



ELIT

Economic Laboratory
Transition Research Podgorica

Montenegrin Journal of Economics

For citation:

Thao, N.T.P., Nga, L.P., Tam, P.T. (2026), "Impacting Intellectual Capital on Business Performance of SMEs: The Mediating Role of Innovation, Competitive Advantage and Brand Value",
Montenegrin Journal of Economics, Vol. 22, No. 4, pp. 255-269.

Impacting Intellectual Capital on Business Performance of SMEs: The Mediating Role of Innovation, Competitive Advantage and Brand Value

NGUYEN THI PHUONG THAO^{1,2}, LU PHI NGA³ and PHAN THANH TAM⁴ (Corresponding author)

¹Lecturer, Faculty of Economics, Dong Nai University (DNU), 84, Vietnam, email: thaontp@dnpu.edu.vn

²Ph.D Student, Lac Hong University (LHU), 84, Vietnam, email: thaontp@dnpu.edu.vn

³Dean, Faculty of Postgraduate Studies, Lac Hong University (LHU), 84, Vietnam, email: phinga@lhu.edu.vn

⁴Lecturer, Faculty of Postgraduate Studies, Lac Hong University (LHU), 84, Vietnam, email: tampt@lhu.edu.vn

ARTICLE INFO

Received August 14, 2025

Revised from November 25, 2025

Accepted December 1, 2025

Available online October 15, 2026

JEL classification: M10, M21, O31, O34, L25.

DOI: 10.14254/1800-5845/2026.22-4.18

Keywords:

Intellectual capital,
Innovation,
Competitive advantage,
Brand value,
Business performance

ABSTRACT

This study explores the impact of intellectual capital on the business performance at small and medium enterprises in Vietnam, with a specific focus on the mediating roles of innovation, competitive advantage, and brand value. Based on the resource-based view and knowledge-based theory, the research conceptualizes intellectual capital as a second-order construct comprising human capital, structural capital, and relational capital. A mixed-method approach was employed, including qualitative interviews with 20 economic experts to refine measurement scales and a quantitative survey of 700 SME managers in Dong Nai province, of which 683 valid responses were analyzed using Partial Least Squares Structural Equation Modeling. The results demonstrate that intellectual capital has a strong positive effect on innovation ($\beta = 0.967$, $p < 0.001$) and significant indirect effects on competitive advantage, brand value, and business performance. Both innovation and brand value play critical mediating roles, indicating that SMEs transform intangible resources into performance outcomes through knowledge-driven innovation and brand enhancement. Furthermore, brand value ($\beta = 0.383$) exhibits a stronger influence on business performance than competitive advantage ($\beta = 0.316$). The findings enrich the theoretical understanding of intellectual capital within the SME context and provide practical implications for managers to leverage innovation and branding as strategic mechanisms for sustainable performance improvement.

INTRODUCTION

In the knowledge-based economy, intellectual capital (IC) has emerged as one of the most valuable assets for firms seeking sustainable growth and competitive advantage. Unlike traditional physical and financial resources, intellectual capital, encompassing human, structural, and relational capital, constitutes the primary driver of innovation, learning, and long-term value creation (Varma & Dutta, 2023). For small and medium-sized enterprises (SMEs), which often face resource constraints and market

uncertainties, effectively managing intellectual capital can determine their ability to survive and compete in increasingly dynamic environments (Saraswati et al., 2024).

Over the past two decades, numerous studies have examined the relationship between intellectual capital and firm performance (Zhu & Newman, 2023). However, most of these studies have focused on large corporations or firms in developed economies, where intangible asset management is relatively mature. Research in developing countries, particularly in the context of SMEs, remains limited. In emerging markets such as Vietnam, SMEs account for more than 97% of all enterprises and play a crucial role in job creation, innovation, and economic resilience. However, many Vietnamese SMEs still struggle to leverage intangible resources effectively to enhance competitiveness and brand value. This gap underscores the need to examine how intellectual capital contributes to SME performance through mediating mechanisms. Drawing upon the Resource-Based View (RBV) and the Knowledge-Based Theory (KBT), this study argues that intellectual capital enhances firm performance not directly, but through its influence on innovation, competitive advantage, and brand value. According to RBV, firm resources that are valuable, rare, inimitable, and non-substitutable (VRIN) form the foundation of sustainable competitive advantage (Gashe et al., 2024). Intellectual capital meets these criteria as it represents unique knowledge, capabilities, and relationships embedded in the organization. Meanwhile, KBT emphasizes that the firm's capacity to create, share, and apply knowledge drives innovation and performance (Jie et al., 2023). Therefore, innovation serves as a conduit through which intellectual resources are translated into tangible business outcomes, such as brand equity and superior performance.

Although several scholars have explored aspects of this relationship, the integrated mediating mechanisms of innovation, competitive advantage, and brand value have received limited empirical attention, particularly within the SME sector of developing economies. Most previous research treated innovation or competitive advantage as a single mediator (Kiranantawat & Ahmad, 2023), overlooking the sequential process by which intellectual capital generates market performance through innovation-driven brand development. Additionally, few studies have validated these relationships using advanced structural equation modeling (SEM) techniques capable of testing higher-order constructs such as intellectual capital. To address this knowledge vacuum, this study takes a look at how intellectual capital affects the bottom line of small and medium enterprises in Vietnam, with a focus on how innovation, competitive advantage, and brand value play a mediating role. The researchers used a mixed-methods approach, soliciting input from a large group of economic experts to fine-tune the measurement scales before administering a quantitative survey to a large number of SME managers in the province of Dong Nai. PLS-SEM was used to analyze the data collected from this survey.

The findings reveal that intellectual capital significantly influences innovation, which, in turn, enhances competitive advantage, brand value, and, ultimately, business performance. Among the mediators, brand value has the most potent effect on performance, indicating that intangible assets such as reputation, trust, and customer loyalty are critical for sustaining long-term success in SMEs. This research contributes to the intellectual capital literature by providing empirical evidence from a developing economy and by integrating innovation and branding as key strategic mechanisms. From a managerial perspective, the study highlights the importance of developing human expertise, strengthening organizational systems, and fostering an innovation culture as foundations for achieving superior brand positioning and competitive outcomes.

1. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

1.1 Business Performance (BP)

Business performance reflects the extent to which a firm achieves its strategic and financial objectives through efficiency, profitability, and market success. In the context of SMEs, performance encompasses both financial outcomes and non-financial indicators such as customer satisfaction, innovation capability, and competitive positioning (Aidoo et al., 2021). Prior research emphasizes that intangible assets,

particularly intellectual capital, innovation, and brand value, play crucial roles in driving superior and sustainable business performance.

1.2 Innovation (IN)

Innovation refers to a firm's ability to create and implement new ideas, products, or processes that enhance organizational performance and competitiveness. It serves as a critical mechanism for transforming intellectual capital into tangible outcomes (Subramaniam & Youndt, 2005). Within SMEs, innovation reflects adaptability and responsiveness to environmental changes and market demands. Empirical studies confirm that firms with more substantial intellectual capital demonstrate higher innovation capability, thereby improving efficiency, differentiation, and long-term business success (You et al., 2023).

1.3 Competitive Advantage (CA)

Competitive advantage refers to a firm's ability to achieve superior market positioning and performance relative to competitors by utilizing unique resources and capabilities. Rooted in the Resource-Based View (RBV), it arises when a company effectively combines valuable, rare, inimitable, and non-substitutable resources, such as knowledge and innovation, to deliver superior value (Byukusenge & Munene, 2017). For SMEs, competitive advantage often manifests through agility, innovation, and strong relationships, enabling them to respond quickly to market changes and sustain business growth.

1.4 Brand Value (BV)

Brand value represents the overall perception, trust, and emotional connection that customers associate with a firm and its offerings (Sisodia et al., 2021). It embodies the intangible equity derived from consistent quality, reputation, and customer experience. In SMEs, substantial brand value enhances differentiation, customer loyalty, and long-term profitability, serving as a key mediator between innovation and business performance. Previous studies suggest that innovation-driven branding strategies significantly improve brand equity and organizational success (Intara & Suwansin, 2024). Therefore, brand value plays a strategic role in converting intangible knowledge assets into sustainable market performance.

1.5 Intellectual Capital (IC)

Intellectual capital encompasses the collective knowledge, experience, relationships, and organizational capabilities that create value and drive firm performance. It is generally structured into three dimensions: Human Capital (HC), which reflects employees' skills and expertise; Structural Capital (SC), referring to organizational systems and processes; and Relational Capital (RC), denoting external relationships with customers and partners. Within the Resource-Based View (RBV) and Knowledge-Based Theory (KBT), intellectual capital is considered a strategic, inimitable asset that fosters innovation and competitive advantage. In SMEs, effective utilization of intellectual capital enhances adaptability, innovation capability, and sustainable performance (Schulze & Dada, 2024; Asiaei et al., 2021).

1.6 Hypotheses Development

Intellectual capital is widely recognized as a multidimensional construct comprising human capital (HC), structural capital (SC), and relational capital (RC). These components represent the knowledge, organizational systems, and relationships that collectively enhance firm capabilities (Vithana et al., 2021). Effective management of these components strengthens innovation potential and long-term value creation. Thus, intellectual capital is modeled as a second-order construct, reflected by its three key dimensions.

H1: Intellectual capital has a positive effect on human capital.

H2: Intellectual capital has a positive effect on structural capital.

H3: Intellectual capital has a positive effect on relational capital.

The Resource-Based View (RBV) and Knowledge-Based Theory (KBT) suggest that firms rich in intellectual capital are better able to generate innovative ideas and technologies (Holland & Scullion, 2021). Human knowledge and structural processes enable firms to exploit opportunities and adapt to change, while relational capital fosters external collaboration. Therefore, intellectual capital acts as a primary driver of innovation.

H4: Intellectual capital positively affects innovation.

Firms with substantial intellectual capital can transform knowledge resources into market-oriented capabilities such as brand differentiation and competitive positioning (Adu-Ameyaw et al., 2022). The organizational learning and accumulated expertise support superior product quality and brand recognition. Thus, intellectual capital contributes directly to both competitive advantage and brand value.

H5: Intellectual capital positively affects competitive advantage.

H6: Intellectual capital has a positive effect on brand value.

Innovation serves as a critical link between intellectual capital and performance outcomes. It enhances a firm's ability to create new value propositions, improve efficiency, and respond proactively to market needs (Datta et al., 2020). Innovation-driven firms tend to build stronger brands and more sustainable advantages, ultimately improving performance.

H7: Innovation has a positive effect on competitive advantage.

H8: Innovation has a positive effect on brand value.

H9: Innovation has a positive effect on business performance.

According to RBV, sustainable performance results from leveraging unique resources that competitors cannot easily replicate (Aboramadan et al., 2020). Competitive advantage enhances efficiency, market share, and profitability. Likewise, brand value, as a key intangible asset, reinforces customer loyalty and firm reputation, further driving superior performance.

H10: Competitive advantage has a positive effect on business performance.

H11: Brand value positively affects business performance.

The proposed research model, therefore, posits that Intellectual Capital (IC) indirectly influences Business Performance (BP) through Innovation (IN), Competitive Advantage (CA), and Brand Value (BV). This integrated mediation mechanism aligns with both the RBV and KBT, illustrating how SMEs can transform intangible knowledge resources into tangible business outcomes.

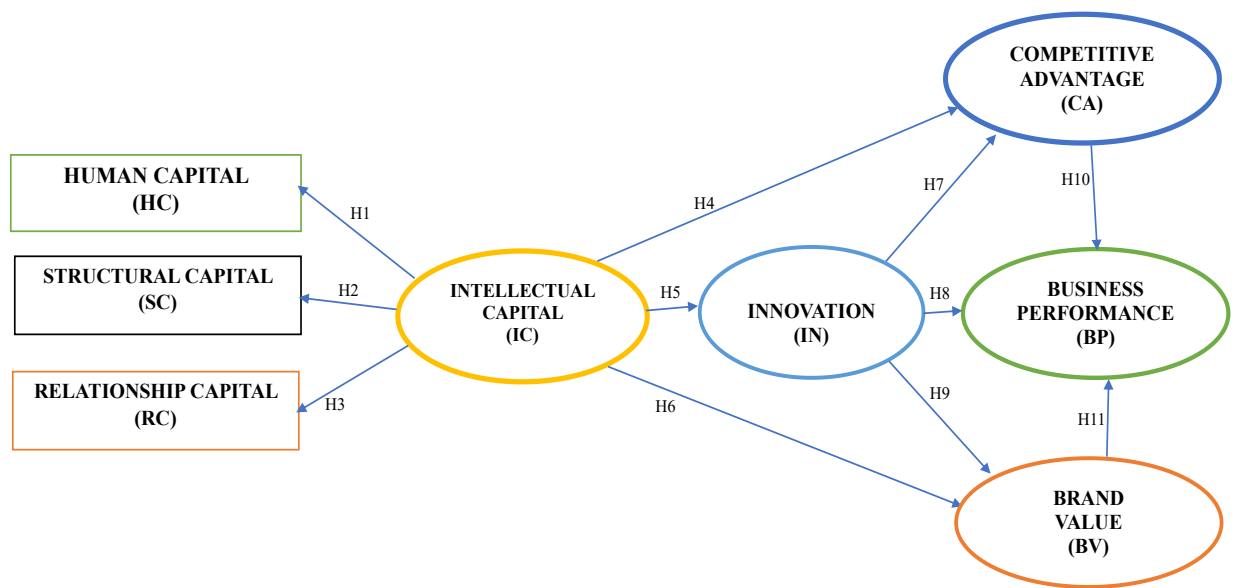


Figure 1. Impact of intellectual capital on the business performance of SMEs
Source: own

Figure 1 illustrates the conceptual model depicting how Intellectual Capital (IC) influences Business Performance (BP) of SMEs through the mediating roles of Innovation (IN), Competitive Advantage (CA), and Brand Value (BV). The model is grounded in the Resource-Based View (RBV) and Knowledge-Based Theory (KBT), emphasizing that intangible resources, such as human, structural, and relational capital, are essential for sustainable competitive advantage. Intellectual capital is a second-order construct that integrates knowledge-based assets that foster innovation and organizational learning. Innovation serves as a key mechanism for transforming intellectual resources into new capabilities, products, and processes that enhance brand value and market competitiveness. In turn, competitive advantage and brand value jointly strengthen overall business performance. The model provides a holistic framework for understanding how SMEs can leverage intangible knowledge assets to achieve superior performance and long-term growth in dynamic and competitive environments.

2. RESEARCH METHODOLOGY

2.1 Qualitative Research Method

The qualitative phase of this study was conducted to develop, refine, and validate the measurement scales used in the quantitative survey. This approach ensured the conceptual clarity and contextual appropriateness of constructs related to intellectual capital, innovation, competitive advantage, brand value, and business performance within the context of small and medium-sized enterprises (SMEs) in Vietnam.

The qualitative research relied on in-depth expert interviews and focus group discussions with a total of 20 participants, including university professors, economic researchers, senior managers, and policy-makers specializing in entrepreneurship and SME development. Participants were selected using purposive sampling to ensure diversity in expertise and experience. Each discussion lasted between 60 and 90 minutes, conducted both in person and online between January and March 2025. The aim was to collect professional insights into how Vietnamese SMEs understand, manage, and leverage intellectual capital to improve innovation and performance (Hair et al., 2019).

The interview guide was structured around five main themes: (1) the conceptualization of intellectual capital and its components (human, structural, and relational capital); (2) the mechanisms through which intellectual capital enhances innovation capacity; (3) the linkages between innovation, competitive

advantage, and brand value; (4) the determinants of business performance for SMEs; and (5) recommendations for adapting measurement items to local business culture and management practices. Each theme was accompanied by open-ended questions to allow flexibility and depth in responses.

With the participants' permission, we audio-recorded each interview and transcribed it word-for-word so we could do theme analysis. A content analysis approach was used to analyze the data, according to the protocols outlined by Hair et al. (2019). This included data reduction, data display, and conclusion drawing. Recurrent patterns and concepts were coded and categorized to refine the constructs and ensure the indicators' content validity. This iterative process helped identify overlaps among items, eliminate ambiguous statements, and adapt terminology to fit the Vietnamese SME context.

Results from the qualitative phase confirmed that intellectual capital should be modeled as a second-order construct comprising human capital (HC), structural capital (SC), and relational capital (RC). Experts emphasized that the development of innovation capability serves as the bridge between intellectual capital and competitive advantage. Furthermore, they noted that substantial brand value and market reputation are crucial mediators that translate innovation and knowledge into measurable business outcomes.

Finally, the qualitative findings provided both theoretical and empirical justification for the research model. They reinforced the idea that SMEs' business performance depends not only on tangible resources but also on the strategic use of intangible assets. The insights obtained guided the refinement of the questionnaire used in the subsequent quantitative phase, ensuring construct reliability, content validity, and contextual relevance.

2.2 Quantitative Research Method

The study's conceptual model and hypotheses were empirically tested by quantitative research, which followed the qualitative phase. Structural Equation Modeling with an enhanced methodology based on SmartPLS 4.0's Partial Least Squares was used in this phase. With this quantitative study, we set out to verify, within the Vietnamese context of SMEs, the links between IP, innovation, competitive advantage, brand value, and financial success.

Sampling and Data Collection: The target population comprised SME managers and executives operating in Dong Nai Province, Vietnam, a region known for its industrial dynamism and concentration of manufacturing and service-oriented SMEs. A total of 700 questionnaires were distributed between April and August 2025 using both online and direct distribution methods. After screening for completeness and consistency, 683 valid responses were retained for analysis, yielding a valid response rate of 97.6%.

Measurement Scales and Variables: All constructs were measured using established scales adapted from prior studies and refined through the qualitative phase. Each item was rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The constructs included:

(1) Human Capital (HC): 4 items measuring employee knowledge, skills, and creativity. (2) Structural Capital (SC): 5 items capturing organizational systems, databases, and procedures. (3) Relational Capital (RC): 4 items reflecting customer, supplier, and partner relationships. (4) Intellectual Capital (IC): modeled as a second-order construct derived from HC, SC, and RC. (5) Innovation (IN): 4 items measuring product, process, and managerial innovation. (6) Competitive Advantage (CA): 4 items assessing cost efficiency, differentiation, and market responsiveness. (7) Brand Value (BV): 4 items measuring brand recognition, trust, and perceived quality. (8) Business Performance (BP): 4 items representing profitability, growth, and customer satisfaction.

Methods for Analyzing Data: For this study, we opted to use Partial Least Squares Structural Equation Modeling (PLS-SEM) since it is well-suited to complicated models and predictive analysis in the field of management research. We used Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) to evaluate the reliability and validity of the test. The fact that all the constructs were higher

above the suggested limits ($\alpha > 0.7$; $CR > 0.7$; $AVE > 0.5$) proves that there is validity and internal consistency.

The structural model was then tested to evaluate path coefficients, t-statistics, and p-values through bootstrapping (5.000 subsamples). The results demonstrated strong, significant relationships among the constructs. The quantitative results provided robust empirical evidence supporting all eleven hypotheses proposed in the conceptual model. The findings confirmed that intellectual capital serves as a fundamental resource that enhances innovation capability, which in turn strengthens brand value and competitive advantage, ultimately improving SME business performance.

3. RESEARCH RESULTS

3.1 Descriptive Statistics

The descriptive analysis provides an overview of the demographic characteristics of respondents and the profile of the surveyed small and medium enterprises in Dong Nai Province, Vietnam. A total of 683 valid responses were analyzed after eliminating incomplete or inconsistent questionnaires. The demographic and firm characteristics offer important contextual information for interpreting the relationships between key factors.

In terms of gender, the sample included 404 males (59.2%) and 279 females (40.8%), reflecting a relatively balanced gender distribution among SME managers. Regarding marital status, 62.1% of respondents were single, while 37.9% were married. This composition indicates a dynamic and young managerial workforce, which aligns with the entrepreneurial and flexible nature of SMEs in Vietnam.

Regarding age, the largest group (53.3%) was aged 30-40, followed by 24.0% aged 25-30, 15.4% aged 40+, and 7.3% aged < 25. This distribution shows that most respondents were in their early to mid-career stages, a demographic associated with adaptability, creativity, and openness to innovation, key attributes for effectively leveraging intellectual capital.

In terms of monthly income, 38.1% earned between 20 and 25 million VND, 35.9% above 25 million VND, 21.4% between 15 and 20 million VND, and only 4.7% below 15 million VND. The relatively high-income levels of respondents suggest that the managers surveyed hold significant responsibility and decision-making authority within their organizations.

Firm Characteristics: Regarding business type, the sample consisted of 33.4% single-member limited liability companies, 29.0% private enterprises, 20.6% joint-stock companies, and 17.0% multi-member limited liability companies. This distribution reflects the predominance of small, privately owned enterprises in the Vietnamese SME landscape, where owners often play a central role in strategic management and innovation.

In terms of firm age, 39.8% of enterprises had been operating for 10-15 years, followed by 33.5% for more than 15 years, 20.9% for 5-10 years, and 5.7% for less than 5 years. The majority of firms thus demonstrated considerable operational maturity, implying accumulated managerial experience and established organizational structures capable of sustaining intellectual capital development.

The descriptive statistics for the primary constructs showed mean values ranging from 3.25 to 3.61 (on a five-point scale), indicating moderately high perceptions across the measured variables. Specifically, Intellectual Capital (mean = 3.612, SD = 0.935) was rated highest, followed closely by Structural Capital (mean = 3.552) and Brand Value (mean = 3.486). Business Performance (mean = 3.381) and Innovation (mean = 3.317) also achieved relatively high averages, suggesting that SMEs perceive strong alignment between knowledge-based assets and innovation-driven growth.

These descriptive findings confirm that the surveyed firms possess well-developed intangible resources and recognize their strategic importance. The demographic structure of respondents, mostly

experienced managers in well-established firms, provides a solid foundation for interpreting the causal relationships tested in the SEM model. Overall, the descriptive statistics reinforce the data's reliability and contextualize the subsequent empirical analysis.

3.2 Testing for factors affecting business performance

Table 1. Cronbach's Alpha and composite reliability testing for factors affecting business performance

Factors	Code	Items	Mean	Std. Deviation	Cronbach's alpha	Composite reliability	Composite reliability	Average variance extracted
1. Human Capital	HC	4	3.425	0.925	0.965	0.966	0.975	0.906
2. Structural Capital	SC	5	3.552	0.945	0.974	0.974	0.979	0.905
3. Relationship Capital	RC	4	3.253	0.954	0.966	0.966	0.975	0.907
4. Intellectual Capital	IC	4	3.612	0.935	0.963	0.963	0.973	0.901
5. Innovation	IN	4	3.317	0.932	0.971	0.971	0.979	0.920
6. Brand Image	BI	4	3.486	0.966	0.967	0.967	0.976	0.910
7. Competitive Advantage	CA	4	3.482	0.961	0.984	0.984	0.988	0.954
8. Business Performance	BP	4	3.381	0.972	0.986	0.986	0.989	0.959

Source: own

Table 2 presents that the Cronbach's Alpha results demonstrate excellent internal consistency across all constructs examined in the study. To ensure the measurement quality and robustness of the constructs used in the research model, a comprehensive reliability and validity analysis was conducted. This involved testing internal consistency reliability, composite reliability, and convergent validity based on the data presented in Table 1.

All constructs exhibited alpha coefficients significantly above the recommended threshold of 0.70 (Amoa-Gyarteng & Dhliwayo, 2024), indicating excellent internal reliability. Specifically, Cronbach's Alpha values ranged from 0.963 for Intellectual Capital (IC) to 0.986 for Business Performance (BP), demonstrating that the items within each construct consistently measure the same underlying concept. The relatively high reliability across constructs such as Competitive Advantage (0.984) and Structural Capital (0.974) reflects substantial homogeneity and internal coherence in the measurement items.

Composite reliability provides a more refined estimate of reliability by accounting for different indicator loadings. Both coefficients were used for robustness. The CR values ranged from 0.973 (IC) to 0.989 (BP), all well above the 0.70 benchmark suggested by Hair et al. (2019). This confirms that the constructs demonstrate strong internal consistency and that the indicators share a high level of variance in representing their latent factors. The nearly identical values for each construct further indicate measurement stability across samples.

All constructs achieved AVE values above 0.90, substantially exceeding the recommended threshold of 0.50 (Cowling et al., 2018). For example, Innovation (IN) recorded an AVE of 0.920, Brand Image (BI) 0.910, and Business Performance (BP) 0.959. These high AVE scores indicate that the measurement indicators explain a large proportion of the variance in their latent constructs, thereby confirming strong convergent validity.

The results summarized in Table 1 clearly indicate that the measurement model achieved an exceptionally high level of reliability and validity. This robustness can be attributed to the rigorous scale adaptation and expert validation processes during the qualitative phase. The consistency across Cronbach's Alpha, composite reliability, and AVE demonstrates that all constructs are empirically sound and theoretically coherent.

Moreover, the high reliability and validity scores indicate the appropriateness of using these measurement items in the Vietnamese SME context. Constructs such as Intellectual Capital, Innovation, and Brand Value, traditionally conceptualized in developed economies, proved valid and reliable in capturing similar dynamics in emerging markets.

In conclusion, the results from Table 1 confirm that the measurement model meets all statistical requirements for reliability and convergent validity. These findings present the results of testing, assessing the hypothesized relationships among intellectual capital, innovation, competitive advantage, brand value, and business performance.

Table 2. SEM testing for factors affecting business performance

Factors	Original sample	Sample mean	Standard deviation	T statistics	P values
BI → BP	0.383	0.381	0.047	8.147	0.000
CA → BP	0.316	0.319	0.051	6.186	0.000
IC → BI	0.456	0.456	0.037	12.426	0.000
IC → CA	0.425	0.425	0.085	5.021	0.000
IC → HC	0.965	0.966	0.003	368.839	0.000
IC → IN	0.967	0.966	0.003	361.561	0.000
IC → RC	0.970	0.970	0.002	462.839	0.000
IC → SC	0.972	0.972	0.002	509.829	0.000
IN → BI	0.532	0.532	0.036	14.583	0.000
IN → BP	0.302	0.301	0.050	6.004	0.000
IN → CA	0.447	0.447	0.086	5.192	0.000

Source: own

Table 2 presents the results of the Structural Equation Modeling (SEM) analysis, showing the relationships among the constructs and their statistical significance. All path coefficients are positive and statistically significant at $p < 0.001$, confirming strong empirical support.

The findings indicate that IC significantly influences its three dimensions: Human Capital (HC) ($\beta = 0.965$, $t = 368.839$), Structural Capital (SC) ($\beta = 0.972$, $t = 509.829$), and Relational Capital (RC) ($\beta = 0.970$, $t = 462.839$), validating IC as a second-order construct. Moreover, IC has substantial direct effects on Innovation (IN) ($\beta = 0.967$, $t = 361.561$), Competitive Advantage (CA) ($\beta = 0.425$, $t = 5.021$), and Brand Image (BI) ($\beta = 0.456$, $t = 12.426$), highlighting its pivotal role as a foundational intangible asset that drives strategic outcomes.

Innovation also exerts a strong mediating influence, positively affecting Competitive Advantage ($\beta = 0.447$, $t = 5.192$), Brand Image ($\beta = 0.532$, $t = 14.583$), and Business Performance (BP) ($\beta = 0.302$, $t = 6.004$). These results confirm that innovative capability serves as a crucial mechanism through which intellectual resources are transformed into superior market positioning and brand differentiation.

Finally, both Competitive Advantage ($\beta = 0.316$, $t = 6.186$) and Brand Image ($\beta = 0.383$, $t = 8.147$) significantly enhance Business Performance, underscoring their mediating and direct impacts on firm success. The SEM results strongly support the proposed theoretical framework, demonstrating that Intellectual Capital indirectly improves Business Performance through the mediating effects of Innovation, Competitive Advantage, and Brand Image. This provides robust empirical evidence that leveraging intangible assets is essential for achieving sustainable competitiveness among SMEs in emerging economies.

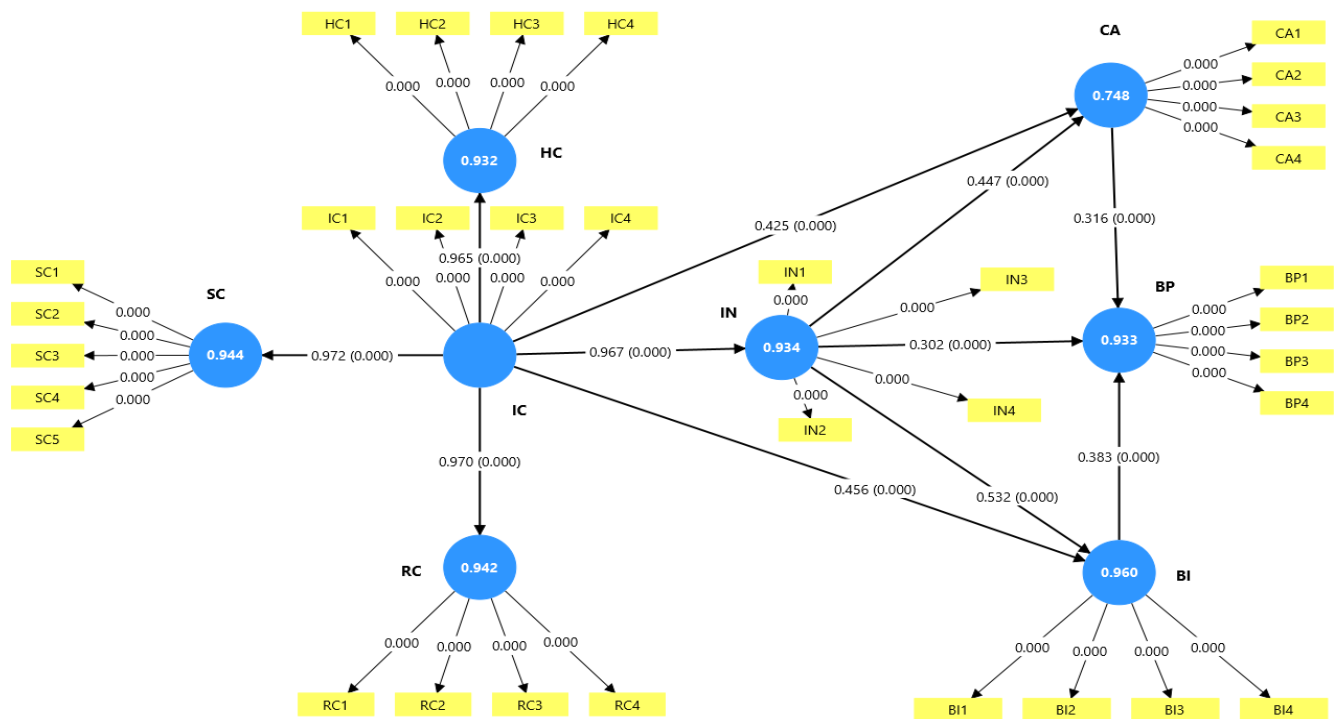


Figure 2. Testing factors influencing business performance

Figure 2 presents the structural equation model illustrating the relationships among intellectual capital, innovation, competitive advantage, brand value, and business performance. The diagram highlights intellectual capital (IC) as a second-order construct, composed of human capital (HC), structural capital (SC), and relational capital (RC). Each of these dimensions significantly contributes to the overall intellectual capital, confirming their strong internal coherence and conceptual validity.

The model demonstrates that IC has a direct and substantial effect on innovation (IN), which, in turn, enhances both competitive advantage (CA) and brand image (BI). Innovation serves as a key mediator, transforming intellectual resources into value-creating processes and capabilities that lead to improved organizational outcomes. Moreover, both CA and BI exert significant positive effects on business performance (BP), reinforcing the argument that sustained competitiveness and substantial brand equity are critical drivers of success for SMEs.

Finally, Figure 2 visualizes how intellectual capital indirectly affects business performance through a chain of mediating effects from innovation to competitive advantage and brand image. This integrated pathway confirms the importance of knowledge-based assets in shaping innovation capacity and sustaining superior performance in the dynamic SME environment.

Table 3. Hypotheses testing summary for factors affecting business performance

Hypothesis	Path	β	t-value	p-value	Result
H1	IC → HC	0.965	368.839	0.000	Supported
H2	IC → SC	0.972	509.829	0.000	Supported
H3	IC → RC	0.970	462.839	0.000	Supported
H4	IC → IN	0.967	361.561	0.000	Supported
H5	IC → CA	0.425	5.021	0.000	Supported
H6	IC → BI	0.456	12.426	0.000	Supported
H7	IN → CA	0.447	5.192	0.000	Supported
H8	IN → BI	0.532	14.583	0.000	Supported
H9	IN → BP	0.302	6.004	0.000	Supported

H10	CA → BP	0.316	6.186	0.000	Supported
H11	BI → BP	0.383	8.147	0.000	Supported

Source: own

Table 3 summarizes the hypothesis-testing results from the Structural Equation Modeling (SEM) analysis. All eleven hypotheses (H1–H11) were statistically supported at the $p < 0.001$ significance level, confirming the robustness of the proposed theoretical framework.

The results indicate that Intellectual Capital (IC) strongly and positively influences its three components, Human Capital (HC) ($\beta = 0.965$), Structural Capital (SC) ($\beta = 0.972$), and Relational Capital (RC) ($\beta = 0.970$), validating the multidimensional structure of IC. Moreover, IC significantly enhances Innovation (IN) ($\beta = 0.967$), Competitive Advantage (CA) ($\beta = 0.425$), and Brand Image (BI) ($\beta = 0.456$), emphasizing its foundational role in driving organizational capabilities and market performance.

Innovation acts as a critical mediating variable, exerting significant positive effects on Competitive Advantage ($\beta = 0.447$), Brand Image ($\beta = 0.532$), and Business Performance ($\beta = 0.302$). These results highlight innovation as the mechanism through which intellectual assets are transformed into tangible organizational outcomes.

Finally, both Competitive Advantage ($\beta = 0.316$) and Brand Image ($\beta = 0.383$) contribute positively to Business Performance, confirming their importance as final mediators. Overall, the findings strongly support the proposed model, demonstrating that intellectual capital indirectly enhances SME performance through innovation-driven competitive and branding pathways.

4. DISCUSSION

The study's findings offer credence to the idea that IC plays a pivotal role in helping SMEs improve their business performance. Findings align with RBV and KBT, which state that firms' strategic assets that facilitate innovation, build sustainable advantages, and strengthen brand value are intangible knowledge resources, particularly human, structural, and relational capital.

(1) The significant relationships between IC and its dimensions (H1–H3) validate IC as a second-order construct, integrating human, structural, and relational elements into a cohesive framework. These findings align with Gianiodis et al. (2022), who emphasized that effective interaction among knowledge assets determines an organization's capacity for learning and innovation. In particular, the high path coefficients indicate that Vietnamese SMEs have developed relatively mature systems for managing knowledge and relationships, reflecting growing professionalism in the sector.

(2) The positive influence of IC on Innovation (H4) underscores the importance of knowledge-driven creativity as a mechanism for translating intellectual resources into practical outcomes. This result supports Nakku et al. (2020), who argued that intellectual capital underpins firms' innovative capabilities. The findings demonstrate that when SMEs invest in training, process improvement, and relational networks, they are more likely to generate and apply new ideas that enhance competitiveness.

(3) Innovation's mediating role is clearly confirmed through its effects on Competitive Advantage (H7), Brand Value (H8), and Business Performance (H9). These relationships reveal that innovation acts as the bridge between knowledge and market outcomes. This aligns with previous research (Juergensen et al., 2020), which shows that innovation converts intellectual capital into tangible business success through new products, improved processes, and enhanced customer experience.

(4) The direct effects of Competitive Advantage (H10) and Brand Value (H11) on Business Performance highlight how differentiation and reputation translate into superior results. SMEs with unique capabilities and strong brand images tend to achieve higher customer loyalty, market share, and profitability.

This is consistent with Wong & Kee (2022), who emphasized that sustained advantage and brand equity are central to long-term success.

(5) The integrated model confirms that Intellectual Capital indirectly affects Business Performance through the joint mediating roles of Innovation, Competitive Advantage, and Brand Value (Bilgin & Kethüda, 2022).

This finding contributes to the growing literature on knowledge-based management by providing empirical evidence from an emerging economy context. It illustrates that Vietnamese SMEs, when strategically leveraging intellectual resources, can achieve outcomes comparable to those of firms in more developed economies. This study reinforces the theoretical link between knowledge assets and firm performance, demonstrating that intellectual capital is not merely a support function but a strategic driver of competitiveness and growth. The results provide both academic and managerial insights into how SMEs can systematically manage and transform intangible assets into measurable performance gains.

CONCLUSION

The purpose of this research was to identify the factors that mediate the relationship between SMEs' intellectual capital and their business performance, through the examination of innovation, competitive advantage, and brand value. The results, which draw from RBV and KBT, give strong empirical evidence that intellectual capital is an important factor in achieving long-term success in fast-paced, cutthroat industries. The results confirmed that IC, comprising HC, SC, and RC, functions as a second-order construct that underpins innovation and long-term competitiveness. Intellectual capital exerts a strong direct influence on innovation and, indirectly, enhances business performance through its effects on brand value and competitive advantage. Among the mediating variables, innovation plays a central role, acting as a conduit that transforms intangible knowledge resources into tangible business outcomes.

These findings affirm that firms with well-developed intellectual capital systems are better positioned to innovate, differentiate their offerings, and strengthen their market reputation, ultimately leading to superior performance. The study contributes theoretically by integrating intellectual capital, innovation, and brand management into a unified model of SME performance. It extends the RBV and KBT frameworks by empirically demonstrating that knowledge-based resources, when effectively managed, can be transformed into competitive capabilities and brand equity that directly enhance profitability and growth. From a methodological perspective, the use of PLS-SEM with a large and diverse sample of 683 SME managers adds empirical rigor and generalizability to the findings.

Based on the findings, several key recommendations emerge for SME managers and policymakers:

(1) Firms should prioritize continuous training, skill enhancement, and leadership development to strengthen creativity and knowledge application. Building a learning culture enhances innovation capacity and organizational resilience. Although businesses are developing in a modern 4.0 technology environment, with many recruitment support tools, the labor supply rate has increased significantly but still does not meet the actual needs of businesses. In addition, the solution to retain employees and develop talent in the organization through training and development has not been invested in a systematic and in-depth manner.

(2) Managers should formalize organizational knowledge through databases, digital systems, and standardized processes that support innovation and knowledge sharing. A strong structural foundation enables the effective utilization of human and relational capital. Strengthen relational capital: SMEs should cultivate long-term partnerships with customers, suppliers, and research institutions. These relationships not only facilitate trust and collaboration but also accelerate the diffusion of innovation. Managers must encourage experimentation, risk-taking, and cross-functional teamwork. Innovation should be embedded in daily operations and strategic planning, linking intellectual capital to tangible outcomes.

(3) Managers should encourage continuous innovation and quality improvement to enhance brand reputation. Firms should invest in marketing communication and customer experience to reinforce perceived value and loyalty. Developing the management team through professional improvement, training management skills for the current management team, training additional soft skills such as leadership skills, training skills for managers, training motivational skills through applying psychology...; Developing and building a successor team, developing talent in the organization; building a learning model associated with work efficiency, business efficiency, monitoring and evaluating the learning path and personal development through learning management software.

(4) Intellectual capital plays an important role as a core asset that creates sustainable competitive advantage for businesses by generating wealth, promoting development, and improving operational efficiency. The study demonstrates that intellectual capital is a strategic resource that significantly drives innovation, competitive advantage, and brand value, key determinants of business performance in SMEs. The findings highlight the need for Vietnamese SMEs to view knowledge assets not as abstract concepts but as measurable, manageable, and value-generating resources. Future research could extend this work by exploring cross-country comparisons or examining the moderating role of digital transformation in the IC-performance relationship.

Limitations and future research: First, the study's data were collected from SMEs located in Dong Nai Province, Vietnam, which, while economically dynamic, may not fully represent all regions or industries. Future studies could expand the geographical scope and include comparisons across different provinces or countries to enhance generalizability. Second, the research design employed a cross-sectional survey, capturing perceptions at a single point in time. As intellectual capital and innovation evolve continuously, future research should consider longitudinal designs to examine causal relationships and dynamic changes in intellectual capital utilization and performance over time. Third, the study relied primarily on self-reported data from SME managers, which may introduce response bias or subjective interpretation. Future research could incorporate objective performance indicators, e.g., financial metrics or innovation outputs, to triangulate results and improve accuracy. Fourth, while this study focused on the mediating roles of innovation, competitive advantage, and brand value, other potential mediators, such as digital transformation, organizational learning, or strategic agility, could be explored in future models to capture additional mechanisms linking intellectual capital to performance.

REFERENCES

- Aboramadan, M., Albashiti, B., Alharazin, H., Zaidoune, S. (2020), "Organizational culture, innovation, and performance: a study from a non-western context", *Journal of Management Development*, Vol. 39, No. 4, pp. 437–451. <https://doi.org/10.1108/JMD-06-2019-0253>
- Adu-Ameyaw, E., Hickson, L., Danso, A. (2022), "Managerial compensation and fixed intangible assets investment: the role of managerial ownership and firm characteristics", *Journal of Applied Accounting Research*, Vol. 23, No. 5, pp. 1071–1094. <https://doi.org/10.1108/JAAR-04-2021-0099>
- Aidoo, S. O., Agyapong, A., Acquaaah, M., Akomea, S. Y. (2021), "The performance implications of strategic responses of SMEs to the COVID-19 pandemic: evidence from an African economy", *Africa Journal of Management*, Vol. 7, No. 1, pp. 74–103. <https://doi.org/10.1080/23322373.2021.1878810>
- Amoa-Gyarteng, K., Dhliwayo, S. (2024), "Cultivating success: organizational culture's influence on innovation and performance in SMEs", *Cogent Business & Management*, Vol. 11, No. 1, pp. 1–23. <https://doi.org/10.1080/23311975.2024.2397070>
- Asiaei, K., Rezaee, Z., Bontis, N., Barani, O., Sapiei, N. S. (2021), "Knowledge assets, capabilities and performance measurement systems: a resource orchestration theory approach", *Journal of Knowledge Management*, Vol. 25, No. 8, pp. 1947–1976. <https://doi.org/10.1108/JKM-09-2020-0721/FULL/PDF>
- Bilgin, Y., Kethüda, Ö. (2022), "Charity social media marketing and its influence on charity brand image, brand trust, and donation intention", *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, Vol. 33, No. 5, pp. 1091–1102. <https://doi.org/10.1007/s11266-021-00426-7>
- Byukusenge, E., Munene, J. C. (2017), "Knowledge management and business performance: does innovation matter?", *Cogent Business & Management*, Vol. 4, No. 1, pp. 1–18. <https://doi.org/10.1080/23311975.2017.1368434>
- Cowling, M., Liu, W., Zhang, N. (2018), "Did firm age, experience, and access to finance count? SME performance after the global financial crisis", *Journal of Evolutionary Economics*, Vol. 28, No. 1, pp. 77–100. <https://doi.org/10.1007/s00191-017-0502-z>
- Datta, S., Jha, A., Kulchania, M. (2020), "On accounting's twenty-first century challenge: evidence on the relation between intangible assets and audit fees", *Review of Quantitative Finance and Accounting*, Vol. 55, No. 1, pp. 123–162. <https://doi.org/10.1007/s11156-019-00839-y>
- Gashe, K., Sime, Z., Mada, M. (2024), "Intellectual capital and total factor productivity", *Cogent Economics & Finance*, Vol. 12, No. 1, pp. 1–19. <https://doi.org/10.1080/23322039.2024.2328484>
- Gianiodis, P., Lee, S. H., Zhao, H., Foo, M. D., Audretsch, D. (2022), "Lessons on small business resilience", *Journal of Small Business Management*, Vol. 60, No. 5, pp. 1029–1040. <https://doi.org/10.1080/00472778.2022.2084099>
- Hair, J. F., Risher, J. J., Sarstedt, M., Ringle, C. M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31, No. 1, pp. 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Holland, D., Scullion, H. (2021), "Towards a talent retention model: mapping the building blocks of the psychological contract to the three stages of the acquisition process", *The International Journal of Human Resource Management*, Vol. 32, No. 13, pp. 2683–2728. <https://doi.org/10.1080/09585192.2019.1569546>
- Intara, P., Suwansin, N. (2024), "Intangible assets, firm value, and performance: does intangible-intensive matter?", *Cogent Economics & Finance*, Vol. 12, No. 1, pp. 1–20. <https://doi.org/10.1080/23322039.2024.2375341>
- Jie, S., Harms, R., Groen, A. J., Jones, P. (2023), "Capabilities and performance of early internationalizing firms: a systematic literature review", *Journal of Small Business Management*, Vol. 61, No. 3, pp. 1143–1173. <https://doi.org/10.1080/00472778.2021.1955124>
- Juergensen, J., Guimón, J., Narula, R. (2020), "European SMEs amidst the COVID-19 crisis: assessing impact and policy responses", *Journal of Industrial and Business Economics*, Vol. 47, No. 3, pp. 499–510. <https://doi.org/10.1007/s40812-020-00169-4>
- Kiranantawat, B., Ahmad, S. Z. (2023), "Conceptualising the relationship between green dynamic capability and SME sustainability performance: the role of green innovation, organisational creativity and agility", *International Journal of Organizational Analysis*, Vol. 31, No. 7, pp. 3157–3178. <https://doi.org/10.1108/IJOA-04-2022-3246>

Nakku, V. B., Agbola, F. W., Miles, M. P., Mahmood, A. (2020), "The interrelationship between SME government support programs, entrepreneurial orientation, and performance: a developing economy perspective", *Journal of Small Business Management*, Vol. 58, No. 1, pp. 2–31. <https://doi.org/10.1080/00472778.2019.1659671>

Saraswati, Rr. S., Yadiati, W., Suharman, H., Soemantri, R. (2024), "Corporate governance, intellectual capital, and organizational culture: their influence on lean manufacturing and firm value", *Cogent Business & Management*, Vol. 11, No. 1, pp. 1–34. <https://doi.org/10.1080/23311975.2024.2382335>

Schulze, A., Dada, O. L. (2024), "Building strategic human capital resources: the effects of strategic entrepreneurship on employee recruitment and retention", *Journal of Small Business Management*, Vol. 63, No. 1, pp. 388–421. <https://doi.org/10.1080/00472778.2024.2322985>

Sisodia, G., Jادیappa, N., Joseph, A. (2021), "The relationship between human capital and firm value: evidence from Indian firms", *Cogent Economics & Finance*, Vol. 9, No. 1, pp. 1–15. <https://doi.org/10.1080/23322039.2021.1954317>

Varma, D., Dutta, P. (2023), "Restarting MSMEs and start-ups post COVID-19: a grounded theory approach to identify success factors to tackle changed business landscape", *Benchmarking*, Vol. 30, No. 6, pp. 1912–1941. <https://doi.org/10.1108/BIJ-09-2021-0535>

Vithana, K., Soobaroyen, T., Ntim, C. G. (2021), "Human resource disclosures in UK corporate annual reports: to what extent do these reflect organisational priorities towards labour?", *Journal of Business Ethics*, Vol. 169, No. 3, pp. 475–497. <https://doi.org/10.1007/s10551-019-04289-3>

Wong, A. P. H., Kee, D. M. H. (2022), "Driving factors of industry 4.0 readiness among manufacturing SMEs in Malaysia", *Information*, Vol. 13, No. 12, pp. 552. <https://doi.org/10.3390/info13120552>

You, N. N., Lou, Y., Zhang, W., Chen, D., Zeng, L. (2023), "Leveraging resources and dynamic capabilities for organizational resilience amid COVID-19", *South African Journal of Business Management*, Vol. 54, No. 1, pp. 1–12. <https://doi.org/10.4102/sajbm.v54i1.3802>

Zhu, F., Newman, A. (2023), "One size does not fit all: organizational rewards, managerial experience, and employee retention in entrepreneurial new ventures", *Entrepreneurship Theory and Practice*, Vol. 47, No. 5, pp. 1788–1815. <https://doi.org/10.1177/10422587221111729>

