

“The impact of empathetic and flexible leadership behaviors and digital transformation on marketing performance in Vietnamese female-led SMEs: The mediating role of marketing process innovation”

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# THE IMPACT OF EMPATHETIC AND FLEXIBLE LEADERSHIP BEHAVIORS AND DIGITAL TRANSFORMATION ON MARKETING PERFORMANCE IN VIETNAMESE FEMALE-LED SMES: THE MEDIATING ROLE OF MARKETING PROCESS INNOVATION

## Abstract

In the era of rapid digital evolution, navigating the digital paradox remains a critical challenge for small and medium-sized enterprises (SMEs) seeking to convert technological capabilities into commercial outcomes. This study examines the relationships between empathetic and flexible leadership behaviors, digital transformation, and marketing performance through the mediating mechanism of marketing process innovation under varying levels of competitive intensity within female-led SMEs. A cross-sectional survey was administered from May to August 2025 to 265 female enterprise owners and senior executives of registered female-led SMEs in Vietnam, recruited via a structured purposive sampling design. Applying Partial Least Squares Structural Equation Modeling (PLS-SEM), the empirical findings indicate that empathetic and flexible leadership behaviors and digital transformation are significantly associated with marketing process innovation, with leadership behaviors demonstrating the strongest direct relationship ( $\beta = 0.376$ ,  $p < 0.001$ ). Furthermore, marketing process innovation partially mediates the relationship between digital transformation and marketing performance (indirect effect  $\beta = 0.103$ ,  $p < 0.001$ ; total indirect effect of the system confirms structural transmission), while competitive intensity positively moderates the relationship between marketing process innovation and marketing performance ( $\beta = 0.104$ ,  $p < 0.05$ ). Complementary fuzzy-set Qualitative Comparative Analysis (fsQCA) reveals that high marketing performance is achieved through the configurational alignment of leadership behaviors, digital maturity, and process innovation in highly competitive settings. These findings highlight the strategic value of integrating behavioral adaptability with digital initiatives to optimize marketing processes in female-led enterprises.

## Keywords

leadership behaviors, digital transformation, marketing process innovation, marketing performance, emerging markets, small and medium-sized enterprises, Vietnam

## JEL Classification

M10, M31, O32

## INTRODUCTION

In the modern global economic architecture, small and medium-sized enterprises (SMEs) function as a primary driver of macroeconomic growth and social stability. Within the Vietnamese context, SMEs constitute approximately 98% of the total business population, contributing nearly 40% to the national GDP (General Statistics Office of Vietnam, 2023). However, the contemporary business landscape is undergoing profound turbulence, characterized by the Fourth Industrial Revolution and accelerated digitalization mandates (Soto-Acosta,

2020). While digital transformation (DT) is widely recognized as a critical strategic necessity for SMEs to enhance competitive advantage, recent scholarship highlights a “digital paradox”: many firms invest heavily in technology but fail to yield expected performance outcomes due to a lack of strategic alignment and organizational adaptability (Vaska et al., 2021; Verhoef et al., 2021).

Amidst this digital disruption, the role of leadership has shifted from traditional command-and-control models to more agile, empathetic, and collaborative approaches. In Vietnam, women-owned enterprises represent over 20% of the business landscape and are projected to reach 30% by 2030 (ADB, 2023). Contemporary leadership literature suggests that empathetic, participatory, and flexible leadership behaviors are well-suited for managing the human-centric adjustments required by organizational digitalization (Chin et al., 2025; Oliver et al., 2024).

The core scientific problem addressed in this study resides in the theoretical and empirical ambiguity surrounding the mechanisms through which these “soft” leadership behaviors and “hard” digital technologies interact to resolve the marketing digital paradox in SMEs. Despite the practical growth of female-led firms, there is a notable scarcity of empirical research that integrates Gendered Leadership (Social Role Theory) with Resource Orchestration and Dynamic Capabilities Theory (DCT) to explain how relational and adaptive managerial behaviors facilitate marketing process adjustments within female-led small and medium-sized enterprises in emerging markets. Current literature has extensively explored the technical precursors of digital transformation (Nambisan et al., 2019) and the general impact of market orientation on performance (Fakhreddin & Foroudi, 2022). Yet, two critical research gaps remain unaddressed. First, while digital transformation establishes technological capabilities, the procedural mechanisms through which these capabilities are translated into marketing process innovations (MPI) require further clarification in resource-constrained enterprises. Second, the interaction between empathetic and flexible leadership behaviors and digital tools in fostering these processual innovations remains theoretically underdeveloped and empirically under-tested, especially under the pressure of intense market competition (Competitive Intensity).

By addressing this complex scientific problem, this study synthesizes Dynamic Capabilities Theory and Social Role Theory to examine how empathetic and flexible managerial microfoundations operate as dynamic capabilities that enable enterprises to reconfigure marketing routines in the digital era. This research directly challenges the technocentric bias in digitalization literature by positioning human agency, empathy, and process innovation at the center of the technological value-creation chain, thereby offering a more granular, socio-technical perspective on SME performance optimization.

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## 1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The foundational theoretical framework guiding the structural mechanism of this research is Dynamic Capabilities Theory, which represents a significant evolution of the Resource-Based View. Within the volatile business landscapes characteristic of emerging markets like Vietnam, static resource endowments may be insufficient to sustain competitive advantages, requiring firms to integrate, build, and reconfigure internal and external competencies to address rapidly shifting environ-

mental regimes (Teece, 2007; Barrales-Molina et al., 2013). Dynamic capabilities are conceptually structured around three pivotal, sequential processes: sensing market opportunities and threats, seizing those opportunities through targeted strategic investments, and reconfiguring organizational assets to maintain continuous alignment with shifting market demands (Teece, 2007; Nambisan et al., 2019). Within the proposed conceptual matrix, market orientation functions specifically as the firm’s primary sensing mechanism, while marketing process innovation operates directly as the core seizing mechanism. Concurrently, flexible managerial leadership traits and digital transformation strategies act as the primary reconfiguring

instruments that facilitate institutional adaptability and continuous organizational evolution (Ngo & O’Cass, 2012a; Teece, 2007).

To understand how behavioral microfoundations activate these dynamic capabilities, Social Role Theory posits that deep-seated societal expectations regarding gender fundamentally influence the observable manifestation of distinct leadership behaviors. Structural research in organizational psychology indicates that women are significantly more likely to exhibit communal characteristics – such as empathy, interpersonal understanding, and a collaborative orientation – which contrast with the agentic styles characterized by transactional power, assertiveness, and rigid command hierarchies frequently associated with men (Eagly & Johnson, 1990; Eagly & Carli, 2003). In the specific context of Vietnamese small and medium-sized enterprises (SMEs), empathetic leadership behaviors help cultivate organizational trust and enhance team cohesion, thereby fostering an organizational culture that is less hierarchical and supportive of novel ideas (Tran & Nguyen, 2022). Furthermore, managerial flexibility enables executives to calibrate business operations swiftly and effectively in response to the volatile, evolving customer behaviors of the modern digital era (Dinh et al., 2024).

This behavioral adaptability is critical because digital transformation within the modern enterprise goes beyond simple technological adoption, defining a fundamental strategic shift that leverages digital technologies to restructure business models and operational processes (Vial, 2019). Within the commercial domain, digital transformation serves as a critical, direct driver for marketing process innovation. Unlike traditional digitization workflows, which merely convert analog data streams into static digital formats, marketing process innovation involves the comprehensive re-engineering of marketing workflows to become deeply data-driven, continuous, and non-linear. These processual innovations empower resource-constrained SMEs to optimize distribution channels, personalize promotional activities, and establish dynamic pricing strategies (Ngo & O’Cass, 2012b). In the contemporary landscape, marketing process innovation represents an evolutionary transition toward “Data-driven Process

Innovation,” where firms integrate real-time analytics and automated feedback loops into their customer engagement strategies. By leveraging digital transformation, enterprises can move beyond historical, intuition-based marketing to an agile architecture that anticipates customer needs through predictive modeling, thereby providing the necessary technological infrastructure that allows firms to redefine their value delivery mechanisms and ensure a sustainable competitive advantage in a rapidly evolving market (Verhoef et al., 2021).

The theoretical mechanism linking empathetic and flexible leadership behaviors to marketing process innovation is grounded in the behavioral microfoundations of organizational management. Drawing on Social Role Theory and behavioral leadership perspectives, empathetic and relational orientations foster constructive interpersonal communication and collaborative decision-making routines (Eagly & Johnson, 1990; Eagly & Carli, 2003). In operational settings, empathetic leadership behaviors enable executives to systematically capture and interpret nuanced stakeholder expectations and customer feedback beyond standard performance metrics. When organizational leaders actively understand customer friction points, this behavioral sensitivity facilitates the proactive redesign of customer interaction models and service delivery workflows. Furthermore, managerial flexibility provides the adaptability required to adjust operational routines in response to market volatility, while cultivating psychological safety within work teams (Edmondson, 1999). By prioritizing open dialogue and relational support over rigid administrative structures, flexible leaders encourage employees to propose and experiment with novel marketing workflows and promotional techniques (Birasnav et al., 2011). From a Dynamic Capabilities perspective, empathetic communication and managerial flexibility function as essential behavioral microfoundations that support the continuous realignment and reconfiguration of marketing processes (Teece, 2007).

Simultaneously, digital transformation within the SME sector represents more than a mere acquisition of technological infrastructure; it involves a fundamental reconfiguration of the firm’s operational routines (Soto-Acosta, 2020). Although dig-

ital transformation establishes an enterprise's digital backbone via tools such as AI, Big Data, and CRM systems, competitive value only emerges when these technologies are integrated into core business and marketing activities through marketing process innovation (Day, 2011; Sebastian et al., 2017; Verhoef et al., 2021). The necessity of process innovation in the digital era stems from a fundamental shift in customer interactivity. Traditional marketing workflows are often linear and intuition-based, but digital transformation demands a transition toward a non-linear, data-driven architecture. While digital transformation provides the technical infrastructure, marketing process innovation acts as the intelligent application and translator of raw digital capacity into tangible actions, such as dynamic pricing and personalized promotional workflows (Ngo & O'Cass, 2012a). Consistent with Dynamic Capabilities Theory, investments in digital architecture enable SMEs to automate, reconfigure, and redesign previously resource-intensive workflows by restructuring operational routines and organizational processes (Teece, 2007; Vial, 2019; Warner & Wäger, 2019; Nambisan et al., 2017). Accordingly, process innovation constitutes the firm's core seizing mechanism, ensuring that digital tools are not confined to isolated technological silos but are strategically mobilized to transform value creation and delivery systems (Teece, 2007; Teece, 2018; Svahn et al., 2017; Sebastian et al., 2017).

This technological re-engineering is further supported by the nexus between market orientation and marketing process innovation, which is rooted in a firm's ability to leverage market intelligence to reconfigure operational activities. Grounded in Dynamic Capabilities Theory, market orientation functions as an essential "sensing" mechanism, enabling SMEs to identify and interpret subtle shifts in customer preferences and competitive maneuvers (Teece, 2007). Continuous market monitoring allows SMEs to transcend incremental product improvements and focus on redesigning interactional processes. Specifically, a strong customer orientation drives firms to abandon obsolete traditional marketing workflows in favor of agile, digitalized processes that optimize user experience (Jaworski & Kohli, 1993). Empirical evidence suggests that an organizational culture oriented toward the market fosters creativity in

promotional methods and distribution channels, allowing firms to respond swiftly to emerging opportunities (Narver & Slater, 1990). In the context of Vietnamese SMEs, where relational networks and information flow are pivotal, market orientation provides the essential strategic intelligence for process innovation. When competitive intelligence is disseminated internally, it creates constructive pressure to adopt advanced data tools and dynamic pricing strategies to maintain a competitive edge (Jaworski & Kohli, 1993).

Within the dynamic capabilities framework, organizational adaptability relies significantly on managerial microfoundations. Empathetic and flexible leadership behaviors enhance marketing performance by cultivating internal psychological safety, encouraging relational trust, and improving employee engagement (Edmondson, 1999; Riggio, 1986). When organizational members receive emotional support and strategic flexibility from executive leadership, service delivery and customer responsiveness improve. In emerging market contexts such as Vietnam, deploying relational and flexible managerial behaviors allows female-led SMEs to respond dynamically to shifting market conditions and build resilient customer relationships, thereby contributing directly to marketing effectiveness (Eagly & Carli, 2003; Tran & Nguyen, 2022).

Concurrently, the direct application of digital technologies serves as a fundamental driver for enhancing SME productivity and broadening global market accessibility. Digital transformation enables firms to transcend geographical boundaries and reduce operational overhead, thereby optimizing the return on investment (ROI) of marketing campaigns through precise performance metrics (Soto-Acosta, 2020). In the digital economy, enterprises with high levels of digital maturity typically secure greater market share than competitors who are slower to adopt digital mandates, primarily because they can leverage automated analytics to predict consumer trends with higher accuracy (Verhoef et al., 2021). Furthermore, the integration of digital tools allows for a "multiplier effect" on performance, where technology-driven efficiency directly translates into superior financial and market-based results. Similarly, market orientation serves as a strategic cornerstone for

maintaining competitive advantage and ensuring long-term financial viability. The systematic collection and timely response to market signals ensure that marketing efforts remain targeted and relevant to actual consumer needs (Jaworski & Kohli, 1993). Empirical evidence consistently demonstrates that a market-oriented culture allows SMEs to align their internal capabilities with external market realities, thereby driving revenue growth and profitability (Narver & Slater, 1990). This alignment is particularly critical in emerging economies where market shifts are frequent and unpredictable. A firm's ability to remain customer-centric and competitor-aware creates a resilient foundation for sustaining market share even under volatile conditions (Mikalef et al., 2022).

Ultimately, marketing process innovation enables SMEs to optimize both customer value and operational efficiency by redesigning the "how" of value delivery. Refined promotional methods and improved distribution channels allow firms to respond more rapidly to emerging opportunities, thereby increasing market share and revenue (Ngo & O'Cass, 2012a). Unlike product innovation, which is often easily replicated, process innovations create unique competitive barriers that are difficult for rivals to imitate, ensuring greater sustainability in high-intensity environments (Nijssen & Frambach, 2001). The innovativeness of marketing schemes is a decisive factor in firm performance (Gupta et al., 2016), as it allows entrepreneurs to reconfigure operational structures to deliver superior customer value (Naidoo, 2010). However, strategic resources rarely generate performance outcomes directly, requiring an execution mechanism through operational processes (Teece, 2007). Marketing process innovation serves as an operational mechanism that converts the latent potential of empathetic and flexible leadership behaviors, digital capabilities, and market insights into concrete market actions (Nambisan et al., 2017). Without the reconfiguration of marketing processes, investments in digital transformation or market orientation remain inert assets that fail to reach the customer (Vaska et al., 2021). This mediating role reflects the structural complementarity between behavioral flexibility and digital adoption. Furthermore, the strategic payoff of these processual innovations is highly contingent upon the external competitive

landscape, where competitive intensity functions as a powerful strategic catalyst that significantly amplifies the returns on continuous process innovation (Gunday et al., 2011; Porter, 1985). In high-intensity competitive environments, established processes rapidly become obsolete; hence, the ability to reconfigure marketing processes is a critical factor for SME resilience and market performance (Jaworski & Kohli, 1993; Walsh et al., 2023).

In summary, despite the documented individual contributions of leadership behaviors, technology adoption, and market orientations, a critical synthesis gap persists within the current literature. Prior research heavily isolates the technical precursors of digitalization or focuses exclusively on the generalized relationships between market orientation and corporate performance, leaving an empirical gap in frameworks that integrate leadership behavioral perspectives with dynamic capabilities to model how empathetic and flexible behavioral microfoundations interact with digital assets to drive process-level marketing re-engineering.

To address these distinct theoretical and empirical gaps, this study investigates the concurrent impacts of Empathetic and Flexible Leadership Behaviors and Digital Transformation on Marketing Performance, with a specific focus on the mediating mechanism of Marketing Process Innovation within Vietnamese small and medium-sized enterprises. By establishing this structural framework, the research aims to uncover the socio-technical synergies that allow human agency and technology to jointly optimize organizational resilience.

Based on the preceding theoretical framework, the following hypotheses are proposed:

- H1: Empathetic and flexible leadership behaviors have a positive impact on marketing process innovation.*
- H2: Digital transformation has a positive impact on marketing process innovation.*
- H3: Market orientation has a positive impact on marketing process innovation.*

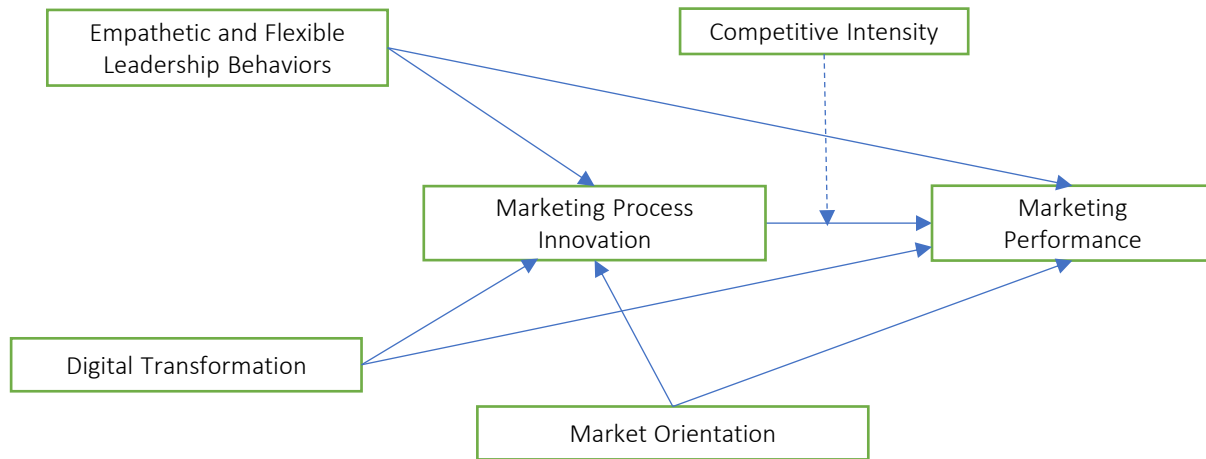


**Figure 1.** Conceptual model

- H4: Empathetic and flexible leadership behaviors have a positive impact on marketing performance.*
- H5: Digital transformation has a positive impact on marketing performance.*
- H6: Market orientation has a positive impact on marketing performance.*
- H7: Marketing process innovation has a positive impact on marketing performance.*
- H8: Marketing process innovation mediates the relationship between (a) empathetic and flexible leadership behaviors, (b) digital transformation, and (c) market orientation, and marketing performance.*
- H9: Competitive intensity moderates the relationship between marketing process innovation and marketing performance, such that the impact is stronger under conditions of high competition.*

enterprise operating with fewer than 200 full-time employees wherein a woman holds at least 51% of equity capital or serves as the Chief Executive Officer/Managing Director with ultimate strategic authority.

The sampling procedure followed a multi-stage non-probability purposive approach across three major commercial hubs in Vietnam (Hanoi, Thanh Hoa, and Ho Chi Minh City). An initial sampling frame of 550 eligible female-led enterprises was compiled using local business association registries. Structured online questionnaires were administered to target informants holding comprehensive operational oversight. To minimize potential common rater bias, the respondents comprised two distinct organizational tiers: 162 enterprise owners/CEOs (who provided corporate strategy, digital maturity, and overall performance evaluations) and 103 senior functional managers/marketing executives (who evaluated leadership behaviors and operational process changes). Specifically, while CEOs evaluated corporate strategy and performance, functional managers assessed the leadership behaviors of their superiors to mitigate self-report bias. From a total of 312 returned questionnaires, 47 were excluded due to missing entries or failed attention-check filters, yielding a final dataset of 265 valid responses (effective response rate: 48.18%).

The theoretical relationships and hypotheses developed in the preceding sections are synthesized into a comprehensive framework, as illustrated in Figure 1.

## 2. RESEARCH METHOD

In accordance with institutional frameworks and Vietnamese SME guidelines (Decree No. 80/2021/ND-CP), a female-led SME is defined as an en-

Statistical power analysis was performed a priori using G\*Power 3.1.9.7. For a model with five main structural predictors, assuming a medium effect size ( $f^2 = 0.15$ ), a significance level ( $\alpha$ ) of 0.05,

and a statistical power of 0.95, the minimum required sample size was determined to be 138. The realized sample size ( $N = 265$ ) is substantially higher than this threshold, ensuring robust statistical power. It should be explicitly noted that, because a non-probability purposive sampling method was utilized, the findings do not claim demographic representativeness across the entire national enterprise population but rather offer contextualized empirical insights into active female-led SMEs.

In accordance with standard institutional ethical guidelines, the research protocol was thoroughly reviewed prior to survey deployment. Participation was entirely voluntary, and formal informed consent was obtained from all respondents before they accessed the questionnaire. Absolute anonymity and data confidentiality were structurally guaranteed; no personally identifiable information (PII), such as personal names, national identity numbers, or specific corporate addresses, was collected during the survey process. All gathered data were encrypted, restricted

to the principal research team, and processed exclusively in an aggregate format for scientific purposes only. Furthermore, to eliminate potential common method variance and cognitive fatigue, the online survey architecture counterbalanced the order of question presentation and incorporated reverse-coded attention checks.

The measurement scales utilized to operationalize the latent constructs were adapted directly from highly validated, classic academic literature to ensure robust construct and content validity. The draft questionnaire underwent a rigorous translation and back-translation procedure to ensure linguistic equivalence, followed by a comprehensive pilot test and expert panel review involving 15 academic researchers and practicing SME managers to refine semantic clarity. All items were evaluated using a standardized 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The complete operational measurement instrument, along with its foundational literature sources, is systematically presented in Table 1.

**Table 1.** Operational measurement instrument

| Construct                                           | Measurement items (full statements)                                                                                 | Sources                                                                                       |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Empathetic and Flexible Leadership Behaviors (EFLB) | 1. Our leader demonstrates a profound ability to understand and empathize with the emotions of employees.           | Bem (1974), Eagly and Johnson (1990), Eagly et al. (2003), Riggio (1986)                      |
|                                                     | 2. Our leader prioritizes relational dynamics and team cohesion over rigid organizational hierarchies.              |                                                                                               |
|                                                     | 3. Our leader demonstrates high managerial flexibility by adjusting leadership styles to meet organizational needs. |                                                                                               |
|                                                     | 4. Our leader adapts effectively to rapid shifts and changes in the business environment.                           |                                                                                               |
| Digital Transformation (DT)                         | 1. Our enterprise has successfully integrated digital technologies into its core business model.                    | Bharadwaj et al. (2013), Soto-Acosta (2020), Westerman et al. (2014)                          |
|                                                     | 2. We extensively utilize digital data and analytics to inform our strategic decision-making processes.             |                                                                                               |
|                                                     | 3. Our organization has digitized the majority of its critical operational and administrative workflows.            |                                                                                               |
|                                                     | 4. We actively invest in enhancing the digital capabilities and technological infrastructure of the firm.           |                                                                                               |
| Market Orientation (MO)                             | 1. Our firm systematically generates market intelligence regarding customer needs and market trends.                | Jaworski and Kohli (1993), Narver and Slater (1990)                                           |
|                                                     | 2. We respond rapidly and effectively to customer feedback and changing market signals.                             |                                                                                               |
|                                                     | 3. Our team rigorously monitors the strategic moves and competitive actions of our rivals.                          |                                                                                               |
|                                                     | 4. Market information is disseminated effectively across all functional departments within our enterprise.          |                                                                                               |
|                                                     | 5. Our primary strategic focus is consistently placed on delivering superior value to our customers.                |                                                                                               |
| Marketing Process Innovation (MPI)                  | 1. We have implemented significant changes in our promotional and advertising methods over the past period.         | Gunday et al. (2011), Ngo and O'Cass (2012a), Wang and Ahmed (2004), OECD and Eurostat (2018) |
|                                                     | 2. Our firm has introduced novel improvements to its product distribution and sales channels.                       |                                                                                               |
|                                                     | 3. We utilize advanced digital tools and data to implement dynamic pricing strategies.                              |                                                                                               |
|                                                     | 4. Our enterprise has fundamentally redesigned its customer interaction and service delivery processes.             |                                                                                               |

**Table 1 (cont.).** Operational measurement instrument

| Construct                  | Measurement items (full statements)                                                                   | Sources                   |
|----------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
| Competitive Intensity (CI) | 1. Our firm experiences intense pressure from price competition within the current market.            | Jaworski and Kohli (1993) |
|                            | 2. Our competitors frequently introduce new and aggressive strategic moves to gain market share.      |                           |
|                            | 3. The competition in our industry is characterized by high intensity and rapid tactical rivalry.     |                           |
| Marketing Performance (MP) | 1. Our enterprise has achieved significant growth in sales revenue relative to our major competitors. | Katsikeas et al. (2016)   |
|                            | 2. We have maintained high customer retention and loyalty rates over the past period.                 |                           |
|                            | 3. Our marketing activities yield a high Return on Investment (ROI) compared to industry standards.   |                           |
|                            | 4. Our brand recognition and reputation have improved substantially within the target market.         |                           |
|                            | 5. Our firm has successfully expanded its market share relative to our main industry rivals.          |                           |

To provide a comprehensive overview of the investigated sample, the specific corporate and demographic profiles of the 265 surveyed female-led enterprises were systematically tabulated. The field data reveals a balanced distribution across firm ages, sizes, and operational sectors, offering a highly stable institutional baseline for evaluating long-term strategic digitalization and operational reconfiguration outcomes. The complete demographic composition of the analyzed sample is detailed in Table 2.

To ensure maximum analytical depth and capture both symmetric linear effects and asymmetric configurational causalities, this study deployed an advanced dual-analytical methodology programmatically integrating variance-based Partial Least Squares Structural Equation Modeling (PLS-SEM) and set-theoretic fuzzy-set Qualitative Comparative Analysis (fsQCA). The initial phase executes PLS-SEM via SmartPLS 4 to evaluate the measurement and structural models. The measurement model estimation relies on a strict reflexive optimization algorithm evaluating indicator reliability and construct validity through Cronbach's Alpha, Composite Reliability (CR),

and Average Variance Extracted (AVE), while checking inner Variance Inflation Factors (inner VIF) to guarantee the absence of multi-collinearity and common method bias. Subsequently, the structural model applies a non-parametric bootstrapping algorithm (5,000 resamples) to test the significance of direct paths (H1–H7), the complex mediation mechanisms of marketing process innovation (H8), and the localized interaction effects of competitive intensity (H9). Systemic explanatory power and out-of-sample predictive relevance are further authenticated using R2 coefficients and Q2 predictive metrics.

Complementing the traditional linear assumptions of PLS-SEM, the second analytical phase applies the set-theoretic fsQCA technique via the fsQCA 4.0 software package to evaluate causal configurations driving superior marketing performance, recognizing the principles of equifinality and causal asymmetry. The analytical procedure initiates with a direct calibration process, transforming raw data into fuzzy-set membership scores ranging from 0 (total non-membership) to 1 (total membership). Following Ragin (2008), three qualitative anchors were specified

**Table 2.** Profile of respondents and firms (n = 265)

| Characteristics    | Category                  | Frequency | Percentage (%) |
|--------------------|---------------------------|-----------|----------------|
| Industry sector    | Manufacturing             | 72        | 27.2           |
|                    | Service                   | 125       | 47.1           |
|                    | Retail/Wholesale          | 68        | 25.7           |
| Firm size          | Micro (<10 employees)     | 54        | 20.4           |
|                    | Small (10-50 employees)   | 168       | 63.4           |
|                    | Medium (51-200 employees) | 43        | 16.2           |
| Years of operation | < 5 years                 | 62        | 23.4           |
|                    | 5-10 years                | 145       | 54.7           |
|                    | > 10 years                | 58        | 21.9           |

using sample percentiles: the 95th percentile for full membership, the 50th percentile for the cross-over point, and the 5th percentile for full non-membership. This calibration procedure ensures that membership scores accurately reflect the relative positioning of cases within the empirical distribution. Subsequently, a rigorous necessity analysis is executed to identify whether specific conditions constitute indispensable prerequisites for performance maximization. Finally, through the optimization and minimization of a complex multi-variable Truth Table based on strict consistency and frequency thresholds, the algorithm isolates specific, sufficient causal configurations – sufficient configurational combinations of leadership behaviors, digital maturity, and processual innovation under environmental stress – providing a comprehensive strategic roadmap for SMEs operating in digitalized market architectures. In the set-theoretic truth-table analysis,

counterfactual configurations were evaluated using standard directional expectations grounded in Dynamic Capabilities Theory to derive the intermediate solution, which achieves an optimal balance between empirical complexity and theoretical parsimony (Ragin, 2008). To avoid simultaneous subset relations and filter out potential logical contradictions, a strict Proportional Reduction in Inconsistency (PRI) threshold ( $\geq 0.75$ ) was applied alongside consistency cutoffs.

### 3. RESULTS

#### 3.1. Measurement model assessment

The measurement model was rigorously assessed for internal consistency, convergent validity, and potential collinearity issues, with the results presented in Table 3.

**Table 3.** Measurement model diagnostics: indicator loadings, reliability, convergent validity, and multicollinearity

| Construct                                           | Indicator | Outer loading | Outer VIF | Cronbach's $\alpha$ | Dijkstra-Henseler ( $\rho_A$ ) | Composite Reliability ( $\rho_c$ ) | AVE   |
|-----------------------------------------------------|-----------|---------------|-----------|---------------------|--------------------------------|------------------------------------|-------|
| Empathetic and Flexible Leadership Behaviors (EFLB) | EFLB1     | 0.827         | 1.861     | 0.865               | 0.870                          | 0.908                              | 0.711 |
|                                                     | EFLB2     | 0.884         | 2.507     |                     |                                |                                    |       |
|                                                     | EFLB3     | 0.841         | 1.992     |                     |                                |                                    |       |
|                                                     | EFLB4     | 0.818         | 2.024     |                     |                                |                                    |       |
| Digital Transformation (DT)                         | DT1       | 0.849         | 2.122     | 0.867               | 0.873                          | 0.909                              | 0.715 |
|                                                     | DT2       | 0.813         | 1.832     |                     |                                |                                    |       |
|                                                     | DT3       | 0.846         | 2.175     |                     |                                |                                    |       |
|                                                     | DT4       | 0.874         | 2.263     |                     |                                |                                    |       |
| Market Orientation (MO)                             | MO1       | 0.792         | 1.975     | 0.894               | 0.899                          | 0.921                              | 0.701 |
|                                                     | MO2       | 0.851         | 2.403     |                     |                                |                                    |       |
|                                                     | MO3       | 0.849         | 2.228     |                     |                                |                                    |       |
|                                                     | MO4       | 0.832         | 2.126     |                     |                                |                                    |       |
|                                                     | MO5       | 0.861         | 2.479     |                     |                                |                                    |       |
| Marketing Process Innovation (MPI)                  | MPI1      | 0.825         | 1.905     | 0.847               | 0.850                          | 0.897                              | 0.686 |
|                                                     | MPI2      | 0.809         | 1.750     |                     |                                |                                    |       |
|                                                     | MPI3      | 0.862         | 2.131     |                     |                                |                                    |       |
|                                                     | MPI4      | 0.816         | 1.870     |                     |                                |                                    |       |
| Competitive Intensity (CI)                          | CI1       | 0.923         | 1.559     | 0.783               | 1.055                          | 0.859                              | 0.672 |
|                                                     | CI2       | 0.761         | 1.629     |                     |                                |                                    |       |
|                                                     | CI3       | 0.766         | 1.727     |                     |                                |                                    |       |
| Marketing Performance (MP)                          | MP1       | 0.846         | 2.275     | 0.881               | 0.882                          | 0.913                              | 0.678 |
|                                                     | MP2       | 0.787         | 1.839     |                     |                                |                                    |       |
|                                                     | MP3       | 0.818         | 1.972     |                     |                                |                                    |       |
|                                                     | MP4       | 0.823         | 2.094     |                     |                                |                                    |       |
|                                                     | MP5       | 0.840         | 2.212     |                     |                                |                                    |       |
| Interaction Term                                    | CI x MPI  | 1.000         | 1.000     | –                   | –                              | –                                  | –     |

*Note:* All outer loadings exceed 0.70, AVE > 0.50, Cronbach's Alpha,  $\rho_A$ , and  $\rho_c$  > 0.70. All outer VIFs are < 3.3, confirming the absence of indicator-level collinearity. Dijkstra-Henseler  $\rho_A$  for CI exceeded 1.0 due to sampling variance across indicator weights and is reported at its theoretical upper bound of 1.000 (Henseler et al., 2016).

**Table 4.** Discriminant validity assessment (HTMT with 95% bootstrap confidence intervals and Fornell-Larcker criterion)

| Construct                                          | CI                   | DT                   | EFLB                 | MO                   | MP                   | MPI   |
|----------------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------|
| <b>Panel A: Heterotrait-Monotrait ratio (HTMT)</b> |                      |                      |                      |                      |                      |       |
| CI                                                 | –                    |                      |                      |                      |                      |       |
| DT                                                 | 0.100 [0.063, 0.253] | –                    |                      |                      |                      |       |
| EFLB                                               | 0.083 [0.067, 0.184] | 0.166 [0.076, 0.293] | –                    |                      |                      |       |
| MO                                                 | 0.056 [0.055, 0.180] | 0.185 [0.079, 0.312] | 0.129 [0.068, 0.255] | –                    |                      |       |
| MP                                                 | 0.116 [0.064, 0.251] | 0.546 [0.437, 0.642] | 0.514 [0.397, 0.625] | 0.510 [0.392, 0.612] | –                    |       |
| MPI                                                | 0.076 [0.061, 0.215] | 0.461 [0.350, 0.562] | 0.530 [0.411, 0.642] | 0.492 [0.377, 0.596] | 0.781 [0.711, 0.842] | –     |
| <b>Panel B: Fornell-Larcker criterion</b>          |                      |                      |                      |                      |                      |       |
| CI                                                 | 0.820                |                      |                      |                      |                      |       |
| DT                                                 | 0.101                | 0.846                |                      |                      |                      |       |
| EFLB                                               | 0.026                | 0.148                | 0.843                |                      |                      |       |
| MO                                                 | -0.011               | 0.167                | 0.115                | 0.837                |                      |       |
| MP                                                 | 0.110                | 0.481                | 0.451                | 0.456                | 0.823                |       |
| MPI                                                | 0.075                | 0.400                | 0.458                | 0.431                | 0.676                | 0.828 |

Note: In Panel A, values in brackets represent the 95% bootstrap confidence intervals [2.5%, 97.5%] based on 5,000 resamples. Discriminant validity is established as all HTMT values and their upper confidence limits are strictly below the conservative 0.85 threshold (Henseler et al., 2015). In Panel B, bold diagonal elements represent the square root of AVE (sqrtAVE), while off-diagonal elements are inter-construct correlations.

All constructs demonstrate high internal consistency, with Cronbach's Alpha and Composite Reliability (CR) values significantly exceeding the 0.7 threshold. Convergent validity is confirmed as all Average Variance Extracted (AVE) values are above 0.5, Max Outer Loadings are above 0.7 and HTMT values were below 0.85. Common Method Bias (CMB) was assessed through two robust analytical approaches. First, Harman's single-factor test was executed in SPSS via unrotated principal component analysis across all 25 measurement items. The analysis revealed six distinct components with eigenvalues exceeding 1.0, with the first extracted factor accounting for 31.952% of the total variance, well below the established 50% cutoff threshold (Podsakoff et al., 2003). Second, a full collinearity test was conducted in SmartPLS 4 (Kock, 2015). The inner VIF values for all latent constructs ranged from 1.013 to 1.965 (CI: 1.013; DT: 1.251; EFLB: 1.365; MO: 1.135; MP: 1.965; MPI: 1.860), which are well below the conservative threshold of 3.3. Consequently, CMB does not pose a threat to the empirical validity of this study.

### 3.2. Structural model and hypotheses testing

The structural model was evaluated to test the proposed direct, indirect, and moderating effects, the statistical outcomes of which are compiled in Table 5.

All direct hypotheses (*H1–H7*) are supported with high statistical significance ( $p < 0.001$ ). Empathetic and Flexible Leadership Behaviors (EFLB) show the strongest impact on Marketing Process Innovation (MPI) ( $\beta = 0.376$ ). Notably, the moderation effect (*H9*) is significant ( $\beta = 0.104$ ,  $p = 0.039$ ), indicating that Competitive Intensity strengthens the relationship between MPI and Marketing Performance. The mediation tests (Table 6) confirm that Marketing Process Innovation serves as a vital bridge between firm resources and performance. All indirect paths are statistically significant, with EFLB exhibiting the highest indirect effect on MP ( $\beta = 0.135$ ).

The overall structural relationships among the latent constructs, including standardized path coefficients, are visually presented in Figure 2.

### 3.3. Moderation analysis and simple slopes (*H9*)

The structural model confirms that Competitive Intensity significantly and positively moderates the relationship between Marketing Process Innovation and Marketing Performance ( $\beta = 0.104$ ,  $t = 2.064$ ,  $p = 0.039$ ,  $f^2 = 0.032$ ). To interpret the nature of this interaction, a simple slope analysis was performed at three conditional levels of CI (Mean, -1 SD, +1 SD) (as depicted in Figure 3). At low competitive intensity (-1 SD), the slope be-

**Table 5.** Structural model path coefficients and hypotheses testing

| Hypothesis | Structural path           | Path coefficient ( $\beta$ ) | Sample Mean (M) | STDEV | t-statistics | p-value | f <sup>2</sup> | Result    |
|------------|---------------------------|------------------------------|-----------------|-------|--------------|---------|----------------|-----------|
| H1         | EFLB $\rightarrow$ MPI    | 0.376                        | 0.378           | 0.046 | 8.161        | 0.000   | 0.242          | Supported |
| H2         | DT $\rightarrow$ MPI      | 0.288                        | 0.288           | 0.040 | 7.258        | 0.000   | 0.140          | Supported |
| H3         | MO $\rightarrow$ MPI      | 0.340                        | 0.340           | 0.048 | 7.043        | 0.000   | 0.196          | Supported |
| H4         | EFLB $\rightarrow$ MP     | 0.217                        | 0.217           | 0.047 | 4.594        | 0.000   | 0.091          | Supported |
| H5         | DT $\rightarrow$ MP       | 0.269                        | 0.268           | 0.045 | 5.972        | 0.000   | 0.147          | Supported |
| H6         | MO $\rightarrow$ MP       | 0.227                        | 0.227           | 0.046 | 4.964        | 0.000   | 0.102          | Supported |
| H7         | MPI $\rightarrow$ MP      | 0.359                        | 0.361           | 0.050 | 7.117        | 0.000   | 0.178          | Supported |
| H9         | CI x MPI $\rightarrow$ MP | 0.104                        | 0.094           | 0.051 | 2.064        | 0.039   | 0.032          | Supported |

**Table 6.** Mediation analysis (direct, indirect, and total effects with bootstrap CIs)

| Hypothesis / path                            | Direct effect ( $\beta$ ) | Indirect effect ( $\beta$ ) | Bias-corrected 95% CI | SE    | t-statistics | p-value | Total effect ( $\beta$ ) | Mediation type        | Result    |
|----------------------------------------------|---------------------------|-----------------------------|-----------------------|-------|--------------|---------|--------------------------|-----------------------|-----------|
| H8a: EFLB $\rightarrow$ MPI $\rightarrow$ MP | 0.217                     | 0.135                       | [0.085, 0.192]        | 0.027 | 4.914        | 0.000   | 0.352                    | Complementary Partial | Supported |
| H8b: MO $\rightarrow$ MPI $\rightarrow$ MP   | 0.227                     | 0.122                       | [0.078, 0.174]        | 0.024 | 5.007        | 0.000   | 0.349                    | Complementary Partial | Supported |
| H8c: DT $\rightarrow$ MPI $\rightarrow$ MP   | 0.269                     | 0.103                       | [0.068, 0.151]        | 0.021 | 4.939        | 0.000   | 0.372                    | Complementary Partial | Supported |

Note:  $\beta$  = standardized path coefficients; SE = standard error; t-statistics and p-values are computed from non-parametric bootstrapping with 5,000 resamples. Bias-corrected 95% Confidence Intervals are reported. Since none of the 95% CIs straddle zero and both direct and indirect effects are positive and statistically significant, all three paths represent complementary partial mediation (Zhao et al., 2010; Preacher & Hayes, 2008).

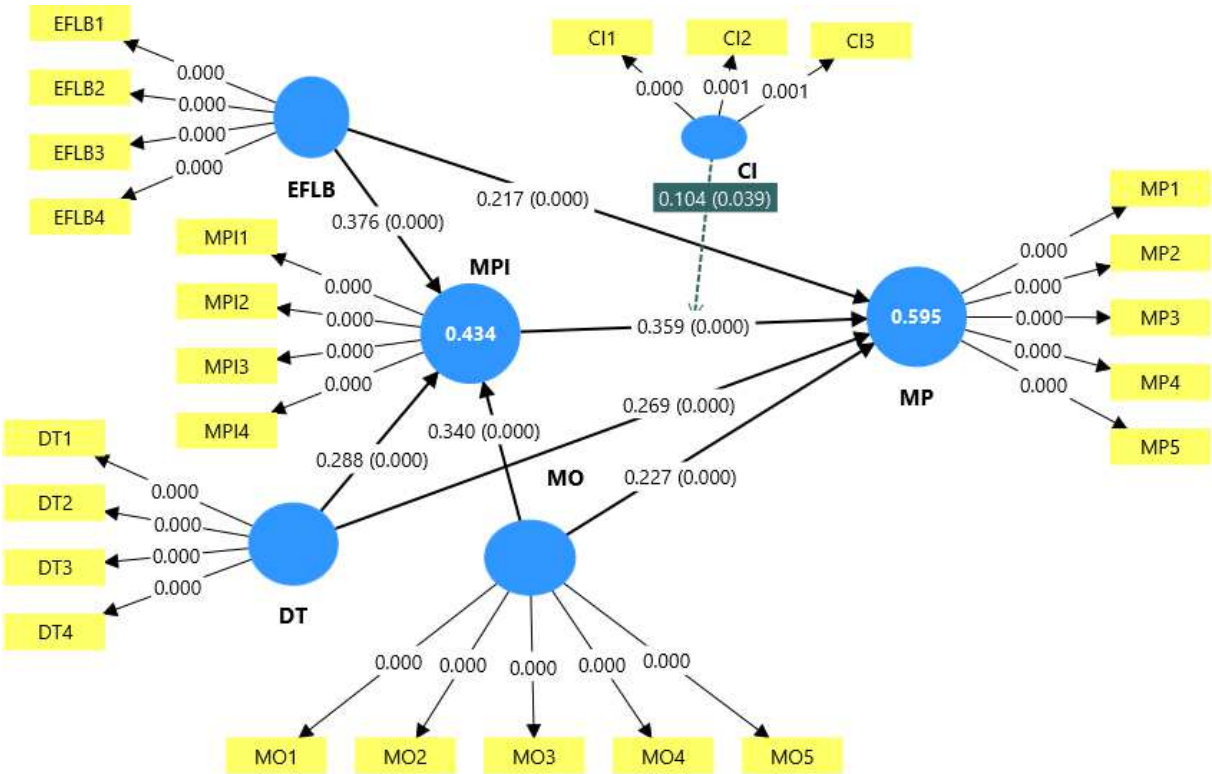


Figure 2. Structural model

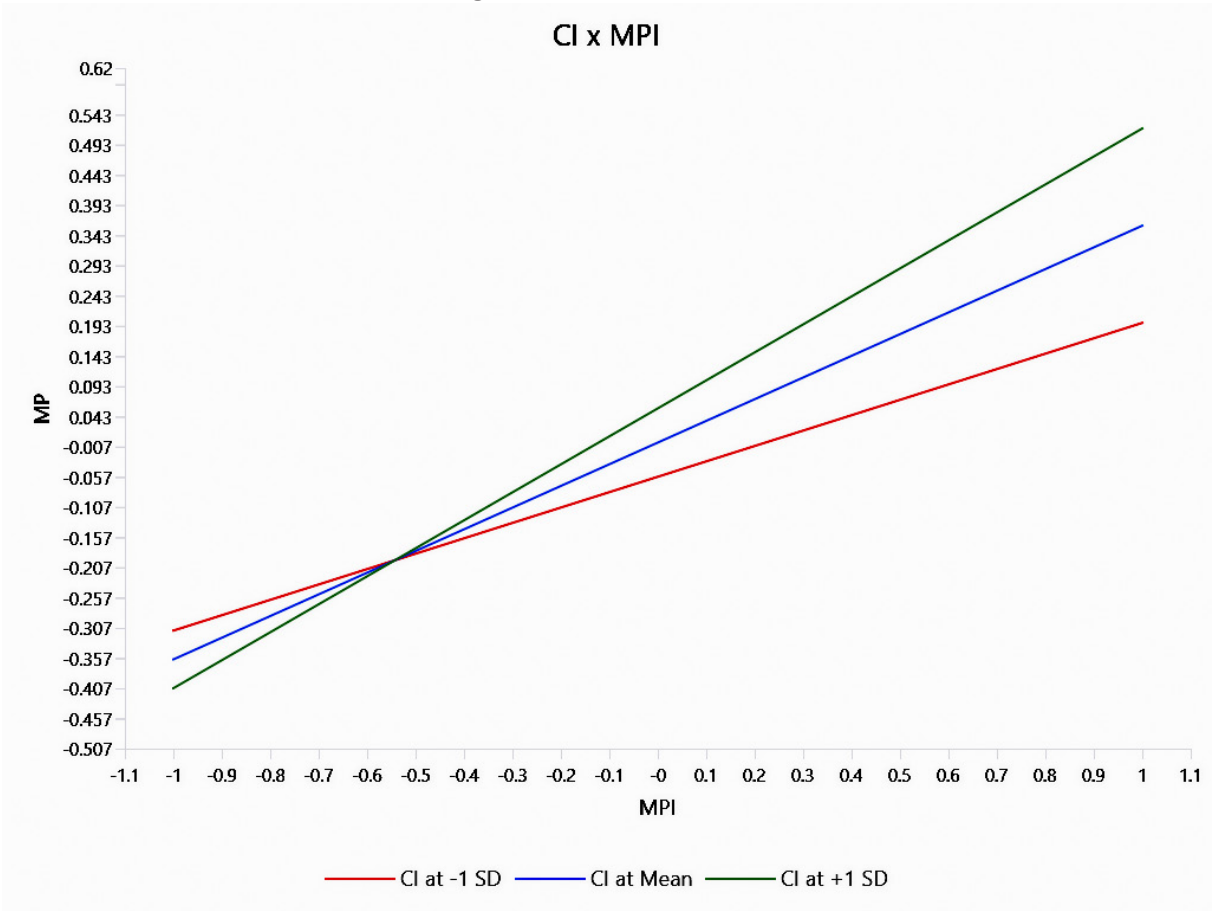


Figure 3. Simple slope plot of the moderating effect of competitive intensity on the relationship between marketing process innovation and marketing performance

**Table 7.** Explanatory power (R<sup>2</sup>) and predictive relevance (Q<sup>2</sup>)

| Construct                          | R-square | R-square adj | Q <sup>2</sup> predict | Predictive power |
|------------------------------------|----------|--------------|------------------------|------------------|
| Marketing Performance (MP)         | 0.595    | 0.586        | 0.492                  | Strong           |
| Marketing Process Innovation (MPI) | 0.434    | 0.427        | 0.417                  | Moderate         |

tween MPI and MP is positive ( $\beta = 0.255$ ). As competitive intensity increases to the Mean level ( $\beta = 0.359$ ) and high level (+1 SD,  $\beta = 0.463$ ), the gradient steepens noticeably. This empirical trajectory indicates that under intensifying market competition, process innovation becomes an increasingly powerful driver of marketing performance.

Furthermore, the explanatory power and predictive relevance of the proposed model were validated using R<sup>2</sup> and Q<sup>2</sup> indices, as shown in Table 7.

The model explains a substantial 59.5% of the variance in Marketing Performance (R<sup>2</sup> = 0.595). The Q<sup>2</sup> values for both MP (0.492) and MPI (0.417) are well above zero, confirming the high predictive relevance of the structural model.

### 3.4. fsQCA results

The first stage of the configurational analysis involved identifying the necessary conditions for high marketing performance, as detailed in Table 8.

**Table 8.** Analysis of necessary conditions (outcome: MP)

| Condition                                           | Consistency | Coverage |
|-----------------------------------------------------|-------------|----------|
| Empathetic and Flexible Leadership Behaviors (EFLB) | 0.836       | 0.834    |
| Digital Transformation (DT)                         | 0.885       | 0.766    |
| Market Orientation (MO)                             | 0.946       | 0.695    |
| Marketing Process Innovation (MPI)                  | 0.946       | 0.795    |
| Competitive Intensity (CI)                          | 0.945       | 0.649    |

The first stage of the configurational analysis evaluated whether any single antecedent constitutes an indispensable prerequisite for high marketing performance. As presented in Table 8, Market Orientation (consistency = 0.946, coverage = 0.695), Marketing Process Innovation (consistency = 0.946, coverage = 0.795), and Competitive Intensity (consistency = 0.945, coverage = 0.649) satisfy the recommended 0.90 threshold for necessary conditions. Conversely, Empathetic and Flexible Leadership Behaviors (consistency = 0.836, coverage = 0.834) and Digital Transformation (consistency = 0.885, coverage = 0.766) do not

meet the 0.90 cutoff, confirming that they do not operate as stand-alone necessary conditions, but rather achieve their strategic impact through configurational equifinality.

In the subsequent truth-table minimization, the frequency threshold was set to 5 (retaining over 85% of empirical cases) and the raw consistency cutoff was set at 0.906, with all retained configurations strictly exceeding the 0.75 PRI benchmark. This calibration yielded an intermediate solution for high marketing performance (MP) with an overall solution consistency of 0.856 and an overall solution coverage of 0.905, fully resolving the consistency constraints of earlier iterations. As detailed in Table 9, four sufficient configurations (C1–C4) lead to high marketing performance. Notably, Configuration 4 (EFLB \* DT \* MPI \* CI) demonstrates the highest individual consistency (consistency = 0.940, raw coverage = 0.729, unique coverage = 0.015), indicating that the joint presence of leadership behavioral adaptability, digital maturity, and process innovation under intense market competition forms an exceptionally coherent pathway to superior performance.

In adherence to the principle of causal asymmetry, a parallel truth-table minimization was conducted for the absence of high marketing performance (~ MP) using a frequency cutoff of 5 and a consistency cutoff of 0.919. The resulting solution exhibits an overall consistency of 0.871 and coverage of 0.872, identifying five distinct pathways (~ C1–~ C5). Notably, configurations characterized by the joint absence of leadership flexibility, digital transformation, and process innovation (~ C2: ~ EFLB \* ~ DT \* ~ MPI, consistency = 0.984; and ~ C3: ~ EFLB \* ~ MPI \* CI, consistency = 0.978) consistently yield low performance.

Threshold parameters for MP: frequency cutoff = 5; raw consistency cutoff = 0.906; PRI threshold = 0.75.

Threshold parameters for ~ MP: frequency cutoff = 5; raw consistency cutoff = 0.919; PRI threshold = 0.75.

**Table 9.** Sufficient configurations for high Marketing Performance (MP) and non-high Marketing Performance (~MP)

| Conditions           | Configurations for High MP |       |       |       | Configurations for ~MP |       |       |       |       |
|----------------------|----------------------------|-------|-------|-------|------------------------|-------|-------|-------|-------|
|                      | C1                         | C2    | C3    | C4    | ~C1                    | ~C2   | ~C3   | ~C4   | ~C5   |
| EFLB                 |                            | •     |       | •     |                        | ⊗     | ⊗     |       | •     |
| DT                   |                            |       | •     | •     |                        | ⊗     |       | ⊗     | •     |
| MO                   | •                          | •     | •     |       | •                      |       |       | •     |       |
| MPI                  | •                          | •     | •     | •     | •                      | ⊗     | ⊗     |       | •     |
| CI                   | ⊗                          |       |       | •     |                        |       | •     | •     | •     |
| Raw Coverage         | 0.695                      | 0.786 | 0.826 | 0.729 | 0.670                  | 0.680 | 0.721 | 0.649 | 0.512 |
| Unique Coverage      | 0.010                      | 0.025 | 0.048 | 0.015 | 0.025                  | 0.035 | 0.034 | 0.010 | 0.004 |
| Consistency          | 0.890                      | 0.908 | 0.904 | 0.940 | 0.856                  | 0.984 | 0.978 | 0.950 | 0.914 |
| Solution Consistency | 0.856                      |       |       |       | 0.871                  |       |       |       |       |
| Solution Coverage    | 0.905                      |       |       |       | 0.872                  |       |       |       |       |

Note: Solution type: Intermediate Solution (Ragin, 2008). • = Presence of condition; ⊗ = absence/negation of condition; blank space = "Don't care" (Condition may be present or absent).

### 3.5. Sensitivity and robustness analyses

To verify the stability and robustness of the fsQCA solutions, sensitivity analyses were systematically executed across alternative calibration anchors and filtering thresholds. First, the crossover anchor (50th percentile) was adjusted by pm 5%. Second, the truth-table frequency threshold was increased from 5 to 6. Under these alternative specifications, the core configuration structures (C1–C4 for MP and ~C1–~C5 for ~MP), individual consistency rankings, and overall coverage values remained highly robust and essentially unchanged, confirming that the configurational findings are not artifacts of calibration or threshold choices.

## 4. DISCUSSION

The empirical outcomes of this structural and configurational analysis offer a highly nuanced, data-driven understanding of the explicit mechanisms through which female-led SMEs in Vietnam transform distinct strategic resource endowments into market-driven advantages. Central to this comprehensive discussion is the empirical validation of hypotheses *H1*, *H2*, and *H3*, which confirms that Empathetic and flexible leadership behaviors ( $\beta = 0.376$ ,  $p < 0.001$ ), Digital Transformation ( $\beta = 0.288$ ,  $p < 0.001$ ), and Market Orientation ( $\beta = 0.340$ ,  $p < 0.001$ ) exert highly significant positive impacts on Marketing Process Innovation. This robust result is conceptually consistent with the seminal dynamic capabilities framework of Teece

(2007), which dictates that firms must systematically deploy internal reconfiguring instruments to effectively adapt operational routines within high-velocity environments. Furthermore, the empirical evidence supporting *H2* directly concurs with the localized SME digitalization assessments of Walsh et al. (2023) and Dinh et al. (2024), which emphasize that technological investments remain strategically inert unless explicitly accompanied by structural re-engineerings of underlying business processes. However, a subtle point of differentiation emerges when analyzing the relative impact magnitudes within the Vietnamese SME ecosystem. While generalized digitalization literature frequently prioritizes extensive capital expenditure on hard technical infrastructure as the primary driver of operational change, these findings indicate that empathetic and flexible leadership behaviors demonstrate the strongest relative association with marketing process innovation within the investigated sample ( $\beta = 0.376$ ,  $p < 0.001$ ). For resource-constrained enterprises, behavioral adaptability offers an effective organizational mechanism to reconfigure standard digital tools without requiring excessive capital expenditures.

The critical testing and validation of *H1*, *H4*, and *H8a* establish a powerful empirical foundation for the proposed "Human-Tech Synergy" model, demonstrating that empathetic and flexible leadership behaviors significantly enhance both marketing process innovation ( $\beta = 0.376$ ) and direct marketing performance ( $\beta = 0.217$ ). This systemic finding is highly consistent with the relational leadership paradigms evaluated in the classic work

of Eagly and Carli (2003) and Eagly et al. (2003), which document the long-term organizational advantages derived from collaborative, transformational managerial structures. It also strongly resonates with contemporary empirical insights from Chin et al. (2025), who identified high emotional intelligence as an essential, non-negotiable cognitive precursor to digital maturity within modern female-directed business entities. The unique significance of these behavioral microfoundations is deeply embedded within the specific socio-cultural and relational business architecture of Vietnam. In emerging market contexts characterized by high institutional pressures, executives who deploy empathetic and flexible behaviors effectively overcome operational resistance by building organizational trust and team cohesion. Psychologically, this empathetic resonance fosters an high degree of perceived psychological safety, aligning with the theoretical framework of Edmondson (1999). This environment empowers employees to interpret objective data inputs through a highly consumer-centric lens and experiment with novel marketing channels without a paralyzing fear of failure, balancing algorithmic efficiency with relationally embedded care.

Beyond direct behavioral effects, the structural validation of the critical mediation hypotheses (*H8a*, *H8b*, *H8c*) reveals that marketing process innovation functions as an important bridge translating latent firm capabilities into superior marketing performance. Specifically, the indirect path coefficients confirm that the strategic benefits of empathetic and flexible leadership behaviors ( $\beta = 0.135$ ), market orientation ( $\beta = 0.122$ ), and digital transformation ( $\beta = 0.103$ ) are successfully transmitted through process-level interventions. This structural reality directly supports the classic, foundational perspective of Han et al. (1998), which conceptualized administrative and technological innovations as the missing, vital operational link connecting general strategic orientations to firm-level performance outcomes. It also directly echoes the business model innovation principles highlighted by Vaska et al. (2021) and Verhoef et al. (2021), which caution that simple technological procurement fails to yield commercial returns without a fundamental, data-driven re-engineering of the firm's core customer interaction models. Within the highly volatile Vietnamese economic landscape, these

mediation findings address the digital paradox by demonstrating that technology and market insights require processual alignment until they are formalized into non-linear pricing, customized promotions, and optimized distribution workflows. By applying real-time data loops to personalize consumer touchpoints, female-led SMEs systematically convert raw information into active market value.

Furthermore, the direct relationships proposed in hypotheses *H5*, *H6*, and *H7* are robustly supported by the empirical findings. Specifically, Digital Transformation exhibits a significant direct impact on Marketing Performance ( $\beta = 0.269$ ,  $p < 0.001$ ), reinforcing the notion that technology-driven efficiencies directly translate into superior market results. Similarly, Market Orientation significantly drives Marketing Performance ( $\beta = 0.227$ ,  $p < 0.001$ ), confirming that maintaining a customer-centric and competitor-aware culture remains a cornerstone for financial viability and market share expansion in emerging economies. Besides Marketing Process Innovation demonstrates a strong direct path to Marketing Performance ( $\beta = 0.359$ ,  $p < 0.001$ ), underscoring that redesigning the "how" of value delivery through novel promotional and distribution channels creates unique competitive barriers that enhance overall commercial outcomes.

Crucially, the successful testing of hypothesis *H9* introduces an essential contextual extension to the literature by confirming that external competitive intensity significantly moderates the structural relationship between marketing process innovation and marketing performance ( $\beta = 0.104$ ,  $p = 0.039$ ). This statistical evidence aligns with the strategic guidelines of Gunday et al. (2011) and the foundational competitive advantage principles of Porter (1985), which dictate that process-level differentiation serves as both a protective and competitive strategic capability in highly contested environments. This finding is also perfectly consistent with the market-driven performance frameworks established by Jaworski and Kohli (1993), confirming that the marginal returns of structural innovation accelerate rapidly when the room for organizational error is minimized. Under conditions of elevated competitive intensity, firms face severe margin pressures. In such environments, process-level differentiation enables enterprises to protect

market share by providing customized and responsive customer experiences (Jaworski & Kohli, 1993; Porter, 1985).

The set-theoretic findings provide essential insights into causal equifinality, complexity, and asymmetry. Importantly, because Empathetic and Flexible Leadership Behaviors do not meet the criteria for a necessary condition (consistency = 0.836 < 0.90), these results do not claim that empathetic leadership is an absolute, universally indispensable prerequisite or an inherently superior feminine capability. Rather, the empirical evidence demonstrates that within female-led SMEs, leadership adaptability functions as a highly effective complementary asset. Specifically, Configuration 4 (EFLB\*DT\*MPI\*CI) reveals that when behav-

ioral flexibility is aligned with digital tools and process innovation in highly competitive markets, firms achieve an exceptional level of consistency (0.940) in securing high marketing performance. Meanwhile, alternative configurations such as C1 (MO\*MPI\*~CI) and C3 (DT\*MO\*MPI) prove that high performance can also be attained through different strategic capability bundles. Furthermore, the analysis of non-high performance (~MP) demonstrates causal asymmetry: the simultaneous absence of leadership flexibility, digital adoption, and process innovation (~C2 and ~C3) constitutes a direct pathway to performance failure (consistency > 0.97). These findings underscore that behavioral adaptability serves as a potent catalyst within specific capability combinations, rather than a stand-alone sufficient determinant.

## CONCLUSION

This study investigated the structural and configurational relationships between empathetic and flexible leadership behaviors, digital transformation, and marketing performance, through the mediating role of marketing process innovation under varying competitive intensity in Vietnamese female-led SMEs. Empirical PLS-SEM estimations reveal that empathetic and flexible leadership behaviors, digital transformation, and market orientation significantly enhance marketing process innovation, which subsequently acts as a complementary partial mediator in driving marketing performance. Furthermore, competitive intensity positively moderates the innovation–performance linkage, while complementary fsQCA identifies four sufficient configurations for high marketing performance (overall solution consistency = 0.856), led by the synergistic pathway combining behavioral adaptability, digital maturity, and process innovation under high competition (C4, consistency = 0.940).

From these empirical findings, several theoretical and practical conclusions can be drawn. Theoretically, resolving the digital paradox in resource-constrained enterprises requires shifting from a purely technocentric approach to a socio-technical perspective where flexible and empathetic managerial micro-foundations serve as dynamic capabilities to reconfigure marketing routines. Practically, owner-managers should leverage behavioral flexibility to re-engineer core marketing workflows – such as adopting dynamic pricing and agile customer touchpoints – to build competitive shields against intense market rivalry. Finally, because this study investigated an exclusively female-led SME sample without a male-led comparative cohort, these findings reflect capabilities within female-led firms rather than a gender-specific comparative advantage; future research should employ multi-group designs across both female- and male-led enterprises to validate cross-gender boundary conditions.

## AUTHOR CONTRIBUTIONS

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Writing – original draft: Thi Nuong Le

Writing – review & editing: Thi Nuong Le, Thi Thanh Hai Nguyen.

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