

Innovation Performance of Indigenous Fintech Firms: A Data-Driven Decision-Making Perspective in Developing Economies

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Abstract

The relationship between data-driven decision-making (DDDM) and innovation performance among indigenous Fintech firms in Nigeria was examined by the study. Specifically, it determined how data usage frequency and employee data literacy levels influence firms' innovation rates. A quantitative cross-sectional survey design was adopted, with data collected from 48 respondents drawn from 24 indigenous Fintech firms headquartered in Lagos State. Using a structured questionnaire and analyzed through Ordinary Least Squares (OLS) regression, the study evaluated the extent to which selected dimensions of DDDM explain variations in innovation performance. The findings revealed that DDDM significantly explained 61.5% of the variance in innovation rate, confirming its strategic importance in Fintech operations. However, contrary to expectations, data usage frequency exhibited a significant but negative relationship with innovation, suggesting the possibility of "paralysis by analysis," where excessive data engagement may hinder creative processes. In contrast, employee data literacy demonstrated a significant positive effect on innovation performance, highlighting the critical role of human capital in transforming data into actionable insights. The study concluded that while data-driven practices are essential for competitive advantage, their effectiveness depends on how they are implemented and balanced within organizational processes. Consequent upon this, it was recommended that Fintech firms prioritize the development of employee data literacy through continuous training while optimizing data usage practices to avoid excessive reliance on routine data interactions. These findings contributed to the growing discourse on digital transformation and innovation in developing economies, particularly within the rapidly evolving Fintech sector.

Keywords: Fintech, Data-Driven Decision-Making, Innovation, Data Usage Frequency, Data Literacy Levels.

Introduction

The evolution of financial technology (Fintech) industry in Nigeria has been rapid, that it now contributes significantly to the Nigerian economic growth and development. The vast majority of the 200 million population of Nigeria have been adjudged to be youths and digitally savvy, offering vast market for technology-enabled financial services (Enhancing Financial Innovation & Access [EFInA], 2020). The Nigerian indigenous Fintech firms like

Flutterwave, Kuda, PiggyVest, Paystack, and Carbon have played a unique role in transforming the digital financial service delivery ecosystem, through mobile platforms, digital wallets, and peer-to-peer systems. These innovations have improved financial inclusion, enhanced transaction efficiency, and reduced reliance on traditional banking models (FintechNGR, 2022).

The growth of the Fintech ecosystem has further been accelerated through various institutional support mechanisms. Institutions such as the Central Bank of Nigeria (CBN) and the Nigerian Inter-Bank Settlement System (NIBSS) through various interventions and policies like the regulatory sandboxes and digital frameworks to promote financial innovation (CBN, 2021) have promoted innovation in the system. Some of these policies have helped Nigeria to assume the position of Africa's leading Fintech hub, attracting over \$1 billion in investment in 2021, and accounting for more than 35% of the continent's Fintech startups (StartupBlink, 2022), contributing massively to economic diversification, job creation, and poverty reduction.

The Nigerian Fintech ecosystem has grown increasingly competitive and structurally complex in recent years. Mounting market saturation, evolving customer expectations, and the entry of global players have collectively intensified competitive pressures, rendering continuous innovation, an organizational imperative, rather than a discretionary strategy. Innovation encompassing product development, service design, business model reconfiguration, and customer engagement has emerged as a critical determinant of firm survival and sustained competitive advantage (Ajayi, Lawal & Oni, 2021). Crucially, such innovation is increasingly mediated by the strategic deployment of data analytics capabilities. Indigenous firms are actively developing and deploying advanced technological solutions, including digital banking platforms, micro-investment applications, embedded finance systems, and artificial intelligence (AI)-enabled services (Iheanacho & Oluwasemilore, 2021).

Within this competitive landscape, data-driven decision-making (DDDM) has transitioned from an operational convenience to a strategic necessity. Firms are increasingly expected to leverage data assets to anticipate market trends, optimize operational processes, and develop customer-centric product offerings (Akpan, Soopramanien & Kwak, 2022). The widely cited characterization of data as the "new oil" (Malatyinszki, Kocsis, Szalai & Kálmán, 2025) aptly captures its growing strategic salience in the modern economy. A robust body of empirical evidence corroborates this assertion, demonstrating that organizations which effectively harness data capabilities consistently outperform their counterparts across dimensions of productivity, profitability, and innovativeness (Chatterjee et al., 2021; McKinsey & Company, 2022). In the Fintech sector specifically, data-driven capabilities underpin critical functions such as fraud detection, credit risk assessment, customer segmentation, and personalized service delivery collectively enabling firms to sustain a continuous cycle of innovation (Ajayi et al., 2021). This study seeks, therefore, to empirically examine how data-driven decision-making affects the innovation performance of indigenous Fintech firms in Nigeria.

Statement of Problem

Despite these advantages, the adoption and effective utilization of data-driven practices among indigenous Nigerian Fintech firms remain uneven. Challenges such as poor infrastructure, limited data literacy, talent shortages, and regulatory uncertainties hinder the integration of advanced analytics into business operations (Akinsola, Ojetunde, Bello & Ayinde, 2022). More critically, there is limited empirical clarity on how specific dimensions of data-driven decision-making influence innovation performance within this context. While existing studies suggest that data integration enhances organizational performance, there is insufficient evidence on how frequency of data usage and employee data literacy affect innovation outcomes in Nigerian Fintech firms.

For instance, it remains unclear how the frequent data use in strategic decision-making translates into increased innovation rates or how employing data analysts contributes to sustained competitive advantage. Employee data literacy essential for transforming raw data into actionable insights also lacks rigorous empirical investigation in relation to innovation. These gaps are significant because innovation in Fintech is inherently data-dependent. Firms rely on data to identify customer needs, test new solutions, monitor performance, and refine offerings (Mikalef, Krogstie, Pappas & Pavlou, 2020). Without a clear understanding of how data-driven practices influence innovation, firms may struggle to sustain competitiveness in an increasingly dynamic environment. Against this backdrop, this study investigates the relationship between data-driven decision-making and innovation performance in indigenous Nigerian Fintech firms. Specifically, the study seeks to:

1. Examine the relationship between data usage frequency and the innovation rate of Fintech firms.
2. Evaluate the effect of employee data literacy levels on innovation rate in Nigerian Fintech firms.

Research Questions

1. To what magnitude does data usage frequency affect the innovation rate of Fintech companies?
2. To what degree does employee data literacy level influence innovation performance in Fintech firms?

Review of Related Literature

Conceptual Review

Data-Driven Decision-Making

Data-driven decision-making (DDDM) denotes the systematic utilisation of data to guide strategic, tactical, and operational choices within an organisation, encompassing the gathering, processing, and interpretation of relevant data to inform decisions rather than relying on intuition or subjective judgment (Akpan et al., 2022). Within the Fintech sector,

DDDM is deeply embedded across functions such as risk modelling, customer segmentation, product iteration, fraud detection, and pricing optimisation. The foundational elements underpinning DDDM encompass data collection from pertinent internal and external sources, analytical capabilities including dashboards, algorithms, and machine learning models, an organisational culture that privileges evidence over assumption, and sufficient human capacity to comprehend and act upon derived insights. Critically, the effectiveness of DDDM is contingent not merely upon technological infrastructure, but equally upon workforce capability, leadership commitment, and prevailing levels of data literacy within the organisation (Adegbite, 2022). In a genuinely data-driven Fintech environment, decisions are continuously informed by customer behaviour, market signals, and operational feedback loops, situating evidence at the centre of strategic and operational governance.

Nigerian fintech firms operate within a dynamic environment that demands rapid innovation and strategic agility, and within the country's fast-growing digital finance ecosystem, organisations are increasingly leveraging data-driven decision-making (DDDM) as a mechanism for sustaining competitive advantage. The capacity of Nigerian fintech firms to innovate and remain competitive is therefore deeply bound to their data capabilities, spanning both the technological instruments they deploy, such as predictive analytics and real-time data systems, and the human capital they cultivate, including data-literate staff and dedicated analysts, each of which contributes meaningfully to their ability to generate new ideas, respond to market trends, and successfully launch innovative products.

Data Usage Frequency in Strategic Decisions

Beyond operational analytics, the strategic use of data in long-term planning, market expansion, pricing decisions, and product development is a critical dimension of competitive advantage. Firms that integrate data into boardroom decisions on a weekly or even daily basis are more likely to adapt rapidly to changing customer behavior or market trends. Frequent data usage reflects not just availability but organizational willingness and leadership culture. Fintechs that prioritize data-driven strategy tend to experiment more, fail fast, and scale what works (Akpan et al., 2022). Conversely, infrequent or reactive use of data often results in misalignment between market realities and business objectives. Regular incorporation of data in strategic meetings helps firms align product development and customer experience strategies with actual trends and feedback. This iterative learning process supports continuous innovation. This study examines how often data is used to inform strategic choices, e.g., through dashboards, internal reports, or decision-support systems and whether this correlates with innovation frequency or product success rates in Nigerian fintechs.

Employee Data Literacy Level

Data literacy can be defined as the ability of employees to read, understand, create, and communicate data as information (Akinsola, et al., 2022). In fintech firms, it spans multiple departments, from developers to marketers to customer support, each of whom must interpret data relevant to their functions. High data literacy empowers staff to act autonomously, interpret customer trends, and contribute meaningfully to innovation processes. In contrast, low literacy often leads to data bottlenecks, misinterpretations, or underutilization of insights. Data-literate employees contribute to a data-driven culture, which is strongly correlated with innovation effectiveness. Adegbite (2022) found that fintechs with regular data literacy training and open data access policies were more successful in launching user-centered features. This research investigates how employee data literacy affects innovation capacity and time-to-market for new ideas. Firms where a broad set of employees understand and use data are more likely to generate bottom-up innovations. Data-literate staff can identify patterns and propose changes based on analytics, reducing the innovation burden on executive teams.

Innovation Rate

Innovation rate refers to how frequently a fintech firm introduces new products, services, or operational improvements. It reflects the firm's adaptability and responsiveness to market demands and technological trends. Innovation is the lifeblood of Fintech firms, allowing them to disrupt incumbent financial institutions and capture market share. While innovation can be measured in various ways (e.g., patents, new product announcements), the innovation rate specifically refers to the speed and frequency at which a firm successfully develops and launches new products, services, or processes to the market (Mairesse et al., 2025; Yeboah, 2023). A high innovation rate is a direct indicator of a firm's agility, responsiveness to market needs, and ability to sustain a competitive edge. In Fintech landscape, innovation rate can be conceptualized through two primary types:

1. **Product/Service Innovation Rate:** This pertains to the speed of launching new customer-facing offerings. Examples include the rapid iteration of mobile lending apps, the introduction of new savings and investment platforms (e.g., "buy now, pay later" schemes), and the deployment of USSD codes for new services (Chukwu & Molokwu, 2022). A high rate here allows a firm to be a market leader rather than a follower.
2. **Process Innovation Rate:** This refers to the speed of implementing new internal methods or technologies that improve efficiency and reduce costs. For Fintechs, this could include the adoption of new AI-driven algorithms for credit scoring, blockchain for secure transactions, or automated customer service chatbots (Mairesse, Mohnen & Notten, 2025). A rapid process innovation rate enhances operational scalability and profitability.

Data Usage Frequency and Innovation Rate

Data usage frequency refers to the extent to which data is consistently integrated into strategic and operational decisions. RBV suggests that the strategic value of data is realized only when it is actively deployed within organizational processes (Barney, 1991).

Frequent data usage reflects an embedded data-driven culture. It enables continuous feedback loops, iterative learning, and agile experimentation. According to Dynamic Capabilities Theory, repeated engagement with data strengthens organizational learning and enhances adaptive capacity (Teece et al., 1997). An earlier study indicated that organizations that frequently utilize data in decision-making achieve superior innovation outcomes (Natividade & Zaggl, 2024). In Fintech firms operating in volatile environments, regular data engagement accelerates product refinement and service customization, thereby increasing innovation rate.

Employee Data Literacy Levels and Innovation Rate

Employee data literacy refers to the ability of employees to interpret, analyze, and communicate data effectively. Human capital is a central strategic resource within RBV, and its value is amplified when employees can transform raw data into actionable insights (Barney, 1991). Without sufficient data literacy, investments in analytics infrastructure may not translate into innovative outputs. Data-literate employees facilitate cross-functional collaboration and evidence-based experimentation. Dynamic Capabilities Theory emphasizes individual skills and routines, as critical determinants of adaptive capacity (Teece, 2007). Firms with higher levels of employee data literacy are better positioned to reconfigure processes and introduce innovative financial solutions. Consequently, employee data literacy is expected to positively influence innovation rate.

Empirical Review

Umar (2025) carried out a study on the use of big data analytics in risk management for financial institutions in Nigeria. The primary objective of this study was to investigate the practical application and efficacy of big data analytics in identifying, assessing, and mitigating financial risks within Nigerian institutions. Employing a survey-based methodology targeted at risk managers and financial analysts, the research collected quantitative data on risk management practices. The sample comprised a cross-section of Nigerian banks, microfinance institutions, and lending firms. The findings reveal that the adoption of big data analytics led to a statistically significant enhancement in risk management capabilities. Institutions utilizing these tools demonstrated a superior ability to predict loan defaults, detect fraudulent transactions in real-time, and manage portfolio risk more proactively. This translates to a direct competitive advantage through reduced financial losses, lower capital reserves against risk, and enhanced institutional stability, which in turn fosters greater trust among depositors and investors.

Abutu (2025) examined Big Data Analytics' involvement in enhancing the efficiency, lending and marketing of Nigerian lending firms. This study sought to move beyond a single

function and examine the multi-faceted impact of big data on core business areas such as operational efficiency, credit assessment, and customer acquisition. Using a mixed-methods approach, the study gathered data from a sample of dedicated lending firms and the lending departments of commercial banks in Nigeria. The findings revealed a compelling narrative of transformation. In terms of efficiency, automated data processing streamlined loan application procedures, reducing turnaround time from days to hours. In lending, algorithms analyzing alternative data (e.g., mobile phone usage, social media activity) complemented traditional credit scoring, expanding the addressable market to include individuals with thin credit files. In marketing, data analytics enabled hyper-targeted campaigns, improving customer acquisition costs and conversion rates. This study demonstrates that data-driven decision-making is not a siloed function but an integrative capability that enhances performance across multiple value-chain activities simultaneously.

Omoniyi (2025) x-rayed the effect of technology adoption on market innovation in the Nigerian FinTech industry. The study connects technological adoption directly to the core of competitive strategy - innovation. The objective was to empirically determine the relationship between the adoption of advanced technologies, including but not limited to cloud computing, AI, and blockchain and the development of new-to-the-market products and services. This study utilized a quantitative cross-sectional survey design, administering a structured questionnaire to a stratified random sample of firms registered with relevant Fintech associations in Nigeria. The key variables measured were the level of technology adoption and the number and novelty of market innovations launched in the preceding two years. The findings confirmed a strong positive correlation; firms that were heavier adopters of technology were significantly more likely to have introduced disruptive products, such as blockchain-based remittance services, AI-powered investment platforms, or new digital lending models. This finding underscores that in the fast-paced Nigerian market, technology and data adoption are not just for efficiency but are the primary engines for strategic differentiation and market creation.

Methodology

This study adopted a quantitative, cross-sectional survey design to examine the relationship between data-driven decision-making and innovation rate of indigenous The study population comprised of 259 Fintech firms registered and recognized by the CBN, out of which 24 firms, headquartered in Lagos State were chosen based on how easy it will be to collect data from them, have been confirmed through their operations to be deploying data in their decision making, and are indigenous in structure. 48 employees, 2 each from the 24 firms are the elements of the population, this comprised of the data analyst and a senior executive manager. Complete enumeration technique was utilized, meaning that there was no sample size. The source of data for this study was primary source, data was obtained from respondents through an online structured questionnaire. The research

instrument for this study was adopted from various studies. DeLone and McLean (2003) scale was adopted for Data Usage Frequency, Ridsdale, et. al. (2015) for Data Literacy Levels and Calantone, Cavusgil and Zhao (2002) for Innovation Rate. The instruments were structured using 5-point Likert scale of strongly agreed, (SA), Agreed (A) Undecided (UN) Disagree (D) strongly disagreed (SD). Because the study adopted already validated scales, the validation measures of those validated scales were also adopted. Just like it was in validity section, the researcher also relied on the reliability statistics of the scales adopted for the study. The primary instrument used in this study was an online questionnaire administered electronically using Google Forms. Follow-up emails and calls was also deployed to ensure adequate response rates. This study adopted Ordinary Least Squares (OLS) multiple regression analysis as the method of data analysis, using Statistical Package for Social Sciences (SPSS) as the software for the analysis. The level of significance used in the study is 5%, which serves as a benchmark for rejecting or accepting the hypotheses. Ethical standards were strictly observed throughout the study. Participation was voluntary, and informed consent was obtained from all respondents. Participants were assured of confidentiality and anonymity, while data collected were used solely for academic purposes. Respondents were free to withdraw at any stage without penalty, and all information was securely handled.

Data Presentation and Analysis

Analysis of Thematic Data

Research Question One

To what magnitude does data usage frequency affect the innovation rate of Fintech companies?

Table 1: Distribution of responses for data usage frequency

	Data Usage Frequency	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Decision
1	I use organizational data multiple times a day.	8	15	5	9	-	3.59	Accept
2	Data-driven reports are accessed frequently in my work.	9	22	3	3	-	4.00	Accept
3	I use organizational data for learning and knowledge purposes.	3	28	3	3	-	3.84	Accept
4	I use organizational data to solve work-related problems.	9	19	9	-	-	4.00	Accept
5	I use organizational data to collaborate and share insights with colleagues.	6	28	3	-	-	4.08	Accept
6	I use organizational data to support company initiatives and goals.	9	25	-	3	-	4.08	Accept

Source: Field Survey, 2026

Table 1 examines how frequently organizational data is utilized for various tasks. All six items in this category achieved mean scores above the 3.0 threshold. The highest means were recorded for using data to collaborate and share insights (mean = 4.08) and to support company initiatives and goals (mean = 4.08). Frequent access to data-driven reports and using data to solve work-related problems both recorded a mean of 4.00. Using data for learning and knowledge (mean = 3.84) and using it multiple times a day (mean = 3.59) were also accepted.

Research Question Two

To what degree does employee data literacy level influence innovation performance in Fintech firms?

Table 2: Distribution of responses for employee data literacy level

	Employee Data Literacy	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Decision
7	I am aware of the importance of data in my profession.	28	9	-	-	-	4.76	Accept
8	I can interpret data visualizations such as charts and dashboards.	19	15	3	-	-	4.43	Accept
9	I feel confident analyzing datasets relevant to my work.	16	18	3	-	-	4.35	Accept
10	I can use digital applications to analyze and interpret information.	19	12	6	-	-	4.35	Accept
11	I apply digital tools effectively in my daily work tasks.	12	25	-	-	-	4.32	Accept
12	I understand the ethical implications of using digital data.	11	26	-	-	-	4.30	Accept
13	I continuously improve my data skills through training or self-learning.	-	34	3	-	-	3.92	Accept

Source: Field Survey, 2026

Table 2 reflects the highest overall levels of agreement among all studied variables, with all seven items being accepted. The respondents expressed a near-unanimous awareness of the importance of data in their profession (mean = 4.76). Strong proficiency was also indicated in interpreting data visualizations (mean = 4.43), analyzing relevant datasets (mean = 4.35), and using digital applications for interpretation (mean = 4.35). Additionally, respondents agreed they apply digital tools effectively (mean = 4.32), understand ethical implications (mean = 4.30), and continuously improve their skills through training (mean = 3.92)

Table 3: Distribution of responses for innovation rate

	Innovation Rate	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	Decision
14	Our firm frequently tries out new ideas.	5	29	3	-	-	3.97	Accept
15	Our firm seeks out new ways of doing things.	2	26	3	6	-	3.65	Accept
16	Our firm is creative in its methods of operation.	9	19	3	6	-	3.84	Accept
17	Our firm is often the first to market with new products and services.	3	6	17	8	3	2.95	Reject
18	Innovation in our firm is perceived as too risky and is resisted. <i>(to be reverse-coded)</i>	3	9	6	16	3	2.81	Reject
19	Our firm frequently introduces new products/services compared to competitors.	3	12	14	6	2	3.22	Accept

Source: Field Survey, 2026

Table 3 evaluates the innovation rate of the sampled fintech firms, resulting in four accepted items and two rejected items. The firms were seen to frequently try out new ideas (mean = 3.97) and be creative in their operational methods (mean = 3.84). The firms also reportedly seek out new ways of doing things (mean = 3.65) and introduce new products more frequently than competitors (mean = 3.22). However, the data suggests that these firms are not typically the first to market with new products (mean = 2.95). Finally, the item stating that innovation is perceived as too risky and is resisted was rejected (mean = 2.81)

Test of Hypotheses

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784 ^a	.615	.553	2.237
a. Predictors: (Constant), DUF, EDL				

Source: Field Survey, 2026

Table 4 presents the overall predictive power of the regression model. The correlation coefficient (R) is recorded at 0.784, indicating a strong linear relationship between the combined independent variables, Real-Time Data Usage (RTDU), Data Usage Frequency (DUF), Predictive Analytics in Operations (PAO), Data Quality (DQ), and Employee Data Literacy (EDL) and the dependent variable, Innovation Rate (IR). The R-Square value of 0.615 suggests that 61.5% of the variance in the innovation rate of the sampled fintech firms can be explained by these five data-driven dimensions. The Adjusted R-Square, which accounts for the number of predictors, is 0.553.

Table 5: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	247.961	5	49.592	9.911	.000 ^b
	Residual	155.120	43	5.004		
	Total	403.081	48			
a. Dependent Variable: IR						
b. Predictors: (Constant), DUF, EDL						

Source: Field Survey, 2026

The ANOVA table as presented in Table 4.10 assesses the statistical significance of the overall model. The analysis yields an F-statistic of 9.911 with a significance value (Sig.) of .000. Since the p-value is significantly lower than the 0.05 threshold, the model is considered a statistically significant fit, confirming that the independent variables collectively have a meaningful impact on the innovation rate.

Table 6: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.633	5.310		2.002	.054
	DUF	-.442	.149	-.425	-2.960	.006
	EDL	.583	.240	.410	2.426	.021
a. Dependent Variable: IR						

Source: Field Survey, 2026

Table 6 provides the specific metrics required to evaluate the individual effect of each independent variable on the innovation rate, thereby testing each research hypothesis.

Hypotheses One

The first hypothesis states that data usage frequency has no significantly positive influence on the innovation rate of Fintech firms in Nigeria. The analysis shows a p-value of 0.006, which is below the threshold, leading to the rejection of the null hypothesis. However, the standardized Beta is -0.425 and the t-value is -2.960, indicating that the relationship is statistically significant but negative rather than positive.

Hypotheses Two

The second hypothesis states that higher employee data literacy levels has no significant positive relationship with higher innovation rate in Fintech firms. The statistical output provides a Beta of 0.410 and a p-value of 0.021. As the p-value is less than 0.05, the null

hypothesis is rejected. This confirms a significant positive relationship between employee data literacy and the innovation

Discussion of Findings

The following discussion provides an in-depth analysis of the study's findings regarding the relationship between five dimensions of data-driven decision-making (DDDM) and the innovation rate of indigenous Nigerian Fintech firms. The overall regression model was statistically significant ($F = 9.911$, $p < 0.001$), with an R-square value of 0.615, indicating that the independent variables collectively account for 61.5% of the variance in the innovation rate of these organizations.

The first objective investigated the relationship between data usage frequency (DUF) and the innovation rate. The statistical output showed a standardized Beta of -0.425 with a p-value of 0.006. While the relationship is statistically significant, it is unexpectedly negative, leading to the rejection of the null hypothesis in a direction contrary to the initial proposition. This suggests that as the frequency of using organizational data increases, the innovation rate tends to decrease.

Possible reasons for this finding can be found in the Organizational Learning Theory, specifically the concept of the "competency trap" or "paralysis by analysis". When employees are required to access reports and use data multiple times a day (mean = 3.59 and 4.00, respectively), they may become overwhelmed by routine monitoring tasks, leaving little room for the long-term, reflective thinking required for disruptive innovation. This negative correlation stands in sharp contrast to the study by Roetzel (2019), which found that frequent data integration significantly improved responsiveness and innovation speed in the Nigerian financial sector. It also differs from Ochuba, Asikhia and Makinde (2021), who reported that frequent data usage was positively correlated with market share expansion. The unique finding in this study suggests that for indigenous fintechs, there is a "diminishing return" on data usage; beyond a certain frequency, data becomes a distraction rather than an enabler of creativity.

The second hypothesis examined how employee data literacy (EDL) levels affect the innovation rate. The results provided a standardized Beta of 0.410 and a p-value of 0.021, resulting in the rejection of the null hypothesis. This confirms that higher data literacy among the workforce is a significant positive driver of innovation. The descriptive statistics show exceptionally high scores in this category, with a mean of 4.76 for awareness of data's importance and 4.43 for the ability to interpret visualizations.

This finding emphasizes that the human dimension of digital transformation is as important as the technological one. Data-literate employees are more confident in analyzing datasets (mean = 4.35) and using digital tools (mean = 4.32), which allows them to identify patterns that lead to bottom-up innovation. This result is highly consistent with the research of Thambusamy and Asirvatham (2021), who identified data literacy as the "human factor" that directly drives innovative behaviors in employees. It also supports the work of Fattah (2024), who found that data literacy is the primary builder of a data-driven culture, which in

turn enhances decision-making effectiveness. The study demonstrates that for Nigerian Fintechs, investing in the analytical skills of their staff from developers to marketers is a reliable path to increasing the frequency and success of new product launches.

Conclusions

This study concludes that data-driven decision-making (DDDM) is a statistically significant determinant of innovation performance within the Nigerian Fintech ecosystem, explaining 61.5% of the variance in firm innovation rates. The findings underscore that while the transition to data-centricity is essential for survival in a competitive landscape, the success of these strategies is highly contingent upon the specific dimensions of data management utilized by the firm. The empirical results identify Employee Data Literacy as the most critical driver of successful innovation. This aligns with the Resource-Based View (RBV), suggesting that accurate, relevant information and a workforce capable of translating that information into actionable insights constitute the primary resources required for strategic differentiation. Firms that prioritize continuous employee training are significantly more effective at introducing new ideas and creative operational methods. However, the study reveals critical nuances regarding the frequency of data usage. The observed significant negative relationships between Data Usage Frequency and the innovation rate suggests that "more data" does not inherently translate to "better innovation". This may indicate a potential "paralysis by analysis" or a "competency trap," where excessive reliance on live data streams or frequent reporting cycles distracts from the long-term strategic reflection necessary for disruptive market entry.

Recommendations

Based on the statistical analysis and empirical findings from the study, the following five actionable recommendations are proposed, each directly tied to the specific objectives and hypotheses of the study:

- a) The study revealed a significant negative relationship between data usage frequency and the innovation rate. This suggests that constant data interaction may lead to "paralysis by analysis." Firms should streamline their internal reporting structures to focus on high-impact, weekly strategic insights rather than requiring staff to engage with organizational data multiple times a day for routine tasks that do not contribute to creative breakthroughs.
- b) Employee data literacy has a significant positive relationship with the innovation rate. While employees are highly aware of data's importance, there is still room to improve their continuous skill development. Firms should create formal, ongoing data literacy programs that empower employees at all levels to not only read charts but to creatively analyze datasets and understand the ethical implications of data use in product design.

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