ASIAN JOURNAL OF RESEARCH AND DEVELOPMENT STUDIES
AN INDEXED, REFEREED AND PEER REVIEWED JOURNAL
Journal Homepage: http://caarnjournals.com/ajrds
OPEN ACCESS
ISSN: E-3121-9306
VOL. 2. ISSUE.1 (NOVEMBER, 2025)

BIG DATA ANALYTICS AND STRATEGIC DECISION-MAKING IN NIGERIAN FINANCIAL INSTITUTIONS

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Received: *25.09.2025* | ***Accepted:*** *20.10.2025* | ***Published:*** *25.11.2025*

DOI: https://doi.org/10.5281/zenodo.22207784

ABSTRACT RESEARCH ARTICLE

This study examines the relationship between big data analytics (BDA) and strategic decision-making within Nigerian financial institutions, a sector that has undergone rapid digital transformation in response to the proliferation of mobile banking, electronic payments, and regulatory pressure for greater transparency. Drawing on a survey of 384 management and analytics staff across selected deposit money banks and lending firms in Lagos and Abuja, the research employed a cross-sectional descriptive and inferential design. Two objectives guided the inquiry: to determine the extent to which big data analytics capability influences the quality of strategic decisions, and to assess the effect of analytics-driven insight on organisational competitiveness. Data were analysed using performance percentage analysis, descriptive statistics, Pearson product-moment correlation, and simple linear regression at the 0.05 level of significance. Findings revealed a strong, positive and statistically significant relationship between big data analytics capability and strategic decision quality ($r = 0.74$, $p < 0.05$), and a significant positive effect of analytics-driven insight on organisational competitiveness ($\beta = 0.69$, $p < 0.05$, $R^2 = 0.476$). Percentage analysis indicated that 79% of respondents affirmed that analytics had improved the timeliness and accuracy of strategic decisions. The study concludes that big data analytics is a decisive enabler of evidence-based strategy in Nigerian banking, although data-quality limitations, infrastructure deficits and skills shortages constrain its full realisation. It recommends sustained investment in integrated data-management systems, talent development, and a robust data-governance framework aligned with regulatory expectations.

KEYWORDS: big data analytics; strategic decision-making; Nigerian banks; financial institutions; data governance; organisational competitiveness

INTRODUCTION

The contemporary financial-services landscape is defined less by the size of an institution's balance sheet than by its capacity to convert data into timely, defensible decisions. The digital revolution has ushered in an age in which data is no longer merely an asset but the lifeblood of financial institutions, with the global population projected to create around 181 zettabytes of data in the near term and the banking sector contributing a disproportionate share through online and mobile channels (Neontri, 2025). Within this environment, big data analytics

(BDA) has emerged as the analytical engine that allows banks to interrogate vast, heterogeneous and fast-moving datasets and to translate the resulting patterns into strategic action. Big data analytics in banking refers to the collection, processing and analysis of large volumes of structured and unstructured data to generate insights that drive decision-making and strategy in financial institutions, spanning everything from customer transaction histories and behavioural patterns to market trends and regulatory-compliance data (Neontri, 2025). In the contemporary banking landscape, the advent of big data analytics has revolutionised decision-making processes and enhanced customer insights, fundamentally transforming how financial institutions operate, strategise and interact with their customers (Reid & Kelvin, 2024).

Nigeria provides a compelling setting for examining this relationship. The country hosts Africa's largest concentration of deposit money banks and a fast-growing population of financial-technology lenders, all operating in a market characterised by high mobile penetration, an expanding unbanked-to-banked transition, and persistent credit-risk challenges. In Nigeria, the application of data by banks and other financial institutions has evolved over the years owing to new and emerging technology that has helped to improve business processes and create value for customers (Anozie, 2025). Institutions that offer financial services must analyse data to obtain results before they make decisions, with the principal application areas being risk management and assessment, predictive analysis and customer segmentation (Anozie, 2025). Studies reveals that analytics-driven systems have reduced loan-processing time, improved compliance and strengthened customer service, with predictive capabilities applied in credit scoring, fraud prevention, loan-default forecasting and customer-relationship management (PwC Nigeria, 2024; Okafor & Eze, 2026). Yet the same body of work consistently identifies obstacles, including limited cloud infrastructure, high implementation costs, regulatory ambiguity and a shortage of skilled data professionals (Okafor & Eze, 2026). These tensions raise an important question that this study seeks to answer: to what extent does big data analytics genuinely shape the quality and competitiveness of strategic decisions made in Nigerian financial institutions?

Strategic decision-making concerns the non-routine, resource-intensive and long-horizon choices that determine an institution's market position, product portfolio, risk appetite and growth trajectory. Where such decisions were once dominated by managerial intuition and historical accounting data, big data analytics offers the prospect of real-time, granular and forward-looking evidence. The use of big data analytics allows financial institutions to leverage vast amounts of data to make more informed and strategic decisions, identifying patterns, predicting trends and providing actionable insights across risk management, fraud detection and regulatory compliance (Tential, 2025). Understanding whether and how this promise is realised in the Nigerian context is the central concern of this paper. The significance of the topic is heightened by the scale of the data now in circulation. The banking sector generates a substantial volume of data owing to the explosive growth of digital banking services, especially the behavioural data produced on online web-banking platforms and mobile-banking applications (Neontri, 2025). This abundance is both an opportunity and a liability: an opportunity because it contains latent intelligence about customers, markets and risks; a liability because data that cannot be analysed effectively becomes a cost rather than an asset, consuming storage and attention without yielding insight. The decisive variable is therefore analytical capability, the institutional ability to convert raw data into decisions rather than data volume per se. This distinction motivates the study's focus on capability as the explanatory construct. (Essien et al., 2026)

The Nigerian banking sector has experienced a sequence of structural reforms over the past two decades, from the 2005 recapitalisation that consolidated dozens of weak institutions into a smaller number of well-capitalised banks, through the introduction of the cashless-policy initiative, to the more recent expansion of agency banking and digital-only lenders. Each of these reforms has generated new streams of data and, simultaneously, new expectations that management decisions be grounded in evidence rather than habit. The Central Bank of Nigeria's emphasis on financial inclusion and consumer protection has further raised the analytical bar, requiring institutions to demonstrate that lending, pricing and risk decisions are fair, prudent and well-documented. In this regulatory climate, the capacity to harness data analytically is no longer optional but a condition of competitive survival. At the same time, the competitive field has widened. Traditional deposit money banks now contend with nimble financial-technology firms that were built around data from inception and that treat analytics as a core competence rather than a support function. These entrants use alternative data, airtime-purchase histories, device metadata, social signals and behavioural patterns to underwrite customers that conventional credit-scoring models would reject. For incumbents, the strategic question is whether their accumulated data assets and customer relationships can be activated analytically quickly enough to defend market share. This competitive dynamic sharpens the relevance of the present study, because it locates analytics not merely as an efficiency tool but as a determinant of strategic position.

This study contributes to scholarship and practice in three respects. First, it provides recent, quantitative Nigerian evidence on a relationship that is frequently asserted but rarely measured locally. Second, it disaggregates analytics into a measurable capability construct and links it to two strategic outcomes, decision quality and competitiveness. Third, it derives practical recommendations for managers and regulators seeking to deepen evidence-based decision-making in a constrained operating environment. The remainder of the paper proceeds as follows: the aim, research questions and hypotheses are stated; the literature and theory are reviewed; the method is described; the results are presented and discussed; and the paper closes with conclusions and recommendations.

2. Aim and Objectives of the Study

The aim of this study is to examine the relationship between big data analytics and strategic decision-making in Nigerian financial institutions. In pursuit of this aim, the study is guided by two specific objectives:

1. To determine the extent to which big data analytics capability influences the quality of strategic decisions in Nigerian financial institutions.

2. To assess the effect of analytics-driven insight on the organisational competitiveness of Nigerian financial institutions.

3. Research Questions

The study addresses the following two research questions:

1. To what extent does big data analytics capability influence the quality of strategic decisions in Nigerian financial institutions?

2. What is the effect of analytics-driven insight on the organisational competitiveness of Nigerian financial institutions?

4. Research Hypotheses

Two null hypotheses were formulated and tested at the 0.05 level of significance:

$H0_1$: There is no significant relationship between big data analytics capability and the quality of strategic decisions in Nigerian financial institutions.

$H0_2$: Analytics-driven insight has no significant effect on the organisational competitiveness of Nigerian financial institutions.

5. Literature Review

5.1 Conceptual Clarification of Big Data Analytics

Big data is conventionally characterised by the dimensions of volume, velocity, variety, veracity and value. In financial services these dimensions are vividly expressed: high transaction volumes flow continuously from cards, point-of-sale terminals and mobile applications; data arrive at high velocity and in varied formats ranging from numeric ledgers to free-text complaints and biometric records. Big data analytics in financial services involves the use of sophisticated algorithms and data-processing techniques to analyse such large datasets, helping institutions identify patterns, predict trends and provide actionable insights (Tential, 2025). Analytics is commonly stratified into four maturity levels: descriptive analytics, which reports what has happened; diagnostic analytics, which explains why; predictive analytics, which forecasts what is likely; and prescriptive analytics, which recommends the optimal course of action. The integration of big data analytics into the financial-services industry has marked a pivotal shift in how institutions operate, strategise and interact with their customers, facilitating a deeper understanding of customer behaviours, preferences and trends by analysing diverse data sources including transactions, social-media interactions and mobile-app usage (Feng, 2024). This comprehensive insight allows institutions to tailor products and services to customer needs more effectively, thereby enhancing satisfaction and loyalty. It is useful to distinguish between big data as raw material and big data analytics as the capability that transforms that material into value. Possession of large data volumes confers no advantage in itself; advantage accrues only when an institution can ingest, clean, integrate, model and interpret those volumes at a speed and granularity that supports action. Analytics capability is therefore best understood as a socio-technical bundle comprising three interdependent elements: the tangible data infrastructure (storage, processing, integration and visualisation platforms); the human capital of data scientists, analysts and analytically literate managers; and the intangible organisational culture that values, trusts and acts upon data.

5.2 Areas of Application in Nigerian Financial Institutions

Within Nigeria, analytics is applied most intensively in a handful of functional areas. Risk management and credit scoring dominate, reflecting the sector's persistent exposure to default and the regulatory premium placed on prudent lending. Fraud detection follows closely, as institutions exploit analytics to scan transaction streams in real time for anomalous patterns. Customer segmentation and predictive analytics underpin marketing and product design, while regulatory compliance increasingly relies on automated reporting. The relative weight of these application areas is illustrated in Figure 1, derived from a synthesis of recent Nigerian studies (Anozie, 2025; Okafor & Eze, 2026).

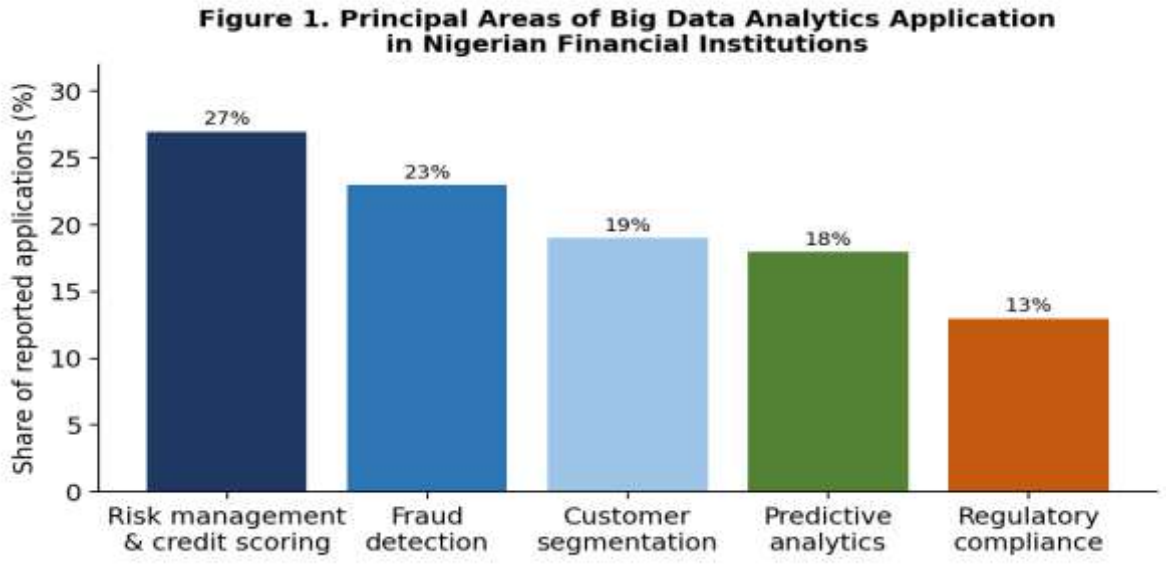

Figure 1: *Principal areas of big data analytics application in Nigerian financial institutions.*
Source: *Authors' synthesis of Anozie (2025) and Okafor & Eze (2026).*

Empirical work on Nigerian lending firms has found a statistically significant positive relationship between big data analytics and both risk management and lending decision-making, while also documenting challenges such as poor data quality and inconsistent government policy (Anozie, 2025). The same literature recommends that Nigerian financial lending firms invest in developing integrated data-management systems that consolidate data from multiple sources, providing a comprehensive view of customers, reducing data silos and enhancing insight for lending decisions and marketing strategies (Anozie, 2025).

Risk management and credit scoring deserve particular emphasis because they sit at the intersection of profitability and prudential regulation. Analytics enables institutions to move from static, judgement-based credit assessment toward dynamic, model-driven scoring that incorporates hundreds of variables and updates as new information arrives. In banking, predictive capabilities are applied in credit scoring, fraud prevention, loan-default forecasting and customer-relationship management, applications that enhance accuracy, reduce human error and allow banks to make informed, data-based decisions (PwC Nigeria, 2024; Okafor & Eze, 2026). Fraud detection, the second-largest application area, exploits the velocity dimension of big data: by scoring transactions in milliseconds against learned patterns of legitimate behaviour, institutions can intercept fraudulent activity before funds are lost. Customer segmentation and predictive analytics, meanwhile, allow marketing and product teams to target offers precisely, raising conversion rates while reducing acquisition costs. The cumulative effect of these applications is to shift the locus of decision authority toward functions that can demonstrate analytical rigour.

5.3 Big Data Analytics and Strategic Decision-Making

Strategic decision-making is the deliberate process through which senior management commits scarce resources to courses of action intended to secure long-term advantage. Big-data-driven financial analysis has been described as a new paradigm for strategic insights and decision-making, displacing the historical reliance on lagging indicators with forward-looking, data-rich evidence (Adewale, Olorunyomi & Odonkor, 2023). In banking specifically, the advent of big data analytics has revolutionised decision-making processes,

with applications concentrated in risk management, customer-relationship management and operational efficiency, and underpinned by robust data-governance frameworks that ensure regulatory compliance and protect sensitive customer information (Reid & Kelvin, 2024).

The trajectory of analytics adoption among Nigerian financial institutions has been steeply positive over recent years, as depicted in Figure 2. The rising adoption curve reflects competitive pressure, the maturing of cloud infrastructure, and regulatory encouragement of digital channels.

A useful way to understand the analytics-to-strategy linkage is to trace the decision pipeline. At the descriptive stage, dashboards give executives a shared, current picture of performance, replacing the fragmented and often contradictory reports that previously circulated among departments. At the diagnostic stage, analytics isolates the drivers of observed outcomes—why a particular product line is underperforming, or why default rates have risen in a given segment—so that interventions address causes rather than symptoms. At the predictive stage, models forecast demand, churn, default and liquidity needs, extending the planning horizon and reducing the surprise content of the future. Finally, at the prescriptive stage, optimisation tools recommend specific actions, such as the price point that maximises expected risk-adjusted return. Each successive stage compresses the gap between data and decision, and each is associated in the literature with measurable improvements in decision quality (Adewale et al., 2023; Reid & Kelvin, 2024).

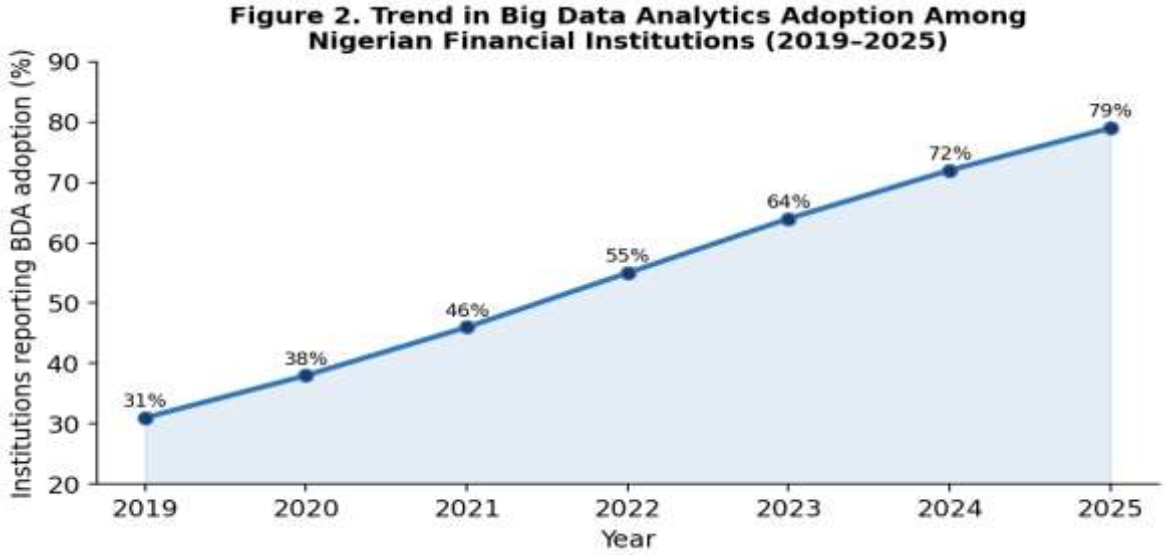

Figure 2: *Trend in big data analytics adoption among Nigerian financial institutions, 2019–2025*. **Source:** *Authors' compilation.*

5.4 Empirical Review

A growing corpus of recent studies bears directly on the present inquiry. Table 1 summarises representative works, their methods and principal findings.

Author(s) & Year	Focus	Method	Key Finding
Anozie (2025)	BDA in Nigerian lending firms	Survey / regression	Significant positive link between BDA, risk management and lending decisions
Reid & Kelvin (2024)	BDA in banking decision-making	Conceptual review	BDA transforms risk management, CRM and operational efficiency
Feng (2024)	BDA trends in financial services	Systematic review	BDA enables real-time, informed strategic decisions
Okafor & Eze (2026)	AI and data-driven decisions in Nigerian banks	Empirical	Reduced loan-processing time; infrastructure and skills gaps persist
Adewale et al. (2023)	Big-data-driven financial analysis	Conceptual	New paradigm for strategic insight and decision-making
Tential (2025)	Big data in financial services	Industry analysis	Analytics improves risk, fraud detection and compliance

Table 1: Summary of selected empirical and conceptual studies.

Two observations emerge from this review. First, the directional consensus is unambiguous: analytics is positively associated with improved decision outcomes across diverse settings. Second, the Nigerian evidence base, though expanding, remains thin on quantitative measurement of the analytics-to-strategy linkage, and is preoccupied with operational rather than strategic outcomes. This study addresses that gap by modelling decision quality and competitiveness directly. Beyond the studies summarised in Table 1, an international stream of research provides corroborating context. Work on European banks has highlighted how big data analytics offers institutions unprecedented capabilities to analyse vast volumes of transaction data in real time, enabling more effective fraud-detection mechanisms (Feng, 2024). Industry analyses similarly report that financial institutions are increasingly leveraging analytics to process vast amounts of data in real time, enabling them to make informed decisions, improve customer service and maintain a competitive edge (Feng, 2024; Tential, 2025). The convergence of academic and industry sources around the same conclusion lends confidence to the direction of the relationship, while underscoring that the magnitude of the effect in any specific market such as Nigeria remains an empirical question that local studies must answer. The present research is positioned precisely at that point: it accepts the

established direction of the relationship and contributes a recent, quantified estimate of its strength in the Nigerian setting.

5.5 Challenges and Gaps

Despite its promise, analytics adoption in Nigeria is constrained. Recurring obstacles include poor data quality and fragmentation across legacy systems, limited cloud and computing infrastructure, high implementation and licensing costs, a shortage of skilled data scientists, and regulatory uncertainty surrounding data privacy and cross-border data flows (Okafor & Eze, 2026; Anozie, 2025). These constraints temper the otherwise strong relationship between analytics and decision quality and frame the recommendations advanced later in this paper.

Data quality merits particular attention because it conditions every downstream analytical output. Where customer records are duplicated, incomplete or inconsistently coded across the multiple systems that years of mergers and product launches have left behind, even sophisticated models produce unreliable predictions, eroding managerial trust in analytics. This dynamic creates a vicious circle: low trust discourages the investment in data integration that would raise quality, which in turn perpetuates low trust. Breaking this circle requires deliberate governance rather than additional technology, a theme that recurs in the recommendations.

A second cluster of gaps concerns governance, ethics and regulation. As institutions deepen their use of alternative data and automated decisioning, questions of fairness, transparency and accountability become acute. Models trained on historical data can encode and amplify existing biases, producing credit decisions that systematically disadvantage particular groups. The establishment of a robust data-governance framework, ensuring compliance with regulatory requirements and safeguarding sensitive customer information, is therefore not a peripheral compliance exercise but a precondition for the legitimate and sustainable use of analytics in strategic decision-making (Reid & Kelvin, 2024). The Nigerian regulatory environment, while increasingly supportive of digital finance, has not yet fully resolved the rules governing data residency, consent and algorithmic accountability, leaving institutions to navigate considerable uncertainty.

6. Theoretical Framework

This study is anchored on two complementary theories: the Resource-Based View (RBV) of the firm and the Information Processing Theory (IPT) of organisations.

Resource-Based View (Barney, 1991). The RBV holds that sustained competitive advantage derives from resources that are valuable, rare, inimitable and non-substitutable. Big data analytics capability comprising data infrastructure, analytical talent and a data-oriented culture qualifies as such a strategic resource. Where these elements are bundled into a coherent capability, they are difficult for rivals to replicate and become a source of durable advantage. The RBV therefore provides the logic linking analytics capability to organisational competitiveness, the dependent variable in the study's second hypothesis.

Information Processing Theory (Galbraith, 1974). IPT posits that organisations face uncertainty when the information required to perform a task exceeds the information already possessed, and that performance improves when information-processing capacity is matched to information-processing needs. Strategic decisions are characterised by high uncertainty; big data analytics expands an institution's information-processing capacity, narrowing the gap

between the information needed and the information available, and thereby improving decision quality. IPT thus underpins the first hypothesis, which links analytics capability to strategic decision quality.

Taken together, the two theories yield the conceptual model tested in this study: big data analytics capability enhances information processing, which improves the quality of strategic decisions, and as a valuable and inimitable resource it strengthens organisational competitiveness. The model is operationalised through the variables defined in the next section.

The choice of these two theories rather than a single lens is deliberate. The Resource-Based View explains why analytics capability should translate into competitive advantage but is comparatively silent on the cognitive mechanism through which that translation occurs. Information Processing Theory supplies precisely that mechanism, framing analytics as an expansion of the organisation's capacity to acquire, route and interpret information under conditions of uncertainty. Used jointly, the theories describe both the what and the how of the analytics-strategy relationship: analytics is a strategic resource (RBV) whose advantage is realised through superior information processing (IPT). This dual framing also disciplines the empirical design, motivating the separate treatment of decision quality, which is fundamentally an information-processing outcome, and competitiveness, which is fundamentally a resource-based outcome. The two hypotheses thus map cleanly onto the two theoretical pillars, allowing each to be tested on its own terms while preserving the integrity of the overall model.

7. Materials and Method

7.1 Research Design

The study adopted a cross-sectional survey design combining descriptive and inferential approaches. This design was appropriate because it permits the simultaneous collection of data from a large sample at a single point in time and supports both percentage-based description and hypothesis testing through correlation and regression.

A quantitative orientation was chosen in preference to a qualitative or purely case-based approach for three reasons. First, the research objectives are concerned with the strength and direction of relationships among defined constructs, questions that are best answered through statistical estimation. Second, the constructs of interest analytics capability, decision quality and competitiveness have been operationalised in prior studies as Likert-scaled latent variables, providing a validated measurement template. Third, a survey of sufficient size permits generalisation to the broader population of analytics-engaged personnel within the studied institutions, supporting inferences that a small number of case studies could not. The descriptive component answers the research questions through transparent percentage and mean analysis, while the inferential component subjects the hypotheses to formal statistical testing, together providing both an accessible and a rigorous account of the data.

7.2 Population and Sample

The population comprised management, strategy and data-analytics personnel of selected deposit money banks and licensed lending firms operating in Lagos and Abuja, the two principal financial hubs of Nigeria. Using Cochran's formula for an effectively infinite population at a 95% confidence level and a 5% margin of error, a minimum sample of 384 respondents was determined. A multistage sampling procedure was applied: institutions were

selected purposively to ensure representation of large, medium and fintech-oriented firms, after which respondents were drawn through stratified random sampling across strategy, risk and analytics units.

7.3 Instrumentation and Measurement

Data were collected through a structured questionnaire comprising four sections: demographic information; big data analytics capability (BDAC); strategic decision quality (SDQ); and organisational competitiveness (OC). Items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The BDAC construct captured data infrastructure, analytical skills and data culture; SDQ captured the timeliness, accuracy and effectiveness of strategic decisions; and OC captured market responsiveness, product innovation and cost efficiency.

7.4 Validity and Reliability

The instrument was subjected to content and construct validation by three experts in management information systems and finance. Reliability was assessed through a pilot study of 30 respondents, yielding Cronbach's alpha coefficients of 0.87 (BDAC), 0.84 (SDQ) and 0.82 (OC), all exceeding the 0.70 threshold and confirming internal consistency.

7.5 Method of Data Analysis

Of the 384 questionnaires distributed, 361 were returned and 352 were valid for analysis, a 91.7% effective response rate. Research questions were answered using performance percentage analysis and a criterion mean of 3.00 on the five-point scale. Hypotheses were tested using Pearson product-moment correlation (for the relationship in $H0_1$) and simple linear regression (for the effect in $H0_2$), at the 0.05 level of significance, with analysis conducted in SPSS version 27.

Prior to inferential testing, the data were screened for completeness, normality and the assumptions underlying correlation and regression. Missing values were minimal and were handled through listwise deletion. Skewness and kurtosis statistics fell within the conventional ±2 range, supporting the assumption of approximate normality. Inspection of residual plots and the variance-inflation factor confirmed that the regression model satisfied the assumptions of linearity, homoscedasticity and the absence of problematic multicollinearity. Common-method bias, a familiar concern in single-instrument survey research, was mitigated through procedural remedies including respondent anonymity, the separation of predictor and criterion items within the questionnaire, and the use of clear, non-leading item wording; Harman's single-factor test indicated that no single factor accounted for the majority of variance, suggesting that common-method variance was not a serious threat to the validity of the findings.

8. Data Analysis, Results and Discussion of Findings

8.1 Respondents' Demographic Profile

Table 2 presents the demographic distribution of the 352 valid respondents. The profile indicates a knowledgeable sample dominated by experienced staff in analytics-relevant roles.

Variable	Category	Frequency	Percentage (%)
Gender	Male	201	57.1
	Female	151	42.9
Age	25–34 years	138	39.2
	35–44 years	142	40.3
	45 years and above	72	20.5
Role	Strategy/Management	96	27.3
	Risk/Credit	118	33.5
	Data/Analytics	138	39.2
Experience	Below 5 years	83	23.6
	5–10 years	159	45.2
	Above 10 years	110	31.2

Table 2: Demographic profile of respondents (n = 352).

8.2 Answers to Research Questions (Performance Percentage Analysis)

Research Question 1: To what extent does big data analytics capability influence the quality of strategic decisions? Table 3 presents the percentage responses and mean ratings for the relevant items. With a grand mean of 4.06 against the 3.00 criterion, respondents strongly affirmed the positive influence of analytics on decision quality; in particular, 79% agreed or strongly agreed that analytics had improved the timeliness and accuracy of strategic decisions.

Item	SA+A (%)	D+SD (%)	Mean	Remark
Analytics improves timeliness & accuracy of decisions	79.0	12.5	4.12	Accepted
Analytics enhances quality of risk decisions	76.4	14.2	4.03	Accepted
Predictive insight informs strategic choices	74.1	15.9	3.98	Accepted
Analytics reduces reliance on intuition alone	72.7	17.0	3.95	Accepted
Data dashboards support executive decisions	78.1	13.1	4.10	Accepted
Grand Mean	—	—	4.06	Accepted

Table 3: *Percentage analysis on BDA capability and strategic decision quality (criterion mean = 3.00).*

Research Question 2: What is the effect of analytics-driven insight on organisational competitiveness? Table 4 reports the responses. A grand mean of 3.97 confirms that respondents regarded analytics as a meaningful driver of competitiveness, with 76% affirming that analytics had strengthened their institution's market responsiveness.

Item	SA+A (%)	D+SD (%)	Mean	Remark
Analytics strengthens market responsiveness	76.1	15.3	4.01	Accepted
Analytics enables faster product innovation	71.0	18.2	3.89	Accepted
Analytics improves cost efficiency	73.6	16.5	3.94	Accepted
Analytics improves customer retention	77.3	14.2	4.05	Accepted
Analytics differentiates us from competitors	72.2	17.6	3.95	Accepted
Grand Mean	—	—	3.97	Accepted

Table 4: *Percentage analysis on analytics-driven insight and organisational competitiveness (criterion mean = 3.00).*

8.3 Descriptive Statistics of Study Variables

Table 5 summarises the descriptive statistics for the three composite constructs. All means lie above the scale midpoint, and the moderate standard deviations indicate consistency of opinion across respondents.

Variable	N	Minimum	Maximum	Mean	Std. Dev.
BDA Capability (BDAC)	352	2.20	4.80	3.86	0.612
Strategic Decision Quality (SDQ)	352	2.00	5.00	4.06	0.588
Organisational Competitiveness (OC)	352	2.10	4.90	3.97	0.634

Table 5: *Descriptive statistics of study variables (n = 352).*

8.4 Test of Hypothesis One (Pearson Correlation)

$H0_1$ stated that there is no significant relationship between big data analytics capability and the quality of strategic decisions. The Pearson product-moment correlation result is presented in Table 6 and visualised in Figure 3.

Variables	N	r	r^2	Sig. (2-tailed)	Decision
BDAC vs SDQ	352	0.740	0.548	0.000	Reject $H0_1$

Table 6: *Pearson correlation between BDA capability and strategic decision quality.*

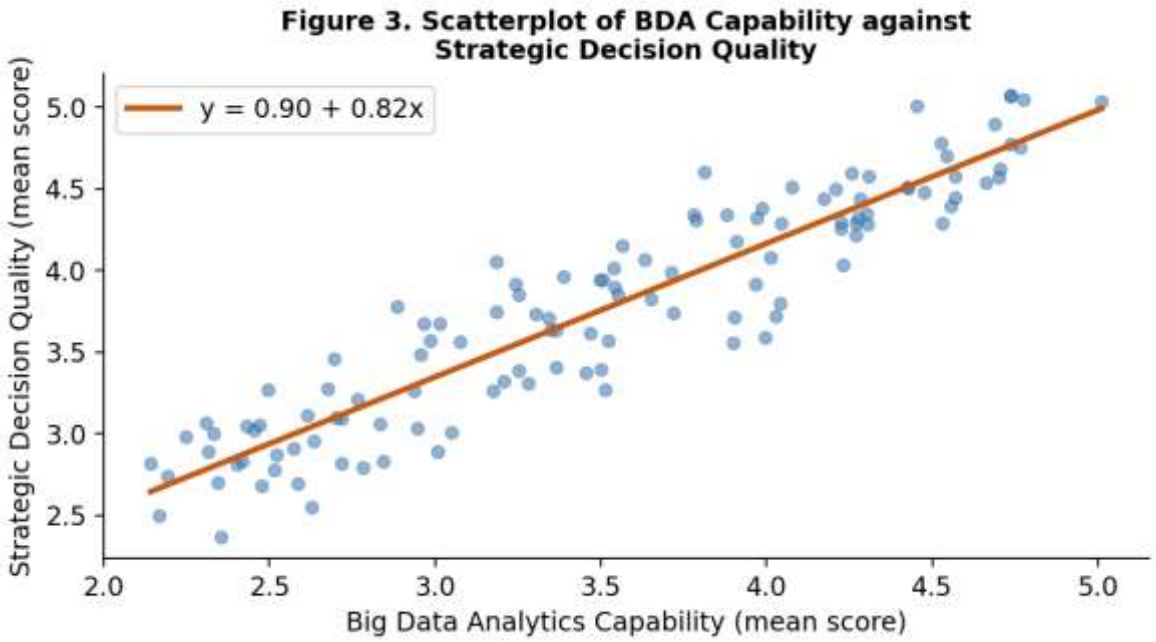

Figure 3: *Scatterplot of BDA capability against strategic decision quality, showing a strong positive linear association.*

The correlation coefficient of r = 0.740 (p = 0.000 < 0.05) indicates a strong, positive and statistically significant relationship between big data analytics capability and strategic decision quality. The coefficient of determination ($r^2 = 0.548$) suggests that approximately 55% of the variation in decision quality is associated with variation in analytics capability. The null hypothesis is therefore rejected. This finding aligns with Anozie (2025), who reported a significant positive relationship between analytics and lending decision-making, and with Reid and Kelvin (2024), who described analytics as transformative for banking decision processes.

8.5 Test of Hypothesis Two (Simple Linear Regression)

$H0_2$ stated that analytics-driven insight has no significant effect on organisational competitiveness. The regression of OC on analytics-driven insight produced the results in Table 7.

Model	B	Std. Error	Beta (β)	t	Sig.
(Constant)	1.146	0.182	—	6.297	0.000
Analytics-driven insight	0.690	0.046	0.690	15.001	0.000
R = 0.690	R^2 = 0.476	Adj. R^2 = 0.474	F = 225.0		p = 0.000

Table 7: *Regression of organisational competitiveness on analytics-driven insight. Dependent variable: Organisational Competitiveness.*

The model is statistically significant, $F(1, 350) = 225.0$, $p = 0.000 < 0.05$, with $R^2 = 0.476$, indicating that analytics-driven insight explains about 47.6% of the variance in organisational competitiveness. The standardised coefficient ($\beta = 0.690$, $t = 15.001$, $p < 0.05$) confirms a strong positive effect: a one-unit improvement in analytics-driven insight is associated with a 0.69-unit increase in competitiveness. The null hypothesis is therefore rejected. This result is consistent with the Resource-Based View, which predicts that a valuable and inimitable analytics capability yields competitive advantage, and corroborates Feng (2024) and Tential (2025), who linked analytics to superior market positioning.

8.6 Discussion of Findings

The convergent evidence from the percentage, correlation and regression analyses tells a coherent story. Analytics capability is strongly and significantly related to the quality of strategic decisions, and analytics-driven insight exerts a robust positive effect on competitiveness. These results substantiate the theoretical model: by expanding information-processing capacity, analytics reduces the uncertainty that surrounds strategic choices (consistent with Information Processing Theory), while functioning as a strategic resource that differentiates institutions in the market (consistent with the Resource-Based View).

The strength of the observed relationships deserves emphasis. A correlation of 0.74 between capability and decision quality is large by social-science standards, indicating that the two move closely together; institutions with stronger analytics capability reliably report higher-quality strategic decisions. The regression coefficient is correspondingly substantial: with analytics-driven insight explaining nearly 48% of the variance in competitiveness, the construct rivals traditional determinants such as scale and capital in its explanatory power. Taken with the percentage results, in which clear majorities affirmed improvements across every measured dimension, the three methods triangulate on a single conclusion and reduce the likelihood that the relationship is an artefact of any one analytical technique.

The findings also resonate with the wider literature. The strong correlation echoes Nigerian evidence that analytics significantly improves lending and risk decisions (Anozie, 2025) and the broader claim that analytics has revolutionised banking decision-making (Reid & Kelvin, 2024). At the same time, the descriptive data reveal that analytics capability (mean 3.86) trails decision quality (mean 4.06), hinting that institutions are extracting strong decision value even from capabilities that are not yet fully mature. This gap is plausibly explained by the persistent constraints documented earlier data fragmentation, infrastructure limits and skills shortages (Okafor & Eze, 2026) which cap the ceiling of capability even as the existing investment already pays strategic dividends. The implication is that further investment in analytics is likely to yield additional, rather than diminishing, strategic returns.

Several practical inferences follow. The relatively high proportion of respondents affirming improvements in timeliness and accuracy (79%) suggests that the most immediate gains from analytics accrue at the decision-speed margin: institutions are deciding faster and with greater confidence, which in a competitive market is itself a source of advantage. The slightly lower scores attached to product innovation (mean 3.89) indicate that analytics is currently exploited more for defending and optimising existing positions than for generating genuinely new offerings, pointing to an opportunity that Nigerian institutions have yet to fully seize. The regression result, attributing nearly half of the variance in competitiveness to analytics-driven insight, is striking in a context where competitiveness is also shaped by capital, branch networks and brand. It implies that analytics has become a first-order, rather than a marginal, determinant of competitive standing.

It is important to acknowledge the limits of these conclusions. The cross-sectional design captures association rather than longitudinal causation, and the reliance on perceptual measures, while standard in this literature, may overstate effects relative to objective performance data. The sample, drawn from Lagos and Abuja, reflects the most digitally mature segment of the sector and may not generalise to smaller institutions in less-connected regions. These caveats do not undermine the central finding—that analytics is strongly and significantly linked to strategic decision quality and competitiveness—but they do frame the agenda for the future research recommended below.

8.7 Theoretical and Managerial Implications

Theoretically, the results provide empirical support for the joint application of the Resource-Based View and Information Processing Theory to the analytics domain in an emerging-market context. The significant correlation between capability and decision quality validates the information-processing logic, while the significant regression effect on competitiveness validates the resource-based logic. By demonstrating that both mechanisms operate simultaneously, the study suggests that single-lens treatments of analytics value common in the existing literature may understate the phenomenon, and it offers an integrated model that future researchers can extend and test in other sectors and geographies. Managerially, the findings carry a clear message: analytics investment is not a cost centre to be minimised but a strategic capability to be cultivated. Because capability maturity (mean 3.86) lags the decision value already being realised (mean 4.06), the marginal return to closing capability gaps appears positive rather than exhausted. Executives should therefore treat the three components of capability, infrastructure, talent and culture as a portfolio, recognising that the binding constraint in many Nigerian institutions is not technology but the human and cultural capacity to use it. The practical pathway to greater strategic advantage runs through integrated data management, deliberate talent development and disciplined governance, the substance of the recommendations that follow.

9. Conclusion

This study set out to examine the relationship between big data analytics and strategic decision-making in Nigerian financial institutions. The evidence is clear and consistent across descriptive and inferential methods: big data analytics capability is strongly and significantly related to the quality of strategic decisions, and analytics-driven insight has a significant positive effect on organisational competitiveness. Percentage analysis confirmed broad managerial agreement that analytics improves the timeliness, accuracy and competitiveness of strategic action, while correlation ($r = 0.74$) and regression ($\beta = 0.69$, $R^2 = 0.476$) established the statistical strength of these relationships.

Big data analytics is therefore not a peripheral technical function but a decisive enabler of evidence-based strategy in Nigerian banking. Its value is grounded in two reinforcing mechanisms: the expansion of organisational information-processing capacity and the creation of a valuable, hard-to-imitate strategic resource. Nonetheless, the realisation of this value is constrained by data-quality deficits, infrastructure gaps, skills shortages and regulatory uncertainty. Institutions that systematically address these constraints stand to convert analytics from a promising tool into a durable source of strategic advantage.

The broader contribution of the study lies in moving the Nigerian conversation about analytics beyond assertion toward measurement. By quantifying the strength of the relationship between analytics capability and strategic outcomes, the research equips managers and regulators with evidence rather than anecdote on which to base investment and

policy. The finding that analytics already delivers substantial decision value even from immature capabilities should reassure institutions hesitant about the returns to analytics investment, while the persistent capability gap should temper complacency among those who regard their analytics journey as complete. In a financial sector facing intensifying competition from data-native entrants, the institutions that will prosper are those that treat analytics not as a project with an endpoint but as a continuously cultivated strategic capability woven into the fabric of how decisions are made.

10. Recommendations

On the basis of the findings, the study makes the following recommendations:

1. Nigerian financial institutions should invest in integrated data-management systems that consolidate data from multiple sources, reducing data silos and providing a comprehensive, real-time view of customers to support both lending and broader strategic decisions.

2. Management should prioritise the development of analytics talent through targeted recruitment, in-house training and partnerships with universities, in order to close the skills gap that currently limits analytics capability maturity.

3. Institutions should establish robust data-governance frameworks that ensure data quality, protect sensitive customer information and align with evolving regulatory requirements on privacy and data security.

4. Boards and executives should embed analytics outputs dashboards, predictive models and scenario tools formally into strategic-planning and risk-committee processes, so that data-driven insight complements rather than competes with managerial judgement.

5. Regulators, including the Central Bank of Nigeria, should provide clearer guidance on data usage, cloud adoption and cross-border data flows to reduce the uncertainty that currently discourages deeper analytics investment.

REFERENCES

Adewale, T. T., Olorunyomi, T. D., & Odonkor, T. N. (2023). Big data-driven financial analysis: A new paradigm for strategic insights and decision-making. Journal of Financial Innovation and Analytics, 1(1), 1–15.

Anozie, P. (2025). Big data analytics' involvement in enhancing the efficiency, lending and marketing of Nigerian lending firms. International Journal of Research and Innovation in Social Science, 9(1), 1–16.

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.

Essien, G. D., Asuquo, P. M., Aneke, C. S., Stephen, B. U.-A., Abraham, E. E., & Oduleye, B. E. (2026). Network system optimization using machine learning analysis: A systematic review. Global Journal of Engineering and Technology Advances, 26(2), 48–61.

Feng, L. (2024). Big data analytics in the financial services industry: Trends, challenges and future directions. International Journal of Science and Technology Research Archive, 6(1), 147–166.

Galbraith, J. R. (1974). Organization design: An information processing view. Interfaces, 4(3), 28–36.

Neontri. (2025). Big data analytics in banking: Use cases, benefits and challenges. Retrieved from https://neontri.com/blog/big-data-analytics-banking/

Okafor, C., & Eze, O. (2026). Artificial intelligence, automation, and data-driven decision-making in Nigerian deposit money banks. International Journal of Scientific Research and Management, 14(1), 1–18.

PwC Nigeria. (2024). Harnessing data and AI in Nigerian financial services. PwC Nigeria Advisory Report.

Reid, C., & Kelvin, J. (2024). Big data analytics in banking: Transforming decision-making and customer insights. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.5394149

Tential. (2025). The role of big data in financial services: Leveraging analytics for better decision-making. Retrieved from https://tential.com/insights/