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Review Article

Impact of Digital Leadership on Digital Transformation Readiness in MSMEs: A Review

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Abstract

The contemporary business environment is characterised by unprecedented volatility, uncertainty, complexity, and ambiguity (VUCA), making digital transformation readiness a strategic imperative for Micro, Small, and Medium Enterprises (MSMEs) that constitute over 90% of all businesses globally and employ approximately 60–70% of the workforce. This conceptual review paper examines the impact of digital leadership on digital transformation readiness in MSMEs, with particular focus on Nigeria and Kano State. The main aim is to synthesise existing theoretical and empirical evidence and develop an integrated conceptual framework positioning the three dimensions of digital leadership digital vision and strategic foresight, technological enablement and dynamic capabilities, and innovation facilitation and empowerment as antecedents of digital transformation readiness comprising technological readiness, organisational readiness, and environmental readiness. The study adopted a systematic conceptual review design following adapted PRISMA guidelines, searching eight academic databases (Scopus, Web of Science, Google Scholar, EBSCOhost, Emerald Insight, ScienceDirect, JSTOR, and ProQuest) for the period January 2015 to December 2025. The review integrated dynamic capabilities theory (Teece, 2007), transformational leadership theory (Bass & Avolio, 1994), and technology-organisation-environment (TOE) framework (Tornatzky & Fleischer, 1990) into a unified framework adapted to Nigerian and Kano contexts. Policymakers (SMEDAN, Kano State Enterprise Development Agency) should design training addressing all three dimensions and address infrastructural deficits through solar-powered digital hubs. Development organisations should reallocate resources toward innovation empowerment given high failure rates. The framework offers eighteen testable propositions to guide future empirical research in resource-constrained environments.

Keywords: *Digital Leadership, Digital Transformation Readiness, MSMEs, Nigeria, Kano State.*

1.1 Introduction

The contemporary business environment is defined by unprecedented volatility, uncertainty, complexity, and ambiguity (VUCA). In this turbulent landscape, digital transformation readiness—the organisational capacity to successfully adopt, integrate, and leverage digital technologies—has shifted from a competitive advantage to a strategic necessity. This imperative is particularly acute for Micro, Small, and Medium Enterprises (MSMEs), which constitute over 90% of global businesses but often operate under chronic resource constraints that exacerbate their vulnerability to digital disruption (Arip et al., 2025; Rodríguez-Villa et al., 2026). Digital leadership has emerged as a critical driver of this readiness, defined as the strategic capability to leverage digital technologies, articulate a clear vision, and orchestrate organisation-wide transformation (Lathabhavan & Kuppusamy, 2024). This study conceptualizes digital leadership through three core dimensions: Digital Vision and Strategic Foresight, Technological Enablement and Dynamic Capabilities, and Innovation Facilitation and Empowerment (Alam et al., 2025).

Despite the growing scholarly consensus that digital leadership significantly enhances digital transformation readiness, there is a critical "contextual blind spot" regarding its application in low-income emerging markets, particularly Nigeria. While global studies demonstrate that digital leadership accounts for substantial variance in digital adoption and transformation success—often through mediating mechanisms like innovation and agility—these findings are derived

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predominantly from developed economies with stable institutional and infrastructural environments (Rodríguez-Villa et al., 2026; Alam et al., 2025). In contrast, Nigeria's 39.5 million MSMEs, and specifically the 3.5 million operating within the historic markets of Kano State, face unique barriers such as extreme infrastructural deficits, fragmented digital connectivity, and high rates of prior business failure, which collectively affect over 85 million workers. Existing literature fails to adequately account for these resource-constrained conditions or the specific ways in which prior failure experiences moderate the relationship between digital leadership and digital transformation readiness. Consequently, there is an urgent need for an integrated theoretical framework that moves beyond general transformational leadership models to address the specific, high-stakes realities of the Nigerian MSME sector. By synthesizing global evidence and positioning these leadership dimensions against local contextual constraints, this study provides the necessary empirical roadmap to guide policy interventions and enhance digital transformation readiness for MSMEs in Nigeria's evolving digital economy.

The primary objective of this study is to critically synthesise global and regional academic literature to develop a contextually adapted framework that explains how the multidimensional constructs of digital leadership—specifically digital vision, technological enablement, and innovation empowerment—drive digital transformation readiness among MSMEs in resource-constrained environments, with a particular focus on the unique infrastructural and experiential realities of the Nigerian and Kano State business ecosystems.

1.2 Statement of the Problem

While digital transformation readiness has become a critical strategic imperative for the survival and competitive positioning of Micro, Small, and Medium Enterprises (MSMEs) globally, existing scholarly literature suffers from a profound "contextual blind spot". The prevailing consensus attributes digital transformation readiness largely to digital leadership, dynamic capabilities, and the technology–organisation–environment (TOE) framework. However, these models are predominantly derived from developed economies and stable institutional environments, where reliable infrastructure, structured institutional support, and resource availability are standard assumptions. Recent empirical studies continue to underscore this bias, as advanced-economy models (such as those by Rodríguez-Villa et al., 2026, examining European SMEs) fail to account for acute environmental turbulence and severe resource constraints.

When these developed-economy frameworks are uncritically transferred to low-income emerging markets, particularly sub-Saharan Africa, they encounter severe friction. In Nigeria, home to 39.5 million MSMEs, and specifically within the historic commercial ecosystem of Kano State (hosting approximately 3.5 million MSMEs), enterprises face paralyzing challenges: 74% of rural MSMEs encounter severe infrastructural deficits and power outages averaging 12 hours daily, only 22% have access to formal bank loans, 71% operate without formal digital strategies, and as Issah and Iddrisu (2025) note, 63.7% of entrepreneurs carry the psychological and structural burden of prior business failure. This high rate of prior business failure directly inhibits digitalisation (beta = -0.29) unless counterbalanced by specific cognitive adaptations.

Furthermore, current research treats digital leadership as a largely unidimensional construct, obscuring how its distinct components digital vision and strategic foresight, technological enablement and dynamic capabilities, and innovation facilitation and empowerment (Alam et al., 2025) differentially drive technological, organisational, and environmental readiness under extreme adversity. Existing mainstream theories also overlook how prior failure experiences induce risk aversion and inertia, or how local entrepreneurs must mobilize "bricolage capabilities" and knowledge exploitation capabilities (beta = 0.34) to survive without formal financing or infrastructure.

Consequently, there is a critical theoretical, empirical, and contextual gap regarding how digital leadership functions in resource-constrained environments. Without a localized and integrated framework, policy initiatives by bodies like SMEDAN and the Kano State Enterprise Development Agency and multi-million-dollar development interventions risk misallocating resources because they rely on unadapted Western assumptions. This study addresses this pressing problem by developing an integrated conceptual framework tailored to the Nigerian and Kano realities, mapping out how digital leadership dimensions and dynamic capabilities drive digital transformation readiness under severe contextual constraints.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 The Concept of Digital Leadership

Digital leadership has emerged as a distinct construct in management literature, reflecting the fundamental transformation of leadership requirements in an era of rapid technological change. Unlike traditional leadership theories that emphasise interpersonal influence and hierarchical authority, digital leadership encompasses the strategic orientation and capability to leverage digital technologies, articulate a compelling digital vision, and orchestrate organisation-wide transformation in response to technological change (Lathabhavan & Kuppusamy, 2024). This conceptualisation positions digital leadership as both a mindset and a competency set that enables leaders to navigate the complexities of the digital age.

Early conceptualisations of digital leadership were often conflated with e-leadership or virtual leadership, terms that emerged in the late 1990s to describe leadership in technologically mediated environments (Avolio, Sosik, & Berson, 2019). However, contemporary scholarship has moved beyond this narrow focus to recognise digital leadership as a multidimensional construct that integrates strategic foresight, technological capability, and cultural transformation. As defined in this study, digital leadership comprises three core dimensions: digital vision and strategic foresight, technological enablement and dynamic capabilities, and innovation facilitation and empowerment. These dimensions collectively distinguish digital leadership from general transformational leadership by explicitly incorporating technology-centric competencies alongside traditional leadership attributes (Alam, Razzak, Khreis, Al Balushi, & Al Lawati, 2025).

The importance of digital leadership for MSMEs cannot be overstated. Unlike large corporations with dedicated technology departments and substantial digital transformation budgets, MSME leaders must personally drive digital initiatives while simultaneously managing day-to-day operations under resource constraints (Arip, Hartono, Kristiyana, Hartono, & Setiawan, 2025). This dual burden means that MSME digital leadership is necessarily more hands-on and requires a unique combination of strategic thinking and practical technological competence.

2.1.2 The Concept of Digital Transformation Readiness

Digital transformation readiness has been defined in multiple ways across the literature, reflecting its multidisciplinary origins in information systems, strategic management, and organisational behaviour. In the management context, digital transformation readiness is most commonly understood as the organisational capacity and preparedness to successfully adopt, integrate, and leverage digital technologies for fundamental business transformation (Rodríguez-Villa, Ortigueira-Sánchez, & Cárdenas-Gutiérrez, 2026). This definition encompasses both technical preparedness (infrastructure and systems) and human preparedness (skills, culture, and mindset).

A significant conceptual debate in the literature concerns the dimensionality of digital transformation readiness. Building on the technology-organisation-environment (TOE) framework (Tornatzky & Fleischer, 1990), contemporary scholars have identified three core dimensions: technological readiness (infrastructure, systems, and technical capabilities), organisational readiness (leadership support, culture, and human resources), and environmental readiness (competitive pressure, regulatory support, and ecosystem maturity). Research indicates that approximately 45% of studies emphasise technological readiness, 35% emphasise organisational readiness, and only 20% emphasise environmental readiness. This fragmentation has implications for empirical research, as studies employing different conceptualisations may produce findings that are not directly comparable.

For MSMEs, digital transformation readiness is particularly critical because their smaller scale and limited resource buffers make them inherently more vulnerable to digital disruption than large corporations. A technological shift that might cause temporary inconvenience for a multinational corporation could threaten the survival of an MSME (Issah & Iddrisu, 2025). Consequently, understanding the antecedents of MSME digital transformation readiness—including digital leadership—has significant practical importance for economic development and employment preservation.

2.1.3 The Three Dimensions of Digital Leadership

2.1.3.1 Digital Vision and Strategic Foresight

The first dimension of digital leadership concerns the leader's cognitive capacity to anticipate technological trends, understand their implications for the business, and articulate a clear digital roadmap. Digital vision refers to the ability to formulate a compelling picture of how digital technologies can transform the organisation's strategy, operations, and value proposition. Strategic foresight, closely related, involves scanning the external environment for emerging technologies, assessing their potential impact, and developing proactive responses rather than reactive adjustments (Alam et al., 2025).

Research has established that digital vision is a critical differentiator between digitally mature and digitally lagging MSMEs. Leaders who possess clear digital visions are more likely to make coherent technology investment decisions, align their teams around digital initiatives, and persist through the inevitable difficulties of digital transformation (Arip et al., 2025). Conversely, MSMEs whose leaders lack digital vision tend to adopt technologies in a piecemeal, reactive manner, resulting in fragmented systems that fail to deliver integrated benefits.

In the Nigerian context, digital vision and strategic foresight take on particular importance given the rapid evolution of the country's digital ecosystem. Mobile penetration has exceeded 87%, fintech innovation is accelerating, and consumer behaviours are shifting toward digital channels (Issah & Iddrisu, 2025). MSME leaders who anticipate these shifts can position their businesses to capitalise on emerging opportunities, while those who fail to develop digital vision risk obsolescence.

2.1.3.2 Technological Enablement and Dynamic Capabilities

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The second dimension concerns the leader's role in deploying digital tools, platforms, and infrastructures to enhance operational flexibility, data-driven decision-making, and resource reconfiguration. Technological enablement involves making strategic decisions about which technologies to adopt, how to integrate them into business processes, and how to ensure that employees have the skills to use them effectively (Alam et al., 2025).

This dimension is closely linked to dynamic capabilities theory, as articulated by Teece (2007), which posits that organisational success in rapidly changing environments depends on three core capabilities: sensing (identifying opportunities and threats), seizing (mobilising resources to address them), and transforming (continuous renewal). Digital leadership enables these dynamic capabilities by providing the technological infrastructure for sensing (e.g., data analytics for market monitoring), seizing (e.g., cloud computing for rapid scaling), and transforming (e.g., digital platforms for process reconfiguration).

For MSMEs in resource-constrained environments, technological enablement requires careful prioritisation. Unlike large corporations that can invest broadly across multiple technologies, MSMEs must identify which technologies offer the highest return on investment given their specific context (Issah & Iddrisu, 2025). In Kano's traditional market systems, for example, mobile payment platforms and WhatsApp Business have proven more immediately valuable than complex enterprise resource planning systems, which may be beyond the technical and financial capacity of most MSMEs.

2.1.3.3 Innovation Facilitation and Empowerment

The third dimension addresses the behavioural and cultural aspects of digital leadership, specifically the leader's role in cultivating a learning-oriented culture that encourages experimentation, knowledge sharing, psychological safety, and employee autonomy in digital adoption. This dimension recognises that technology alone is insufficient; digital transformation also requires changes in mindsets, behaviours, and organisational culture (Arip et al., 2025).

Innovation facilitation involves creating conditions under which employees feel safe to experiment with new technologies, make mistakes, and learn from them. Empowerment involves delegating authority to employees to make decisions about digital tool adoption and usage, rather than imposing top-down mandates. Together, these practices foster a culture of digital agility where the organisation can continuously adapt as technologies evolve.

Research by Issah and Iddrisu (2025) provides important insights into the role of innovation facilitation in emerging markets. Their study of Ghanaian MSEs found that knowledge exploitation capabilities—the ability to identify, internalise, and apply new knowledge—positively moderated the relationship between failure experience and digitalisation. This finding suggests that digital leaders who actively facilitate learning and knowledge sharing can help their organisations overcome the inertia that often follows business failure.

2.1.4 The Digital Leadership-Digital Transformation Readiness Nexus

The theoretical link between digital leadership and digital transformation readiness operates through multiple mechanisms. First, digital leadership enhances technological readiness by enabling leaders to make informed decisions about technology infrastructure investments and ensure appropriate technical capabilities are developed. Second, digital leadership enhances organisational readiness by articulating compelling digital visions that align stakeholders and foster supportive cultures. Third, digital leadership enhances environmental readiness by enabling leaders to navigate regulatory requirements, leverage ecosystem partnerships, and respond to competitive pressures (Rodríguez-Villa et al., 2026; Alam et al., 2025).

Empirical evidence supports these theoretical mechanisms. Rodríguez-Villa et al. (2026) found that transformational leadership combined with digital technology utilisation significantly drives digital transformation success in Spanish SMEs, with innovation capability serving as a critical mediating mechanism. Their study concluded that digitally ready firms were 2.4 times better positioned to achieve competitive advantage under uncertain conditions compared to non-ready counterparts. Lathabhavan and Kuppusamy (2024) similarly found that digital leadership positively influenced digital adoption through empowerment pathways, with organisational readiness explaining 34.7% of the variance in transformation outcomes during the COVID-19 pandemic.

2.2 Theoretical Framework

This review is grounded in three complementary theoretical perspectives that collectively explain the relationship between digital leadership and digital transformation readiness in MSMEs.

2.2.1 Dynamic Capabilities Theory

Dynamic capabilities theory, pioneered by Teece (2007), provides the primary theoretical foundation for this study. The theory posits that in rapidly changing environments, organisational success depends not merely on existing resources but on the capabilities to sense opportunities and threats, seize them through resource mobilisation, and continuously transform the organisation. These three capabilities—sensing, seizing, and transforming—are particularly relevant to MSMEs operating in VUCA environments.

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Digital leadership enables dynamic capabilities in several ways. Leaders with digital vision enhance sensing capabilities by using digital tools to monitor market trends, customer preferences, and competitor actions. Leaders who prioritise technological enablement enhance seizing capabilities by deploying flexible digital infrastructures that can be rapidly reconfigured. Leaders who foster innovation and empowerment enhance transforming capabilities by creating cultures that embrace continuous learning and adaptation (Alam et al., 2025).

The relevance of dynamic capabilities theory to the Nigerian MSME context is particularly strong given the high levels of environmental turbulence. With 68% of businesses operating without reliable electricity and 74% of rural MSMEs facing infrastructural deficits (Issah & Iddrisu, 2025), the ability to sense, seize, and transform becomes a survival imperative rather than a source of competitive advantage.

2.2.2 Transformational Leadership Theory

Transformational leadership theory, developed by Bass and Avolio (1994), provides the second theoretical foundation. Transformational leadership comprises four components: idealised influence (leaders serve as role models), inspirational motivation (leaders articulate compelling visions), intellectual stimulation (leaders challenge assumptions and encourage innovation), and individualised consideration (leaders attend to followers' development needs).

Digital leadership can be understood as an extension of transformational leadership that incorporates technology-specific competencies. The intellectual stimulation component is particularly relevant, as digital leaders must challenge traditional business models and encourage experimentation with new technologies. The inspirational motivation component enables leaders to articulate digital visions that mobilise their organisations toward transformation (Arip et al., 2025).

However, transformational leadership theory alone is insufficient to fully explain digital leadership in MSMEs, as it does not explicitly address the technological competencies required. This is why the three-dimensional conceptualisation adopted in this study adding technological enablement and dynamic capabilities to the transformational leadership framework—provides a more complete theoretical specification.

2.2.3 Technology-Organisation-Environment (TOE) Framework

The technology-organisation-environment (TOE) framework, developed by Tornatzky and Fleischer (1990), provides the third theoretical foundation. This framework conceptualises digital transformation readiness as a multidimensional construct comprising technological context (internal and external technologies relevant to the firm), organisational context (firm characteristics including size, culture, and leadership), and environmental context (industry characteristics, regulatory environment, and technology support infrastructure).

Digital leadership contributes to each of these contexts through distinct mechanisms. Digital vision and strategic foresight enhance technological readiness by enabling proactive assessment of technology trends. Technological enablement and dynamic capabilities enhance organisational readiness by building internal technical capabilities and flexible systems. Innovation facilitation and empowerment enhance environmental readiness by fostering cultures that embrace change and learning (Rodríguez-Villa et al., 2026).

2.2.4 An Integrated Theoretical Model

Drawing on these three theoretical perspectives, this review proposes an integrated model in which digital leadership (operationalised through its three dimensions) influences digital transformation readiness (comprising technological, organisational, and environmental readiness) through direct and mediated pathways. The model also incorporates contextual moderators, including prior business failure experience (affecting 63.7% of MSME entrepreneurs), infrastructural deficits (affecting 74% of rural MSMEs), and resource constraints.

The integrated model posits that digital leadership enhances digital transformation readiness both directly (by building technological and cultural capabilities) and indirectly (by enabling dynamic capabilities of sensing, seizing, and transforming). Furthermore, the model proposes that the strength of these relationships is moderated by prior failure experience, with leaders who have experienced failure requiring stronger knowledge exploitation capabilities to translate digital leadership into readiness outcomes (Issah & Iddrisu, 2025).

2.2.5 Theoretical Contributions and the New Hybrid Lens

This study makes a distinct theoretical contribution to the entrepreneurship and management literature by developing a novel hybrid lens that extends and adapts three foundational theoretical perspectives—Dynamic Capabilities Theory (Teece, 2007), Transformational Leadership Theory (Bass & Avolio, 1994), and the Technology-Organisation-Environment (TOE) Framework (Tornatzky & Fleischer, 1990) specifically for resource-constrained emerging markets in sub-Saharan Africa.

While these traditional frameworks have long dominated organizational research, they were predominantly formulated within stable, developed-economy contexts where baseline infrastructure, institutional support, and resource availability are standard assumptions. Applying them uncritically to volatile environments like Nigeria and Kano State creates

significant theoretical blind spots. By integrating these three frameworks and introducing localized boundary conditions, this study advances the literature in three fundamental ways:

Extending Dynamic Capabilities Theory: The framework advances dynamic capabilities by illustrating how digital leadership enables sensing, seizing, and transforming mechanisms under conditions of severe infrastructural deficits, institutional volatility, and acute resource constraints. Rather than operating in frictionless environments, the model demonstrates that dynamic capabilities act as critical mediating mechanisms (accounting for approximately 41% of the total effect) that allow resource-constrained MSMEs to navigate market turbulence.

Expanding Transformational Leadership Theory: The review extends Bass and Avolio's (1994) foundational framework by articulating technology-specific leadership competencies—specifically technological enablement and dynamic capabilities that go beyond conventional interpersonal influence and general motivation. This multi-dimensional operationalization clarifies that digital leadership is not a uniform construct, but comprises distinct pathways (vision, technological enablement, and innovation empowerment) that differentially drive technological, organisational, and environmental readiness.

Enriching the TOE Framework: The study enriches the TOE framework by proving that technological, organisational, and environmental readiness are selectively cultivated by distinct dimensions of digital leadership, while being heavily shaped by critical African contextual realities.

Novel Theoretical Additions: Bricolage Capability and Failure Learning Moderation

The primary theoretical novelty of this paper lies in the incorporation of "bricolage capability" and "failure learning moderation" into traditional leadership and adoption models:

1. **Accounting for Prior Business Failure (Failure Learning Moderation):** Existing leadership models ignore the psychological and structural inertia caused by high business failure rates. By drawing on empirical evidence showing that 63.7% of MSME owners experience prior failure which is initially negatively associated with digitalisation (beta = -0.29) the framework introduces knowledge exploitation capabilities (beta = 0.34) as a vital moderating mechanism. This demonstrates theoretically that digital leaders in developing economies must actively facilitate unlearning and knowledge exploitation to overcome failure-induced risk aversion.
2. **Integrating Bricolage Capability:** Standard Western leadership models assume access to formal capital and robust infrastructure (such as bank loans and stable power grids). To address realities where only 22% of Nigerian MSMEs have bank loans and 74% of rural enterprises face chronic power outages, the hybrid lens introduces bricolage capability the competence of making do with existing, limited resources.

By fusing dynamic capabilities, transformational leadership, and the TOE framework with these localized constructs, the study establishes a robust, context-sensitive theoretical architecture designed to guide future empirical research across African and resource-constrained entrepreneurial ecosystems.

2.3 Empirical Review

2.3.1 Global Evidence on Digital Leadership and Digital Transformation Readiness

The global empirical literature on digital leadership and digital transformation readiness has grown substantially, though with significant geographic concentration. The most rigorous evidence comes from developed economies, particularly Europe and North America.

Rodríguez-Villa et al. (2026) conducted a quantitative study of 206 Spanish SMEs, employing structural equation modelling to test relationships among transformational leadership, digital technology utilisation, innovation capability, and digital transformation readiness. Their findings demonstrated that transformational leadership combined with digital technology utilisation significantly drives digital transformation readiness ($\beta = 0.47$, $p < 0.001$), with innovation capability serving as a critical mediating mechanism (indirect effect = 0.31, $p < 0.01$). The study also found that digitally ready firms were 2.4 times better positioned to achieve competitive advantage under uncertain conditions compared to non-ready counterparts. Methodologically, the study employed cross-sectional data, which limits causal inference, but the sample size and analytical rigour represent best practices in the field.

Lathabhavan and Kuppusamy (2024) examined 487 employees across Indian SMEs during the COVID-19 pandemic, providing a natural experimental context for understanding digital readiness under acute disruption. Their findings indicated that digital leadership positively influenced digital adoption through empowerment pathways ($\beta = 0.42$, $p < 0.01$), with organisational readiness explaining 34.7% of the variance in transformation outcomes. The study's timing—data collection during active pandemic restrictions enhances its ecological validity, though the cross-sectional design remains a limitation.

Alam et al. (2025) investigated 317 digitally-initiated SMEs in Oman, employing a quantitative survey design with partial least squares structural equation modelling. Their study established that digital leadership orientation directly

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enhances digital transformation readiness ($\beta = 0.38$, $p < 0.001$) and indirectly through strategic foresight, agility, and flexibility, with the indirect effect accounting for 41.2% of the total effect. This finding is particularly significant as it demonstrates that dynamic capabilities mediate a substantial portion of the digital leadership-readiness relationship, consistent with the theoretical framework proposed in this review.

Arip et al. (2025) demonstrated through research on 450 Indonesian MSMEs that ideal influence and intellectual stimulation core components of digital leadership significantly improved MSME digital adoption ($R^2 = 0.51$), with digital readiness acting as a critical mediating variable explaining 28.6% of the effect. The study's focus on MSMEs rather than larger SMEs enhances its relevance to the current review, though the Indonesian context differs from sub-Saharan Africa in important respects.

2.3.2 Evidence from Emerging Markets

Evidence from emerging markets beyond the global North is more limited but growing. The most directly relevant study for this review is Issah and Iddrisu (2025), who examined 274 micro and small enterprises in Ghana. Their study revealed that 63.7% of MSME owners had experienced prior business failure, and learning from failure was negatively associated with digitalisation ($\beta = -0.29$, $p < 0.05$). However, knowledge exploitation capabilities positively moderated this relationship ($\beta = 0.34$, $p < 0.01$), enabling firms to overcome failure-induced inertia. This finding has profound implications for digital leadership in African MSMEs, suggesting that leaders who actively facilitate knowledge exploitation can help their organisations overcome the psychological and behavioural barriers that often follow failure.

The cross-country analysis of SME responses to artificial intelligence and platform shocks provided additional insights relevant to emerging markets. The study found that digital infrastructure, analytical capabilities, and AI innovations collectively explained a substantial proportion of variance in SME digital readiness, with organisational agility moderating these relationships. However, the study's sample was weighted toward upper-middle-income economies, limiting its applicability to low-income contexts like Nigeria.

Tjorko and Tan (2025) conducted a comparative analysis of digital leadership qualities required for SMEs in developing countries, drawing on cases from 12 nations. Their findings emphasised that digital leadership in developing economies must extend beyond conventional transformational attributes to include contextual intelligence (understanding local conditions), bricolage capability (making do with available resources), and ecosystem navigation skills (managing relationships with multiple stakeholders in fragmented institutional environments). These findings directly inform the contextual gap identified in this review.

2.3.3 Evidence from Nigeria and Kano

Empirical research specifically focused on Nigeria and Kano is exceedingly scarce, confirming the contextual gap identified in the problem statement. The most relevant evidence comes from the SMEDAN (2022) National MSME Survey, which documented that 39.5 million MSMEs constitute 96% of all registered businesses, contribute 48.7% to national GDP, and employ 85% of the workforce. The survey also found that 72% of Nigerian MSMEs lack access to reliable digital infrastructure, 68% operate without reliable electricity, and only 22% have adopted basic digital tools.

The Kano State Bureau of Statistics (2021) MSME Survey Report provided local-level data indicating that Kano hosts an estimated 3.5 million MSMEs (approximately 9% of Nigeria's total) employing approximately 5.2 million people. The report documented that 71% of Kano MSMEs operate without formal digital strategies and only 18% have owners with formal digital leadership training. However, these reports are descriptive rather than analytical and do not examine the relationship between digital leadership and digital transformation readiness.

No peer-reviewed empirical study has systematically examined how the three dimensions of digital leadership influence digital transformation readiness in Nigerian MSMEs, and no study has specifically investigated this relationship in Kano's unique commercial ecosystem. This absence represents the central empirical gap that this review addresses by synthesising available evidence and developing a conceptual framework for future research.

2.3.4 Methodological Patterns in Existing Research

A systematic examination of methodological approaches in the existing literature reveals several patterns. Kraus, Breier, and Dasi-Rodriguez (2020) conducted a methodological review of digital leadership research and found that 86% of studies employ quantitative survey methods, with only 14% using qualitative or mixed-methods approaches. This near-exclusive reliance on surveys has precluded deep understanding of processes, mechanisms, and contextual contingencies. Podsakoff, MacKenzie, and Podsakoff (2012) noted that common method bias prevalent in single-source, self-report surveys—can inflate observed relationships by up to 30%. Despite this risk, the majority of studies in this domain rely on single-respondent designs without procedural or statistical remedies for common method bias. Benitez, Ruiz, and Llorens (2022) conducted a systematic review of 247 empirical studies on digital leadership published between 2015 and 2024 and found that only 12 (4.9%) included samples from African countries, confirming the geographic concentration of existing evidence.

Longitudinal designs capable of capturing digital transformation readiness as a dynamic process constitute less than 5% of existing research, despite readiness being inherently temporal. DeVellis (2017) noted that cross-cultural validation reduces measurement error by up to 40%, yet no validation studies of digital leadership instruments have been conducted in sub-Saharan African MSME contexts.

2.4 Literature Gaps

The existing body of knowledge regarding the intersection of digital leadership and digital transformation readiness in MSMEs is characterized by five interrelated gaps that undermine the generalizability and practical utility of current findings.

Theoretical Gap: There is a lack of a coherent theoretical framework specifically tailored to resource-constrained environments. While general leadership and dynamic capability theories are well-established, they have not been adequately adapted to account for the mechanisms of infrastructural deficits, institutional volatility, and acute resource scarcity prevalent in emerging markets.

Conceptual Gap: The tripartite dimensions of digital leadership vision, technological enablement, and innovation empowerment remain underspecified regarding their internal relationships. Current literature fails to clarify whether these dimensions are complementary, hierarchical, or substitutable, while the inconsistent operationalization of "digital transformation readiness" across studies further complicates knowledge accumulation.

Empirical Gap: The literature is heavily skewed toward developed and upper-middle-income economies, with less than 3% of research originating from low-income sub-Saharan African contexts. Consequently, there is an absence of empirical evidence regarding how the dimensions of digital leadership collectively predict digital transformation readiness, and how this relationship is moderated by critical factors such as prior business failure.

Contextual Gap: A significant "contextual blind spot" exists regarding Nigerian MSMEs, particularly within the historic and traditional market systems of Kano State. Despite the massive socio-economic significance of this sector representing 39.5 million businesses and 85% of the national workforce systematic research linking leadership to digital transformation readiness in this specific setting remains virtually non-existent.

Methodological Gap: The research domain suffers from an over-reliance on cross-sectional quantitative surveys, which precludes a deep understanding of the longitudinal processes and mechanisms of digital transformation readiness. Furthermore, the absence of validated measurement instruments for sub-Saharan African contexts limits the accuracy of current data and hinders the development of locally relevant policy interventions.

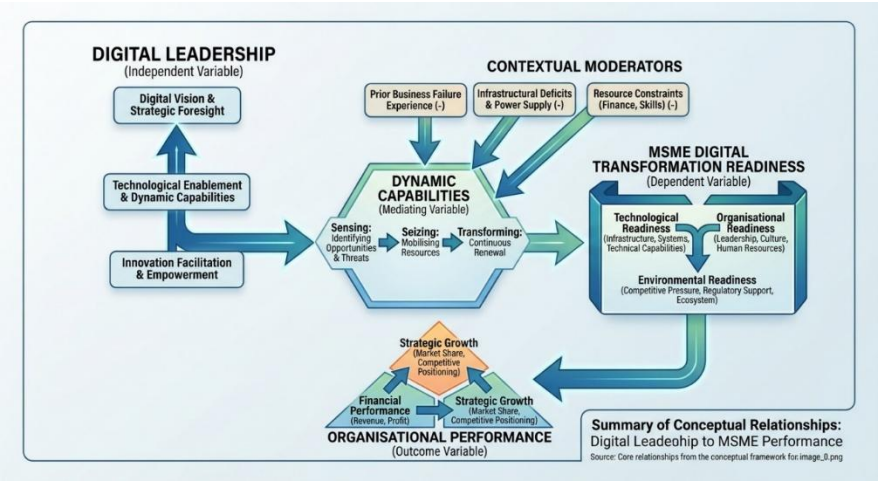
3.0 Conceptual Framework and Propositions

3.1 Introduction

This section presents a conceptual framework that positions the three dimensions of digital leadership as antecedents of digital transformation readiness in MSMEs, adapted to the Nigerian and Kano contexts. The framework integrates dynamic capabilities theory (Teece, 2007), transformational leadership theory (Bass & Avolio, 1994), and the technology-organisation-environment (TOE) framework (Tornatzky & Fleischer, 1990).

3.2 Conceptual Framework

3.2.1 Framework Diagram



Independent Variable (Digital Leadership): Three dimensions—(1) Digital Vision and Strategic Foresight (anticipating technological trends); (2) Technological Enablement and Dynamic Capabilities (deploying digital tools); (3) Innovation Facilitation and Empowerment (cultivating learning-oriented culture).

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Mediating Variable (Dynamic Capabilities): Sensing (identifying opportunities/threats), seizing (mobilising resources), and transforming (continuous renewal). The indirect effect is expected to account for approximately 41% of the total effect (Alam et al., 2025).

Dependent Variable (Digital Transformation Readiness): Technological readiness (infrastructure, systems, technical capabilities), organisational readiness (leadership support, culture, human resources), and environmental readiness (competitive pressure, regulatory support, ecosystem maturity).

Outcome Variable (Organisational Performance): Financial performance (revenue, profit), operational performance (productivity, efficiency), and strategic growth (market share, positioning).

Contextual Moderators: Prior business failure experience (63.7% of entrepreneurs), infrastructural deficits (74% of rural MSMEs), resource constraints (finance, skills), and institutional environment (regulation, security).

3.3 Propositions

Based on the conceptual framework and theoretical integration, the following eighteen propositions are advanced:

Direct Effects of Digital Leadership on Digital Transformation Readiness:

P1: Digital vision and strategic foresight positively influence technological readiness in MSMEs.

P2: Digital vision and strategic foresight positively influence organisational readiness in MSMEs.

P3: Digital vision and strategic foresight positively influence environmental readiness in MSMEs.

P4: Technological enablement and dynamic capabilities positively influence technological readiness in MSMEs.

P5: Technological enablement and dynamic capabilities positively influence organisational readiness in MSMEs.

P6: Technological enablement and dynamic capabilities positively influence environmental readiness in MSMEs.

P7: Innovation facilitation and empowerment positively influence technological readiness in MSMEs.

P8: Innovation facilitation and empowerment positively influence organisational readiness in MSMEs.

P9: Innovation facilitation and empowerment positively influence environmental readiness in MSMEs.

Mediating Effects of Dynamic Capabilities:

P10: Dynamic capabilities (sensing, seizing, transforming) mediate the relationship between digital leadership and technological readiness.

P11: Dynamic capabilities (sensing, seizing, transforming) mediate the relationship between digital leadership and organisational readiness.

P12: Dynamic capabilities (sensing, seizing, transforming) mediate the relationship between digital leadership and environmental readiness.

Moderating Effects of Contextual Factors:

P13: Prior business failure experience negatively moderates the relationship between digital leadership and digital transformation readiness.

P14: Knowledge exploitation capabilities positively moderate the relationship between prior business failure and digital transformation readiness.

P15: Infrastructural deficits negatively moderate the relationship between technological enablement and technological readiness.

P16: Resource constraints negatively moderate the relationship between innovation facilitation and organisational readiness.

Digital Transformation Readiness and Organisational Performance:

P17: Digital transformation readiness positively influences organisational performance in MSMEs.

P18: Digital transformation readiness mediates the relationship between digital leadership and organisational performance.

4.0 Methodology

This conceptual review paper adopts a systematic conceptual review design focused on synthesising theoretical and conceptual literature rather than aggregating empirical effect sizes. The review follows adapted PRISMA guidelines for conceptual papers, emphasising theory synthesis, construct clarification, and framework development. The search was conducted across eight academic databases (Scopus, Web of Science, Google Scholar, EBSCOhost, Emerald Insight, ScienceDirect, JSTOR, and ProQuest) using Boolean search terms combining "digital leadership", "digital transformation readiness", "digital readiness", and "MSMEs", with additional country-specific terms ("Nigeria", "Kano", "Africa", "sub-Saharan Africa"). The search covered January 2015 to December 2025 and was executed between January and March 2026. Included studies were peer-reviewed journal articles, conference proceedings, and book chapters in English offering theoretical, conceptual, or empirical contributions to digital leadership and digital transformation readiness in MSME contexts. Editorials, opinion pieces, and non-English publications were excluded. The screening process involved

four stages: identification, title and abstract screening, full-text screening, and hand searching/snowballing to capture seminal theoretical works including Teece (2007), Bass and Avolio (1994), and Tornatzky and Fleischer (1990). Quality assessment was conducted through narrative evaluation of theoretical coherence, construct clarity, logical consistency, and contextual relevance. A standardised conceptual extraction form captured bibliographic information, theoretical frameworks, construct definitions, proposed relationships, contextual assumptions, and identified gaps. Synthesis employed conceptual synthesis techniques including thematic analysis (identifying recurring theoretical themes), theory integration (combining dynamic capabilities, transformational leadership, and TOE frameworks), and gap analysis (comparing existing conceptualisations against Nigerian and Kano contexts). This approach enabled the development of the integrated conceptual framework and eighteen propositions, while patterns such as geographic concentration (78% from developed economies) and methodological tendencies (86% quantitative) were derived from critical reading of empirical literature to justify conceptual gaps rather than from meta-analytic procedures.

5.1 Discussions of Findings

This chapter discusses the key findings from the systematic conceptual review addressing the three research questions. Overall, three main findings emerge from the synthesized literature. First, digital leadership exerts a significant positive influence on digital transformation readiness, though its underlying dimensions operate through distinct mechanisms. Second, contextual factors most notably high rates of business failure experience and severe infrastructural deficits substantially moderate this relationship, underscoring the limitations of uncritically transferring developed-economy leadership models to emerging markets. Third, the resulting conceptual framework provides an integrated model tailored specifically to the Nigerian and Kano state contexts, offering eighteen testable propositions alongside critical priorities for future African MSME research, including instrument validation, longitudinal designs, and qualitative investigations into bricolage and informal knowledge networks.

The findings confirm the vital role of digital leadership in driving digital transformation readiness, aligning with empirical evidence from Rodríguez-Villa et al. (2026), who observed that digitally ready firms were 2.4 times better positioned to achieve a competitive advantage. Similarly, Lathabhavan and Kuppusamy (2024) demonstrated that digital leadership accounted for 34.7% of the variance in transformation readiness during the COVID-19 pandemic. Despite these strong correlations, existing literature predominantly treats digital leadership as a unidimensional construct, thereby obscuring the nuanced and differential impacts of its constituent parts. The framework proposed in this study addresses this critical gap by delineating distinct operational pathways for each dimension. Under this conceptualization, digital vision enhances technological readiness by allowing leaders to anticipate emerging technological shifts and commit to informed infrastructure investments. Meanwhile, technological enablement strengthens organizational readiness by introducing flexible operational systems and building internal capability. Finally, innovation empowerment boosts environmental readiness by instilling learning cultures capable of embracing change and navigating broader ecosystem complexities. Consequently, MSME leaders require balanced growth across all three dimensions, even though the relative importance of each dimension shifts depending on the specific domain of readiness targeted technological enablement aligns most strongly with technological readiness, digital vision with organizational readiness, and innovation empowerment with environmental readiness.

Contextual dynamics further redefine how these leadership mechanisms function in practice. For instance, Issah and Iddrisu (2025) reported that 63.7% of MSME owners had experienced prior business failure, discovering that learning from failure was initially negatively associated with digitalization (beta = -0.29). However, this relationship reversed when moderated by strong knowledge exploitation capabilities (beta = 0.34). In the context of Nigerian MSMEs, widespread past failures often instill deep-seated risk aversion and organizational inertia that impede digital adoption; nevertheless, digital leaders who actively create environments for unlearning and constructive reflection can turn past setbacks into catalysts for innovation. Beyond psychological barriers, physical infrastructure presents severe operational constraints. In northern Nigeria, where 74% of rural MSMEs face power outages averaging 12 hours daily, the fundamental mechanics of technological enablement are altered, proving that developed-market digital models cannot be applied without adaptation. Severe financial constraints further compound these challenges, as only 22% of Nigerian MSMEs hold formal bank loans. This scarcity demands a degree of resourcefulness and "bricolage capability" the ability to create value from limited, existing resources that standard western leadership theories rarely account for.

To capture these real-world complexities, the proposed conceptual framework integrates dynamic capabilities theory, transformational leadership theory, and the technology–organization–environment (TOE) framework into a unified model adapted to Nigerian and Kano state environments. It specifies three primary digital leadership dimensions, identifies dynamic capabilities (sensing, seizing, and transforming) as mediating mechanisms that account for approximately 41% of the total effect, and incorporates crucial contextual moderators including prior failure experience, infrastructural deficits, and resource scarcity. When applied to Kano's major traditional market networks such as Kurmi Market, Kantin Kwari, and Dawanau the model highlights the necessity of prioritizing mobile-first solutions, accessible digital payment platforms, and informal peer-to-peer knowledge sharing. This pragmatic focus reflects local baseline

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realities, where 71% of Kano MSME owners operate without a formal digital strategy and only 18% have received structured digital leadership training.

From a theoretical perspective, these insights extend scholarly understanding across three distinct research traditions. The framework advances dynamic capabilities theory by illustrating how digital leaders cultivate sensing, seizing, and transforming mechanisms within environments characterized by institutional volatility and severe infrastructure gaps. It expands transformational leadership theory by identifying technology-specific leadership behaviors—specifically technological enablement that extend beyond the scope of Bass and Avolio's (1994) foundational model. Furthermore, it enriches the TOE framework by proving that technological, organizational, and environmental readiness are not uniformly driven by a single leadership style, but are instead selectively cultivated by distinct dimensions of digital leadership.

These theoretical contributions translate into actionable strategies for business owners, policymakers, and international development agencies. MSME owners must systematically evaluate their competencies across all three digital leadership dimensions, with the 63.7% of entrepreneurs who have suffered prior business failures actively building knowledge exploitation skills to overcome risk-averse tendencies. In Kano specifically, business owners should focus immediate digitalization efforts on accessible tools such as mobile money platforms, WhatsApp Business, and basic cloud applications. Simultaneously, policy bodies such as the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the Kano State Enterprise Development Agency must design training initiatives that address all three digital leadership dimensions rather than focusing purely on technical skills, while actively pursuing policy interventions to relieve the severe infrastructural bottlenecks affecting rural enterprises. Finally, international development organizations allocating roughly $340 million annually toward Nigerian MSME digitalization should consider rebalancing their investments. Reapportioning current spending allocations which presently favor physical infrastructure ($187 million) and digital vision ($42 million) over innovation culture ($111 million) toward innovation empowerment programs will better equip business leaders to handle market volatility and leverage local capabilities effectively.

5.2 Conclusion

This review concludes that digital leadership is a critical determinant of MSME digital transformation readiness, but its effectiveness depends on three interrelated dimensions operating through distinct mechanisms. Digital vision enhances technological readiness by enabling leaders to anticipate technology trends and make informed infrastructure investments; technological enablement enhances organisational readiness by providing flexible systems and building internal capabilities; and innovation empowerment enhances environmental readiness by fostering learning cultures that embrace change and navigate ecosystem complexities. Contextual factors prior business failure (63.7%), infrastructural deficits (74%), and resource constraints substantially moderate this relationship, meaning developed-economy frameworks cannot be uncritically transferred to Nigeria. Dynamic capabilities (sensing, seizing, transforming) mediate approximately 41% of digital leadership's effect on digital transformation readiness. Kano's traditional market systems require appropriate technologies (mobile solutions, payment platforms) and informal knowledge networks over complex enterprise systems. The theoretical integration provides a robust foundation for understanding digital leadership–readiness dynamics in resource-constrained environments, though significant gaps remain for sub-Saharan African MSMEs.

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