri and Balogun (2022) whose studies revealed a positive and significant effect of digital marketing tools on organizational performance of selected Insurance companies. While these studies linked social media marketing to organizational performance, this present research linked social media marketing to consumer preference but in both cases, social media exerted positive effect on both consumers and the companies.

Furthermore, findings revealed negative effects of Instagram and X (Twitter) marketing on insurance consumer preferences. Instagram marketing is direly affected as it significantly decreased consumer preferences for insurance products. Pareek, Dua and Mittal (2022) rightly asserted that people have a positive mindset toward credible commercials about insurance products via social media but the negative effect found in this study shows that insurance companies have not been using this particular social media platform to market their products. Jayanthi and Kumar (2024) advocated for insurance companies to break free from traditional limitations and connect with consumers in a more meaningful and impactful way via social media.

The study found that the top social media platforms in Nigeria (Whatsapp, Facebook, Instagram and X) jointly accounted for up to 78.7% of the changes in consumer preferences for insurance products. This shows that when insurance companies combine these social media platforms to

market their products, consumer preferences will be significantly tilted towards enhancing insurance patronage in Nigeria.

Conclusion

The conclusion from the study is that social media is a secure platform for insurance companies to market their products to the people as it gives them more visibility and penetration. Whatsapp is the most prominent platform that consumers of insurance products and services prefer in terms of communication and reputation of the platform. However, even though Facebook showed strong acceptance among insurance consumers, it did not significantly enhance their preferences. The study further concludes that other social media platforms (Instagram and X) inversely affected consumer preferences for insurance products. This implies low preference for these digital marketing platforms.

Recommendations

Recommendations emanating from the findings are outlined below:

Insurance companies should further enhance their social media presence by updating their consumers and even non-customers about insurance policies available to them through Whatsapp platform. Insurance companies can do this by creating Whatsapp channels to educate the public about their innovative products.

The use of Facebook to educate customers should be intensified so as to make it to have significant effect on consumer preferences. Facebook marketing is one that leaves a lasting impression in the minds of consumers and so insurance companies should be consistent on the use of Facebook advertisements

Instagram and X platforms should be used to reach out to all categories of the insuring public. Insurance education can be enhanced through the creation of educative videos to grow insurance patronage in Nigeria.

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