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Digital Literacy, Cloud Computing and Marketing Performance of Life Assurance Companies in Southwest Nigeria

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Abstract

This study examines the influence of Digital Literacy of Employees (DLE) and Cloud Computing Adoption (CCA) on the Marketing Performance (MP) of Life Assurance Companies (LACs) in Southwest Nigeria. Anchored on the Dynamic Capabilities, the study adopted a quantitative, cross-sectional survey design. The population comprised 14,528 employees across fourteen (14) licensed life assurance companies operating in southwest Nigeria. Data was collected from 374 valid respondents across 14 registered life assurance companies. Hypotheses were tested using simple linear regression analyses. Digital Literacy of Employees ($\beta = 0.443$, $p < 0.001$) explained 19.6% of the variance in marketing performance, confirming that a digitally competent workforce is a strategic marketing asset rather than a mere operational concern. Cloud Computing Adoption ($\beta = 0.399$, $p < 0.001$) explained 15.9% of the variance, indicating that cloud infrastructure operates as an enabling backbone whose marketing payoff is real but indirect. The study concluded that digital literacy of employees and cloud computing adoption by life assurance companies significantly enhances brand awareness, customer acquisition, and retention. Based on these findings, it is recommended that LACs Life assurance companies treat employee digital literacy as a strategic capability rather than a periodic training cost. Furthermore, Cloud environments must be explicitly integrated with customer journey mapping, dynamic pricing engines, and real-time campaign orchestration tools so that backend scalability translates into front-end personalisation and agile market responsiveness.

Keywords: *Digital Literacy, Cloud Computing, Marketing Performance.*

Introduction

The performance of life assurance business in Nigeria presents a troubling paradox between expected outcome and actual reality. In theory, given Nigeria's population of over 200 million people, a growing middle class, increasing urbanisation, and a rising awareness of financial planning, the life assurance sector should be thriving. Life assurance companies should enjoy robust premium growth, widespread policy uptake, strong brand loyalty, and a deep penetration of life insurance products across socioeconomic strata. The reality, however, paints a markedly different picture. Life assurance remains severely underpenetrated, contributing less than 20 percent of total industry premiums, as the latest reports by the National Insurance Commission confirm (NAICOM, 2023). Insurance penetration in Nigeria hovers around one percent of Gross Domestic Product, one of the lowest in Africa and the world. Public awareness of life insurance products remains alarmingly low. The gap between what the life assurance sector should be achieving and what it is actually achieving is not merely a commercial shortfall; it is a developmental concern that leaves millions of Nigerian families financially vulnerable (Inyang et al., 2021).

Digital transformation is widely touted as the antidote to these failures, yet its implementation in the Nigerian life assurance industry remains fragmented and, in many firms, superficial (Aina, 2025; Aina et al., 2023). Much of the practitioner conversation fixates on visible technologies, apps, chatbots, dashboards, while two quieter but arguably more decisive ingredients receive far less attention: the people who operate the technology and the infrastructure on which the technology runs. These are, respectively, the digital literacy of employees and the adoption of cloud computing, and they form the focus of this article.

The human side of digital transformation is frequently the weakest link. Technology, no matter how sophisticated, is only as effective as the people who operate it. Digitally literate employees are better equipped to utilise customer relationship management (CRM) tools, interpret analytics, deliver

seamless omnichannel service, and respond to digital inquiries with accuracy and empathy (Cetindamar et al., 2021; Scott, 2024). In a service industry such as life assurance, where reputation is built on reliability and every customer interaction either deposits or withdraws trust, the digital readiness of the workforce is not an operational footnote but a strategic asset (Ogunola et al., 2024). Indeed, internal marketing investments that equip and motivate the salesforce have been shown to translate directly into superior service delivery in the Nigerian insurance industry (Ajemunigbohun et al., 2018). Yet a considerable skills deficiency persists in Nigerian insurance companies, severely limiting their capacity to leverage the digital tools they have purchased (Cetindamar et al., 2021; Ganiyu et al., 2023a; Ganiyu et al., 2023b).

The infrastructural side is equally pivotal. Cloud computing provides the scalable, flexible, and cost-effective backbone that supports big data analytics, customer segmentation, campaign management, and personalised marketing (Issah et al., 2025; Aina et al., 2023). For a sector operating in an environment of unreliable power supply and connectivity constraints, the cloud offers a chance to leapfrog on-premises infrastructure deficits entirely (Aina et al., 2023; Odiche et al., 2024). However, infrastructural constraints, data sovereignty concerns, and a failure to integrate cloud capabilities with frontline marketing functions have slowed the translation of cloud migration into measurable marketing outcomes (Issah et al., 2025; Aina et al., 2023).

Against this backdrop, and noting that most Nigerian studies on digital transformation dwell on banking or general insurance while treating technological tools in isolation (Unachukwu & Ladokun, 2023), this article is poised to answer two specific questions:

- i. What is the relationship between digital literacy of employees and the marketing performance of life assurance companies in Southwest Nigeria? and
- ii. To what extent does cloud computing adoption influence the marketing performance of these companies?

The following null hypotheses were tested during the course of this study:

H₀₁: There is no significant relationship between Digital Literacy of Employees and Marketing Performance of Life Assurance Companies in Southwest Nigeria.

H₀₂: Cloud Computing Adoption does not have any significant influence on the Marketing Performance of Life Assurance Companies in Southwest Nigeria.

Literature Review

Digital Literacy

Employees' digital literacy encompasses the knowledge, skills, and attitudes that enable staff to utilise digital technologies productively in the performance of their duties (Baslyman, 2022; Swaminathan et al., 2022). In insurance companies, this spans a continuum from basic computer competence to advanced capabilities in data analysis, digital marketing, and automation management; and insurers with higher levels of employee digital literacy demonstrably exhibit greater innovation capacity and operational efficiency (Sebastian et al., 2020), while case-study evidence from Nigerian insurers similarly links marketing-led product innovation to competitive differentiation (Alli, 2025). The pathways through which employee digital literacy touches marketing performance are numerous and mutually reinforcing. Digitally competent staff serve customers more effectively across digital channels, exploit CRM systems and marketing automation tools more fully, nurture digitally sourced leads into converted policyholders, produce richer multimedia content, and interpret marketing metrics for data-led campaign optimisation (Sebastian et al., 2020). Empirically, organisations with extensive digital training programmes have been reported to achieve markedly higher digital marketing returns than those without structured development strategies (Irfandi et al., 2025), and task performance has been shown to mediate the digital literacy–firm performance relationship (Tatli et al., 2023).

Evidence from Nigerian, though thinner, points in the same direction. Ede (2023) linked digital literacy to customer experience and enterprise reputation among SMEs in Enugu State, reporting positive relationships between creativity and reliability ($r = .489$) and between functional skills and integrity ($r = .409$). Ogwe (2022) documented wide disparities in digital capabilities among Nigerian insurance workers, with younger staff generally more digitally comfortable, while noting that many firms have instituted training programmes precisely because employee capability is critical to transformation success. Ganiyu et al. (2023) surveyed 250 insurers and found acute deficits in cybersecurity, CRM, and user-experience competencies even as demand for these skills rose, a skills misfit that, left unaddressed, guarantees suboptimal returns on advanced digital tools (Patria et al., 2023). Further literature reinforces the point that human capital is the hinge on which digital value creation turns. Issah et al. (2025) showed that staff competency mediates the effect of digital technology on financial-institution sustainability, and that training programmes strengthen this mediation. Mozammel et al. (2024) positioned employee digital literacy as the strategic capability that converts digital human-resource management into business performance. Abas et al. (2019) confirmed a significant positive link between digital literacy and employee performance in the Fourth Industrial Revolution context. Taken together, these studies challenge technology-deterministic thinking: digital tools, however gleaming, remain inert without competent personnel to operationalise them (Tatli et al., 2023; Issah et al., 2025).

Cloud Computing Adoption (CCA)

Cloud computing adoption involves the migration of computing resources, data storage, and applications from on-premises infrastructure to cloud-based services, and is widely identified as one of the essential enablers of digital transformation, offering the scalability, flexibility, and cost-efficiency that digital innovation requires (Mwaurah, 2021; Inyang et al., 2021). For insurers, the cloud improves data management, enhances analytical capability, and reduces IT maintenance costs, and its pace of adoption in the insurance sector has accelerated markedly in recent years (Eling et al., 2022).

The marketing relevance of the cloud lies in what it makes possible: real-time analytics, customer segmentation, campaign personalisation, and cross-platform integration that allow firms to move from generic, one-size-fits-all campaigns to precision marketing, the right message, to the right customer, at the right time (Issah et al., 2025; Ganiyu et al., 2023; Aina et al., 2023). Financial services companies with well-developed cloud applications have been reported to achieve substantially shorter time-to-market for new products and higher marketing campaign returns on investment than firms reliant on on-premises systems (Sebastian et al., 2022), while insurers using cloud-based marketing technology stacks enjoy meaningfully lower customer acquisition costs (Ishan, 2023).

Empirical work on the cloud-performance nexus supports a positive but contingent relationship. Khayer et al. (2020), analysing 300 Chinese firms, showed that cloud success and firm performance hinge on system quality, information quality, and technical IT capability: a finding echoed by Liu and Wang (2022) for cloud-based marketing systems. Bakar et al. (2024) demonstrated that cloud computing mediates the relationship between technology–organisation–environment (TOE) readiness and performance, with digital culture strengthening adoption. In a rare longitudinal design, Ognjanović et al. (2024) tracked 71 Montenegrin SMEs over seven years and found that external shocks such as the COVID-19 crisis and cyber-attacks significantly reshaped risk perceptions and adoption patterns. In the Nigerian insurance industry context, Aina et al. (2023) showed that cloud-based collaborative suites enhance employee enablement, and Agboola and Agboola (2024) found that Industry 4.0 and cloud technologies improve service delivery and customer satisfaction.

Nevertheless, the Nigerian cloud story is tempered by reality. Unreliable power infrastructure, bandwidth limitations, data sovereignty concerns, and legacy-system integration challenges slow migration (Issah et al., 2025; Aina et al., 2023), and even among firms that have migrated, cloud capabilities are too rarely integrated with frontline marketing functions (Aina et al., 2023). Regulatory guidance, notably the 2022 NAICOM guidelines on cloud use in insurance, has brought welcome clarity (Odiche et al., 2024), and a growing number of Nigerian insurers now recognise the cloud's

potential to overcome local infrastructure constraints and leapfrog to advanced capabilities (Aina et al., 2023). The weight of the evidence, therefore, is that cloud adoption is a genuine performance enabler, but one whose marketing impact is indirect, latent, and contingent on organisational readiness and complementary capabilities (Alshahrani, 2021; Ognjanović et al., 2024).

Marketing Performance

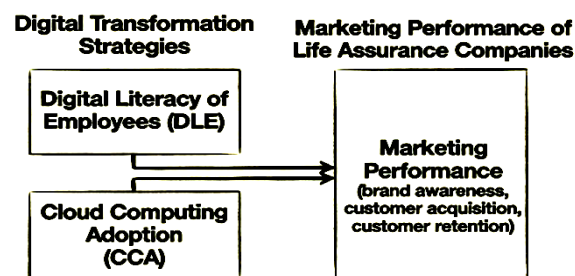
Marketing performance refers to the effectiveness and efficiency of an organisation's marketing activities in achieving its objectives, embracing both financial outcomes and non-financial outcomes such as brand equity and customer satisfaction (Irfandi et al., 2025; Morgan et al., 2022). In the insurance industry specifically, marketing intensity has been shown to exert a measurable effect on the financial performance of listed insurers (Alli, 2026). Following Morgan et al. (2022), it encompasses marketing efficiency, effectiveness, and adaptability, a multidimensionality that is especially difficult to measure in insurance, where products are intangible, sales cycles are long, and intermediaries abound (Eling et al., 2022).

Marketing performance can be viewed from three distinct perspectives: brand awareness, customer acquisition, and customer retention. Brand awareness is the extent to which customers recognise and positively associate with a brand, shaped by its digital presence and communication strategies (Swaminathan et al., 2022; Kilei et al., 2016); in life assurance it carries special weight because high-involvement, infrequent purchases mean that only a small consideration set of brands is ever entertained (Ishan, 2023; Musaigwa, 2024). Customer acquisition measures the effectiveness of digital strategies in attracting and converting new policyholders through targeted campaigns, lead nurturing, and seamless onboarding (El-Monstaser, 2021; Sağlam et al., 2021; Alhawari, 2012). Customer retention captures the capacity to sustain long-term relationships through personalised communication, responsive service, and value addition (Swaminathan et al., 2022; Gyasi, 2012). In life assurance, retention is further conditioned by policyholders' financial literacy and their trust in the insurer, which jointly shape purchase and persistence decisions (Alli & Ganiyu, 2025).

Conceptual Framework

The conceptual framework positions digital literacy of employees and cloud computing adoption as complementary dimensions of digital transformation strategy, jointly directed at marketing performance (brand awareness, customer acquisition, and customer retention). The framework is anchored on the Dynamic Capabilities Theory, which explains how firms sense opportunities, seize them, and transform internal processes. In this case, employee skills and cloud infrastructure are precisely the resources that are integrated, built, and reconfigured.

Figure 2.1: Conceptual Framework



Source: Authors' Conceptualisation, 2026

Theoretical Framework

This study is anchored on two theoretical perspectives: Dynamic Capabilities Theory (DCT) and Technology Acceptance Model (TAM). Originally advanced by Teece et al. (1997) as an extension of the Resource-Based View, DCT focuses on an organisation's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Applied to digital transformation, Warner and Wäger (2019) delineate digital sensing, seizing, and transforming

capabilities. Both variables in this study map cleanly onto this triad: a digitally literate workforce is the embodiment of the learning-oriented, transforming capability that Eldin (2020) argues African financial institutions must cultivate, while cloud computing supplies the reconfigurable architectural foundation that makes agility and scalability possible (Karimi & Walter, 2015; Wanjiru, 2024). DCT also explains how these capabilities translate into marketing outcomes: firms with stronger dynamic capabilities redefine brand narratives more effectively under digital disruption (Karimi et al., 2015), achieve higher retention by reconfiguring services around changing consumer needs (Wanjiru, 2024), and, convert progressive digitalisation into improved acquisition and conversion rates (Adebisi et al., 2021).

Conceived by Davis (1989), TAM holds that perceived usefulness and perceived ease of use are the primary predictors of technology adoption, and it remains robust across settings including financial services (Marangunić & Granić, 2015; Balogun, 2024). TAM supplies the micro-level behavioural layer that DCT alone cannot explain (Ehiogu & Chilekezi, 2023). The dual-theory approach thus creates a multi-level.

Methodology

Research Design and Study Area

This study adopted a quantitative, cross-sectional survey design. The study area is Southwest Nigeria (Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti States), chosen for its concentration of life assurance company headquarters, dense urban population, and relatively advanced digital infrastructure.

Population and Sampling

The target population comprised 14,528 employees across fourteen (14) licensed life assurance companies operating in Southwest Nigeria (NAICOM, 2025). Krejcie and Morgan (1970) formula for finite populations yielded an initial sample of 374; a 30% adjustment for anticipated non-response, consistent with Israel's (1992) recommendation, raised the administered sample to 486. Stratified random sampling with proportional allocation was applied across three cadres: Top Management, IT Staff, and Marketing Staff. Ultimately, 374 copies of the questionnaire (76.9% usable response rate) were retained for analysis, a rate regarded as very good for survey research (Mugenda & Mugenda, 2003; Babbie, 2011).

Research Instrument

A structured questionnaire measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was employed in this study. Digital Literacy of Employees was measured with five items adapted from Tatli et al. (2023), Mozammel et al. (2024), Ganiyu et al. (2023), Abas et al. (2019), and Ede (2023); Cloud Computing Adoption with seven items adapted from Aina et al. (2023), Ognjanović et al. (2024), Khayer et al. (2020), and Alshahrani (2021); and Marketing Performance with 24 items covering Brand Awareness (8), Customer Acquisition (8), and Customer Retention (8), adapted from Kilei et al. (2016), Sağlam et al. (2021), Alhawari (2012), and Gyasi (2012).

Validity, Reliability, and Method of Analysis

Content validity was established through expert review by a panel of five academics and industry practitioners, with items retained at a Content Validity Index of 0.80 or higher; construct validity was assessed through Exploratory Factor Analysis. Reliability was confirmed with Cronbach's alpha from a 20-responder pilot. Data were analysed using descriptive statistics, Pearson product-moment correlation, and simple linear regression, which was preceded by diagnostic checks for normality (Shapiro–Wilk), linearity (scatter plots), multicollinearity (VIF and condition indices), and autocorrelation (Durbin–Watson). The regression models are specified as:

$$\text{Model 1: } MP = \beta_0 + \beta_1(\text{DLE}) + \varepsilon$$

$$\text{Model 2: } MP = \beta_0 + \beta_2(\text{CCA}) + \varepsilon$$

Results and Disussion

Reliability Analysis

Table 4.1: Cronbach's Alpha Results

Construct	Number of Items	Cronbach's Alpha	Status
Digital Literacy of Employees (DLE)	5	.830	Acceptable
Cloud Computing Adoption (CCA)	7	.835	Acceptable
Brand Awareness (BAW)	8	.800	Acceptable
Customer Acquisition (CUA)	8	.768	Acceptable
Customer Retention (CUR)	8	.767	Acceptable
Marketing Performance (MP) Combined	24	.753	Acceptable

Source: Authors' Analysis, 2026

All constructs exceed the .70 reliability threshold (Nunnally, 1978). The slightly lower corrected item-total correlation for CCA (.312) was retained on the grounds that the overall alpha comfortably exceeds .70, the construct is theoretically indispensable, and the small pilot sample attenuates inter-item correlations (DeVellis, 2016).

Validity Assessment

Table 4.2: KMO Measure and Bartlett's Test of Sphericity

Test	Value
Kaiser–Meyer–Olkin Measure of Sampling Adequacy	.959
Bartlett's Test of Sphericity – Approx. χ^2	12,213.224
Degrees of Freedom (df)	990
Significance	< .001

Source: Authors' Analysis, 2026

The KMO value of .959 falls within the "marvellous" range (Kaiser, 1974), and Bartlett's test rejects the null hypothesis of an identity correlation matrix, confirming the suitability of the item pool for factor analysis. All individual item Measures of Sampling Adequacy exceeded .85, and the retained component solution cumulatively explained 66.6% of total variance, above the 60% benchmark for social science research (Hair et al., 2019).

Descriptive Statistics

Table 4.3: Scale-Level Descriptive Statistics (N = 374)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
DLE	374	8.00	25.00	20.508	3.518
CCA	374	13.00	35.00	28.567	4.661
BAW	374	8.00	20.00	16.013	2.185
CUA	374	21.00	40.00	32.300	4.032
CUR	374	19.00	40.00	32.115	4.208
MP (Composite)	374	53.00	100.00	80.428	9.340

Source: Authors' Analysis, 2026

At the item level, respondents affirmed active organisational investment in digital training (DLE construct mean = 4.102 on the 5-point scale), with the training item scoring highest (M = 4.179), consistent with human capital theory (Becker, 1964). For cloud computing (construct mean = 4.081), the item "cloud computing adoption has helped to improve customer relations" recorded the highest agreement in the entire instrument (M = 4.195; 84.2% agreement), a telling signal that practitioners themselves perceive the cloud's value as ultimately customer-facing.

Normality and Diagnostic Tests

Shapiro–Wilk statistics approached unity for all variables (DLE = .930; CCA = .947; MP = .978), indicating distributions sufficiently close to normality; with $N = 374$, the Central Limit Theorem guarantees that the minor departures flagged by significant formal tests do not compromise parametric analysis (Tabachnick & Fidell, 2014). Q–Q plots confirmed approximate normality, and scatter plots revealed no systematic non-linearity or funnel-shaped heteroscedasticity. Condition indices for DLE (11.758) and CCA (12.355) fall below the threshold of 15, indicating negligible collinearity (Belsley, Kuh & Welsch, 1980).

Correlation Analysis

Table 4.4: Pearson Product-Moment Correlation Matrix ($N = 374$)

Construct	DLE	CCA	MP
DLE	1	-.045	.443***
CCA	-.045	1	.399***
MP	.443***	.399***	1

Note: $p < .001$, two-tailed. Source: Authors' Analysis, 2026

Both independent variables exhibit statistically significant positive correlations with Marketing Performance at $p < .001$, with DLE showing the stronger association ($r = .443$). The inter-predictor correlation is negligible ($r = -.045$, $p > .05$), confirming that the human-capital and infrastructural dimensions are empirically distinct, an important finding in itself, implying that firms invest in them independently and that each contributes unique variance to marketing performance.

Regression Analysis

Hypothesis One: Digital Literacy of Employees and Marketing Performance

Table 4.5: Model Summary: DLE $\rightarrow$ MP

Model	R	R Square	Adjusted R ²	Std. Error	Durbin-Watson
DLE $\rightarrow$ MP	.443 ^a	.196	.194	8.384	2.183

^a. Predictor: (Constant), DLE. ^b. Dependent Variable: MP.

Source: Authors' Analysis, 2026

Table 4.6: ANOVA: DLE $\rightarrow$ MP

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	6,391.892	1	6,391.892	90.930	< .001 ^b
Residual	26,149.658	372	70.295		
Total	32,541.551	373			

Source: Authors' Analysis, 2026

Table 4.7: Regression Coefficients: DLE Predicting MP

Model	B	Std. Error	Beta (β)	t	Sig.	95% CI Lower	95% CI Upper	VIF
(Constant)	56.299	2.567	—	21.930	< .001	51.251	61.347	—
DLE	1.177	.123	.443	9.536	< .001	.934	1.419	1.000

Source: Authors' Analysis, 2026

Digital Literacy of Employees accounted for 19.6% of the variance in Marketing Performance ($R^2 = .196$, Adjusted $R^2 = .194$). The model was statistically significant ($F(1, 372) = 90.930$, $p < .001$). The standardised coefficient ($\beta = .443$, $t = 9.536$, $p < .001$) indicates that a one-standard-deviation increase in employee digital literacy is associated with a .443 standard-deviation increase in marketing performance, quantified as $B = 1.177$ (95% CI [.934, 1.419]) per unit increase. The Durbin–Watson

statistic of 2.183 confirms residual independence, and VIF = 1.000 indicates no multicollinearity. The null hypothesis H_{01} is rejected. Digital Literacy of Employees exerts a significant positive effect on the Marketing Performance of Life Assurance Companies in Southwest Nigeria ($p < .001$).

Hypothesis Two: Cloud Computing Adoption and Marketing Performance

Table 4.8: Model Summary: CCA $\rightarrow$ MP

Model	R	R Square	Adjusted R ²	Std. Error	Durbin-Watson
CCA $\rightarrow$ MP	.399 ^a	.159	.157	8.575	2.218

^a. Predictor: (Constant), CCA. ^b. Dependent Variable: MP. Source: Authors' Analysis, 2026

Table 4.9: ANOVA: CCA $\rightarrow$ MP

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	5,188.437	1	5,188.437	70.562	< .001 ^b
Residual	27,353.113	372	73.530		
Total	32,541.551	373			

Source: Authors' Analysis, 2026

Table 4.10: Regression Coefficients: CCA Predicting MP

Model	B	Std. Error	Beta (β)	t	Sig.	95% CI Lower	95% CI Upper	VIF
(Constant)	57.570	2.757	—	20.881	< .001	52.149	62.991	—
CCA	.800	.095	.399	8.400	< .001	.613	.987	1.000

Source: Authors' Analysis, 2026

Cloud Computing Adoption explained 15.9% of the variance in Marketing Performance ($R^2 = .159$, Adjusted $R^2 = .157$). The model was statistically significant ($F(1, 372) = 70.562$, $p < .001$), with a standardised coefficient of $\beta = .399$ ($t = 8.400$, $p < .001$), quantified as $B = .800$ (95% CI [.613, .987]). The Durbin–Watson statistic of 2.218 falls within the acceptable 1.5–2.5 range (Field, 2018). The null hypothesis H_{02} is rejected. Cloud Computing Adoption significantly and positively influences the Marketing Performance of Life Assurance Companies in Southwest Nigeria ($p < .001$).

Summary of Hypotheses

Table 4.11: Summary of Hypotheses Testing Results

Hypothesis	Statement	β	F-statistic	p-value	Decision
H_{01}	There is no significant relationship between Digital Literacy of Employees and Marketing Performance of Life Assurance Companies in Southwest Nigeria.	.443	$F(1,372) = 90.930$	<.001	Rejected
H_{02}	Cloud Computing Adoption does not have any significant influence on the Marketing Performance of Life Assurance Companies in Southwest Nigeria.	.399	$F(1,372) = 70.562$	<.001	Rejected

Source: Authors' Analysis, 2026

Discussion of Findings

Digital Literacy of Employees and Marketing Performance

The significant positive effect of employee digital literacy on marketing performance ($\beta = .443$, $R^2 = .196$, $p < .001$) confirms Hypothesis 1 and aligns squarely with the emergent consensus that human capital is the critical conduit through which digital value is realised. The result corroborates Issah et al. (2025), who demonstrated that staff competency mediates the technology–sustainability relationship, and Tatli et al. (2023), who showed that task performance transmits the effect of digital literacy into firm performance. It also resonates with Mozammel et al. (2024), who positioned employee digital literacy as the strategic capability converting digital HRM into business outcomes, and with Ede (2023), who uniquely tied digital literacy to enterprise reputation, a linkage of special consequence in life assurance, where trust is the product's silent co-signatory, and where consumer financial literacy and confidence in the insurer jointly steer coverage decisions (Alli & Ganiyu, 2025).

The finding directly challenges technology-deterministic paradigms (e.g., Alshahrani, 2021; Khayer et al., 2020) that underplay human capital's orchestrating role, and affirms instead that digital tools are inert without competent personnel to operationalise, iterate, and align them with customer-centric objectives, an orchestration whose payoff in sustained competitive advantage for insurers is increasingly documented (Alli, 2025).

Within the DCT framework, digitally literate employees constitute a valuable, rare, and socially complex resource (Barney, 1991) that enables firms to sense market shifts, seize digital opportunities, and transform internal processes: precisely the learning-driven dynamic capabilities that Eldin (2020) prescribes for African financial institutions. TAM complements this reading: where staff possesses high digital fluency, effort expectancy collapses, internal technology acceptance accelerates, and cross-functional collaboration deepens (Davis, 1989). Contextually, the Nigerian life assurance sector's historical reliance on legacy systems and agent-driven distribution has produced a skills mismatch (Ganiyu et al., 2023); firms that institutionalise continuous upskilling, peer mentorship, and data-driven decision-making cultures are therefore best placed to unlock the full return on their technological investments. Put plainly, digital transformation in emerging-market insurance is fundamentally a human-capital challenge, not merely an IT procurement exercise.

Cloud Computing Adoption and Marketing Performance

The significant positive influence of cloud computing adoption on marketing performance ($\beta = .399$, $R^2 = .159$, $p < .001$) negates Hypothesis 2. The finding corroborates Khayer et al. (2020), who tied cloud success to system quality, information quality, and technical IT capability, and Aina et al. (2023), who demonstrated that cloud-based collaborative suites enhance employee enablement in Nigerian insurance firms. It is likewise consistent with Agboola and Agboola (2024), who found that Industry 4.0 and cloud technologies improve service delivery and customer satisfaction, and with Bakar et al. (2024), who positioned cloud computing as a strategic mediator between technological readiness and performance.

The relatively modest R^2 , however, diverges from portrayals of the cloud as a direct performance catalyst, and this divergence is theoretically meaningful rather than disappointing. It aligns with Alshahrani (2021) and Ognjanović et al. (2024), who emphasise that cloud benefits are contingent on organisational readiness, digital culture, and environmental shocks. In the Nigerian context, unstable power, bandwidth limitations, data sovereignty concerns, and legacy-system integration dampen the immediate marketing returns of migration (Issah et al., 2025; Aina et al., 2023). More fundamentally, the cloud's marketing impact is inherently indirect: it enables real-time analytics, campaign personalisation, and cross-platform integration, but these capabilities translate into acquisition and retention only when activated by front-end tools and skilled personnel. The descriptive statistics reinforce this interpretation: the highest-scoring cloud item was its contribution to customer relations ($M = 4.195$), suggesting that practitioners experience the cloud's value precisely where it touches the customer.

Within DCT, cloud computing represents the architectural foundation for transforming capabilities: the scalability and agility required to reconfigure marketing operations, yet its standalone marketing

impact remains latent without complementary capabilities (Teece et al., 1997). The finding thus dismantles the myth of technological determinism and reinforces a principle of capability complementarity: the cloud should be conceptualised not as a standalone marketing lever but as an enabling backbone whose value is unlocked through strategic orchestration with customer-facing platforms and, above all, with digitally literate people.

Conclusion

This study examined the influence of digital literacy of employees and cloud computing adoption on the marketing performance of life assurance companies in Southwest Nigeria. Data from 374 valid respondents across fourteen life assurance companies in Southwest Nigeria were used for the study affirmatively. Employee digital literacy significantly and positively shapes brand awareness, customer acquisition, and customer retention. Cloud computing adoption likewise exerts a significant positive influence, but as an enabling backbone whose marketing payoff is indirect and contingent on front-end activation and skilled orchestration. Theoretically, the findings validate the Dynamic Capabilities Theory and the Technology Acceptance Model.

Recommendations

Based on the empirical findings from the study, the following recommendations are advanced:

- i. Life assurance companies should treat employee digital literacy as a strategic capability rather than a periodic training cost. Human-resource and transformation units should design role-specific digital competency frameworks for marketing, IT, and management staff.
- ii. Executive leadership should move cloud infrastructure out of their IT department's sole custody. Cloud environments must be explicitly integrated with customer journey mapping, dynamic pricing engines, and real-time campaign orchestration tools so that backend scalability translates into front-end personalisation and agile market responsiveness (Alli, 2025).

Limitations

The cross-sectional design captures perceptual data at a single point in time, limiting causal inference; the geographic scope is restricted to Southwest Nigeria; and reliance on self-reported measures invites common-method and social-desirability biases. The study also excludes emerging technologies such as artificial intelligence, whose knowledge, attitude, and perception dynamics among Nigerian insurance practitioners have already been profiled by Alli and Ganiyu (2021), IoT, and blockchain, and under-represents micro-insurers and InsurTech startups.

Suggestions for Further Studies

Future research should employ longitudinal designs to track digital capability maturity over time by replicating the model across other Nigerian geopolitical zones and African insurance markets. Future researchers can also expand the construct to other emerging technologies

Furthermore, future researches can adopt mixed-methods designs to unpack the micro-processes of capability orchestration and test moderating and mediating mechanisms such as organisational culture, regulatory stringency, firm size, customer trust, and service quality.

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