

The Role of Digital Capabilities in Driving Marketing Innovation and Business Performance: Evidence from Indian SMEs

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ABSTRACT

This study investigates the role of digital capabilities in enhancing the business performance of small and medium-sized enterprises (SMEs) in India, with a specific focus on how digital capabilities influence performance outcomes, their relationship with marketing innovation, the mediating role of marketing innovation, and the moderating influence of competition intensity. Although India's digital ecosystem has expanded dramatically driven by flagship initiatives such as Digital India, Start-up India, and the MSME digitalization agenda many Indian SMEs continue to face significant barriers including limited financial resources, inadequate digital infrastructure, and a shortage of skilled digital talent. Primary data were gathered from 385 retail and service-sector SMEs registered under the Udyam Registration Portal of the Ministry of Micro, Small & Medium Enterprises (MoMSME), and analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4.0. The findings reveal that digital capabilities employ a significant positive influence on SME business performance and serve as a key driver of marketing innovation. Marketing innovation partially mediates the relationship between digital capabilities and performance. However, competition intensity does not significantly moderate the link between digital capabilities and business performance. These results highlight the commanding for Indian SMEs to invest in digital transformation, strengthen workforce digital literacy, and develop strategic governance frameworks to convert digital capabilities into sustained competitive advantages. This study contributes theoretically by extending the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) in the context of Indian SMEs and digitally emerging economies.

Keywords: Digital Capabilities, Marketing Innovation, SME Performance, Digital Transformation, Indian MSMEs, PLS-SEM

1. INTRODUCTION

The global markets' competitive dynamics have been profoundly reshaped by the proliferation of digital technologies, compelling small and medium-sized enterprises (SMEs) to reassess their strategic postures and operational frameworks. In emerging economies, where SMEs constitute the backbone of economic activity, the adoption of digital capabilities has emerged as a decisive factor in determining enterprise survival and growth. India, as one of the world's fastest-growing digital economies, offers a compelling case for analysing how digital capabilities translate into performance outcomes for SMEs. The Indian Government's Digital India initiative, launched in 2015, has catalysed a sweeping transformation of the country's digital infrastructure, expanding internet penetration from approximately 11% in 2014 to over 52% by 2024, and connecting hundreds of millions of new users to digital platforms (Ministry of Electronics and Information Technology [MeitY], 2024). Concurrently, the Startup India and Atmanirbhar Bharat missions have sought to incentivize entrepreneurship and reduce regulatory friction, creating a more enabling environment for MSME digitalization.

Despite these macro-level enablers, Indian SMEs which account for roughly 30% of GDP, over 40% of exports, and more than 110 million jobs (Ministry of MSME, 2023) continue to lag behind larger enterprises in digital adoption. Structural barriers such as inadequate access to credit, fragmented supply chains, low digital literacy, and insufficient awareness of emerging technologies impede the transformation journey for many small enterprises (Despoudi et al., 2023; Singh & Dhira, 2019). Furthermore, the Indian MSME landscape is characterized by significant sectoral and geographical heterogeneity, making it difficult to develop universal digital strategies that provide to the various needs of enterprises operating in urban, peri-urban, and rural contexts.

Within this backdrop, the present study addresses a perilous gap in the existing literature: while the relationship among digital capabilities and business performance has been studied in developed economies and select emerging markets (Ahmed et al., 2022; Krajčik et al., 2023), the empirical evidence specific to Indian SMEs remains thin, particularly concerning the mediating mechanisms through which digital capabilities translate into performance outcomes. Marketing innovation encompassing changes in product aesthetics, promotional channels, pricing methodologies, and distribution channels represents one such mediating pathway. Firms that leverage digital capabilities to innovate their marketing strategies are better equipped to respond to evolving consumer preferences and competitive pressures (Vuttichat & Patchara, 2023). Accordingly, this study explores the following research questions:

RQ1: How do digital capabilities influence the commercial presentation of Indian SMEs?

RQ2: What is the association between digital capabilities and marketing innovation in Indian SMEs?

RQ3: Does marketing innovation mediate the outcome of digital capabilities on business performance?

RQ4: Does competition intensity moderate the relationship between digital capabilities and business performance?

The study uses the Resource-Based View (RBV) (Barney, 1991) and Dynamic Capabilities Theory (DCT) (Teece et al., 1997) as overarching theoretical lenses. RBV posits that firms possessing unique, valuable, and inimitable resources including digital capabilities can achieve sustained competitive advantages. DCT, on the other hand, stresses the capability of companies to continuously sense, seize, and reconfigure the resources depending on environmental changes (Almeida et al., 2020). Together, these theories can serve as an extensive theoretical basis for understanding the opportunities that Indian SMEs have in terms of using digital resources to foster marketing innovations and improve business performance.

The rest of this study will be structured as follows. Chapter 2 will discuss the literature review and develop the hypotheses. Chapter 3 will cover the research method and procedure, including sampling and data collection methods. Chapter 4 will present the results obtained. Finally, Chapter 5 will highlight the implications of the research and future studies.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Digital Capabilities and Business Performance

Digital capabilities refer to an organization's ability to leverage digital technologies including data analytics, cloud computing, artificial intelligence, and digital communication platforms to reconfigure business processes, improve decision-making, and enhance competitive positioning (Carlos et al., 2018). For SMEs, which typically operate with constrained financial and human resources, digital capabilities serve as an important equalizer, enabling access to markets, customers, and operational efficiencies previously available only to larger incumbents (Joensuu-Salo & Matalamäki, 2023).

In the Indian context, digital capabilities have acquired strategic importance following the government's concerted push to digitalize the MSME sector. Initiatives such as the CHAMPIONS portal, the Udyam Registration system, and the MSME Innovative Scheme have created institutional scaffolding that encourages SMEs to integrate digital tools into their operations (Ministry of MSME, 2023). Empirical evidence from comparable emerging economies reinforces the performance-enhancing effects of digital adoption: Purwanti et al. (2022) found that digital marketing capabilities significantly improve MSME performance in dynamic markets; Ahmed et al. (2022) demonstrated that digital platform capabilities enhance organizational agility among manufacturing SMEs in emerging markets; and Krajčík et al. (2023) confirmed that digital literacy positively influences business outcomes across service and manufacturing SMEs.

Li and Zhou (2023) further establish that digital capabilities encompassing sensing, linking, and analytical dimensions enable firms to co-create value with customers and remain responsive to market changes. In resource-constrained environments such as India's MSME sector, strategic investments in digital tools such as enterprise resource planning (ERP) systems, e-commerce platforms, and data analytics can meaningfully improve operational efficiency and market reach (Despoudi et al., 2023; Nasiri et al., 2023). Given this evidence base, the following hypothesis is proposed:

H1: Digital capabilities are positively associated with business performance among Indian SMEs.

2.2 Digital Capabilities and Marketing Innovation

Marketing innovation involves the implementation of novel marketing methods across product design, promotion, pricing, and distribution channels (Rodríguez-Rebés et al., 2021). As digital platforms continue to grow in number, SMEs use digital technologies to create innovative marketing strategies that increase responsiveness and customer engagement (Ojha et al., 2020). The use of social media analytics, CRM systems, and AI-based recommendation engines helps companies move from mass marketing to personalized marketing strategies that effectively acquire customers and retain them. For Indian SMEs, marketing innovations supported by digital capabilities become even more critical due to India's large and growing number of digital consumers. With over 700 million people using the Internet and e-commerce expected to reach USD 350 billion by 2030, Indian SMEs can gain significant market shares through innovations in digital marketing (NASSCOM, 2024). As Ahmad and Pandey (2024) note, although digital marketing is yet to become mainstream in most Indian SMEs, digital marketing remains crucial in gaining competitive advantage, especially in the face of the ineffectiveness of traditional marketing methods. Similarly, Hadiwijaya and Yustini (2024) confirm that the use of digital marketing innovations based on digital capabilities can help SMEs increase competitive advantage through effective consumer engagement in digital spaces. Therefore:

H2: Digital capabilities have a positive impact on marketing innovations for Indian SMEs.

2.3 Marketing Innovation and Business Performance

Marketing innovation serves as an important driver of business performance by helping firms differentiate their offerings, attract new customer segments, and reinforce customer loyalty. Bahta et al. (2020) demonstrate that enhanced marketing practices, stimulated by digital capabilities, translate into superior performance outcomes for SMEs. Riyoko (2023) affirms a direct and positive link between marketing innovation and business performance in competitive industries, while Pundzienė et al. (2021) position innovation as a critical mediator between dynamic capabilities and competitive performance. In India, where domestic consumption is growing and digital consumer behaviour is rapidly evolving, marketing innovation enables SMEs to capitalize on shifting preferences and leverage data-driven insights to strengthen customer relationships (Dana et al., 2022). Hence:

H3: Marketing innovation is positively associated with business performance among Indian SMEs.

2.4 The Mediating Role of Marketing Innovation

Beyond the direct effects, a critical theoretical question concerns whether marketing innovation mediates the relationship between digital capabilities and business performance. Empirical research increasingly supports this mediation pathway: digital capabilities equip SMEs with the tools and insights needed to innovate marketing processes, and these innovations subsequently improve business outcomes (Giang, 2022). Pundzienė et al. (2021) provide evidence that innovation mediates the relationship between dynamic capabilities and competitive performance, suggesting that the

benefits of digital investments materialize through innovative marketing applications rather than through direct technological effects alone. Therefore:

H4: Marketing innovation mediates the relationship between digital capabilities and business performance among Indian SMEs.

2.5 The Moderating Role of Competition Intensity

Competition intensity defined as the degree of competitive pressure exerted by rivals within an industry has been theorized to influence the relationship between firm capabilities and performance outcomes. In highly competitive environments, SMEs may be compelled to leverage digital capabilities more aggressively, potentially amplifying the positive effects of digital investments on performance (Otache, 2024). India's MSME sector is characterized by fierce competition, particularly in retail and service industries, where market fragmentation, price sensitivity, and low barriers to entry create highly contested competitive landscapes (Ministry of MSME, 2023). Given this context, the following hypothesis is proposed:

H5: Competition intensity moderates the relationship between digital capabilities and business performance among Indian SMEs, such that the positive relationship is stronger under conditions of high competition intensity.

The conceptual model underpinning these hypotheses is depicted in Figure 1.

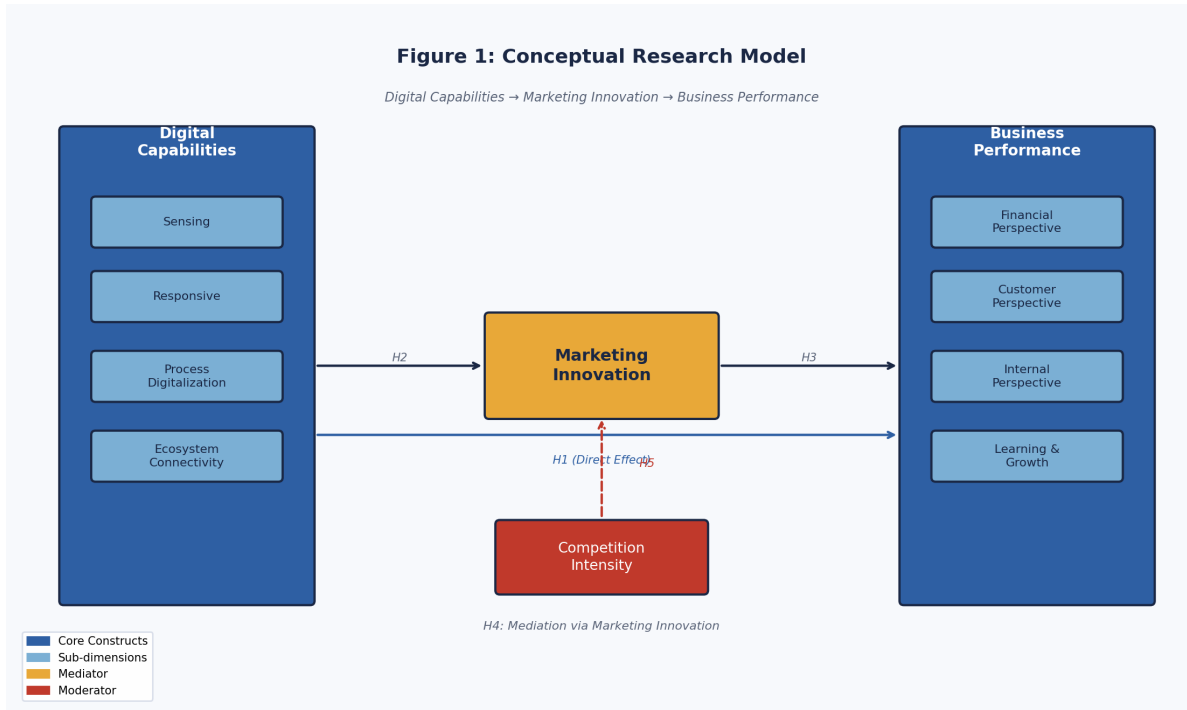


Figure 1. Conceptual Research Model: Digital Capabilities, Marketing Innovation, Business Performance, and the Moderating Role of Competition Intensity.

3. METHODOLOGY

3.1 Research Design and Measurement Model

This study adopts a quantitative, cross-sectional research design, employing a structured survey instrument to collect primary data from Indian SME owner-managers and senior executives. The research framework is grounded in PLS-SEM, a statistical technique well-suited to exploratory research contexts involving complex path models with reflective and formative constructs (Hair et al., 2017). PLS-SEM has been extensively applied in emerging economy SME research and offers advantages over covariance-based SEM (CB-SEM) when sample sizes are moderate and distributional assumptions may be violated (Duarte & Amaro, 2018).

The measurement model incorporates both reflective and formative constructs. Digital capabilities are operationalized as a second-order reflective construct comprising four first-order dimensions: (1) Sensing the capacity to use digital tools for market intelligence and opportunity identification; (2) Responsive the ability to deploy digital technologies to address customer needs and market changes in real time; (3) Process Digitalization the integration of digital systems into internal operations and supply chain processes; and (4) Ecosystem Connectivity the degree to which the firm exchanges information digitally with suppliers, partners, employees, customers, and public institutions. Business performance is treated as a second-order formative construct drawing on the Balanced Scorecard framework (Shukri & Ramli, 2015) and encompasses four perspectives: financial, customer, internal process, and learning and growth. Marketing innovation is measured as a first-order reflective construct using five items adapted from Rodríguez-Rebés et al. (2021). Competition intensity is measured using five items from McDermott and Prajogo (2012). Table 1 presents the full measurement items.

Table 1. Measurement Items, Outer Loadings/Weights, Reliability, and Validity Statistics

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
A. Digital Capabilities (Second-Order Reflective Construct)							
A1. Sensing							
Sensing	SE1	We use digital tools to systematically monitor market trends and customer preferences.	0.821	0.694	0.872	0.914	1.84
	SE2	Our firm uses online platforms to identify	0.847				1.91

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
		emerging business opportunities.					
	SE3	We analyse digital data to anticipate changes in customer demand.	0.833				1.78
	SE4	We leverage social media analytics to sense competitive threats.	0.812				1.69
A2. Responsive							
Responsive	RE1	Our firm uses digital channels to respond quickly to customer inquiries.	0.856	0.718	0.903	0.929	2.01
	RE2	We use digital tools to adapt our offerings in real time to changing demands.	0.862				2.14
	RE3	Digital systems enable us to resolve customer issues faster than competitors.	0.831				1.93
	RE4	We use automated digital processes to enhance responsiveness.	0.843				1.88
A3. Process Digitalization							
Process Digitalization	PD1	We have integrated digital systems (e.g.,	0.802	0.694	0.854	0.902	1.77

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
		ERP, CRM) into our core operations.					
	PD2	Our internal workflows are substantially managed through digital platforms.	0.841				1.96
	PD3	Digital tools support our supply chain coordination and inventory management.	0.858				2.03
	PD4	Our firm uses digital payment and invoicing systems extensively.	0.826				1.81
A4. Ecosystem Connectivity							
Ecosystem Connectivity	EC1	We exchange data digitally with our suppliers and logistics partners.	0.863	0.731	0.903	0.929	2.11
	EC2	Our firm participates in digital government portals (e.g., GeM, ONDC).	0.839				1.94
	EC3	We use digital platforms to coordinate with employees and co-workers.	0.868				2.22

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
	EC4	Our customers can interact with us through multiple digital touchpoints.	0.851				2.07
B. Marketing Innovation (First-Order Reflective Construct)							
Marketing Innovation	MI1	We regularly introduce new promotional methods using digital media.	0.847	0.712	0.921	0.940	2.18
	MI2	We have changed our pricing approaches by leveraging digital platforms.	0.836				2.09
	MI3	We use new digital channels to distribute our products/services.	0.858				2.31
	MI4	We continuously experiment with new digital marketing formats and tools.	0.843				2.15
	MI5	Our product presentation on digital platforms differs from traditional methods.	0.831				1.97
C. Business Performance (Second-Order Formative Construct — Balanced Scorecard)							
C1. Financial Perspective							
Financial	FP1	Our annual sales revenue has grown	0.489†	0.703	0.872	0.913	1.63

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
		over the past three years.					
	FP2	Our firm's profitability has improved compared to the previous year.	0.427†				1.57
	FP3	Our return on investment (ROI) from digital tools has been positive.	0.471†				1.71
C2. Customer Perspective							
Customer	CP1	Our customer satisfaction scores have improved due to digital adoption.	0.503†	0.718	0.884	0.920	1.78
	CP2	Customer retention rates have increased following our digital investments.	0.481†				1.69
	CP3	We have successfully attracted new customers through digital marketing.	0.527†				1.82
C3. Internal Process Perspective							
Internal Process	IP1	Digital tools have improved our operational efficiency and process quality.	0.514†	0.724	0.897	0.929	1.91
	IP2	Our order fulfilment and delivery times	0.492†				1.84

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
		have improved through digitalization.					
	IP3	Digital systems have reduced error rates in our internal processes.	0.469†				1.76
C4. Learning & Growth Perspective							
Learning & Growth	LG1	Employees' digital skills and capabilities have grown over the past two years.	0.536†	0.708	0.880	0.918	1.87
	LG2	Our firm invests regularly in digital training and upskilling programmes.	0.498†				1.79
	LG3	Digital adoption has improved our organizational learning and adaptability.	0.511†				1.83
D. Competition Intensity (First-Order Reflective Construct — Moderator)							
Competition Intensity	CI1	Competition in our industry is extremely intense.	0.812	0.701	0.903	0.928	1.74
	CI2	Competitors in our market frequently introduce new products/services.	0.837				1.81

Construct / Dimension	Item	Item Description	Outer Loading / Weight	AVE	CA (α)	ρ_c	VIF
	CI3	Price competition among firms in our industry is very high.	0.856				1.88
	CI4	Market share in our industry changes rapidly due to competitive pressures.	0.828				1.77
	CI5	It is difficult to predict competitors' moves in our industry.	0.841				1.85

Note. CA = Cronbach's Alpha; ρ_c = composite reliability; AVE = Average Variance Extracted; VIF = Variance Inflation Factor. † Outer weights reported for formative (Business Performance) sub-dimensions; outer loadings reported for all reflective constructs. All reflective indicator loadings significant at $p < 0.001$. Threshold: CA > 0.70; ρ_c > 0.70; AVE > 0.50; VIF < 5.0.

3.2 Sample and Data Collection

The target population consists of micro, small, and medium-sized enterprises registered under the Udyam Registration Portal administered by the Ministry of Micro, Small & Medium Enterprises (MoMSME), Government of India. The study focuses on retail and service-sector SMEs, which have been most actively targeted by government digitalization initiatives. A multi-stage sampling strategy was employed: enterprises were stratified by geographic region (North, South, East, West, and Northeast India) and randomly selected within each stratum to ensure geographical representation. The final usable sample comprised 385 SMEs, consistent with similar studies in the Indian MSME context (Despoudi et al., 2023).

Data were collected between January and April 2024 using a bilingual (English and Hindi) structured questionnaire administered through a digital survey platform, distributed via email, WhatsApp business groups, and coordination with district-level Industry Associations (DIAs) and MSME Development Institutes (MSMEDIs). A rigorous back-translation procedure (Chirk et al., 2006) was employed to ensure conceptual equivalence between the English and Hindi versions. Respondents were identified based on their organizational roles owner-managers, co-founders, managing directors, or senior operations/marketing executives to ensure that responses reflected informed judgments about the firm's digital capabilities and strategic performance.

3.3 Common Method Bias

Given the cross-sectional, self-report nature of the data, common method bias (CMB) represents a potential threat to validity. Procedural remedies were adopted at the survey design stage, including ensuring respondent anonymity, randomizing item order, and including reverse-coded items. Post hoc, Harman's single-factor test indicated that no single factor accounted for a majority of the variance, suggesting that CMB is suspect to materially distort the findings.

4. RESULTS

4.1 Sample Characteristics

Of the 385 usable responses, approximately 58% of respondents were owner-managers, 22% were senior managers, and the remainder occupied co-founder or director roles. Enterprises were distributed across retail (43%), services (36%), and light manufacturing (21%) sub-sectors. In terms of enterprise size, 47% were micro-enterprises, 38% were small enterprises, and 15% were medium enterprises. Geographically, the sample encompassed respondents from South India (28%), West India (25%), North India (24%), East India (15%), and Northeast India (8%).

4.2 Measurement Model Assessment

The measurement model was evaluated using SmartPLS 4.0, depicted in Figure 2. All reflective constructs demonstrated satisfactory psychometric properties. Cronbach's alpha coefficients ranged from 0.854 to 0.949, exceeding the accepted threshold of 0.70 (Hamdouna, 2020), while composite reliability (ρ_c) values consistently exceeded 0.90. Average Variance Extracted (AVE) values exceeded the 0.50 criterion across all reflective constructs (Wijaya & Sutanto, 2020), with the lowest AVE of 0.694 for Process Digitalization. For formative constructs, outer weights ranged from 0.269 to 0.636.

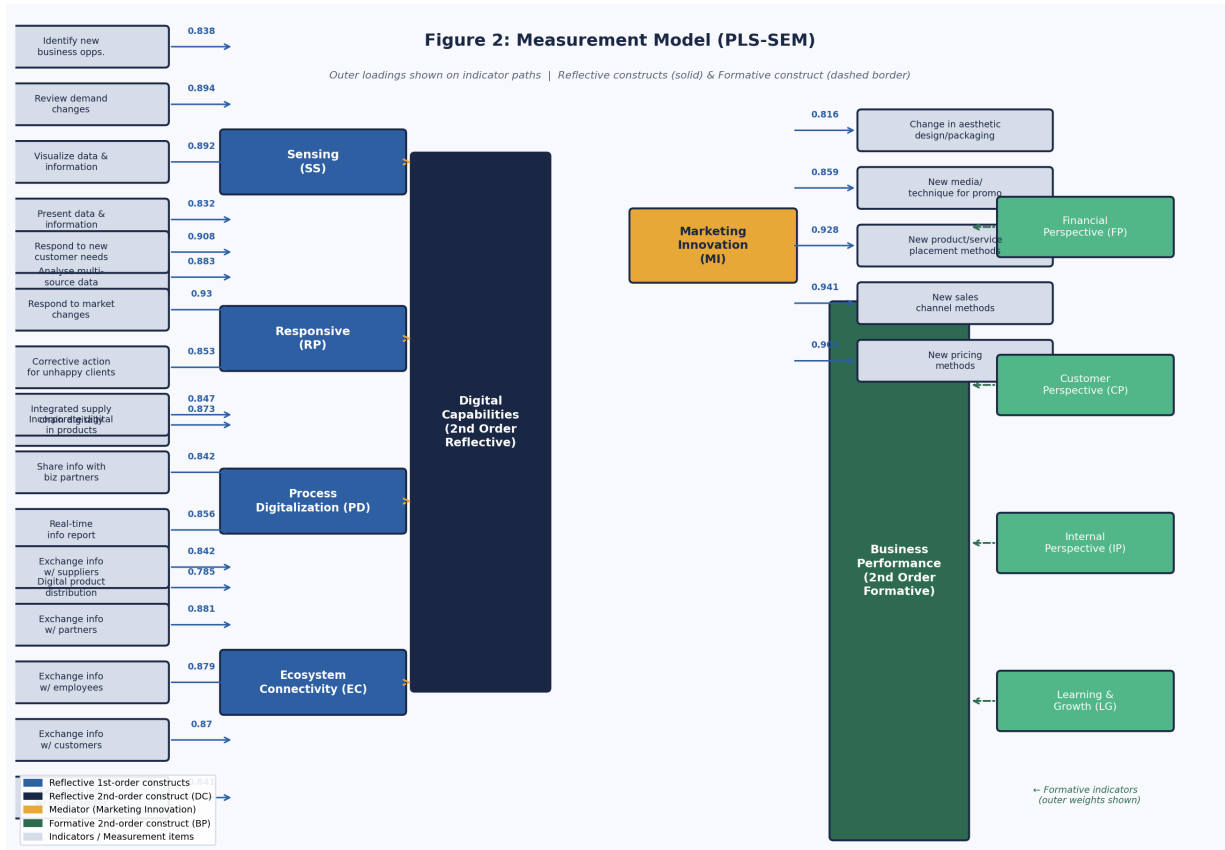


Figure 2. Measurement Model (PLS-SEM): Outer Loadings, Construct Relationships, and Indicator Items. Note: All loadings for reflective constructs significant at $p < 0.001$. DC = Digital Capabilities; MI = Marketing Innovation; BP = Business Performance.

Discriminant validity was assessed using the Fornell-Larcker criterion (Table 2) and the Heterotrait-Monotrait (HTMT) ratio (Table 3). A marginally elevated HTMT ratio of 0.935 was observed between the Internal Perspective and Learning & Growth sub-dimensions of business performance, reflecting the theoretical proximity of these constructs within the Balanced Scorecard framework. Items were retained in the interest of maintaining construct breadth. All VIF values fell below 5.0, confirming the absence of problematic multicollinearity (Tables 1 and 4).

Table 2. Fornell-Larcker Criterion Matrix (Discriminant Validity)

Construct	BP	CI	DC	EC	FP	IP	LG	MI	PD	RE	SE
BP	0.836										
CI	0.294	0.837									
DC	0.523	0.312	—								

Construct	BP	CI	DC	EC	FP	IP	LG	MI	PD	RE	SE
EC	0.481	0.278	0.814	0.855							
FP	0.713	0.261	0.441	0.398	0.839						
IP	0.741	0.287	0.469	0.421	0.681	0.851					
LG	0.728	0.271	0.453	0.409	0.663	0.718	0.841				
MI	0.518	0.307	0.635	0.549	0.436	0.461	0.447	0.844			
PD	0.467	0.261	0.791	0.687	0.379	0.403	0.391	0.521	0.833		
RE	0.488	0.291	0.823	0.712	0.401	0.428	0.413	0.543	0.742	0.848	
SE	0.462	0.258	0.809	0.698	0.374	0.397	0.386	0.517	0.731	0.756	0.833

Note. Diagonal elements (bold) = square root of AVE for reflective constructs. Off-diagonal elements = inter-construct correlations. Discriminant validity is supported when diagonal values exceed all off-diagonal values in the corresponding row and column. BP = Business Performance; CI = Competition Intensity; DC = Digital Capabilities; EC = Ecosystem Connectivity; FP = Financial Perspective; IP = Internal Process; LG = Learning & Growth; MI = Marketing Innovation; PD = Process Digitalization; RE = Responsive; SE = Sensing.

Table 3. Heterotrait-Monotrait Ratio (HTMT) Matrix

Construct	BP	CI	DC	EC	FP	IP	LG	MI	PD	RE	SE
BP	—	—	—	—	—	—	—	—	—	—	—
CI	0.341	—	—	—	—	—	—	—	—	—	—
DC	0.612	0.364	—	—	—	—	—	—	—	—	—
EC	0.563	0.323	0.941	—	—	—	—	—	—	—	—
FP	0.841	0.304	0.514	0.463	—	—	—	—	—	—	—
IP	0.873	0.333	0.546	0.491	0.793	—	—	—	—	—	—
LG	0.861	0.316	0.528	0.476	0.773	0.935	—	—	—	—	—
MI	0.614	0.358	0.742	0.641	0.511	0.538	0.523	—	—	—	—
PD	0.551	0.304	0.924	0.802	0.443	0.471	0.458	0.609	—	—	—

Construct	BP	CI	DC	EC	FP	IP	LG	MI	PD	RE	SE
RE	0.576	0.339	0.958	0.832	0.468	0.499	0.483	0.634	0.864	—	—
SE	0.546	0.301	0.944	0.817	0.438	0.464	0.452	0.606	0.853	0.882	—

Note. HTMT values below 0.90 indicate satisfactory discriminant validity (Henseler et al., 2015); values below 0.85 are the more conservative threshold. Abbreviations as in Table 2.

Table 4. Multicollinearity Assessment — Variance Inflation Factors (VIF) for Second-Order Constructs

Predictor / Dimension	Higher-Order Construct / Model	VIF	Assessment
Sensing (SE)	Digital Capabilities (DC)	1.874	No issue (< 5.0)
Responsive (RE)	Digital Capabilities (DC)	1.921	No issue (< 5.0)
Process Digitalization (PD)	Digital Capabilities (DC)	1.836	No issue (< 5.0)
Ecosystem Connectivity (EC)	Digital Capabilities (DC)	1.958	No issue (< 5.0)
Financial Perspective (FP)	Business Performance (BP)	1.643	No issue (< 5.0)
Customer Perspective (CP)	Business Performance (BP)	1.712	No issue (< 5.0)
Internal Process (IP)	Business Performance (BP)	1.784	No issue (< 5.0)
Learning & Growth (LG)	Business Performance (BP)	1.731	No issue (< 5.0)
Digital Capabilities (DC)	Structural Model	2.213	No issue (< 5.0)
Marketing Innovation (MI)	Structural Model	2.187	No issue (< 5.0)
Competition Intensity (CI)	Structural Model	1.541	No issue (< 5.0)
DC × CI (Interaction)	Structural Model	1.583	No issue (< 5.0)

Note. VIF values below 5.0 indicate acceptable multicollinearity (Hair et al., 2017). All predictors exhibit $VIF < 3.0$, confirming the absence of problematic multicollinearity. DC = Digital Capabilities; MI = Marketing Innovation; CI = Competition Intensity; BP = Business Performance.

4.3 Structural Model and Hypothesis Testing

The structural model was valued using 5,000 bootstrap resamples. Figure 3 and Table 5 present the results. In support of H1, digital capabilities exert a significant and positive direct effect on business performance ($\beta = 0.156$, $t = 2.41$, $p = 0.016$). H2 is supported: digital capabilities significantly predict marketing innovation ($\beta = 0.518$, $t = 10.63$, $p < 0.001$). H3 is confirmed: marketing innovation exerts a strong positive effect on business performance ($\beta = 0.433$, $t = 7.21$, $p < 0.001$). The moderation hypothesis (H5) was not supported: the interface term was not statistically significant ($\beta = -0.024$, $t = 0.55$, $p = 0.582$).

Table 5. Path Coefficients and Hypothesis Testing Results (PLS-SEM, 5,000 Bootstrap Resamples)

H	Path / Relationship	β	SE	t-Stat	p-Value	95% CI [LL, UL]	Effect Type	Decision
H1	Digital Capabilities → Business Performance	0.156*	0.065	2.41	0.016	[0.029, 0.284]	Partial	Supported
H2	Digital Capabilities → Marketing Innovation	0.518***	0.049	10.63	< 0.001	[0.422, 0.614]	Full	Supported
H3	Marketing Innovation → Business Performance	0.433***	0.060	7.21	< 0.001	[0.315, 0.551]	Full	Supported
H4	DC → MI → BP (Indirect via Marketing Innovation)	0.224***	0.035	6.47	< 0.001	[0.157, 0.294]	Partial Mediation	Supported
H5	DC × Competition Intensity →	-0.024 n.s.	0.044	0.55	0.582	[-0.110, 0.062]	—	Not Supported

H	Path / Relationship	β	SE	t-Stat	p-Value	95% CI [LL, UL]	Effect Type	Decision
	Business Performance							

Note. β = standardized path coefficient; SE = standard error; CI = confidence interval (percentile bootstrap). *** $p < 0.001$; * $p < 0.05$; n.s. = not significant. R^2 (Business Performance) = 0.312; R^2 (Marketing Innovation) = 0.268. DC = Digital Capabilities; MI = Marketing Innovation; CI = Competition Intensity; BP = Business Performance.

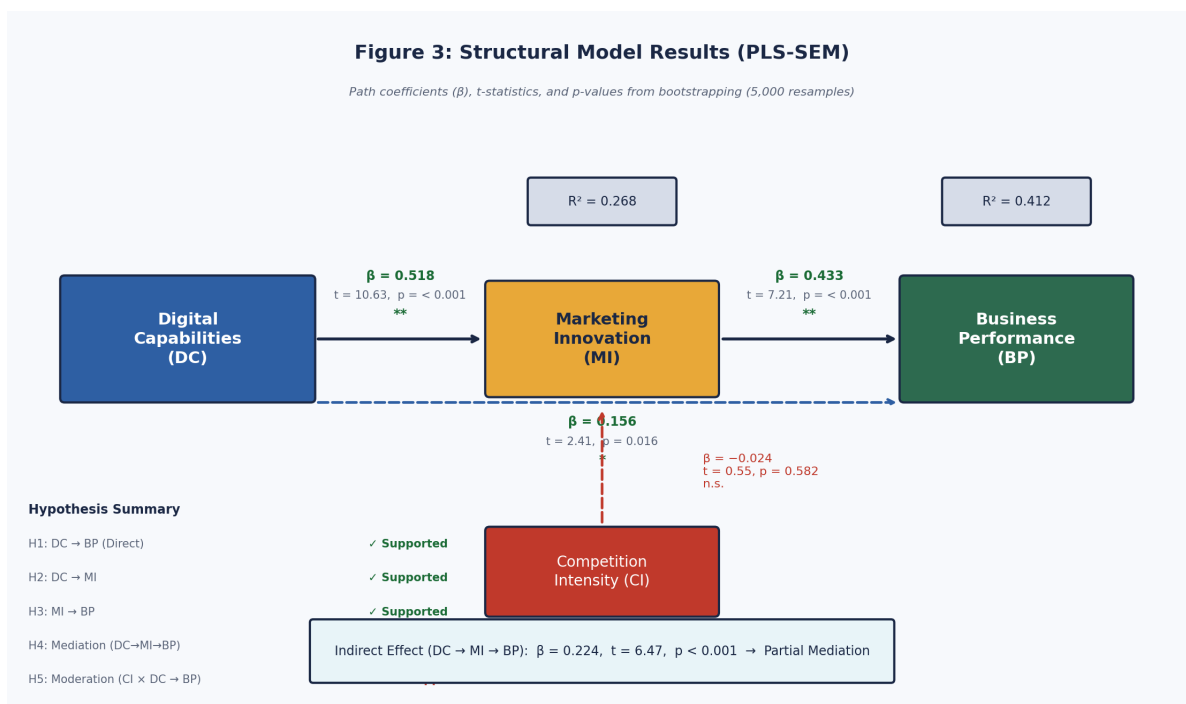


Figure 3. Structural Model Results (PLS-SEM): Path Coefficients, t-Statistics, and Significance Levels. Note: *** $p < 0.001$; * $p < 0.05$; n.s. = not significant. Dashed line = non-significant moderation path. R^2 values shown above endogenous constructs.

4.4 Mediation Analysis

The indirect effect of digital capabilities on business performance via marketing innovation was positive and statistically significant ($\beta = 0.224$, $t = 6.47$, $p < 0.001$), confirming partial mediation (H4). A substantial portion of the performance impact of digital capabilities is channelled through improvements in marketing innovation.

Table 6. Mediation Analysis Results (Indirect Effects via Bootstrap, 5,000 Resamples)

H	Path	Direct (β)	Indirect (β)	Total (β)	SE	t-Stat	p-Value	95% CI [LL, UL]
Direct Effects								
H1	DC → BP	0.156*	—	0.380***	0.065	2.41	0.016	[0.029, 0.284]
H2	DC → MI	0.518***	—	0.518***	0.049	10.63	< 0.001	[0.422, 0.614]
H3	MI → BP	0.433***	—	0.433***	0.060	7.21	< 0.001	[0.315, 0.551]
Indirect / Mediation Effect (H4)								
H4	DC → MI → BP	0.156*	0.224***	0.380***	0.035	6.47	< 0.001	[0.157, 0.294]
Moderation Effect (H5)								
H5	DC × CI → BP	-0.024 n.s.	—	—	0.044	0.55	0.582	[-0.110, 0.062]

Note. Partial mediation confirmed: direct effect of DC on BP ($\beta = 0.156$, $p = 0.016$) remains significant after inclusion of MI as mediator; indirect effect also significant ($\beta = 0.224$, $p < 0.001$). Total effect = direct + indirect = 0.380. *** $p < 0.001$; * $p < 0.05$; n.s. = not significant. DC = Digital Capabilities; MI = Marketing Innovation; BP = Business Performance; CI = Competition Intensity

5. Discussion

5.1 Discussion of Findings

The findings of this study provide compelling empirical evidence that digital capabilities are a significant determinant of business performance and marketing innovation among Indian SMEs. The confirmation of H1 correlates with the expanding body of literature suggesting that digital tool adoption promotes operational efficiency, strategic agility, and competitive positioning for SMEs in emerging economies (Ahmed et al., 2022; Krajčík et al., 2023). In the Indian context, this result connects well with the objectives of the Digital India and MSME digitalization programs, which aim to provide small firms with the technology infrastructure needed to compete in an increasingly platform-driven economy. The validation of H2 that digital capabilities drive marketing innovation is equally important. Indian SMEs who use digital platforms such as social media, mobile commerce, and data analytics are demonstrably better equipped to create new marketing strategies that appeal to a wide range of Indian consumers. This conclusion supports Ahmad and Pandey's (2024) observation that, while digital marketing is still growing among Indian SMEs, adoption is critical for

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competitive differentiation. The diversity of India's consumer base spanning multiple languages, income brackets, and digital literacy levels makes the ability to tailor and innovate marketing strategies through digital capabilities particularly consequential. The partial mediation discovery (H4) is a conceptually significant contribution to this work. This study expands on the work of Pundzienė et al. (2021) by highlighting the importance of marketing innovation in translating digital capabilities into improved business success and enriching the Indian SME literature by demonstrating that the benefits of digital investment are substantially amplified when channeled through innovative marketing practices.

The non-significant moderation effect of competition intensity (H5) implies that digital capabilities may act as performance enhancers regardless of competitive pressure. One possible explanation, consistent with Abdulkareem et al. (2018), is that the uniformity of competition intensity within the sampled Indian retail and service sectors decreased variance in the moderator variable, lowering the statistical power to detect interaction effects.

5.2 Practical Implications

The findings have significant practical consequences for Indian SMEs, industry groups, and policymakers. The significant favorable impact of digital capabilities on both marketing innovation and company performance emphasizes the importance of speeding digital adoption among Indian MSMEs. Firm-level interventions should prioritize investments across four capability domains: sensing (market intelligence and data analytics), responsiveness (real-time digital customer engagement), process digitalization (ERP integration, digital supply chain management), and ecosystem connectivity (digital platform integration with government portals and marketplaces).

The partial mediation finding implies that digital capabilities must be actively harnessed to innovate marketing practices. Indian SME managers should develop capabilities in digital content creation, social media management, mobile commerce, and vernacular digital marketing. Government policies should reduce costs and complexity of digital adoption through targeted fiscal incentives digital investment tax credits, subsidized access to cloud computing platforms, and preferential financing for digital infrastructure. India's ONDC initiative, which enables SMEs to participate in open e-commerce networks, represents a particularly promising structural intervention that could amplify the performance benefits of digital capability development identified in this study.

5.3 Theoretical Contributions

This study makes several important influences to the theoretical literature. First, it extends the Resource-Based View (RBV) by demonstrating that digital capabilities function as valuable, rare, and inimitable strategic resources that confer competitive advantages on Indian SMEs (Barney, 1991; Almeida et al., 2020). Second, the study enriches Dynamic Capabilities Theory by positioning digital capabilities as dynamic enablers of organizational transformation the sensing, seizing, and reconfiguring dimensions identified in the measurement model correspond to the core micro-foundations of dynamic capabilities (Teece et al., 1997). Third, the study provides one of the first comprehensive empirical examinations of the digital capabilities–marketing innovation–business

performance chain specifically in the Indian MSME context. Fourth, the non-significant moderation of competition intensity contributes to ongoing scholarly debates about boundary conditions of the digital capabilities–performance relationship in emerging economies.

5.4 Limitations

This study is subject to several limitations. First, the cross-sectional survey design precludes causal inference and limits the ability to capture longitudinal changes in digital capability development. Second, reliance on self-reported data introduces response bias. Third, the sample focuses primarily on retail and service-sector SMEs and may not be fully representative of Indian SMEs in manufacturing, agribusiness, or technology-intensive sectors. Fourth, the study does not explicitly examine the financial costs and resource requirements of digital adoption, which represent important practical constraints for micro-enterprises. Finally, the operationalization of competition intensity as a single moderator may not fully capture the multidimensionality of the competitive environment, including technological disruption from large digital aggregators.

5.5 Future Research Directions

This study opens several productive avenues for future inquiry. First, longitudinal research should follow cohorts of Indian SMEs through various stages of digital transformation to see if early adopters maintain performance benefits over time. Second, sector-specific research is needed to determine whether the digital capabilities marketing innovation-performance chain works similarly in the manufacturing, agribusiness, healthcare, and fintech sub-sectors. Third, future study should look into the significance of platform ecosystems, including India's growing ONDC, UPI, and GeM platforms, in helping SMEs develop digital skills. Fourth, the function of entrepreneurial mindset, founder digital literacy, and organizational culture in modulating the relationship between digital capabilities and performance should be investigated further. Finally, comparative study across the BRICS economies would shed light on the role of institutional context, government policy, and cultural factors in shaping the performance outcomes of SME digital capabilities.

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