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Beyond Access: Digital Literacy and the Limits of MSME Support for Women's Entrepreneurship in Nigeria

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ABSTRACT: This study examines the persistent disconnect between MSME support interventions and entrepreneurial outcomes among women in Nigeria, where increased access to finance, training, and market linkages has not translated into improved firm performance. Drawing on capability-based and contingency perspectives, the study investigates whether digital literacy mediates the relationship between MSME support mechanisms and women's entrepreneurial development. Using survey data from 600 women-owned MSMEs and Partial Least Squares Structural Equation Modelling (PLS-SEM), the findings reveal that MSME support mechanisms have no significant effect on business performance ($\beta = -0.020$, $p = 0.748$) and do not significantly influence digital literacy ($\beta = -0.070$, $p = 0.492$). Additionally, digital literacy does not significantly affect business performance ($\beta = 0.024$, $p = 0.571$) and does not mediate the relationship between MSME support and entrepreneurial outcomes. However, digital literacy exerts a significant negative effect on personal empowerment ($\beta = -0.096$, $p = 0.004$), while MSME support shows no significant influence on empowerment outcomes. The study concludes that MSME support mechanisms and digital literacy are insufficient to drive entrepreneurial outcomes in structurally constrained environments such as Nigeria and comparable developing economies. It highlights the need for integrated, ecosystem-based interventions that align entrepreneurial capabilities with enabling institutional and infrastructural conditions.

KEYWORDS: MSME Support Mechanisms; Digital Literacy; Women Entrepreneurship; Business Performance; Personal Empowerment; PLS-SEM; Nigeria

1. INTRODUCTION

Despite extensive policy attention and sustained investments in micro, small, and medium enterprises (MSMEs) across developing economies, expected improvements in entrepreneurial outcomes, particularly among women-owned businesses, remain limited. Although financial support, capacity-building programmes, and market access initiatives have expanded, their impact on firm performance and broader developmental outcomes continues to be uneven and, in many cases, marginal (Aremu & Adeyemi, 2011; Beck & Cull, 2014; World Bank, 2023). This inconsistency suggests that the relationship between MSME support mechanisms and entrepreneurial development is neither linear nor automatic, but instead mediated by contextual and capability-related factors, especially within structurally constrained environments such as sub-Saharan Africa (UNCTAD, 2021; World Bank, 2023).

In Nigeria, successive governments have implemented a wide range of MSME support schemes through institutions such as the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), the Bank of Industry (BOI), the Central Bank of Nigeria (CBN), and the National Information Technology Development Agency (NITDA). These interventions include targeted financing programmes (e.g., MSME Survival Fund, Anchor Borrowers' Programme), entrepreneurship training, digital capacity-building initiatives, and market access facilitation. While these schemes are designed to enhance enterprise performance and promote inclusive growth, emerging evidence indicates that their outcomes remain inconsistent, particularly among women entrepreneurs. Structural constraints, including limited access to finance, infrastructural deficiencies, weak institutional coordination, and socio-cultural barriers, continue to limit the capacity of MSMEs, particularly women-owned enterprises to effectively utilise available support mechanisms.

Empirical evidence from Nigeria indicates that financial constraints and infrastructural challenges significantly hinder firm growth and performance (Ujunwa et al., 2012; Aterido et al., 2013). Furthermore, women entrepreneurs face additional gender-specific barriers, including restricted access to resources, markets, and networks, which further limit their ability to translate support into measurable business outcomes (Goldstein et al., 2019; Klapper & Parker, 2011). This suggests that the effectiveness of MSME support (independent variable) is contingent not merely on its provision, but on the mechanisms through which it is translated into entrepreneurial outcomes. Within Southwest Nigeria, women's entrepreneurial activities are embedded within a socio-economic context that extends beyond profit maximisation. Business engagement is frequently intertwined with household responsibilities, social expectations, and survival-oriented strategies, reflecting the gendered structuring of

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economic participation (Amine & Staub, 2009; Welter, 2011). Consequently, women entrepreneurs often prioritise income stability and household welfare over firm expansion, which has significant implications for how entrepreneurial success is defined and measured.

Empirical evidence further indicates that women-owned enterprises are disproportionately concentrated in informal and low-growth sectors, limiting their ability to achieve conventional performance outcomes such as revenue growth, scalability, and market expansion (Fairlie & Robb, 2009; Klapper & Parker, 2011; Goldstein et al., 2019). As a result, entrepreneurial development in this context must be conceptualised as a multidimensional construct encompassing both business performance (e.g., profitability, growth, market expansion) and personal empowerment (e.g., autonomy, decision-making capacity, socio-economic participation). This perspective aligns with development and gender scholarship, which emphasises that women's economic engagement generates both financial and non-financial outcomes (Kabeer, 1999; Duflo, 2012). However, existing MSME studies have largely privileged firm-level performance indicators, thereby overlooking the broader developmental implications of entrepreneurship among women.

Prevailing theoretical perspectives, particularly the resource-based view and human capital theory, assume that access to financial, informational, and technical resources directly enhances firm performance (Acs et al., 2018; Audretsch & Belitski, 2021). Within this framework, digital literacy is often treated as an enabling capability that facilitates opportunity recognition, operational efficiency, and market access (Nambisan et al., 2019; Kraus et al., 2021). However, this assumption reflects a direct-effect bias, which inadequately captures the complexities of resource utilisation in constrained environments.

Emerging evidence challenges this linear logic by demonstrating that digital capability does not independently guarantee improved entrepreneurial outcomes. Rather, its effectiveness is contingent upon complementary factors such as infrastructure, institutional quality, absorptive capacity, and organisational readiness (Bouwman et al., 2019; Zhai et al., 2022; Autio et al., 2018). In developing economies, where institutional voids and infrastructural deficits are prevalent, digital literacy (mediating variable) operates as a conditional mechanism, influencing the extent to which MSME support translates into entrepreneurial development outcomes (Sussan & Acs, 2017; OECD, 2022). For women entrepreneurs, these constraints are further intensified by gendered limitations in access to digital tools, networks, and time, thereby weakening the potential impact of digital capability on performance and empowerment outcomes (Aldrich & Zimmer, 1986; Amine & Staub, 2009).

These observations reveal a significant empirical gap in the literature. Existing studies have largely concentrated on the direct relationship between MSME support mechanisms and firm performance, often assuming a linear and positive linkage. However, such approaches provide limited insight into the underlying processes through which support is converted into tangible outcomes (Beck & Cull, 2014; Nambisan et al., 2019). Emerging evidence increasingly challenges this direct-effect perspective by emphasising the role of intervening factors. For example, studies on financial and institutional environments demonstrate that access to support alone is insufficient to drive firm performance without complementary enabling conditions such as regulatory quality, organisational capability, and resource utilisation efficiency (Beck et al., 2005; Djankov et al., 2006). These findings suggest that the effectiveness of support mechanisms is mediated by contextual and firm-level factors rather than operating as an independent driver of outcomes.

In the domain of digital capability, a similar pattern is observed. Empirical research indicates that the performance implications of digitalisation are largely indirect, operating through mechanisms such as business model innovation and value creation processes rather than exerting immediate effects on firm outcomes (Bouwman et al., 2019). Likewise, the benefits of digital technologies are shown to depend on firms' ability to exploit digital affordances within supportive entrepreneurial ecosystems, highlighting the importance of contextual conditions (Autio et al., 2018). Notwithstanding these advances, the literature remains fragmented with respect to the specific role of digital literacy as a mediating mechanism. While prior studies have examined related mediators, such as institutional quality, financial access, and business model transformation, there is still limited empirical evidence explicitly modelling how digital literacy channels the effects of MSME support mechanisms into multidimensional entrepreneurial outcomes. This gap is particularly evident in developing economy contexts, where structural constraints are more pronounced, and even more so among women-owned enterprises, whose entrepreneurial processes are shaped by additional socio-cultural and institutional limitations.

In addition, a theoretical gap is evident. Dominant frameworks such as the resource-based view and human capital theory assume universal applicability and linear resource–performance relationships, thereby neglecting the role of contextual constraints and institutional environments. This limits their explanatory power in settings characterised by structural deficiencies, such as Nigeria. Although emerging perspectives in digital entrepreneurship and contextual theory acknowledge these complexities (Welter, 2011; Nambisan et al., 2019), they have not been sufficiently integrated into empirical models examining MSME support and women's entrepreneurship. Against this backdrop, this study advances a mechanism-based and context-sensitive framework by conceptualising MSME support as influencing entrepreneurial development through digital literacy. By doing so, the study contributes to both theory and practice by moving beyond direct-effect assumptions and providing a more nuanced understanding of how support interventions translate into meaningful outcomes for women entrepreneurs in Southwest Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 MSME Support Mechanisms

MSME support mechanisms are central to entrepreneurship development, aimed at improving the performance, sustainability, and competitiveness of small businesses (Beck & Cull, 2014; Aterido et al., 2013). These interventions, provided by governments and development agencies, address financial, technical, and market constraints, and are particularly important for women entrepreneurs who face additional socio-cultural and institutional barriers (Amine & Staub, 2009; Klapper & Parker, 2011). Theoretically, MSME support is grounded in the Resource-Based View and Human Capital Theory, which emphasise access to resources and skills as drivers of competitive advantage and productivity (Barney, 1991; Becker, 1964). However, recent studies show that resource availability alone does not guarantee improved outcomes, especially in developing contexts where structural constraints limit effective utilisation (Autio et al., 2018; Nambisan et al., 2019). In this study, MSME support is

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conceptualised as a multidimensional construct comprising financial services, training, and market linkages. Financial support enhances investment capacity but is often constrained by collateral requirements, high costs, and limited inclusion, particularly for women in Nigeria (Beck et al., 2005; Goldstein et al., 2019). Training aims to improve managerial and operational skills, although its impact is often limited by poor contextual relevance (McKenzie & Woodruff, 2014). Market linkages facilitate access to customers and value chains, but their effectiveness depends on competitiveness and institutional support (Humphrey & Schmitz, 2002; Beck & Cull, 2014). Although these dimensions are interrelated, finance enables investment, training builds capability, and market linkages create opportunities, their impact is often weakened by fragmented implementation. Consequently, the effectiveness of MSME support mechanisms depends not only on their availability but also on entrepreneurs' ability to utilise them within specific contexts (Autio et al., 2018; Nambisan et al., 2019).

2.1.2 Digital and Technological Literacy

Digital literacy has become a critical capability in contemporary entrepreneurship, extending beyond basic technical skills to include the ability to access, evaluate, and apply digital information for improved productivity, innovation, and decision-making (van Deursen & van Dijk, 2014). Theoretically, it is grounded in Human Capital Theory and Dynamic Capabilities Theory, which emphasise the role of skills and the ability to integrate and reconfigure competencies in dynamic environments (Becker, 1964; Teece et al., 1997; Teece, 2018). Within this framework, digital literacy functions as a strategic capability that enables entrepreneurs to identify opportunities and adapt to changing market conditions (Nambisan et al., 2019). In this study, digital literacy is conceptualised as a multidimensional construct comprising technical, cognitive, and strategic competencies (van Deursen & van Dijk, 2014; Ng, 2012). The technical dimension reflects basic operational skills, which, while necessary, do not guarantee effective usage (van Dijk, 2020). The cognitive dimension involves the ability to interpret and evaluate digital information for decision-making, while the strategic dimension captures the integration of digital technologies into core business activities such as marketing, transactions, and supply chain management, thereby enhancing innovation and performance (Bouwman et al., 2019; Kraus et al., 2021).

However, the impact of digital literacy is context-dependent. In developing economies such as Nigeria, infrastructural limitations, skill gaps, and weak institutional support constrain the effective use of digital technologies (OECD, 2021). Empirical evidence shows that variations in digital capability influence technology adoption and SME performance, with limited readiness restricting outcomes (Okwudiri et al., 2025; Ononye, 2025). Moreover, existing literature largely treats digital literacy as a direct determinant of performance, overlooking its role as an intermediary mechanism. Emerging studies suggest that digital capability operates indirectly by enabling entrepreneurs to utilise resources such as finance, training, and market access more effectively (Autio et al., 2018; Nambisan et al., 2019). Accordingly, this study conceptualises digital literacy as an intervening capability linking MSME support mechanisms to entrepreneurial outcomes, including business performance and personal empowerment.

2.1.3 Women's Entrepreneurial Development

Women's entrepreneurial development is central to promoting inclusive growth, poverty reduction, and gender equality. Beyond business participation, it encompasses improvements in economic well-being, personal agency, and social positioning. It can be defined as the process through which women engage in entrepreneurship to achieve both economic advancement and enhanced capacity to make strategic life choices, shaped by socio-cultural and institutional contexts (Welter, 2011). The concept is best understood through Human Capital, Social Network, and Empowerment theories. Human Capital Theory emphasises skills and knowledge as drivers of productivity (Becker, 1964), Social Network Theory highlights access to resources through relationships (Aldrich & Zimmer, 1986), while Empowerment Theory defines empowerment as the expansion of individuals' ability to make strategic life choices (Kabeer, 1999). Together, these perspectives capture both the economic and social dimensions of women's entrepreneurship.

Accordingly, women's entrepreneurial development is conceptualised as a multidimensional construct comprising business performance and personal empowerment. Business performance reflects economic outcomes such as profitability, growth, and sustainability; however, evidence from developing economies like Nigeria shows that these outcomes are often constrained by infrastructural deficits, limited finance, and institutional inefficiencies (Beck & Cull, 2014; Aterido et al., 2013). Personal empowerment captures non-financial outcomes, including autonomy, confidence, and decision-making capacity (Kabeer, 1999). Empirical studies indicate that entrepreneurship can enhance women's agency even when financial gains are modest (Duflo, 2012; Amine & Staub, 2009), although persistent gender-based barriers continue to limit these outcomes (Klapper & Parker, 2011). Importantly, the relationship between performance and empowerment is not linear. While improved financial outcomes can strengthen empowerment, entrepreneurial engagement can also generate empowerment independently of economic success. Moreover, women entrepreneurs often pursue blended economic and social objectives, challenging traditional profit-maximisation assumptions and reinforcing the need for a multidimensional understanding of entrepreneurial success, particularly in constrained contexts such as Nigeria (Welter, 2011; Duflo, 2012).

2.3 Theoretical Framework

This study adopts an integrated theoretical framework that synthesizes Human Capital Theory (HCT)**,** the Resource-Based View (RBV)**,** Dynamic Capabilities Theory (DCT)**,** Empowerment Theory, and the Contingency Perspective to provide a comprehensive and context-sensitive explanation of the relationships among MSME support mechanisms, digital literacy, and women's entrepreneurial development. At its foundation, Human Capital Theory posits that investments in education, skills, and knowledge enhance individuals' productivity and decision-making capacity (Becker, 1964; Schultz, 1961). Within the context of this study, HCT explains how training and capacity-building components of MSME support contribute to the development of digital literacy and entrepreneurial competence. However, while HCT assumes a direct relationship between skills and outcomes, empirical evidence suggests that this relationship is often weakened in developing economies where institutional and infrastructural constraints limit the effective application of acquired knowledge (Autio et al., 2018; Nambisan et al., 2019). This highlights the limitation of human capital as a sufficient condition for entrepreneurial success.

Complementing this perspective, the Resource-Based View emphasizes that access to valuable and strategic resources is fundamental to achieving competitive advantage (Barney, 1991). In this study, MSME support mechanisms, comprising financial services, training, and market linkages,

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represent critical external resources that enable entrepreneurial activity. However, RBV has been criticized for its static orientation and its assumption that resource possession inherently leads to superior performance (Priem & Butler, 2001). In structurally constrained environments such as Nigeria, access to finance or market opportunities does not automatically translate into improved outcomes, thereby exposing a gap between resource availability and value realization. To address this limitation, Dynamic Capabilities Theory shifts the analytical focus from resource possession to the ability to deploy, integrate, and reconfigure resources in dynamic environments (Teece et al., 1997; Teece, 2018). Within this framework, digital literacy is conceptualized as a dynamic capability that enables entrepreneurs to convert MSME support into tangible outcomes. Specifically, digital literacy facilitates opportunity sensing (identifying digital opportunities), opportunity seizing (adopting digital tools), and transformation (integrating digital technologies into business processes). As such, digital literacy serves as a mechanism-based linkage between external support and entrepreneurial outcomes, thereby justifying its mediating role (Autio et al., 2018; Nambisan et al., 2019).

However, capability-based explanations alone remain insufficient, particularly in the context of women's entrepreneurship, where outcomes extend beyond economic performance. This limitation is addressed through Empowerment Theory, which introduces a socio-developmental dimension by focusing on agency, autonomy, and control over decision-making (Kabeer, 1999). Empowerment Theory expands the analytical scope by recognizing that entrepreneurial development includes both financial and non-financial outcomes, such as self-efficacy and social positioning (Duflo, 2012). In this study, empowerment is conceptualized as a distinct but complementary outcome that may evolve independently of business performance, thereby capturing the multidimensional nature of women's entrepreneurship. Despite the explanatory strength of RBV, HCT, and DCT, these theories largely assume universal applicability and linear relationships between resources, capabilities, and outcomes. This limitation is addressed through the Contingency Perspective**,** which posits that the effectiveness of resources and capabilities is conditional upon environmental factors such as institutional quality, infrastructure, and socio-economic conditions (Donaldson, 2001; Welter, 2011). Empirical evidence supports this view, showing that the impact of MSME support and digital capabilities varies significantly across contexts (Beck & Cull, 2014; Fowowe, 2017). In developing economies such as Nigeria, structural constraints, including weak institutions, infrastructural deficits, and digital inequality, limit the extent to which resources and capabilities can be effectively utilized.

The integration of these theoretical perspectives produces a multi-layered and non-linear explanatory framework. Human capital provides foundational skills, MSME support mechanisms supply critical resources, and digital literacy, conceptualized as a dynamic capability, enables the transformation of these inputs into outcomes. At the same time, empowerment theory ensures that entrepreneurial development is assessed beyond economic performance, while the contingency perspective conditions these relationships within the broader institutional environment. Thus, this study advances a context-contingent, capability-mediated framework in which MSME support mechanisms influence entrepreneurial outcomes both directly and indirectly through digital literacy, while the strength and direction of these relationships depend on environmental readiness. This integrated perspective moves beyond traditional linear models and provides a more nuanced explanation of entrepreneurship in developing economies, where the conversion of resources into outcomes is neither automatic nor guaranteed.

2.4 Empirical Review and Hypotheses Development

Empirical evidence on the relationship between MSME support mechanisms and firm performance remains extensive yet inconclusive, particularly across developed and developing economies. Grounded in the resource-based view and human capital theory, existing studies suggest that access to finance, training, and market linkages enhances firm performance by strengthening entrepreneurial capabilities and competitive advantage. For instance, Acs et al. (2017) and Audretsch and Belitski (2021) show that well-functioning entrepreneurial ecosystems and institutional support systems significantly improve innovation and firm growth. Similarly, evidence from developed contexts indicates that financial development reduces growth constraints and enhances firm performance (Beck & Demirgüç-Kunt, 2006; Coad et al., 2016). These findings suggest that MSME support mechanisms are effective under strong institutional and market conditions.

However, this positive relationship is less consistent in developing economies, where outcomes are highly context-dependent. Studies show that despite expanded financial access, SMEs remain constrained by weak financial systems and high transaction costs (Beck & Cull, 2014). While access to finance may improve productivity, its effect on firm performance is often uneven (Fowowe, 2017). Likewise, entrepreneurship training programmes frequently produce modest and short-lived impacts (McKenzie & Woodruff, 2014). More recent evidence further indicates that the effectiveness of support mechanisms depends on firm-level capabilities and external conditions, such as financial literacy and institutional quality (Abor et al., 2018; Bongomin et al., 2017). These findings challenge the linear assumption that resource access directly leads to improved performance.

The Nigerian context reinforces this paradox. Despite numerous MSME support initiatives, firm performance remains weak due to poor implementation, limited accessibility, and structural constraints (Aremu & Adeyemi, 2011). Although financial access improves productivity for some firms, it does not consistently translate into performance gains across the sector (Fowowe, 2017). National evidence further highlights persistent challenges, including inadequate infrastructure, weak managerial capacity, and poor institutional coordination (SMEDAN, 2021). Collectively, these findings suggest that the relationship between MSME support mechanisms and firm performance is non-linear and context-dependent, particularly in institutionally constrained environments such as Nigeria. This highlights a critical empirical gap regarding the effectiveness of MSME support interventions, especially among women-owned enterprises. Flowing from this, the study hypothesizes that:

H_{01}: MSME support mechanisms significantly influence business performance among women entrepreneurs.

The relationship between MSME support mechanisms and entrepreneurial outcomes is more complex within women's entrepreneurship due to socio-cultural and institutional constraints. Studies show that women often face restricted access to critical resources, particularly social networks, which limits their ability to mobilise opportunities effectively (Aldrich & Zimmer, 1986; Brush et al., 2009). Entrepreneurship is therefore embedded within contextual factors, such as gender norms and institutional conditions that shape outcomes, especially in developing economies like Nigeria where such constraints are more pronounced (Welter, 2011; Klapper & Parker, 2011; Goldstein et al., 2019). Empirical evidence reflects this duality. On one hand, MSME support mechanisms and digital technologies can enhance women's access to finance, markets, and information, thereby improving entrepreneurial outcomes (Klapper & Parker, 2011; Goldstein et al., 2019). On the other hand, persistent gender-

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based barriers, including limited asset ownership, restricted mobility, and socio-cultural biases, constrain women's ability to fully benefit from these interventions (Amine & Staub, 2009; Duflo, 2012). This suggests that the impact of MSME support on women entrepreneurs is inherently context-dependent and not adequately captured by traditional performance metrics alone. Consequently, recent scholarship advocates a broader conceptualisation of entrepreneurial development that incorporates both economic and non-economic outcomes, particularly empowerment. Empowerment refers to the expansion of individuals' ability to make strategic choices and exercise control over resources and decisions (Kabeer, 1999). Within entrepreneurship, this includes autonomy, confidence, and decision-making capacity. Empirical studies indicate that entrepreneurship programmes often generate stronger effects on empowerment than on financial performance (Amine & Staub, 2009; Duflo, 2012), although structural constraints continue to limit these gains in many developing contexts (Klapper & Parker, 2011; Goldstein et al., 2019). This underscores the need to examine empowerment as a distinct outcome and to better understand how MSME support mechanisms influence women's entrepreneurial development across multiple dimensions. Flowing from this, the study hypothesizes that:

H_{02}: MSME support mechanisms significantly influence personal empowerment among women entrepreneurs.

The relationship between MSME support mechanisms and digital literacy has gained importance within digital transformation and entrepreneurship development. Support interventions, such as training, financial inclusion, and access to digital platforms, are expected to enhance entrepreneurs' ability to acquire and apply digital skills. From a human capital and capability perspective, these interventions build knowledge and facilitate the integration of digital tools into business processes. Empirical evidence provides partial support for this relationship. For example, McKenzie and Woodruff (2014) show that training improves managerial practices, while Bongomin et al. (2017) find that financial inclusion enhances outcomes when complemented by digital capabilities. Similarly, Nambisan et al. (2019) and Kraus et al. (2021) argue that digital technologies improve entrepreneurial opportunities, but their effectiveness depends on entrepreneurs' digital competence.

In Nigeria, evidence provides more context-specific insights. Omiunu (2019) finds that digital literacy enhances the effectiveness of ICT adoption among women-owned SMEs, while Sajuyigbe et al. (2025) show that digital literacy strengthens the use of digital financial services and mediates financial inclusion outcomes. Additional studies indicate that digital skills improve technology adoption, market access, and operational efficiency among SMEs, particularly when supported by training and exposure to digital platforms. These findings suggest that MSME support mechanisms contribute to digital capability development by improving access to resources and opportunities. However, this relationship is not automatic. Structural constraints, such as inadequate infrastructure, limited access to digital devices, and socio-cultural barriers, continue to hinder the development and utilisation of digital skills, particularly among women entrepreneurs. Gender disparities in digital access further limit the effectiveness of support interventions (Omiunu, 2019; Sajuyigbe et al., 2025). Consequently, the impact of MSME support on digital literacy is conditional and context-dependent. Despite growing recognition of this linkage, empirical evidence explicitly examining this relationship remains limited, particularly within the Nigerian context. Flowing from this empirical gap, the study hypothesizes that:

H_{03}: MSME support mechanisms significantly influence Digital literacy among women entrepreneurs.

Digital literacy is increasingly conceptualised as a mediating mechanism through which MSME support mechanisms translate into business performance. Grounded in the dynamic capabilities view, the value of external resources depends on the entrepreneur's ability to deploy and utilise them effectively (Teece et al., 1997; Teece, 2018). While MSME support provides access to resources, digital literacy enables their productive use to enhance firm performance. Empirical evidence supports this mechanism. Ngoasong (2015) shows that capability development mediates the relationship between institutional support and SME performance, while Sussan and Acs (2017) emphasise the interaction between institutional support and digital capabilities. Similarly, van Deursen and van Dijk (2014) demonstrate that digital skills enhance resource utilisation and productivity. Recent studies reinforce this argument. Nambisan et al. (2019) and Kraus et al. (2021) find that digital technologies improve performance by expanding access to markets and resources, although their effectiveness depends on entrepreneurs' digital competence. However, evidence remains mixed. McKenzie and Woodruff (2014) report that training programmes often yield modest and short-lived performance effects, while Aker and Mbiti (2010) show that technological benefits depend on complementary infrastructure and institutional conditions.

In Nigeria, this mediation effect is particularly context-dependent. Omiunu (2019) finds that digital literacy strengthens the relationship between ICT adoption and firm performance among women-owned SMEs, while Sajuyigbe et al. (2025) show that digital literacy mediates digital finance outcomes. However, infrastructural deficits, limited access to digital tools, and gender disparities constrain the development and application of digital skills. These challenges indicate that digital literacy functions as a conditional mediating capability, shaping the extent to which MSME support translates into improved performance. Overall, the literature suggests that the relationship between MSME support and business performance is neither direct nor universally positive but depends on intervening capabilities such as digital literacy. Despite strong theoretical support, empirical evidence, particularly in developing economies, remains fragmented, highlighting the need for further investigation. Accordingly, this study proposes that digital literacy mediates the relationship between MSME support mechanisms and business performance. Flowing from this, the study hypothesizes that:

H_{04}: Digital literacy mediates the relationship between MSME support mechanisms and business performance among women entrepreneurs.

Despite growing recognition of empowerment as a key entrepreneurial outcome, the role of digital literacy in shaping non-financial outcomes, particularly among women entrepreneurs in Nigeria, remains underexplored. While digital capability improves access to information, communication, and markets, its influence on deeper empowerment dimensions such as autonomy, self-efficacy, and decision-making remains unclear. From a capability perspective, digital literacy enhances empowerment by strengthening individuals' ability to access and utilise resources effectively (Nambisan, 2017; van Deursen & van Dijk, 2014). Similarly, Hinson et al. (2019) show that digitalisation improves access to markets and knowledge, enhancing entrepreneurial independence. Evidence from Nigeria supports this linkage but reveals important constraints. Omiunu (2019) finds that digital literacy improves women entrepreneurs' use of ICT and decision-making capacity, while Etim (2020) shows that digital platforms enhance access to customers and operational control. However, these benefits are limited by infrastructural and socio-economic barriers. Aker and Mbiti (2010) and Hilbert (2011) highlight that the impact of digital technologies depends on infrastructure, access, and skills, while challenges such as poor electricity, limited internet access, and affordability further constrain outcomes in Nigeria.

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Moreover, existing studies largely adopt direct-effect models, overlooking the mechanisms through which digital literacy interacts with MSME support. Although support interventions are widespread, their outcomes remain uneven, suggesting that access alone is insufficient without complementary capabilities. Emerging scholarship emphasises this mechanism-based view, showing that entrepreneurial and digital capabilities shape how support translates into outcomes (Ngoasong, 2015; Sussan & Acs, 2017). Despite these insights, empirical studies rarely examine digital literacy as a mediating variable linking MSME support to empowerment, particularly in Nigeria. This gap highlights the need to conceptualise digital literacy as a strategic intervening capability that enables women entrepreneurs to convert support into enhanced autonomy, self-efficacy, and decision-making power. Therefore, the study hypothesizes that:

H_{05}: Digital literacy mediates the relationship between MSME support mechanisms and personal empowerment among women entrepreneurs.

2.5 Conceptual Framework

The conceptual framework of this study is anchored on the premise that the effectiveness of MSME support mechanisms in enhancing women's entrepreneurial development is neither automatic nor linear. Rather than assuming a direct relationship between institutional support and entrepreneurial outcomes, the framework adopts a process-oriented perspective that emphasizes the role of intermediate capabilities in shaping how resources are translated into meaningful results. Within this perspective, Digital and Technological Literacy (DTL) is conceptualized as a critical mediating mechanism that links MSME support interventions to entrepreneurial outcomes.

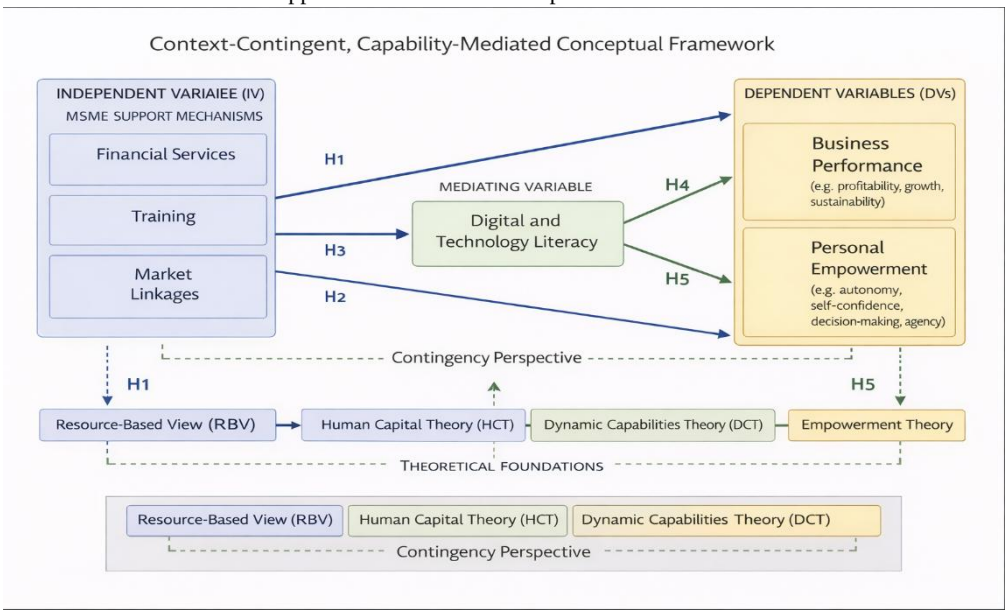


Figure 1: Conceptual Framework, Authors' Design, 2025

The framework proposes that MSME support mechanisms directly influence both business performance (H_{01}) and personal empowerment (H_{02}) among women entrepreneurs. While these support mechanisms provide access to finance, skills, and markets, their effects on performance are often inconsistent in developing contexts, whereas their impact on empowerment tends to be more evident. The model further introduces digital and technological literacy as a mediating variable, through which MSME support mechanisms translate into outcomes. Support interventions are expected to enhance digital literacy, which in turn improves business performance (H_{03}) and personal empowerment (H_{04}) by enabling more effective use of resources and better decision-making. However, empirical evidence suggests that this mediating effect is context-dependent, as infrastructural and institutional constraints may limit the extent to which digital literacy translates into tangible outcomes.

3. METHODOLOGY

This study adopts a quantitative, post-positivist approach using a cross-sectional survey design to examine the relationships among MSME support mechanisms, digital and technological literacy, and women's entrepreneurial development. The study was conducted in Southwest Nigeria, targeting women-owned MSMEs that have benefited from support programmes. Due to the absence of a comprehensive sampling frame, a multi-stage sampling technique was employed, yielding a sample of 600 respondents, which is adequate for Structural Equation Modelling. Data were collected using a structured questionnaire adapted from validated scales. MSME support mechanisms were measured through financial services, training, and market linkages, while digital literacy captured technical and strategic competencies. Women's entrepreneurial development was operationalized as business performance and personal empowerment. All items were measured on a five-point Likert scale. Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM). Reliability and validity were confirmed through Cronbach's alpha, composite reliability, AVE, and HTMT, while hypotheses and mediation effects were tested using bootstrapping procedures, ensuring robust and reliable estimates. Also, IBM SPSS was used for the descriptive analysis of the study's respondent's demography and the study's constructs.

4. RESULTS

This section presents the empirical findings of the study, beginning with descriptive statistics, followed by the assessment of the measurement model, evaluation of the structural model, and finally the analysis of the mediating role of digital literacy.

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4.1 Descriptive Analyses of Respondents' Demography and Study's Constructs

Table 1: Descriptive Results of the Constructs

Indicator	Mean	Standard deviation	Excess kurtosis	Skewness
FS1	3.71	1.097	.142	-.971
FS2	3.67	1.088	.143	-.974
FS3	3.74	1.117	.047	-.960
FS4	3.54	1.051	-.088	-.741
FS5	3.78	1.012	-.130	-.769
TL1	3.06	1.330	-1.351	-.061
TL2	2.96	1.215	-1.197	-.050
TL3	3.04	1.255	-1.257	.076
TL4	3.00	1.241	-1.235	.093
TL5	3.02	1.171	-1.123	-.045
ML1	2.99	1.427	-1.452	-.019
ML2	3.00	1.283	-1.342	.010
ML3	3.02	1.345	-1.369	.000
ML4	3.05	1.367	-1.408	.022
ML5	2.96	1.290	-1.298	-.067
DL1	4.10	.781	2.633	-1.214
DL2	4.34	.808	3.130	-1.593
DL3	4.30	.773	3.686	-1.557
DL4	4.28	.821	1.917	-1.323
DL5	4.54	.790	3.558	-1.964
BP1	3.84	1.115	.576	-1.104
BP2	3.91	1.070	.342	-1.021
BP3	4.01	1.048	.341	-1.072
BP4	3.20	1.261	-1.327	.003
BP5	3.84	1.074	.500	-1.041
PE1	3.89	.816	.696	-.778
PE2	4.05	.828	.102	-.709
PE3	4.08	.777	.348	-.696
PE4	4.07	.794	.569	-.771
PE5	4.03	.829	1.653	-1.097

Source: SPSS Output, 2025

Table 2: Descriptive Results of the Constructs

	Mean	Median	Observed min	Observed max	Number of observations used	Standard deviation	Excess kurtosis	Skewness	Cramér-von Mises test statistic	Cramér-von Mises p value
BP2	-0.000	0.347	-3.167	1.376	593.000	1.000	1.005	-1.371	6.684	0.000
BUSPERF	0.000	0.301	-3.743	1.533	593.000	1.000	2.003	-1.490	5.234	0.000
DTL	0.000	0.175	-4.542	1.177	593.000	1.000	7.771	-2.691	8.853	0.000
MSME SUPPORT	0.000	0.023	-2.420	1.775	593.000	1.000	-1.191	-0.028	1.761	0.000

Source: Smart PLS 4 Output, 2025

The descriptive statistics summarise respondents' characteristics and key study variables. Lagos accounts for the largest share (33.4%), followed by Oyo (19.1%), with respondents distributed across other Southwest states, ensuring regional coverage. The sample is largely experienced, with

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40.8% aged 46–60 years and 25.6% aged 30–45 years, while 53.6% possess tertiary education. Business activities are concentrated in trade (30.2%) and services (29.2%), and most firms are micro and small enterprises employing 3–9 workers (46.7%) and 10–49 workers (30.5%). At the variable level, financial support records moderate mean values (3.54–3.78) with noticeable variability (SD ≈ 1.01–1.12), indicating uneven access. Training and market linkage support show lower mean values (≈2.96–3.06) and higher dispersion (SD up to 1.43), suggesting weaker and inconsistent effectiveness. In contrast, digital literacy exhibits high mean values (4.10–4.54) with low variability (SD ≈ 0.77–0.82), reflecting widespread adoption and strong integration. Business performance shows moderate to high outcomes (mean = 3.20–4.01) but with notable dispersion (SD ≈ 1.05–1.26), indicating uneven performance across firms. Personal empowerment records consistently high mean values (3.89–4.08) with low variability (SD ≈ 0.77–0.83), suggesting strong and uniform perceived benefits. At the construct level, digital literacy demonstrates strong convergence (high kurtosis and negative skewness), whereas MSME support exhibits near-zero skewness and negative kurtosis, indicating a more dispersed and less cohesive distribution, thereby reinforcing the fragmented nature of support mechanisms.

4.2.1Measurement Model (Stage 1)

Table 3: Constructs' Loadings, Cronbach's Alpha, Average Variance Extracted, and Composite Reliability

Construct	Indicator	Loadings	Cronbach's Alpha	CR	AVE
Market Linkage	ML1	0.937	0.961	0.969	0.863
	ML2	0.927			
	ML3	0.935			
	ML4	0.946			
	ML5	0.899			
Training Support	TS1	0.907	0.941	0.953	0.804
	TS2	0.925			
	TS3	0.891			
	TS4	0.877			
	TS5	0.879			
Financial Support	FS1	0.896	0.929	0.946	0.779
	FS2	0.908			
	FS3	0.897			
	FS4	0.853			
	FS5	0.858			
Digital Literacy	DL1	0.739	0.827	0.877	0.589
	DL2	0.768			
	DL3	0.802			
	DL4	0.777			
	DL5	0.750			
BusPfm	BP1	0.808	0.777	0.823	0.510
	BP2	0.848			
	BP3	0.711			
	BP5	0.807			
PerEmp	PE1	0.797	0.827	0.874	0.583
	PE2	0.805			
	PE3	0.671			
	PE4	0.724			
	PE5	0.810			

Source: Smart PLS 4 Output, 2025

Table 4: Discriminant Validity (Fornell-Larcker Criterion)

	BP	DTL	FS	ML	PE	TS
BP	0.714					
DTL	0.022	0.767				
FS	-0.046	0.080	0.883			
ML	-0.075	0.012	-0.037	0.929		

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PE	0.072	-0.104	0.028	-0.058	0.763	
TS	-0.088	-0.042	0.027	0.545	0.059	0.896

Source: Smart PLS 4.1.6 Output, 2025

Table 5: Discriminant Validity (Heterotrait-Monotrait Ratio)

	BP	**DTL**	**FS**	**ML**	**PE**	**TS**
BP						
DTL	0.056					
FS	0.054	0.087				
ML	0.070	0.043	0.042			
PE	0.102	0.110	0.050	0.064		
TS	0.078	0.063	0.035	0.571	0.064	

Source: Smart PLS 4.1.6 Output, 2025

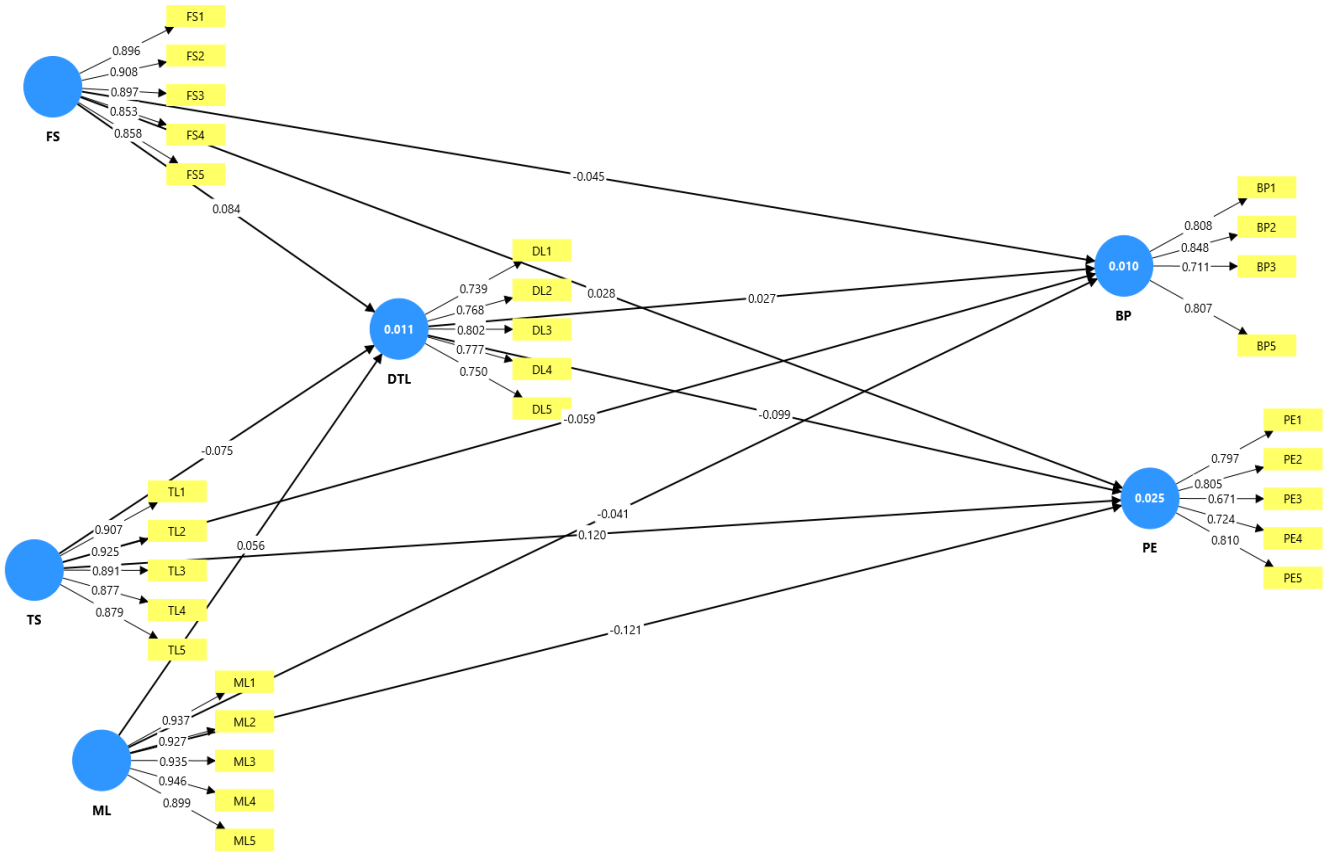


Figure 2: Stage 1 Measurement Model

The measurement model was assessed to establish the reliability and validity of the constructs prior to structural model evaluation. Consistent with the disjoint two-stage approach, this stage focuses on the lower-order constructs (LOCs), whose latent scores are subsequently utilised in modelling the higher-order constructs (Sarstedt et al., 2019; Hauff et al., 2025). In the first instance, indicator reliability was examined. The results show that all outer loadings range from 0.671 to 0.946, exceeding the acceptable threshold of 0.60 (Becker et al., 2023), thereby confirming that the indicators adequately represent their respective constructs. Although one indicator (PE3 = 0.671) falls slightly below the preferred 0.70 level, it is retained due to its theoretical relevance and negligible impact on overall measurement quality. Building on this, internal consistency reliability was assessed using Cronbach's alpha and composite reliability (CR). The values for Cronbach's alpha (0.777–0.961) and CR (0.823–0.969) exceed the recommended threshold of 0.70 (Hair et al., 2014; 2022), indicating that the constructs exhibit strong internal consistency. Correspondingly, convergent validity is achieved, as all AVE values (0.510–0.863) surpass the minimum requirement of 0.50 (Hair et al., 2019; 2021), confirming that the constructs adequately capture the variance of their indicators. Furthermore, discriminant validity was evaluated using both the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The Fornell–Larcker results indicate that the square root of the AVE for each construct exceeds its correlations with other constructs, while the HTMT values (0.035–0.571) remain well below the 0.85 threshold. Taken together, these results confirm that the constructs are empirically distinct and free from significant overlap. The findings demonstrate that the measurement model satisfies all required criteria for reliability and validity. Consequently, the LOCs are well specified and appropriate for subsequent analysis in Stage 2 of the disjoint two-stage approach.

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Measurement Model (Stage 2)

Table 6: Variance Inflation Factor (VIF) of HOCs Formative Constructs

	BP	DTL	MSMEs Support	PE
BP				
DTL	1.005			1.005
MSMEs Support	1.005	1.000		1.005
PE				

Source: Smart PLS 4 Output, 2025

Table 7: Outer weights of HOCs' Formative Constructs

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
LV scores - BP <- BP	1.000	1.000	0.000	n/a	n/a
LV scores - DTL <- DTL	1.000	1.000	0.000	n/a	n/a
LV scores - FS -> MSMEs Support	-0.135	0.289	0.401	0.336	0.737
LV scores - ML -> MSMEs Support	-0.935	0.097	0.769	1.216	0.224
LV scores - PE <- PE	1.000	1.000	0.000	n/a	n/a
LV scores - TS -> MSMEs Support	1.128	0.285	0.827	1.363	0.173

Source: Smart PLS 4 Output, 2025

Table 8: Outer Loadings of HOCs' Formative Constructs

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
LV scores - BP <- BP	1.000	1.000	0.000	n/a	n/a
LV scores - DTL <- DTL	1.000	1.000	0.000	n/a	n/a
LV scores - FS -> MSMEs Support	-0.069	0.293	0.390	0.177	0.860
LV scores - ML -> MSMEs Support	-0.317	0.242	0.406	0.782	0.435
LV scores - PE <- PE	1.000	1.000	0.000	n/a	n/a
LV scores - TS -> MSMEs Support	0.615	0.345	0.475	1.296	0.195

Source: Smart PLS 4 Output, 2025

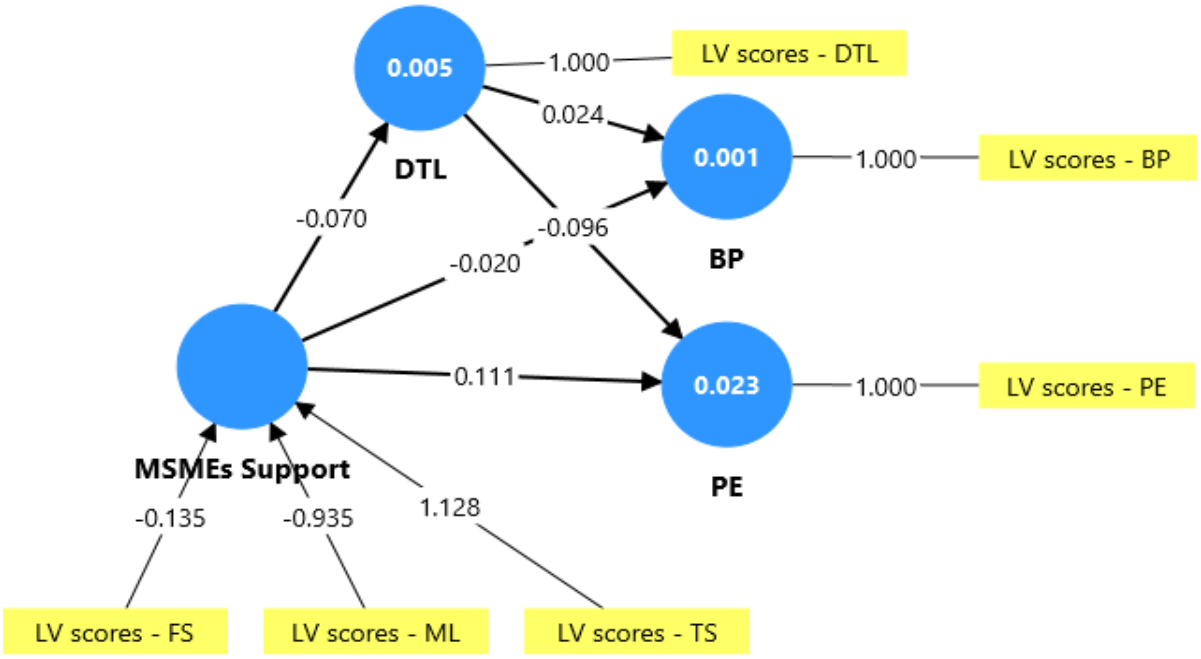


Figure 3: Stage 2 Measurement Model

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4.3 Measurement Model (Stage 2)

Following the satisfactory results of Stage 1, the Stage 2 measurement model assesses the higher-order constructs (HOCs) specified as reflective–formative using the latent scores of the lower-order constructs (Sarstedt et al., 2019; Becker et al., 2023). Multicollinearity was first examined using VIF, with all values ranging from 1.000 to 1.005, well below the 3.3 threshold (Hair et al., 2022), indicating no collinearity issues among the formative indicators. The outer weights of the formative indicators were then assessed, and although financial support, market linkage, and training support were not statistically significant ($p > 0.05$), this does not warrant their removal due to their theoretical relevance (Hair et al., 2011; 2022). Further evaluation using outer loadings shows that training support has a moderate contribution (0.615), while financial support and market linkage exhibit weak loadings. Despite this, all indicators are retained to preserve the multidimensional nature of MSME support. The above analysis shows that Stage 2 measurement model is acceptable, confirming that the higher-order constructs are adequately specified and suitable for structural model analysis.

4.4 Structural Model

The structural model is evaluated using a bootstrapping procedure with 5,000 resamples to determine the significance of the hypothesised relationships. As an initial step, multicollinearity among the constructs is examined using the Variance Inflation Factor (VIF) to ensure that the estimates are not biased (Hauff et al., 2025). Subsequently, the model is assessed based on the coefficient of determination (R^2), predictive relevance (Q^2), and out-of-sample predictive performance using PLSpredict (Hair et al., 2021). The results presented in Table 6 show that all VIF values are below the recommended threshold of 3.3 (Hair et al., 2022), indicating the absence of multicollinearity among the constructs.

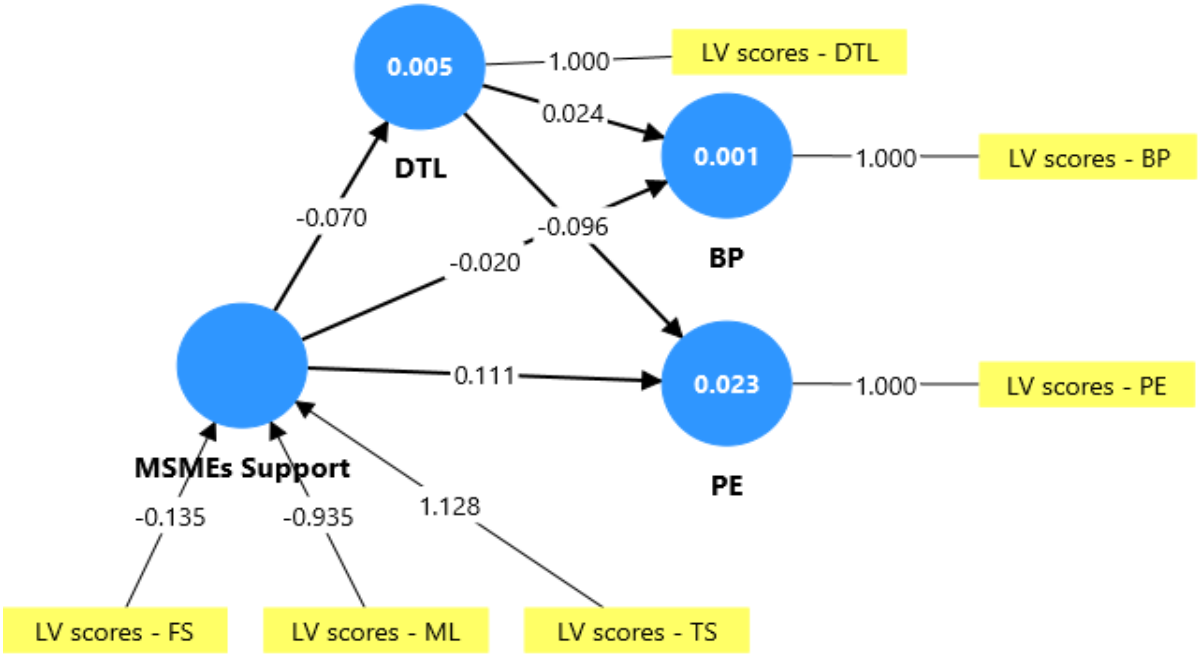


Table 9: Path Coefficients of Direct Relationships

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
DTL -> BP	0.024	0.026	0.043	0.567	0.571
DTL -> PE	-0.096	-0.097	0.033	2.904	0.004
MSMEs Support -> BP	-0.020	-0.070	0.063	0.321	0.748
MSMEs Support -> DTL	-0.070	0.020	0.102	0.686	0.492
MSMEs Support -> PE	0.111	0.022	0.118	0.941	0.347

Source: Smart PLS 4 Output, 2025

Following the confirmation of the absence of multicollinearity among the constructs, the structural paths were evaluated to determine the significance and direction of the hypothesised relationships (Hair et al., 2019). As reported in Table 9, the results reveal that only one path is statistically significant. Specifically, digital literacy exerts a significant negative influence on personal empowerment ($\beta = -0.096$, $t = 2.904$, $p = 0.004$), indicating an inverse relationship between the two constructs. Conversely, the remaining paths are not statistically significant. Digital literacy does not exert a meaningful effect on business performance ($\beta = 0.024$, $p = 0.571$), while MSMEs support fails to significantly predict business performance ($\beta = -0.020$, $p = 0.748$), digital literacy ($\beta = -0.070$, $p = 0.492$), or personal empowerment ($\beta = 0.111$, $p = 0.347$). Collectively, these findings suggest limited empirical support for the proposed direct relationships, with only the link between digital literacy and personal empowerment demonstrating statistical significance.

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Table 10: Path Coefficients of Mediating Relationship

Number	Hypothesis	β	SD	t-value	LL	UL	Result
Ho4	MSMEs Support → DTL → BP	-0.002	0.005	0.339	-0.02	0.002	No Mediation
	Total Effect	-0.022	0.063	0.347			
	Direct Effect	-0.02	0.063	0.321			
Ho5	MSMEs Support → DTL → PE	0.007	0.01	0.65	-0.006	0.029	No Mediation
	Total Effect	0.117	0.123	0.956			
	Direct Effect	0.111	0.118	0.941			

The mediating role of digital literacy in the relationship between MSMEs support and the outcome variables was examined using bootstrapping procedures, incorporating indirect, direct, and total effects alongside bias-corrected confidence intervals (Table 10). The results indicate that digital literacy does not significantly mediate the relationship between MSMEs support and business performance. The indirect effect is negative and statistically insignificant (β = -0.002, t = 0.339, p = 0.735), while the associated confidence interval (-0.020 to 0.002) includes zero, confirming the absence of mediation. In addition, both the direct (β = -0.020, p = 0.748) and total effects (β = -0.022, p = 0.728) are not significant, suggesting that MSMEs support does not translate into improved business performance, either directly or through digital literacy. A similar pattern is observed for personal empowerment. Although the indirect effect is positive (β = 0.007), it remains statistically insignificant (t = 0.650, p = 0.516), with the confidence interval (-0.006 to 0.029) spanning zero. The direct (β = 0.111, p = 0.347) and total effects (β = 0.117, p = 0.339) are likewise non-significant, reinforcing the absence of both direct and mediated relationships. The results show that the convergence of non-significant indirect effects and confidence intervals that include zero provides robust evidence against the presence of mediation. Consequently, digital literacy does not operate as an intervening variable in the model, leading to the non-rejection of the null hypotheses for the mediated relationships.

4.5 Table 11: Structural Model Evaluation Results

Construct	R^2	Adj. R^2	Q^2 Predict	RMSE	MAE	f^2 (DTL)	f^2 (MSMEs Support)
BP	0.001	-0.002	-0.01	1.009	0.769	0.001	0
DTL	0.005	0.003	-0.006	1.015	0.602	-	0.005
PE	0.023	0.02	-0.001	1.007	0.714	0.009	0.012

Source: Smart PLS 4 Output, 2025

The results presented in Table 11 indicate that the model demonstrates weak explanatory and predictive capacity. Specifically, the R^2 values for business performance (0.001), digital literacy (0.005), and personal empowerment (0.023) are considerably low, suggesting that the model accounts for only a marginal proportion of variance in the endogenous constructs. This implies that MSME support mechanisms and digital literacy explain only a limited share of entrepreneurial outcomes. However, this should not be interpreted as model inadequacy; rather, it reflects the complex and context-dependent nature of entrepreneurship in developing economies, where external environmental factors, such as infrastructural deficits, policy instability, and volatile market conditions play a more dominant role than firm-level capabilities. This interpretation is consistent with prior studies which argue that entrepreneurial performance in such contexts is shaped largely by systemic constraints rather than internal resources alone. Further supporting this observation, the effect size (f^2) values fall below the minimum threshold of 0.02, indicating negligible practical influence of MSME support and digital literacy on the outcome variables. In addition, the negative Q^2 values across all constructs suggest a lack of predictive relevance, implying that the model performs poorly in out-of-sample prediction. Collectively, these results indicate that the specified relationships are empirically weak and insufficient to meaningfully explain or predict entrepreneurial outcomes, thereby pointing to the influence of omitted contextual factors and reinforcing the need for a broader, ecosystem-oriented analytical framework.

4.6 Discussion of Findings

The findings of this study reveal a clear disconnect between MSME support mechanisms, digital literacy, and entrepreneurial outcomes among women in Nigeria, reflecting the structural realities of a resource-constrained environment. Contrary to dominant assumptions in entrepreneurship literature, MSME support, comprising financial assistance, training, and market linkages, does not significantly influence business performance or digital literacy. This finding contradicts the Resource-Based View (Barney, 1991) and Human Capital Theory (Becker, 1964), which posit that access to resources and skills should directly enhance firm performance. However, the result is consistent with empirical evidence from developing economies, particularly Beck and Cull (2014), Fowowe (2017), and McKenzie and Woodruff (2014), who show that MSME support often produces weak or inconsistent outcomes under conditions of institutional inefficiency. In contrast, it diverges from findings in developed contexts, such as Beck and Demirgüç-Kunt (2006) and Audretsch and Belitski (2021), which report positive performance effects of support mechanisms. This divergence reinforces the argument that the effectiveness of MSME support is context-dependent and shaped by institutional and infrastructural conditions. Within the Nigerian context, these findings reflect persistent structural constraints, including unreliable electricity, limited access to finance, policy inconsistencies, and weak institutional coordination. This aligns with Welter (2011), who emphasizes that entrepreneurial outcomes are embedded within socio-institutional environments. Thus, MSME support mechanisms operate within a fragmented system that limits their capacity to generate measurable performance outcomes.

Similarly, the finding that digital literacy does not significantly influence business performance nor mediate the relationship between MSME support and entrepreneurial outcomes challenges dominant assumptions in digital entrepreneurship literature. This contradicts Nambisan (2017) and van Deursen and van Dijk (2014), who argue that digital capability enhances productivity and resource utilisation. It also contrasts with Kraus

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et al. (2021), who find that digital transformation improves firm performance when supported by appropriate capabilities. However, the finding is consistent with McKenzie and Woodruff (2014), who show that capability-building interventions often yield limited or short-lived impacts, and Aker and Mbiti (2010), who argue that the benefits of technological capabilities depend on complementary infrastructure. In the Nigerian context, infrastructural constraints and limited digital readiness restrict the productive application of digital skills, thereby weakening their impact on business performance.

More notably, the significant negative relationship between digital literacy and personal empowerment reveals a paradoxical effect of digital engagement. While empowerment theory (Kabeer, 1999) suggests that increased access to information enhances agency, the present findings indicate that digital exposure may intensify competitive pressures and operational demands without corresponding support. This aligns with Hilbert (2011), who highlights that digital inequalities can exacerbate vulnerability, particularly in resource-constrained environments. Thus, digital engagement may not uniformly enhance empowerment but can increase perceived pressure among women entrepreneurs. The absence of a mediating effect further indicates that MSME support, digital literacy, and entrepreneurial outcomes do not function as an integrated system. This finding contradicts Dynamic Capabilities Theory (Teece et al., 1997; Teece, 2018), which assumes that capabilities enable the effective transformation of resources into performance outcomes. Instead, it supports the view that capabilities are only effective when embedded within supportive institutional environments, consistent with Ngoasong (2015) and Sussan and Acs (2017). Importantly, these findings extend the contingency perspective by demonstrating that the effectiveness of MSME support and digital literacy is conditional upon environmental readiness. While RBV and HCT assume linear relationships between resources and outcomes, the present results show that such relationships are highly context-dependent. Institutional inefficiencies and infrastructural deficits weaken the conversion of resources into productive outcomes, thereby limiting the explanatory power of these theories in developing contexts. Taken together, the findings suggest that entrepreneurial outcomes in Nigeria are shaped less by isolated interventions and more by the broader enabling environment. The limited effectiveness of MSME support mechanisms and digital literacy reinforces the view that entrepreneurship is inherently context-bound, highlighting the importance of ecosystem-level conditions in shaping outcomes.

5. CONCLUSION AND RECOMMENDATIONS

This study concludes that MSME support mechanisms and digital literacy do not significantly improve business performance or empowerment outcomes among women entrepreneurs in Nigeria. Rather than reflecting theoretical limitations, these findings highlight the constraining role of weak infrastructure, limited access to finance, and institutional inefficiencies, which hinder the effective translation of resources and capabilities into tangible outcomes. The evidence indicates that entrepreneurial performance in Nigeria is primarily shaped by environmental conditions rather than firm-level capabilities alone. In the absence of a supportive ecosystem, both MSME support and digital literacy remain underutilised and, in some cases, counterproductive. Given this, improving MSME outcomes requires a shift from fragmented interventions to a more coordinated, system-level approach. This includes strengthening institutional effectiveness, improving access to flexible financing, prioritising practical and context-specific training, and investing in critical infrastructure such as reliable electricity and affordable internet access. Enhancing coordination among support agencies is also essential to ensure that interventions are accessible, integrated, and responsive to the realities of small businesses.

6. SUGGESTIONS FOR FURTHER STUDIES

Future research should extend this study by incorporating additional contextual variables such as institutional quality, infrastructural development, and macroeconomic conditions to better explain MSME outcomes in Nigeria. Longitudinal studies are also recommended to capture changes over time and establish causal relationships among MSME support, digital literacy, and entrepreneurial performance. Further studies could explore sector-specific analyses to determine whether the effects observed differ across industries such as manufacturing, trade, and services. In addition, qualitative or mixed-method approaches may provide deeper insights into how entrepreneurs experience and utilise support mechanisms and digital tools in practice. Finally, comparative studies across regions or countries would be valuable in identifying how contextual differences shape the effectiveness of MSME support and digital capabilities, thereby enhancing the generalisability of findings.

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