



Digital Leadership and Employee Resilience: Enhancing Team Performance and well-being in Innovative Nigerian Organizations

Aminat Adebisi Adesegun
Imo State University, Nigeria

* Corresponding Author: **Aminat Adebisi Adesegun**

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Abstract

Digital transformation has intensified the demand for leaders capable of navigating technology driven organisational change. This study examines the impact of digital leadership on employee resilience, team performance, and well being in innovative Nigerian organisations, and investigates the mediating role of employee resilience and the moderating role of organisational innovativeness. A cross sectional survey of 300 employees across five sectors fintech, telecommunications, health technology, media, and e commerce in Lagos, Abuja, and Port Harcourt was conducted using validated instruments. Hierarchical multiple regression and bootstrap mediation analyses revealed that digital leadership significantly predicted team performance ($\beta = 0.44, p < .001$) and employee well being ($\beta = 0.38, p < .001$), with employee resilience partially mediating both relationships. Organisational innovativeness significantly amplified the digital leadership–performance association ($\Delta R^2 = .07, p < .001$). Findings underscore the strategic importance of digital leadership competencies and resilience building in advancing both human and performance outcomes within Nigeria's rapidly evolving innovation ecosystem.

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Keywords: digital leadership, employee resilience, team performance, employee well being, organisational innovativeness, Nigeria, digital transformation

Introduction

The fourth industrial revolution characterised by the convergence of artificial intelligence, big data analytics, cloud computing, the Internet of Things, and blockchain technologies has fundamentally restructured the competitive landscape across virtually every industry sector. Organisations that were once able to sustain competitive positions through incremental process improvement are increasingly required to navigate conditions of continuous technological disruption in which the capacity to innovate, adapt, and exploit emerging digital capabilities has become the primary determinant of survival and growth (Kane *et al.*, 2019). Within this context, leadership has acquired a new and specifically digital dimension: the ability to comprehend, articulate, champion, and operationally translate the opportunities and imperatives of digital transformation from the most strategic organisational levels to the most granular operational realities of day to day workgroup functioning.

Digital leadership, as a construct distinct from conventional leadership theory yet deeply grounded in it, has emerged as a focal concept in management scholarship over the past decade. Colbert *et al.* (2016) defined digital leadership as the capacity of organisational leaders to inspire and guide digital transformation through visionary goal setting, competence in digital tools and methodologies, data informed decision processes, and the creation of organisational cultures that embrace rather than resist technological change. Sousa and Rocha (2019) extended this conceptualisation to encompass four dimensions digital vision and strategy, digital communication and collaboration, data driven decision making, and agile adaptive leadership that collectively characterise the leader behaviour profile most associated with effective digital transformation outcomes. As digital transformation imposes novel performance demands, uncertainty, and continuous change on workforces, the relationship between digital leadership and the psychological resources of employees particularly resilience assumes critical organisational significance.

Employee resilience defined as a dynamic capacity enabling individuals to utilise positive adaptation processes in the face of significant adversity, challenge, or change (Luthans, 2002) has been theorised as a key psychological resource mediating the relationship between challenging work conditions and sustained performance and well being. In digitally transforming organisations, where employees routinely encounter skill obsolescence, workflow restructuring, performance monitoring intensification, and the psychological demands of continuous technology adoption, resilience functions as a buffering resource that determines whether digital change processes generate engagement and performance or burnout and withdrawal. The antecedents of employee resilience have been examined in diverse organisational contexts, with leadership behaviours particularly supportive, developmental, and psychologically safety creating behaviours consistently identified as primary drivers of resilience capacity.

Nigeria provides a particularly significant empirical context for the examination of digital leadership and resilience in innovative organisations. With one of the world's fastest growing technology ecosystems anchored by a vibrant fintech sector (Lagos's "Silicon Lagoon" community has generated more than \$1 billion in venture capital investment annually since 2019), a rapidly expanding telecommunications infrastructure, and a proliferating digital health and e-commerce sector Nigeria's innovation oriented organisations are navigating digital transformation challenges that are simultaneously structurally similar to those of global technology economies and distinctively shaped by Nigeria's unique institutional environment (Ndemo & Weiss, 2017). High infrastructural variability (power supply, internet connectivity), pronounced talent market competition for digital skills, the cultural dynamics of youth dominant workforces with different digital orientation from senior leadership, and the institutional pressures of an enabling regulatory environment that has evolved rapidly in response to fintech innovation collectively create a research context of considerable theoretical and practical significance. Despite the growing importance of digital transformation to Nigerian organisations, the empirical examination of digital leadership as a theoretically distinct construct in Nigerian organisational research remains nascent. Existing Nigerian leadership studies have largely applied conventional leadership frameworks particularly the Full Range Leadership Model to examine performance relationships, without specifically addressing the digital dimension of leadership behaviour that is increasingly relevant to the country's innovation oriented sectors. This study fills this gap by operationalising digital leadership through validated multidimensional instruments, examining its consequences for the psychological and performance outcomes of employees in innovation intensive Nigerian organisations, and contributing to the emerging theory of digital leadership with evidence from a major emerging market context.

The study addresses four research questions: (1) What is the profile of digital leadership dimensions across five innovation oriented Nigerian industry sectors? (2) What are the relationships between digital leadership, employee resilience, team performance, and employee well being? (3) Does employee resilience mediate the relationships between digital leadership and team performance and well being? (4) Does organisational innovativeness moderate the relationship between digital leadership and team performance? The paper

proceeds as follows: Section 2 provides background; Section 3 reviews the literature; Section 4 presents the theoretical framework and hypotheses; Section 5 describes the methodology; Section 6 presents results; Section 7 discusses findings; Section 8 outlines future directions; and Section 9 concludes.

2. Background

2.1. Nigeria's Digital Economy and Innovation Ecosystem

Nigeria's digital economy has expanded with remarkable velocity since the mid 2010s, driven by a combination of demographic fundamentals a population exceeding 220 million with a median age of approximately 18 years (NBS, 2022) and the structural conditions that have made digital access increasingly affordable and widespread. Mobile internet penetration reached 45% by 2023 (Nigerian Communications Commission [NCC], 2023), with the mobile money and fintech sectors growing at compound annual rates that have positioned Nigeria as sub-Saharan Africa's most significant fintech market by transaction volume. The Central Bank of Nigeria's progressive regulatory approach to financial technology including the licensing of Payment Service Banks, open banking frameworks, and support for agency banking networks has catalysed innovation at the intersection of finance and digital technology that has attracted international investor attention and created a dynamic talent market for digital skills.

The telecommunications sector, dominated by MTN Nigeria, Airtel Africa, Glo, and 9mobile, has invested substantially in infrastructure modernisation including 4G LTE expansion and early 5G pilot deployments that underpins the digital economy's growth while also generating internal organisational transformation demands. Health technology organisations have proliferated in response to COVID 19 accelerated telemedicine adoption and persistent access gaps in conventional health service delivery. The creative and media sector has undergone profound digital disruption, with traditional broadcast and print organisations navigating transitions to digital first content strategies while digital native content platforms serving Nigerian audiences have grown rapidly. E-commerce has been catalysed by Jumia's continental platform, a growing ecosystem of logistics providers, and consumer behaviour shifts accelerated by pandemic era contact restrictions.

2.2. The Digital Leadership Imperative in Emerging Markets

The concept of digital leadership has been primarily theorised and empirically examined in the context of large, resource rich organisations in developed economies notably the technology, financial services, and manufacturing sectors of the United States, Germany, and Singapore (Cortellazzo *et al.*, 2019; Sousa & Rocha, 2019). The translation of these frameworks to emerging market contexts such as Nigeria requires consideration of several contextual factors that may modify the content and effectiveness of digital leadership behaviours.

First, the digital skill distribution within Nigerian organisations is typically characterised by a pronounced gap between leadership generations and younger employees, with senior leaders in many organisations having achieved their positions before the digital transformation era and lacking the technical fluency of their younger reports. This dynamic inverts the conventional authority gradient around digital

knowledge and may require digital leaders to cultivate a posture of learning and intellectual humility alongside visionary direction setting a challenge that demands genuinely different leader behaviours than those captured by frameworks developed for organisations where senior leaders are themselves digital natives (Oberer & Erkollar, 2018). Second, the infrastructure variability of the Nigerian environment creates distinctive digital resilience demands: organisations must maintain digital capabilities across unreliable power supply, variable internet connectivity, and frequent software and system updates, demanding adaptive and problem solving leadership behaviours that go beyond the digitally stable contexts in which most digital leadership theory has been developed.

3. Literature Review

3.1. Digital Leadership: Conceptualisation and Dimensions

The theoretical development of digital leadership as a construct distinct from, though related to, established leadership frameworks has proceeded along two broad tracks. The first, represented by Westerman *et al.* (2014) and Kane *et al.* (2019), approaches digital leadership primarily as a strategic capacity the ability of top management teams to articulate and pursue digital transformation strategies that create organisational value. The second, represented by Sousa and Rocha (2019) and Cortellazzo *et al.* (2019), develops digital leadership as a behavioural construct applicable at multiple organisational levels, examining the specific leadership behaviours through which digital transformation imperatives are translated into team and individual outcomes.

Sousa and Rocha's (2019) systematic review of digital leadership identified four core behavioural dimensions that consistently emerged across the reviewed literature: digital vision and strategy (the capacity to articulate compelling digital goals and align organisational resources and efforts toward their achievement), digital communication and collaboration (the leveraging of digital tools and platforms to facilitate information exchange, knowledge sharing, and collaborative working), data driven decision making (the orientation toward evidence based analytical approaches in preference to intuitive or authority based decision processes), and agile adaptive leadership (the capacity to respond rapidly, flexibly, and iteratively to changing technological conditions). This four dimension framework provides the organising structure for the measurement instrument employed in the present study.

The broader leadership literature provides theoretical grounding for understanding how these digital specific behaviours generate follower and team outcomes. Transformational leadership theory (Bass & Avolio, 1994) is particularly relevant to the digital vision and communication dimensions, as the inspirational motivation and intellectual stimulation characteristic of transformational leadership map naturally onto the digital leader behaviours of vision articulation and challenge based development. Servant leadership theory (Greenleaf, 1977) informs the resilience building and well being enhancing dimensions, through its emphasis on leader attentiveness to follower growth, capability development, and flourishing as foundational leadership obligations. Ambidextrous leadership theory (Rosling *et al.*, 2011), which distinguishes between exploratory (innovation fostering) and exploitative

(efficiency enhancing) leader behaviours, is relevant to the agile adaptive dimension, as digital transformation demands leaders who can manage the tension between exploration and exploitation at team and organisational levels.

3.2. Employee Resilience in the Digital Workplace

Employee resilience has been theorised through multiple complementary frameworks. Luthans's (2002) conceptualisation within the Positive Organisational Behaviour (POB) tradition defines resilience as a positive psychological capacity to rebound from adversity, uncertainty, conflict, or failure a definition that positions it as a malleable, state like resource amenable to leader influence and organisational intervention. This framing has been extensively applied in the occupational health and organisational behaviour literatures, yielding consistent evidence that resilience mediates the relationship between job demands and both performance and well being outcomes (Youssef & Luthans, 2007).

In the specific context of digital transformation, employee resilience has been proposed as a critical psychological mediator of the relationship between digital change processes and individual outcomes (Hartmann & Khusainova, 2022). Employees who perceive digital change as threatening rather than challenging lacking the resilience resources to reframe disruption as opportunity are more likely to respond with disengagement, avoidance behaviour, and reduced performance. Conversely, employees high in resilience are better equipped to utilise the learning and developmental opportunities that digital transformation creates, to sustain performance through technology adoption disruptions, and to maintain psychological well being under the cognitive and emotional demands of continuous digital change.

The antecedents of employee resilience in organisational contexts include individual psychological capital components, social support resources, and critically for the present study leader behaviours that create the psychological safety, developmental challenge, and role clarity that enable resilient responses to adversity (Hartmann & Khusainova, 2022). Leaders who communicate clear digital vision reduce the uncertainty that depletes resilience resources; leaders who foster collaboration and knowledge sharing create social support networks that buffer against individual resilience failures; leaders who model data driven problem solving provide cognitive frameworks for analysing and responding to digital challenges constructively. These theoretical mechanisms ground the hypothesised relationship between digital leadership and employee resilience examined in the present study.

3.3. Team Performance in Digital and Innovation Contexts

Team performance in innovation intensive organisations encompasses both the efficient execution of existing tasks and processes and the generation of novel ideas, products, and approaches a duality that Ancona and Caldwell (1992) characterised as the tension between internal integration and external adaptation in teams. Digital technologies have substantially modified the conditions under which teams perform: virtual collaboration tools enable distributed teamwork but create coordination challenges; data analytics platforms provide real time performance visibility but may intensify performance monitoring pressure; digital workflow systems enable efficiency but may reduce the flexible

judgment exercise that innovation requires.

The leadership conditions most associated with team performance in digital contexts have been examined in a growing empirical literature. Hoch and Kozlowski (2014) found that traditional hierarchical leadership was less effective for geographically distributed digital teams than structural team design features, suggesting that digital leaders may need to invest proportionally more in team structural design and less in direct supervisory intervention. Gilson *et al.* (2015) reviewed the virtual team performance literature and identified communication quality, trust development, and shared mental models as critical team processes that digital leaders must actively cultivate to offset the coordination costs inherent in technology mediated teamwork. In the Nigerian context, where infrastructural variability adds coordination challenges beyond those of stable digital environments, the team performance consequences of digital leadership competency may be particularly pronounced.

3.4. Employee Well Being in Digital Work Environments

Employee well being encompassing hedonic well being (positive affect, life satisfaction, low negative affect) and eudaimonic well being (meaning, purpose, personal growth, and flourishing) has attracted growing organisational attention as a strategic human resource outcome that predicts discretionary effort, retention, and long term performance sustainability beyond what job satisfaction and engagement measures capture (Ryan & Deci, 2001). The digital workplace introduces both well being opportunities and threats: digital tools can reduce tedious manual tasks, enable flexible working arrangements that support work life balance, and connect employees to diverse information and social resources; but digital work also brings technostress, boundary erosion between work and personal life, information overload, and the psychological demands of continuous skill development.

The leadership antecedents of employee well being in digital workplaces have been examined with growing rigour. Montani *et al.* (2020) found that leader support for technological learning was significantly associated with reduced technostress and enhanced well being among employees undergoing digital transformation. Tims *et al.* (2011) documented that transformational leadership behaviours were associated with increased daily work engagement, a well being relevant outcome, through the mechanisms of resource provision and motivational stimulation. The present study extends this literature by examining whether digital leadership specifically with its distinctive emphasis on data driven approaches, agile

adaptation, and digital collaboration predicts well being outcomes in Nigerian innovative organisations, and whether this relationship is mediated by the resilience that digital leaders build in their teams.

3.5. Organisational Innovativeness as Moderator

Organisational innovativeness defined as the degree to which an organisation values, supports, and systematically pursues innovative activities across its products, processes, and business models (Hurley & Hult, 1998) has been proposed as a contextual moderator of leadership effectiveness in research and development, technology, and creative sector contexts. In highly innovative organisations, the exploration of novel solutions, tolerance of failure, and encouragement of knowledge recombination create conditions that amplify the effectiveness of digital leadership behaviours: visionary digital leadership provides directional orientation for exploratory effort; data driven approaches accelerate the evaluation of innovative options; agile adaptive behaviours enable rapid pivoting in response to innovation feedback. In low innovativeness organisations, the same digital leadership behaviours may generate less team performance impact because the structural, cultural, and resource conditions that enable innovation are absent.

4. Theoretical Framework and Research Hypotheses

4.1. Theoretical Integration

The present study integrates three theoretical frameworks. The Conservation of Resources (COR) theory (Hobfoll, 1989) provides the primary organising logic, proposing that individuals strive to acquire and protect valued personal resources and that resource gain from leaders and organisations enables positive adaptive responses (engagement, resilience, performance) while resource loss generates negative outcomes (stress, withdrawal, burnout). Digital leadership behaviours function as resource caravans within COR theory: vision and direction reduce uncertainty resource depletion; developmental challenge and collaboration support build resilience and capability resources; data driven clarity reduces the cognitive resource demands of ambiguous decision environments. The Job Demands Resources (JD R) model (Bakker & Demerouti, 2007) complements COR by specifying the buffering function of job resources including leadership support against job demands, predicting that digital leader behaviours will buffer the well being costs of digital transformation demands. Positive Organisational Behaviour theory (Luthans, 2002) grounds the conceptualisation of employee resilience as a malleable, leader influenced psychological capital component.

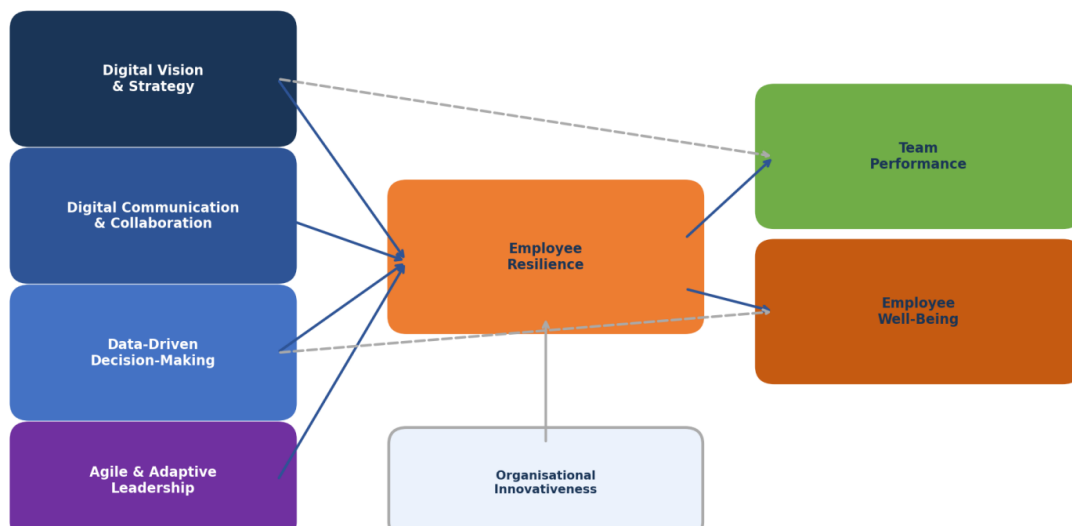


Fig 1: Conceptual Framework: Digital Leadership, Employee Resilience, Team Performance, and Well Being

4.2. Research Hypotheses

H1: Digital leadership is positively and significantly associated with employee resilience in innovative Nigerian organisations.

H2: Digital leadership is positively and significantly associated with team performance.

H3: Digital leadership is positively and significantly associated with employee well being.

H4: Employee resilience is positively associated with team performance.

H5: Employee resilience is positively associated with employee well being.

H6: Employee resilience mediates the relationship between digital leadership and team performance.

H7: Employee resilience mediates the relationship between digital leadership and employee well being.

H8: Organisational innovativeness moderates the relationship between digital leadership and team performance, with a stronger effect in high innovativeness contexts.

H9: Employee digital readiness positively predicts both team performance and employee well being.

5. Methodology

5.1. Research Design

A quantitative cross sectional survey design was employed to examine hypothesised relationships among digital leadership, employee resilience, team performance, employee well being, and contextual variables. The cross sectional design is acknowledged to constrain causal inference; results are accordingly interpreted as evidence of associations consistent with the theoretical model rather than established causal effects. Supervisor rated team performance scores were collected separately from employee self report data to mitigate common method variance (CMV), and Harman's single factor test was conducted to assess residual CMV risk in self reported constructs.

5.2. Setting, Population, and Sampling

The target population comprised employees working in formally registered, innovation oriented organisations in Nigeria's technology adjacent private sector. Five sectors were selected to represent the range of digital transformation

intensity in the Nigerian economy: fintech and digital financial services, telecommunications, health technology, digital media and creative industries, and e commerce and digital retail. Purposive stratified sampling was used to recruit two to three organisations per sector across three study locations: Lagos (primary technology and financial services hub), Abuja (regulatory and government technology centre), and Port Harcourt (oil technology and emerging digital services hub). G*Power 3.1 power analysis for multiple regression with five predictors ($f^2 = 0.15$, $\alpha = .05$, power = .80) indicated a minimum required sample of 138; the achieved sample of 300 provides substantially greater power and supports moderation analysis. The achieved response rate was 81.3% (300 usable questionnaires from 369 distributed).

5.3. Instruments

5.3.1. Digital Leadership: The Digital Leadership Scale (DLS; Sousa & Rocha, 2019; adapted by Oberer & Erkollar, 2018) was employed to measure four dimensions: Digital Vision and Strategy (6 items), Digital Communication and Collaboration (6 items), Data Driven Decision Making (5 items), and Agile and Adaptive Leadership (5 items). A total of 22 items were rated on a 5 point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The composite scale demonstrated strong internal consistency in pilot testing ($\alpha = .901$) and in the main study.

5.3.2. Employee Resilience: The Brief Resilience Scale Organisational Version (BRS O; Smith *et al.*, 2008, adapted for organisational use by Hartmann & Khusainova, 2022), comprising 10 items rated on a 5 point scale, assessed individual employee resilience as a work specific psychological resource. The scale has demonstrated consistent factor structure and criterion validity across multiple organisational populations.

5.3.3. Team Performance: Team performance was measured using a 12 item supervisor rated instrument developed from Griffin *et al.* (2007), assessing individual task performance (4 items), team member performance (4 items), and proactive performance innovation relevant discretionary behaviour (4 items). Supervisor ratings were administered independently from employee questionnaire

completion.

5.3.4. Employee Well Being: Employee well being was assessed using the Warwick Edinburgh Mental Well Being Scale Short Form (SWEMWBS; Stewart Brown *et al.*, 2009), a 7 item instrument assessing psychological flourishing, positive affect, and purposeful functioning, adapted for occupational use. The SWEMWBS has been validated across culturally diverse samples including sub Saharan African populations.

5.3.5. Organisational Innovativeness: The 8 item Organisational Innovativeness Scale (Hurley & Hult, 1998) assessed organisational openness to innovation, support for new ideas, and innovation as a cultural value, rated on a 5 point Likert scale.

5.3.6. Employee Digital Readiness: A 6 item Digital Readiness Scale adapted from Westerman *et al.* (2014) assessed individual employees' perceived competence in, and openness to, digital tools and working methods.

5.4. Data Collection

Data collection was conducted over a 10 week period

(January–March 2024). Hybrid administration was employed: online questionnaire links (Google Forms) were provided to employees with stable internet access, while paper questionnaires were provided to employees in environments with limited connectivity. Supervisor performance rating forms were distributed separately, with ratings linked to employee questionnaire data via anonymous identification codes maintained by HR coordinators. All questionnaires were available in English, the language of formal instruction and professional communication across all participating organisations.

5.5. Analytical Strategy

Data analysis was conducted using SPSS 27.0 and AMOS 27.0. Confirmatory factor analysis (CFA) assessed measurement model fit and convergent and discriminant validity. Pearson correlations examined bivariate relationships. Hierarchical multiple regression assessed the independent contributions of digital leadership, employee resilience, organisational innovativeness, and digital readiness to team performance and well being. Mediation analysis employed Hayes's (2018) PROCESS macro (Model 4) with 5,000 bootstrap samples and 95% bias corrected confidence intervals. Moderation analysis employed PROCESS Model 1 to test the interaction between digital leadership and organisational innovativeness predicting team performance, with simple slopes plotted at ± 1 SD of the moderator.

6. Results

6.1. Sample Characteristics

Table 1: Demographic Profile of Respondents (N = 300)

Characteristic	Category	n	%
Gender	Male	171	57.0
	Female	129	43.0
Age	18–25	63	21.0
	26–35	141	47.0
	36–45	72	24.0
	46+	24	8.0
Education	OND / HND	42	14.0
	B.Sc./B.Tech	153	51.0
	M.Sc./MBA	87	29.0
	PhD / Professional	18	6.0
Tenure	< 1 year	42	14.0
	1–3 years	93	31.0
	4–7 years	111	37.0
	> 7 years	54	18.0
Sector	Fintech	68	22.7
	Telecommunications	62	20.7
	Health Technology	55	18.3
	Media & Creative	58	19.3
Location	E Commerce	57	19.0
	Lagos	147	49.0
	Abuja	99	33.0
	Port Harcourt	54	18.0

The sample was predominantly male (57.0%) with a modal age cohort of 26–35 years (47.0%), consistent with the age demographics of Nigeria's technology sector workforce. Over 80% held at minimum a bachelor's degree, reflecting the

credential intensive profile of innovation oriented sector employment. Lagos dominated the geographic distribution (49.0%), consistent with its status as Nigeria's primary technology and commercial hub.

6.2. Reliability and Descriptive Statistics

Table 2: Reliability Statistics and Descriptive Summary for All Study Constructs

Construct	Items	α	M	SD	Skewness	Kurtosis
Digital Leadership Vision & Strategy	6	.887	3.81	0.58	0.44	0.21
Digital Leadership Communication	6	.874	3.77	0.61	0.38	0.17
Digital Leadership Data Driven	5	.861	3.69	0.64	0.31	0.12
Digital Leadership Agile Adaptive	5	.879	3.88	0.55	0.51	0.28
Digital Leadership (Composite)	22	.921	3.81	0.58	0.41	0.20
Employee Resilience	10	.894	3.69	0.61	0.35	0.15
Team Performance	12	.903	3.74	0.55	0.29	0.09
Employee Well Being	7	.878	3.58	0.64	0.27	0.11
Organisational Innovativeness	8	.866	3.65	0.59	0.33	0.14
Employee Digital Readiness	6	.851	3.72	0.57	0.40	0.19

All instruments demonstrated strong internal consistency, with Cronbach's alpha coefficients ranging from $\alpha = .851$ (employee digital readiness) to $\alpha = .921$ (digital leadership composite), uniformly exceeding the recommended threshold of $\alpha \geq .70$ (Nunnally & Bernstein, 1994). The digital leadership composite yielded the highest alpha, consistent

with its broad 22 item coverage of four theoretically coherent dimensions. Skewness and kurtosis values fell within acceptable ± 2.0 bounds for all constructs, supporting parametric analysis. Figure 2 presents digital leadership dimension scores by sector, and Figure 3 presents mean scores for all constructs.

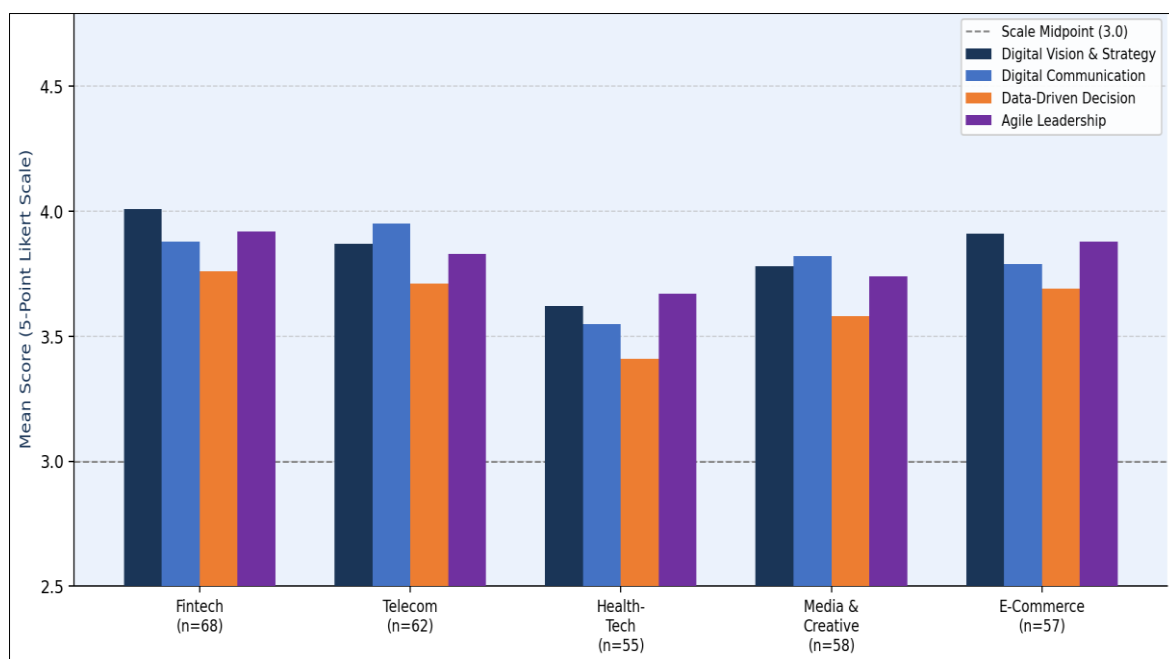


Fig 2: Mean Scores for Digital Leadership Dimensions by Organisational Sector

Figure 2 reveals meaningful variation in digital leadership dimension profiles across sectors. Fintech organisations recorded the highest scores on Digital Vision and Strategy ($M = 4.01$) and Agile Adaptive Leadership ($M = 3.92$), consistent with the rapid innovation cycles and strategic digital orientation characteristic of the sector. Telecommunications organisations scored highest on Digital Communication and Collaboration ($M = 3.95$), reflecting the core competency

alignment of this sector with collaborative digital infrastructure. Health technology organisations showed comparatively lower scores across all dimensions, indicating the greatest developmental gap and, correspondingly, the largest potential gain from targeted digital leadership investment. E-commerce organisations showed a broadly high digital leadership profile, approaching fintech levels on most dimensions.

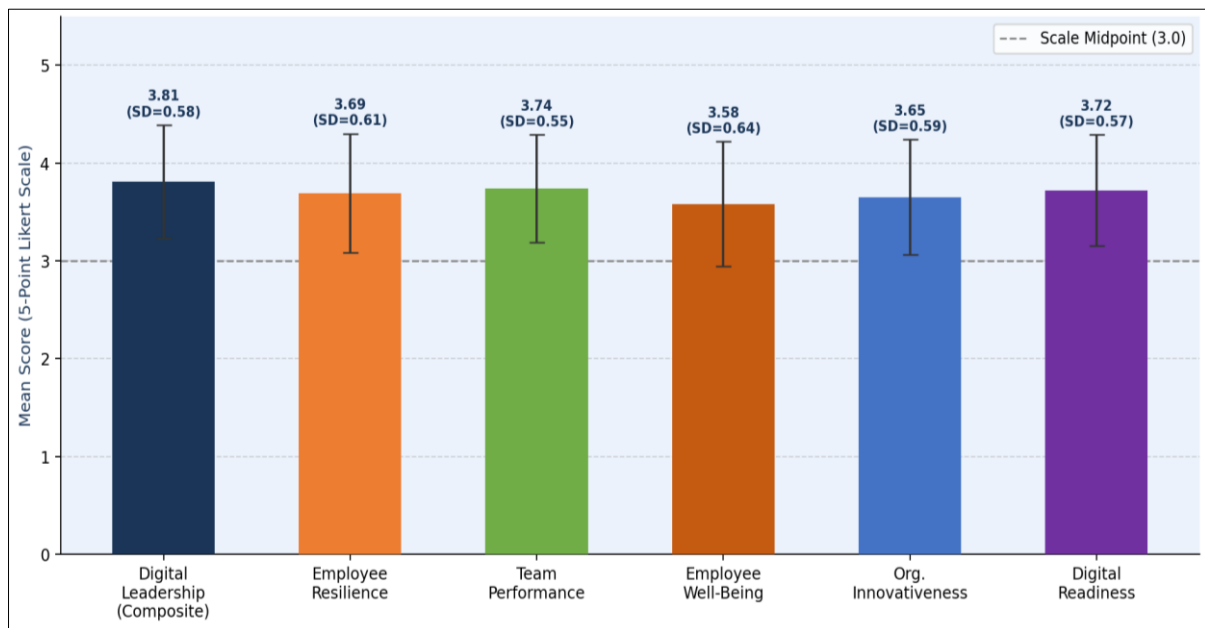


Fig 3: Mean Scores and Standard Deviations for All Study Constructs (N = 300)

6.3 Correlation Analysis

Table 3: Pearson Correlation Matrix for All Study Variables

Variable	1	2	3	4	5	6
1. Digital Leadership	—	.53**	.61**	.49**	.44**	.38**
2. Employee Resilience		—	.52**	.55**	.36**	.41**
3. Team Performance			—	.59**	.47**	.35**
4. Employee Well Being				—	.33**	.40**
5. Org. Innovativeness					—	.42**
6. Digital Readiness						—

Note. ** $p < .01$. $N = 300$

Table 3 reveals significant positive intercorrelations among all study variables. Digital leadership demonstrated the strongest bivariate associations with team performance ($r = .61$, $p < .01$), supporting H2, and with employee resilience ($r = .53$, $p < .01$), supporting H1. The digital leadership well being correlation ($r = .49$, $p < .01$) supports H3. Employee resilience was strongly correlated with both team performance ($r = .52$, $p < .01$) and well being ($r = .55$, $p < .01$), consistent with H4 and H5. Organisational innovativeness ($r = .44$ with performance) and digital

readiness ($r = .38$ with digital leadership) showed expected positive associations with the primary constructs. The pattern of correlations is consistent with the proposed mediation model, with resilience positioned between digital leadership and outcomes.

6.4. Multiple Regression Analysis

Tables 4 and 5 present hierarchical regression results predicting team performance and employee well being, respectively.

Table 4: Hierarchical Multiple Regression Predicting Team Performance

Predictor	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
Control Variables						
Age	.07	1.15	.05	0.88	.04	0.72
Tenure	.12	1.93	.10	1.66	.08	1.41
Sector (ref: Fintech)						
Primary Predictors						
Digital Leadership	—	—	.46	8.44**	.44	8.19**
Employee Resilience	—	—	—	—	.36	6.62**
Org. Innovativeness	—	—	.25	4.71**	.22	4.22**
Digital Readiness	—	—	.21	3.98**	.19	3.61**
R ²	.05		.43		.54	
ΔR^2	.05		.38		.11	
F	3.47*		31.86**		40.14**	

Note. β = standardised coefficient. ** $p < .01$. * $p < .05$. Sector dummies included but not shown.

Table 5: Hierarchical Multiple Regression Predicting Employee Well Being

Predictor	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
Control Variables						
Age	.05	0.84	.04	0.67	.03	0.51
Tenure	.09	1.47	.08	1.33	.07	1.19
Primary Predictors						
Digital Leadership	—	—	.41	7.52**	.38	7.01**
Employee Resilience	—	—	—	—	.41	7.58**
Org. Innovativeness	—	—	.20	3.79**	.18	3.44**
Digital Readiness	—	—	.26	4.89**	.24	4.57**
R ²	.04		.39		.52	
ΔR^2	.04		.35		.13	
F	2.89*		28.47**		38.62**	

Note. β = standardised coefficient. ** $p < .01$. * $p < .05$.

Digital leadership was the strongest predictor of team performance across all models (Model 2: $\beta = .46$; Model 3: $\beta = .44$, $p < .001$), supporting H2. Employee resilience contributed independently to performance prediction in Model 3 ($\beta = .36$, $p < .001$), supporting H4. Organisational innovativeness ($\beta = .22$) and digital readiness ($\beta = .19$) each

added significant incremental variance, supporting H9. For employee well being (Table 5), digital leadership ($\beta = .38$) and employee resilience ($\beta = .41$) were approximately equal in predictive strength in Model 3, with digital readiness showing a comparatively stronger association with well being ($\beta = .24$) than with performance. Figure 4 presents standardised coefficients visually.

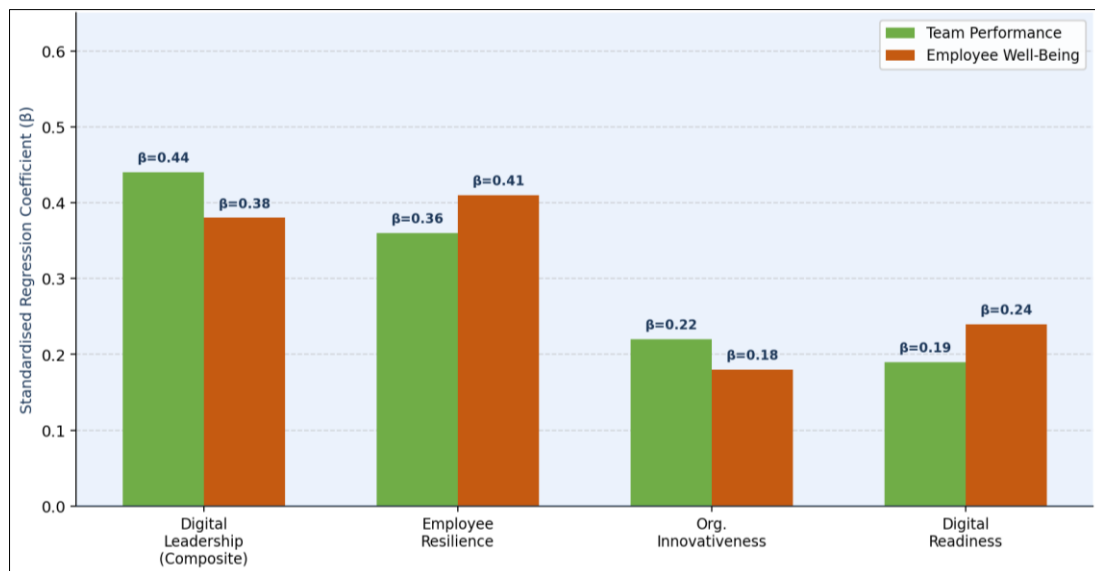


Fig 4: Standardised Regression Coefficients (β) for Team Performance and Employee Well Being

6.5. Mediation Analysis

Table 6: Bootstrap Mediation Analysis: Employee Resilience as Mediator (5,000 Bootstrap Samples)

Pathway	Effect	SE	LLCI	ULCI	Interpretation
DL → ER → Team Performance	0.21	0.04	0.14	0.30	Partial Mediation **
DL → ER → Employee Well Being	0.24	0.04	0.17	0.33	Partial Mediation **
Direct: DL → Team Performance	0.44	0.05	0.34	0.54	Significant **
Direct: DL → Employee Well Being	0.38	0.05	0.28	0.48	Significant **

Note. DL = Digital Leadership; ER = Employee Resilience; LLCI/ULCI = Lower/Upper 95% Bias Corrected Bootstrap CI. ** CI excludes zero.

Bootstrap mediation analysis confirmed partial mediation for both outcomes. The indirect effect of digital leadership on team performance through employee resilience was significant (effect = 0.21, 95% CI [0.14, 0.30]), supporting H6. The indirect effect on employee well being was similarly significant (effect = 0.24, 95% CI [0.17, 0.33]), supporting

H7. The well being indirect effect was marginally larger than the performance indirect effect, consistent with the theoretical emphasis on resilience as a well being resource, and with the finding that resilience was a slightly stronger direct predictor of well being than of performance in the regression models.

6.6 Moderation Analysis: Organisational Innovativeness

Table 7: Moderated Regression: Organisational Innovativeness as Moderator of Digital Leadership → Performance

Predictor / Interaction	β	t	p	Interpretation
Digital Leadership (DL)	0.44	8.19	.000	Significant positive effect
Org. Innovativeness (OI)	0.22	4.22	.000	Significant positive effect
DL × OI (Interaction)	0.16	3.84	.000	Significant moderation **
ΔR^2 for interaction term	—	—	—	$\Delta R^2 = .07$, F change = 14.74**

The interaction between digital leadership and organisational innovativeness was statistically significant ($\beta = 0.16$, $p < .001$, $\Delta R^2 = .07$), supporting H8. The simple slopes plot in Figure 5 shows that digital leadership predicted team performance most strongly in highly innovative organisations (+1 SD), with a flatter slope in low innovativeness contexts

(−1 SD), though the relationship remained positive and statistically significant at all levels of innovativeness. This pattern indicates that organisational innovativeness amplifies rather than creates the digital leadership performance relationship.

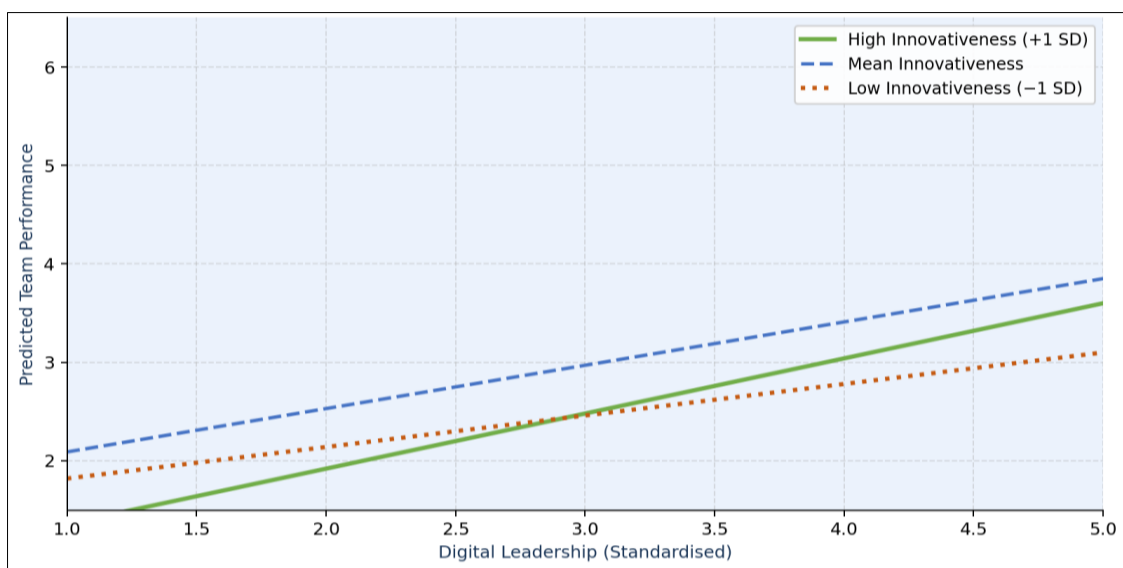


Fig 5: Moderation Effect of Organisational Innovativeness on the Digital Leadership → Team Performance Relationship

7. Discussion

This study provides the first multi sector, multi city empirical examination of digital leadership, employee resilience, team performance, and well being in Nigerian innovative organisations. The findings collectively support the central theoretical proposition that digital leadership operationalised as a multidimensional behavioural construct encompassing vision and strategy, digital communication, data driven decision making, and agile adaptation is a significant and powerful antecedent of both performance and well being outcomes, with employee resilience serving as a meaningful partial mediating mechanism and organisational innovativeness functioning as a contextual amplifier.

The finding that digital leadership is the strongest single predictor of team performance ($\beta = .44$) in the full regression model is consistent with and extends the emerging digital leadership literature. Kane *et al.* (2019) argued on the basis of large scale survey data from global executives that the primary differentiator between digitally mature and digitally developing organisations is not the technology employed but the quality of digital leadership a proposition that the present study's findings support at the workgroup and individual outcome level. The specific contribution of the agile adaptive leadership dimension which recorded the highest mean score ($M = 3.88$) across the digital leadership composite to the Nigerian innovative sector performance relationship is

theoretically interpretable in terms of the distinctive environmental demands of operating in a context of significant infrastructural variability and rapid market change. Leaders who can help their teams respond flexibly and iteratively to changing digital conditions pivoting rapidly when tools fail, adapting quickly to regulatory changes, and reframing setbacks as learning opportunities provide a particularly valuable form of psychological and operational resource in the Nigerian context.

The partial mediation finding that employee resilience accounts for a significant but not exclusive portion of the digital leadership performance and digital leadership well being relationships contributes meaningfully to the theoretical understanding of how digital leader behaviours are translated into individual outcomes. The indirect pathways through resilience are consistent with Conservation of Resources theory (Hobfoll, 1989): digital leadership behaviours function as resource caravans that build the psychological capital particularly resilience that enables employees to sustain performance and well being under the resource depleting demands of digital transformation. The larger indirect effect on well being (0.24) versus performance (0.21) is consistent with the theoretical argument that resilience is fundamentally a psychological well being resource that has secondary performance implications through well being performance pathways (Youssef &

Luthans, 2007).

The significant moderation effect of organisational innovativeness on the digital leadership performance relationship ($\Delta R^2 = .07$) extends the boundary condition analysis of digital leadership effectiveness. The amplification pattern wherein digital leadership is more strongly associated with performance in high innovativeness organisations is consistent with person environment fit theory: digital leadership behaviours generate maximum performance value in organisational environments where the structural, cultural, and resource conditions that enable digital innovation are present. Organisations with high innovativeness provide the psychological safety for risk taking that digital leaders encourage, the resource slack that enables exploratory digital behaviour, and the cultural reinforcement for the agile iterative approaches that digital adaptive leadership advocates. These findings have direct practical implications for organisations considering digital leadership development investment: the return on that investment is likely to be highest in, and may require complementary investment in, an innovation supportive organisational climate.

The fintech sector's consistently highest digital leadership scores across all dimensions are noteworthy and theoretically significant. Nigeria's fintech sector operates within a globally competitive talent market, receives substantial international investor scrutiny, and has pioneered several digital business model innovations with regional and global implications. These environmental pressures may have accelerated the development of digital leadership competencies both through deliberate leadership development investment and through the selection and retention of leaders with strong digital orientation in ways that have not yet permeated less globally exposed sectors. The health technology sector's comparatively lower scores represent both a developmental gap and an opportunity: targeted digital leadership investment in this sector could yield significant performance and well being gains in an area of critical public health importance.

Several limitations constrain the generalisability of the findings. The cross sectional design precludes causal inference, and the hypothesised directional relationships await confirmation through longitudinal studies. The reliance on employee self report for digital leadership, resilience, and well being measures partially mitigated by supervisor rated performance introduces the possibility of residual common method bias, though Harman's single factor test did not indicate excessive CMV. The sample, while systematically selected from five sectors across three cities, over represents Lagos and may not fully capture the digital leadership dynamics of less metropolitan Nigerian organisations. The DLS instrument, though validated across multiple cultural contexts, has not undergone formal measurement invariance testing specifically in Nigeria, a limitation that future studies should address through multi group confirmatory factor analysis.

8. Future Directions

8.1. Longitudinal and Experimental Research

Cross sectional designs cannot establish whether digital leadership behaviours precede or follow changes in employee resilience and organisational outcomes. Longitudinal panel designs that track digital leadership perceptions, resilience levels, and performance and well being outcomes at multiple

time points for example, before and after digital transformation initiatives, ERP implementations, or remote work transitions would provide significantly stronger evidence for the causal mechanisms proposed in the theoretical model. Randomised controlled trial evaluations of digital leadership development programmes, comparing treatment conditions that include training in specific digital leadership dimensions against active control conditions, would provide the most rigorous test of whether improving digital leadership behaviours causally improves resilience and performance outcomes.

8.2. Digital Leadership in Micro and Small Enterprises

The present study focused on formally registered organisations of sufficient scale to support structured survey data collection, excluding the micro and small enterprise (MSE) sector that constitutes the overwhelming majority of Nigerian business activity and employment. Digital transformation is, however, occurring rapidly in the MSE sector driven by mobile money adoption, social media commerce, and platform enabled service delivery and the digital leadership challenges facing owner managers of MSEs may differ substantially from those of professional managers in large organisations. Research examining whether digital leadership constructs developed for large organisation contexts translate to MSE settings, and what adaptations may be necessary to capture the distinctive leadership dynamics of owner managed digital ventures, represents an important extension of the present work.

8.3. Technology Specific Resilience

The resilience construct employed in the present study captures a general psychological capacity for positive adaptation that is not specific to digital contexts. Future research should develop and validate technology specific resilience constructs sometimes termed "digital resilience" or "techno resilience" that capture employees' capacity to recover from specific digital adversities including technology failure, cybersecurity incidents, digital skill gaps, and the cognitive demands of continuous software updates and workflow digitalisation. Such constructs would enable more precise examination of the mechanisms through which digital leadership builds the resilience resources specifically relevant to digital work environments, and would support more targeted resilience building interventions.

8.4. Gender and Generational Dynamics

The present study found that 43% of respondents were female, with variation across sectors reflecting broader labour market patterns. Future research should explicitly examine whether the digital leadership resilience relationship is moderated by employee gender and generational cohort. Female employees in Nigerian organisations may face distinctive barriers to benefiting from digital leadership including differential access to mentorship, unequal participation in digital decision making processes, and technology infrastructure access disparities that modulate the effects documented in the present study. The digital native digital immigrant divide between younger and senior employees may similarly moderate the effectiveness of specific digital leadership dimensions, with agile adaptive leadership more resonant for older employees navigating unfamiliar digital territory.

8.5. Cross National Comparative Research

The Nigerian context offers distinctive features including specific cultural, infrastructural, regulatory, and economic characteristics that both enable and constrain digital leadership effectiveness in ways that may not generalise to other African or emerging market contexts. Cross national comparative studies examining digital leadership in multiple African national contexts including Kenya (another major African technology hub), Ghana, South Africa, and Rwanda would enable systematic analysis of which digital leadership effects are robust across diverse institutional environments and which are contextually contingent. Such comparative research would substantially advance the theoretical development of digital leadership as a cross cultural construct and would provide the empirical foundation for contextually nuanced leadership development frameworks applicable across sub Saharan Africa's diverse economies.

9. Conclusion

This study has provided rigorous quantitative evidence drawn from 300 employees across five innovation oriented industry sectors in three Nigerian cities that digital leadership is a significant and robust predictor of employee resilience, team performance, and well being in innovation intensive organisational contexts. The four dimensional digital leadership construct encompassing digital vision and strategy, digital communication and collaboration, data driven decision making, and agile adaptive leadership demonstrated both direct effects on outcomes and indirect effects operating through the mechanism of employee resilience, consistent with the Conservation of Resources and Job Demands Resources theoretical frameworks that motivated the study's design. Organisational innovativeness amplified the digital leadership performance relationship, confirming the theoretical expectation that leadership effectiveness is contextually conditioned by the structural and cultural environment in which it is exercised.

The practical implications of these findings are substantial. For human resource leaders and chief people officers in Nigerian innovative organisations, the evidence supports prioritising digital leadership development as a strategic investment with direct returns in performance and well being outcomes. The sector level variation in digital leadership scores with health technology organisations showing the largest developmental gap indicates that sector targeted leadership development programmes, grounded in the specific digital transformation challenges and opportunities of each sector, may yield higher returns than generic digital leadership training. The resilience mediation findings suggest that leadership development programmes should explicitly address the resilience building functions of digital leader behaviour including uncertainty communication, psychological safety creation, and developmental challenge provision alongside the technical digital competency components that more commonly dominate digital leadership curricula.

For scholars, this study contributes three specific advances to the emerging digital leadership literature. First, it provides validated evidence of the digital leadership resilience relationship in a previously unstudied African context, extending the theoretical reach of the construct beyond its predominantly Western empirical base. Second, it establishes employee resilience as a significant mediator of digital leadership outcome relationships, opening a productive

theoretical conversation about the psychological mechanisms through which digital leader behaviours generate their effects. Third, it demonstrates that organisational innovativeness moderates digital leadership effectiveness, contributing to the boundary condition analysis of when and where digital leadership investments generate their greatest returns. The Nigerian innovative sector, in all its diversity and dynamism, thus provides a theoretically generative research laboratory that the field has only begun to explore.

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