



The Impact of Entrepreneurial Orientation, Innovation Capability, and Competitive Advantage on Performance of SMEs in Upper Northeastern Region

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Abstract

This study investigated how entrepreneurial orientation, innovation capability, and competitive advantage influenced SME performance in Thailand's Upper Northeastern region—an economically promising yet under-researched area. Using a quantitative design and stratified sampling across SME sectors, 384 valid responses were collected from SME owners and senior managers via structured questionnaires. Data were analyzed using descriptive statistics, Pearson correlation, and Confirmatory Factor Analysis (CFA). The results indicate that the measurement model fits well with the data, as shown by $\chi^2/df = 1.089$, CFI = 0.999, and RMSEA = 0.015, confirming the validity of the constructs used. Structural Equation Modeling (SEM) revealed that both entrepreneurial orientation ($\beta = 1.098$, $p < 0.001$) and innovation capability ($\beta = 1.000$, $p < 0.001$) had significant positive effects on firm performance. In addition, the analysis found that competitive advantage partially mediated the relationship between entrepreneurial orientation and firm performance, suggesting that entrepreneurial orientation impacts firm performance both directly and indirectly through competitive advantage. Meanwhile, competitive advantage fully mediated the relationship between innovation capability and firm performance, indicating that innovation alone cannot improve performance unless it is effectively transformed into competitive advantage. Competitive advantage serves as the key mechanism through which innovation capability drives firm performance. Among SMEs in Northeastern Thailand, innovation capability has a greater impact than entrepreneurial orientation, as it enables firms to create unique products, enhance processes, and adapt to market shifts, which is crucial for outperforming competitors in resource-constrained environments.

Keywords: 1) Entrepreneurial orientation 2) Innovation capability 3) Competitive advantage 4) SME performance 5) Structural equation model

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Introduction

Small and medium enterprises (SMEs) constitute the backbone of global economies, particularly in developing nations, where they play a pivotal role in job creation, innovation, and income generation. In Thailand, SMEs are a vital component of the national economy, contributing 35.2% to the country's GDP and employing over 70% of the workforce as of 2023 (Charoenrat, 2020, p. 7). Acknowledging their significance, the Thai government has set an ambitious goal of increasing SMEs' GDP contribution to 40% by 2030. Attaining this target necessitates not only policy-level interventions but also a comprehensive academic understanding of the key drivers of SME success, particularly in economically diverse and under-researched regions.

One such region of strategic and economic interest is Thailand's Upper Northeast, encompassing provinces such as Nakhon Phanom, and Mukdahan. This area holds considerable significance as part of the East-West Economic Corridor (EWEC), which connects Thailand to neighboring countries, including Laos and Vietnam, thereby facilitating cross-border trade and promoting regional integration (Asian Development Bank, 2010, p. 6). Predominantly rural, the region is characterized by a high concentration of micro and small enterprises rooted in local wisdom, agricultural value chains, and community-based production models. However, these SMEs face persistent constraints, including limited access to capital, low technological adoption, and a shortage of skilled labor (World Bank, 2023). Despite these limitations, many

demonstrate remarkable adaptive capacity by leveraging indigenous knowledge, informal networks, and social capital (Akartwipart, and Cheewakiatyingyong (2024, pp. 28-29).

Yet, despite the strategic importance and economic potential of SMEs in this context, academic research has largely overlooked how these firms cultivate and sustain competitive advantage. Existing literature identifies entrepreneurial orientation (EO), innovation capability, and competitive advantage as core internal and strategic determinants of SME performance. For SMEs operating under resource constraints in dynamic environments, entrepreneurial orientation, marked by proactiveness, innovativeness, and risk-taking enables timely opportunity recognition (Kusa, 2023, pp. 38-40). In parallel, innovation capability, shaped by organizational culture, leadership styles, and structural flexibility, supports rapid adaptation to environmental shifts (Zhang et al., 2023, p. 6644). These capabilities influence firm performance primarily through the development of competitive advantage, whether using cost leadership, product differentiation, or market responsiveness (Correia, Dias and Teixeira, 2021, pp. 3-5).

Nevertheless, several gaps remain in the literature. There is a paucity of empirical research examining how rural SMEs strategically develop and apply these capabilities, particularly in regions such as Thailand's Upper Northeast. The mediating role of competitive advantage in linking entrepreneurial orientation and innovation capability to firm performance in resource-constrained settings remains insufficiently explored. Furthermore, most existing



studies adopt singular theoretical lenses such as the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), or the Industry-Based View (IBV) without integrating these perspectives in ways that reflect the complex realities of low-resource environments.

Cross-country studies highlight the nuanced impact of internal capabilities on SME performance. In Bangladesh, proactiveness enhances SME performance under dynamic market conditions, though industry-specific differences persist (Hossain, et al., 2022, pp. 166-167), while in Pakistan, aggressive yet efficient strategies show potential amid unclear cultural and institutional influences (Ahmed et al., 2021, pp. 1-3). Vietnamese SMEs benefit from innovation initiatives (Calza, Goedhuys, and Trifković, 2019, pp. 24–27), whereas South African family-run micro-enterprises face structural challenges due to informal practices (Nkonde and Utete, 2024, pp. 14–16). European SMEs gain from sustained investment in employee development, though insights into the financial and operational constraints of developing regions remain limited (Bakhtiari, et al., 2020, pp. 506–523).

This study examines how entrepreneurial orientation and innovation capability affect competitive advantage and firm performance among SMEs in Thailand's resource-limited Upper Northeast, identifying which capability most strongly drives performance. Using an integrated RBV, DCT, and IBV framework, competitive advantage is treated as a mediating variable, with local culture, indigenous knowledge, and community practices considered. Focusing on this understudied

region, the study contributes to SME theory, informs policy, and guides strategic capability development, with Structural Equation Modeling (SEM) used to analyze the relationships.

Research Objectives

1. To examine the influence of entrepreneurial orientation and innovation capability on competitive advantage and firm performance.
2. To analyze the structural relationships among entrepreneurial orientation, innovation capability, competitive advantage, and firm performance using a structural equation modeling (SEM) approach.
3. To assess the influence of competitive advantage as a mediator in the relationship among entrepreneurial orientation, innovation capability, and firm performance.

Literature Review

Entrepreneurial Orientation (EO)

Entrepreneurial Orientation (EO) refers to a firm's strategic posture that promotes innovative and proactive behaviors to identify and exploit market opportunities. It comprises three dimensions: proactiveness, reflecting anticipation and action on future needs ahead of competitors (Covin and Slevin, 1991, pp. 7-25); competitive aggressiveness, denoting assertive efforts to outperform rivals through direct competition and resource use (Covin and Slevin, 1991, pp. 7-25); and innovativeness, involving the development and implementation of new ideas, processes, or products that create value sustainability (Duan, et al., 2024, pp. 3104-3108).



From an RBV perspective, EO is an intangible, valuable, and inimitable capability contributing to sustainable competitive advantage (Barney, 1991, pp. 99-101). It fosters rare and non-substitutable behaviors—innovation, market foresight, and strategic aggressiveness—enhancing adaptability, opportunity recognition, and long-term strategic positioning. EO thus serves as a critical internal resource that improves firm performance, especially in dynamic and resource-constrained environments (Venkatraman and Ramanujam, 1986, pp. 801–814).

Innovation Capability

Innovation capability refers to a firm's capacity to generate, adopt, and apply novel ideas, technologies, and processes that foster adaptability and competitive sustainability (Duan, et al., 2024, pp. 3104-3108) and is particularly important in turbulent environments where continuous transformation is necessary for long-term survival and growth. Under the Dynamic Capabilities Theory (DCT), innovation capability is understood as a higher-order capability that enables firms to integrate, build, and reconfigure internal and external competencies in response to changing market demands (Teece, Pisano and Shuen, 1997, pp. 510–513), encompassing several dimensions including participative leadership culture, which fosters collaborative decision-making and employee engagement (Tushman and O'Reilly, 2007, pp. 769–770); organizational structure and conceptualization, which support innovation through flexibility and structural alignment (Venkatraman and Ramanujam, 1986, pp. 801–814); work environment and well-being, which promote

creativity and employee satisfaction (Muñoz, Rodríguez and López, 2023, pp. 23–24); knowledge development, which focuses on internal learning and skill acquisition; external knowledge integration, referring to knowledge absorption from suppliers, customers, and external networks (Duan, et al., 2024, pp. 3104-3108); adaptability to change, or the capacity to adjust operations and strategies in response to external shifts (Mongkol, 2022, pp.1-6); individual innovative activities, which emphasize employee-led innovation and initiative; collaborative innovation, through partnerships and cross-sector engagement (Duan, et al., 2024, pp. 3104-3108); and innovation strategy, which involves aligning innovation goals with organizational resources and long-term objectives (Venkatraman and Ramanujam, 1986, pp. 801–814).

Within the Dynamic Capabilities Framework, innovation capability serves as a micro foundation for sensing opportunities, seizing them, and transforming organizational processes to create sustained competitive advantage (Teece, Pisano and Shuen, 1997, pp. 510–513). Firms with robust innovation capabilities are consistently associated with improved performance and long-term competitiveness (Venkatraman and Ramanujam, 1986, pp. 801–814).

Competitive Advantage

Competitive advantage refers to a firm's ability to deliver greater value to customers than its competitors through cost efficiency, product superiority, or enhanced responsiveness and is a central outcome of strategic capability deployment, widely acknowledged as a key driver of sustainable firm performance (Bar-



ney, 1991, pp. 99–101). From a Resource-Based View (RBV) perspective, competitive advantage arises from the accumulation and application of VRIN resources—those that are valuable, rare, inimitable, and non-substitutable (Barney, 1991, pp. 99–101)—while internal capabilities such as innovation, learning orientation, and leadership strength are vital for establishing and maintaining an advantage. Competitive advantage can be conceptualized across three dimensions: efficiency, which refers to the ability to deliver goods or services at lower costs while maintaining quality (Porter, 1985, pp. 11–16); quality, reflecting the consistency and superiority of products or services relative to customer expectations (Zeithaml, Berry and Parasuraman, 1996, pp. 35–38); and responsiveness, defined as the speed and accuracy with which a firm reacts to market demands and customer needs (Kotler and Keller, 2016, pp. 102–105).

The prior research found that sustaining competitive advantage, which is built on dynamic capabilities and strategic alignment, has been empirically linked to superior firm performance across various industrial and geographic contexts (Barney, 1991, pp. 99–101).

Firm Performance

Firm performance represents the degree to which a firm achieves its strategic and operational objectives and is typically assessed using a multidimensional framework (Venkatraman and Ramanujam, 1986, p. 802), including financial performance, which focuses on profitability, return on investment, and other metrics reflecting economic success (Hitt, Ireland and Hoskisson, 2019, pp. 410–415); customer-relat-

ed performance, which considers satisfaction, loyalty, and market share as key indicators from the customer perspective (Kotler and Keller, 2020, pp. 360–365); internal process performance, which assesses the efficiency and effectiveness of operations contributing to product or service delivery; and learning and growth, which reflects the firm's ability to develop capabilities, foster employee learning, and innovate continuously

Despite increasing scholarly attention on SME competitiveness, the differential effects of EO and innovation capability on competitive advantage and, in turn, firm performance have remained insufficiently examined. Most existing studies assess EO and innovation in isolation, which limits understanding of their comparative and interactive impacts, particularly in resource-constrained SME contexts. Addressing this research gap is critical for informing SMEs on which internal capabilities to prioritize for maximal strategic value and long-term sustainability (Dumitriu, et al., 2025, pp. 1–6)

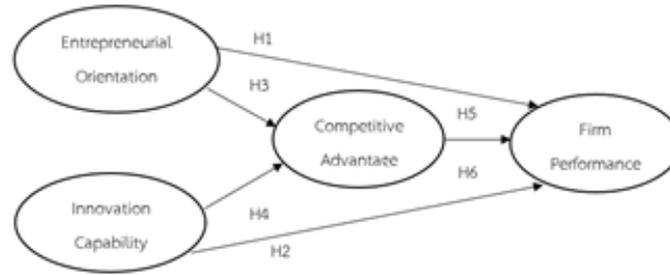


Figure 1 The research model

Research Hypotheses

H1: Entrepreneurial orientation has a positive influence on firm performance

H2: Innovation capability has a positive influence on firm performance

H3: Entrepreneurial orientation has a positive influence on competitive advantage

H4: Innovation capability has a positive influence on competitive advantage

H5: Competitive advantage mediates the positive relationship between entrepreneurial orientation and firm performance

H6: Competitive advantage mediates the positive relationship between innovation capability and firm performance

Research Method

This study employs a quantitative research design to examine the relationships among entrepreneurial orientation, innovation

capability, competitive advantage, and firm performance in SMEs located in Thailand’s Upper Northeastern region.

Population and Sample

The upper Northeastern region consists of eight provinces—Udon Thani, Nong Khai, Loei, Sakon Nakhon, Mukdahan, Bueng Kan, Nongbua Lamphu, and Nakhon Phanom—with a total of 182,422 SMEs (Office of Small and Medium Enterprises Promotion, 2023). To ensure provincial representation, a stratified sampling method was used, dividing the population into eight strata based on province. With larger populations receiving larger sample sizes. For example, Udon Thani has the highest SME population (46,786) and the largest sample (101), while Bueng Kan has the smallest population (10,355) and the smallest sample (22).

Province	SME Population (Sample collection size)	Province	SME Population (Sample collection size)
Udon Thani	46,786 (101)	Mukdahan	16,038 (34)
Nong Khai	16,256 (35)	Bueng Kan	10,355 (22)
Loei	16,839 (36)	Nongbua Lumphu	17,728 (31)
Sakon Nakhon	33,671 (72)	Nakhon Phanom	24,695 (53)



Research Instruments

Data were collected using a structured questionnaire adapted from previous studies. The instrument consisted of demographic items and constructs measured on a five-point

Likert scale (1 = strongly disagree to 5 = strongly agree), covering entrepreneurial orientation, innovation capability, competitive advantage, and firm performance.

Table 1 Variables, observed variables, number of Items, example questions of survey

Variable (Pre survey Cronbach's alpha)	Observed Variable (Number of Items)	Example of Question
EO (0.947)	Proactiveness (4)	The firm proactively exploits emerging market opportunities.
	Innovativeness (3)	The firm innovates to improve products and launch new versions.
	Competitive aggressiveness (4)	Employees work independently without interference.
Innovation Capability (0.956)	Participative leadership culture (6)	Executives implement employees' creative ideas.
	Organizational concepts and structures (4)	Training and guidance are consistently provided for job performance.
	Work atmosphere and well-being (5)	The organization encourages continuous employee skill development.
	Knowledge development (5)	Employees are supported to learn and grow across areas.
	External knowledge (5)	Work processes are developed collaboratively with external networks.
	Adaptability to changing conditions (5)	The organization seeks new approaches to business continuously.
	Individual activities (5)	Employees quickly adopt new work practices.
	Collaboration (5)	Knowledge is shared across departments.
	Innovation strategy (5)	Strong strategic initiatives drive new products or services.
Competitive Advantage (0.969)	Efficiency (4)	Resources are used efficiently to reduce costs.
	Quality (4)	Services are accurate, reliable, and standardized for customer satisfaction.
	Responsiveness (4)	Customers are served promptly and accurately.

Variable (Pre survey Cronbach's alpha)	Observed Variable (Number of Items)	Example of Question
Firm Performance (0.98)	Finance (4)	Revenue grows from new customers, markets, and product launches.
	Customers (4)	Strong customer relationships enhance competitive advantage.
	Internal Processes (5)	Quality and timely services meet customer needs.
	Learning and growth (5)	New technologies promote continuous organizational learning.

Data Collection

The unit of analysis was the organization, with one key decision-maker (owner or manager) per SME responding. Questionnaires were administered face-to-face or online across

eight provinces. A total of 384 valid responses were collected, based on Krejcie and Morgan's (1970, pp. 607-610) formula, using proportional stratified sampling at the firm level.

Data Analysis and Statistical Method

Table 2 Summary of data analysis and statistical methods

Analysis / Method	Purpose
Descriptive & Reliability Analysis	Summarize demographics and assess internal consistency (Cronbach's alpha)
Data Screening	Test normality (skewness, kurtosis, Kolmogorov-Smirnov) and check multicollinearity (tolerance, VIF)
Relationship Testing	Explore associations (Pearson's correlation) and predictive effects (multiple regression)
Model Validation & Hypothesis Testing	Assess construct validity (CFA), test hypothesized model (SEM), and examine mediation (Baron and Kenny, 1986, pp. 1173-1182)

Results

Table 3 Demographic information of all respondents as frequency and percentage

Demographic information	Frequency	Demographic information	Frequency
Work Position		Province	
Owner	281 (73.17 %)	Udon Thani	101 (26.14%)
Manager	103 (26.82 %)	Nong Khai	35 (9.08%)
Age		Loei	36 (9.41%)
< 30 years	3 (0.78 %)	Sakon Nakhon	72 (18.81%)
> 50 years	41 (10.67 %)	Mukdahan	34 (8.96%)



Demographic information	Frequency	Demographic information	Frequency
30 - 40 years	110 (28.64 %)	Bueng Kan	22 (5.79%)
41 - 50 years	230 (59.89 %)	Nongbua Lamphu	31(7.99%)
Type of business		Nakhon Phanom	53 (13.80%)
Trading (Retail&Wholesale)	190 (49.47 %)	Business Age	
Service Business	116 (30.20 %)	< 5 years	5 (1.30 %)
Manufacturing & Product Processing	44 (11.45 %)	> 15 years	52 (13.54 %)
Agribusiness & Agricultural Processing	24 (6.25 %)	11 - 15 years	152 (39.58 %)
Fashion, Textile & Handicraft Business	10 (2.6 %)	15 - 20 years	175 (44.8 %)

Table 3 summarizes respondents' demographics. Most were business owners (73.17%) aged 41–50 years (59.89%), mainly in trading (49.47%) and services (30.20%). Geographically, Udon Thani (26.14%) had the high-

est representation, followed by Sakhon Nakhon (18.81%) and Nakhon Phanom (13.80%). In terms of tenure, most firms had operated for 11–20 years (84.38%), with smaller shares over 20 years (13.54%) or under 5 years (1.30%).

Table 4 Summary of Descriptive Statistics, Reliability, and CFA Loadings

Variable	\bar{X}	S.D.	Opinion Level	Skewness	Kurtosis	Standardized Factor loading	t-value
EO	AVE = 0.67	C.R. = 0.76	Cronbach's Alpha = 0.710				
EO	4.07	0.47	Agree	-2.217	5.900		
1. Proactive	4.19	0.53	Agree	-1.865	3.663	0.703	22.707
2. Innovative	4.23	0.60	Strongly Agree	-1.943	4.193	0.887	
3. Competitive Aggressiveness	3.78	0.54	Agree	-1.181	3.124	0.703	14.403
Innovation capability	AVE = 0.86	C.R. = 0.81	Cronbach's Alpha = 0.825				
Innovation capability	4.15	0.49	Agree	-2.557	7.878		
1. Participative Leadership Culture	4.20	0.56	Agree	-2.564	7.770	0.993	
2. Organizational Concepts and Structures	4.19	0.55	Agree	-2.537	7.677	0.941	37.713

Variable	\bar{X}	S.D.	Opinion Level	Skewness	Kurtosis	Standardized Factor loading	t-value
3. Work Atmosphere and Well-being	4.18	0.53	Agree	-2.237	6.495	0.904	32.381
4. Knowledge Development	4.20	0.55	Agree	-2.122	5.417	0.924	34.204
5. External Knowledge	4.06	0.62	Agree	-1.709	3.203	0.809	23.910
6. Adaptability to Changing Conditions	4.23	0.51	Strongly Agree	-2.381	7.270	0.911	30.712
7. Individual Activities	4.17	0.54	Agree	-1.884	4.715	0.872	28.180
8. Collaboration	3.97	0.53	Agree	-1.193	2.192	0.796	21.944
9. Innovation Strategies	4.19	0.53	Agree	-2.277	6.545	0.933	32.232
Competitive advantage	AVE = 0.95 C.R. = 0.83			Cronbach's alpha = 0.847			
Competitive Advantage	4.24	.520	Strongly Agree	-2.596	7.733		
1. Efficiency	4.22	.537	Strongly Agree	-2.280	6.599	0.907	31.313
2. Quality	4.24	.554	Strongly Agree	-2.219	5.967	0.913	32.469
3. Response	4.26	.563	Strongly Agree	-2.358	6.156	0.922	
Firm performance	AVE = 0.90 C.R. = 0.85			Cronbach's alpha = 0.865			
Firm Performance	4.24	0.53	Strongly Agree	-2.466	6.412		
1. Finance	4.20	0.60	Strongly Agree	-2.167	5.233	0.914	
2. Customers	4.25	0.56	Strongly Agree	-2.335	5.874	0.917	31.668
3. Internal Processes	4.27	0.53	Strongly Agree	-2.337	5.673	0.927	32.200
4. Learning and Growth	4.24	0.55	Strongly Agree	-2.116	4.972	0.944	34.199

Note: All constructs violated normality assumptions (Kolmogorov–Smirnov test, $p < 0.001$).

Table 4 presents descriptive statistics for all key constructs, showing high agreement but non-normal distributions. For EO, Innovativeness had the highest mean ($M = 4.23$) compared to Proactiveness (4.19) and Competitive

Aggressiveness (3.78). Within Innovation Capability, Adaptability scored highest ($M = 4.23$), while Collaboration was lowest (3.97). Competitive Advantage was led by the Response dimension ($M = 4.26$), exceeding Efficiency



(4.22) and Quality (4.25). For Firm Performance, Internal Processes achieved the highest mean ($M = 4.27$), followed by Customer Performance (4.25). All constructs exhibited significant skewness, kurtosis, and violated normality (Kolmogorov–Smirnov, $p < 0.001$).

Confirmatory factor analysis of the measurement model showed that Innovativeness loaded highest on EO (0.887), while Proactiveness and Competitive Aggressiveness showed moderate loadings (0.703). Innovation Capability exhibited strong loadings (0.796–0.993), with Innovation Strategy being the most

prominent. Competitive Advantage and Firm Performance both showed consistently high loadings (0.907–0.944), with Responsiveness, Customer Orientation, and Internal Processes as leading indicators. Convergent validity was confirmed, with AVE values above 0.50 for all constructs: EO (0.67), Innovation Capability (0.86), Competitive Advantage (0.95), and Firm Performance (0.90). Composite reliability was also satisfactory, with CR values ranging from 0.76 to 0.85, exceeding the 0.70 benchmark (Hair et al., 2010, pp. 710-711).

Table 5 Regression coefficients and multicollinearity diagnostics for predictors of firm performance

Predictor	Standardized Beta	T	Sig.	VIF
(Constant)	–	-0.713	0.476	–
EO	0.059	2.235	.026	2.883
Innovation Capability	0.257	5.802	.000	8.226
Competitive Advantage	0.660	15.261	.000	7.881

Table 5 shows VIF values for the independent variables. EO has a VIF of 2.883, below the threshold of 5, indicating no serious multicollinearity. In contrast, Innovation Capability

(8.226) and Competitive Advantage (7.881) approach the upper limit of 10, suggesting moderate to high multicollinearity (Senaviratna and Cooray, 2019, pp. 6-7).

Table 6 The correlation and reliability matrix

Variable	EO	Innovation Capability	Competitive advantage	Firm Performance
EO	1 (0.74)	0.889** (0.79)	0.884** (0.78)	0.860** (0.86)
Innovation Capability		1 (0.86)	0.931** (0.86)	0.918** (0.84)
Competitive advantage			1 (0.95)	0.945** (0.89)
Firm Performance				1 (0.90)

** Correlation is significant at the 0.01 level (2-tailed) (N=384)

Table 6 presents correlations among variables, with italicized values showing strength and direction. EO is strongly correlated with Innovation Capability ($r = 0.889^{**}$),

Competitive Advantage ($r = 0.884^{**}$), and Firm Performance ($r = 0.860^{**}$). Innovation Capability correlates highly with Competitive Advantage ($r = 0.931^{**}$) and Firm Performance ($r =$

0.918**), while Competitive Advantage strongly associates with Firm Performance ($r = 0.945^{**}$), indicating mutually reinforcing relationships (Cohen, et al., 2013, pp. 84-85). Bold diagonal

values show AVE (0.74–0.95), all exceeding squared inter-construct correlations, confirming good discriminant validity and that each construct is empirically distinct.

Table 7 Statistical values assessing the structural equation model's goodness-of-fit with empirical data.

Fit Index	Statistical values / Criteria	Fit Index	Statistical values / Criteria
χ^2 / df	1.215 (< 2)	TLI	0.997 (>0.90)
GFI	0.972 (>0.90)	CFI	0.998 (>0.90)
AGFI	0.941 (>0.90)	RMSEA	0.023 (< 0.05)
NFI	0.990 (>0.90)	RMR	0.005 (< 0.05)

From Table 7, the model fit indices indicate a strong overall fit: $\chi^2 = 110.562$, $df = 91$, $p = 0.080$; the relative chi-square (χ^2/df) was 1.21, which is below the recommended threshold of 2 (Hu and Bentler, 1999, p. 2). Goodness-of-fit indices—including GFI (0.972), AGFI (0.941), NFI (0.990), TLI (0.997), and CFI (0.998)—all

exceed the conventional benchmark of 0.90, confirming an excellent model fit (Byrne, 2016, pp. 120–125). Error indices further support the model's adequacy, with RMSEA = 0.023 and RMR = 0.005, indicating minimal residual error (Lomax, 2004, p. 81-83).

Table 8 Direct, indirect, and total effects of EO/ innovation capability and competitive advantage on firm performance

Model	Dependent Variable	Effect	EO	Innovation Capability	Competitive Advantage
Model 1	Firm Performance	Direct	$\beta = 1.007$	$\beta = 0.949$	-
	Competitive Advantage	Direct	$\beta = 0.956^{***}$	$\beta = 0.980^{***}$	-
Model 2	Firm Performance	Direct	$\beta = 0.439$	$\beta = -0.950^*$	$\beta = 0.618^*/$ $\beta = 2.016^{***}$
	Firm Performance	Indirect	0.667	1.951	-
	Firm Performance	Total	1.107	1.001	$\beta = 0.618^*/$ $\beta = 2.016^{***}$

N=384, *p,0.05,***P<0.001

Table 8 demonstrates that EO has a significant positive effect on firm performance (path c1) ($\beta = 1.007$, $p = 0.001$), thereby supporting Hypothesis 1 (H1). EO also exerts a significant positive influence on competitive advantage (path a1) ($\beta = 0.956$, $p = 0.001$), lending support to Hypothesis 3 (H3). Similarly,

innovation capability significantly positively impacts firm performance (path c2) ($\beta = 0.949$, $p = 0.001$), supporting Hypothesis 2 (H2), and also has a significant positive effect on competitive advantage (path a2) ($\beta = 0.980$, $p = 0.001$), confirming Hypothesis 4 (H4).



Interpretation of the Mediation Model

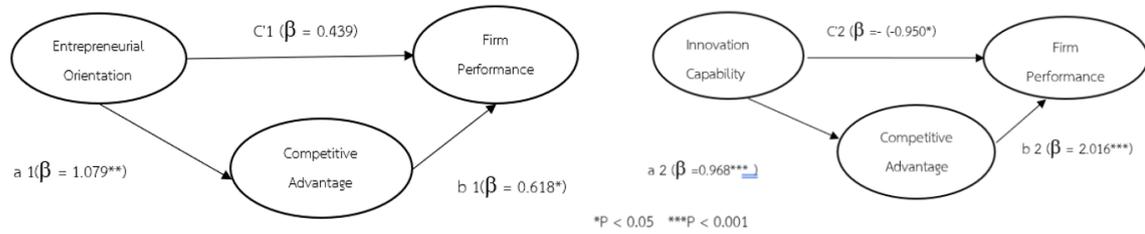


Figure 2 The influence of competitive advantage as a mediating variable

Figure 2 shows that competitive advantage partially mediates the EO–performance link. The direct effect of EO drops to $\beta = 0.439$ with mediation, while EO significantly drives competitive advantage ($\beta = 1.079$, $p < 0.001$), which in turn enhances performance ($\beta = 0.618$, $p < 0.05$), yielding an indirect effect of 0.667. By contrast, innovation capability

exhibits full mediation: its direct effect on performance turns negative ($\beta = -0.950$, $p < 0.05$), but it strongly boosts competitive advantage ($\beta = 0.968$, $p < 0.001$), which then drives performance ($\beta = 2.016$, $p < 0.001$), producing a significant indirect effect of 1.951 and supporting H6.

Table 9 Summary of the hypotheses testing results

Hypothesis	direct β	p-value	Mediation Effect (Indirect β)	Result
H1 Entrepreneurial orientation has a positive influence on firm performance	1.007	0.001	—	Supported
H2 Innovation capability has a positive influence on firm performance	0.949	0.001	—	Supported
H3 Entrepreneurial orientation has a positive influence on competitive advantage	0.956	0.001	—	Supported
H4 Innovation capability has a positive influence on competitive advantage	0.980	0.001	—	Supported
H5 Competitive advantage mediates the positive relationship between entrepreneurial orientation and firm performance	reduced to 0.439	<0.001	0.667 Partial mediation	Supported
H6 Competitive advantage mediates the positive relationship between innovation capability and firm performance	reversed to -0.950	<0.05	1.951 Full mediation	Supported

Results and Discussion

The first objective examines the influence of EO and innovation capability on competitive advantage and firm performance. Results show that EO significantly enhances firm performance ($\beta = 1.098$, $p < 0.001$), indicating that SMEs with higher proactiveness, innovativeness, and competitive aggressiveness perform better. Innovation capability also positively affects firm performance ($\beta = 1.000$, $p < 0.001$) by enabling distinctive products, optimized processes, and effective competition. Both EO ($\beta = 0.914$, $p < 0.001$) and innovation capability ($\beta = 0.962$, $p < 0.001$) strongly drive competitive advantage.

The second objective examines the structural relationships among EO, innovation capability, competitive advantage, and firm performance using SEM. The model shows excellent fit: $\chi^2(91) = 110.562$, $p = 0.080$; $\chi^2/df = 1.21$, with fit indices exceeding 0.90 (GFI = 0.972, AGFI = 0.941, NFI = 0.990, TLI = 0.997, CFI = 0.998) and low errors (RMSEA = 0.023, RMR = 0.005). SEM results confirm that EO and innovation capability significantly affect competitive advantage and firm performance, both directly and indirectly.

The third objective assesses competitive advantage as a mediator between EO, innovation capability, and firm performance. Results indicate that competitive advantage partially mediates the EO–firm performance link (indirect effect = 0.271, $p < 0.001$), showing both direct and indirect effects, while it fully mediates the innovation capability–firm performance relationship (indirect effect = 1.951, $p < 0.001$), highlighting that innovation enhances

performance only when channeled through competitive advantage.

Discussion and theoretical contribution

The study highlights a distinctive difference between EO and innovation capability. EO focuses on strategic behaviors such as proactiveness, risk-taking, and opportunity-seeking, whereas innovation capability reflects a firm's ability to create novel products, services, and processes, driven by creativity and adaptability. The findings suggest that SMEs in this region benefit from cultivating both entrepreneurial orientation and innovation capability to enhance competitive positioning and performance. EO equips SMEs to identify and exploit market opportunities rapidly, an essential trait in dynamic and resource-constrained environments. Meanwhile, innovation capability enables SMEs to develop unique value propositions that differentiate them in the marketplace. The results align with recent empirical studies confirming the positive role of EO and innovation in SME performance (Keh, Nguyen and Ng, 2007, pp. 592-597). This study confirms that innovation capability requires strategic alignment to produce tangible performance gains, reinforcing the notion that innovation alone is insufficient without competitive advantage as a mediator. Contrasting with some prior findings (Covin and Slevin, 1991, pp. 7-25), which suggest that EO does not always guarantee sustained competitive advantage, this study underscores EO's direct and indirect positive effects, possibly due to the specific regional context where agility and opportunity-seeking behavior are critical for survival.



The findings confirm that competitive advantage functions as a critical mediator between internal firm capabilities (EO and innovation capability) and firm performance. This is consistent with and extends existing literature, but also reveals key differences, like mediation between the two predictors. First, competitive advantage partially mediates the relationship between EO and firm performance (indirect effect = 0.271, $p < 0.001$), confirming that EO's proactiveness, risk-taking, and strategic orientation both directly drive performance and indirectly strengthen differentiation and responsiveness. This aligns with Kiyabo and Isaga (2020, pp. 2–15), who report that EO enhances SME competitiveness directly and via organizational capabilities, and with Kusa (2023, pp. 38–40), who found that EO fosters market-driven innovation and customer responsiveness to partially boost performance. Second, competitive advantage fully mediates the innovation–performance link (indirect effect = 1.951, $p < 0.001$), as innovation capability's direct effect on performance reverses without mediation.

For SMEs, this involves not only investing in innovation and entrepreneurial behavior but also developing mechanisms for reconfiguring resources, adapting business models, and responding proactively to customer needs and competitor moves. For example, leveraging local knowledge to differentiate offerings, forming strategic alliances to overcome scale disadvantages, and utilizing digital platforms to expand market reach. These actions reflect the "sensing," "seizing," and "transforming" capacities central to the dynamic capabilities view.

These findings underscore a con-

text-sensitive dynamic in resource-constrained Northeast Thailand where innovation must be strategically aligned to generate performance gains, while EO remains vital for opportunity exploitation. Unlike SMEs in Bangkok or Central Thailand, those in the Northeast depend more on EO due to limited resources and market volatility. These findings are consistent with Akartwipart, and Cheewakiatyingyong (2024, p. 35) who observed a survival-driven, proactive stance. Under such constraints, prioritizing innovation capability to establish competitive differentiation is advisable before leveraging EO for expansion and new market entry.

EO's VIF (2.883) indicates no multicollinearity, while innovation capability (8.226) and competitive advantage (7.881) approach the threshold of 10, potentially affecting coefficient stability (Senaviratna, and Cooray, 2019, p. 8). Future research should refine constructs, use second-order modeling, or apply PCA (Cohen, et al., 2013, pp. 84–85). Baron and Kenny's (1986, pp. 1173–1182) mediation test, though common, has low power and strict assumptions; bootstrapping or SEM with bootstrapped indirect effects is recommended. This study integrates three theories to explain SME performance in resource-constrained, culturally distinct settings like Northeastern Thailand: EO via the IBV for strategic positioning, innovation capability via DCT for adaptability, and competitive advantage and performance via RBV and VRIN criteria (Barney, 1991, pp. 99–101). By jointly examining EO and innovation capability, it identifies which capability more effectively drives competitive advantage, highlighting the role of local knowledge and adaptive practices

in building sustainable advantages, with implications for similar emerging markets.

Recommendation

Managerial Implications

SMEs can enhance performance by strengthening Entrepreneurial Orientation (EO) through proactiveness, risk-taking, and opportunity-seeking. This involves fostering entrepreneurial thinking, decentralized decision-making, and experimentation. For instance, a proactive SME may launch eco-friendly products ahead of competitors, a risk-taking firm may invest early in AI-driven systems to boost efficiency, and an opportunity-seeking business may target underserved niches or collaborate with local artisans. These actions build competitive advantage through differentiation, speed-to-market, and customer responsiveness, which are critical for SMEs in Thailand's Upper Northeast. A local SME producing herbal cosmetics senses opportunities by using social media and local fairs to identify rising demand for organic, chemical-free skincare. It seizes this opportunity by launching an FDA-approved

organic product line, rebranding around sustainability, and obtaining government grants and incubator support to expand production. The firm then transforms its operations by partnering with local farmers for supply, shifting from B2B to direct-to-consumer online sales, and training staff in digital marketing and quality control to strengthen internal capabilities.

Recommendations for future researchers

Future studies should explore how EO, innovation capability, and unique assets (e.g., intellectual property, human capital, brand) drive success across various industries such as technology, manufacturing, and healthcare. Further research should examine how continuous innovation and strategic adaptability sustain competitive advantage in dynamic sectors like telecommunications, retail, and pharmaceuticals. Finally, studies should assess how industry-specific factors—such as regulations, competition, and operational challenges—shape the EO–innovation–performance link in fields like finance, energy, and construction.

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