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Sustainable entrepreneurship: A strategic orientation approach for fostering sustainable development in Thai SMEs

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Abstract: This research aims to investigate the interplay between leaders' sustainability competencies, entrepreneurial orientation (EO), sustainability orientation (SO), and firm performance in Thai SMEs. Using a quantitative approach, data were collected from 385 SME owner-managers and analyzed through Structural Equation Modeling (SEM). The findings reveal that EO directly influences economic performance and indirectly affects environmental and social performance through SO. Leaders' sustainability competencies predict SO, and EO forecasts economic, environmental, and social outcomes through economic results and SO. The results underscore the importance of integrating EO with SO to achieve comprehensive sustainability outcomes across economic, environmental, and social dimensions. This research contributes to the literature by offering an empirical model that links leadership competencies, EO, and SO to triple bottom line performance. Practically, the study provides actionable insights for SME leaders and policymakers, emphasizing the need to develop sustainability competencies and adopt a dual strategic orientation to foster long-term resilience and competitiveness. These findings are particularly relevant for emerging economies aiming to align entrepreneurship with sustainable development goals.

Keywords: *Entrepreneurial orientation, Firm performance, SMEs, Leaders' sustainability competencies, Sustainability orientation.*

1. Introduction

Entrepreneurial orientation (EO) concept is frequently used to describe the strategic orientation adopted by organizations [1-3]. And its impact on business performance [4]. While EO is vital for the success of SMEs [5, 6] neglecting environmental and social factors [7] means entrepreneurial actions alone might not ensure long-term survival [3]. With increasing global environmental damage and social concerns, researchers have called for sustainable business models that integrate entrepreneurship with sustainability to align with sustainable development goals [7] and enhance profitability [3, 8].

The importance of sustainable entrepreneurship has grown significantly in the context of global environmental challenges [9]. Climate change, resource depletion, and biodiversity loss are pressing issues that require innovative and sustainable solutions [10]. Entrepreneurs play a critical role in addressing these challenges by developing business models that not only generate economic value but also contribute to environmental and social well-being [8]. Sustainable entrepreneurship involves integrating environmental and social considerations into business strategies, thereby fostering long-term resilience and sustainability [9]. This approach is essential for achieving the United Nations' Sustainable Development Goals (SDGs) and ensuring a sustainable future for all [10].

Recently, studies have emerged that link entrepreneurship to sustainability, exploring the broad concept of "sustainable entrepreneurship," which includes economic, environmental, and social values [3]. Sustainable entrepreneurship, from the perspective of dynamic capabilities and organizational strategic orientation, involves combining EO with other strategic orientations that emphasize sustainability values [11]. This approach integrates social and environmental considerations into

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decision-making, known as sustainability orientation (SO) [12] to achieve a competitive advantage [13]. It addresses sustainable entrepreneurship at both the firm level and the integrated triple bottom line sustainability level. However, research on strategic orientation for sustainable entrepreneurship is limited and not well-defined [11].

Despite the increasing importance of understanding sustainable development, there is limited research on SMEs, particularly in emerging economies [5, 13]. Successful sustainable entrepreneurship requires entrepreneurs to be innovative, proactive, and willing to take risks, along with a deep understanding of sustainability issues [1, 7]. These qualities enable entrepreneurs to achieve both economic and non-economic benefits for their companies [13, 14]. Therefore, research on sustainable entrepreneurship is not only useful but also an economic necessity [15]. This research contributes to the interdisciplinary study of entrepreneurial aspects and sustainability orientation. It seeks to pinpoint the strategic orientations towards sustainability among Thai SMEs to comprehend how these orientations create economic, social, and environmental impacts within their contexts. Specifically, it aims to understand the effect of leaders' sustainability competencies on sustainability orientation and examines the relationship between entrepreneurial orientation and firm performance—covering economic, environmental, and social aspects—with sustainability orientation acting as a mediator in the context of Thai SMEs.

2. Literature Review

2.1. Driving Thailand's Economic Transformation: The Role of SMEs in Sustainable Development

Thailand has made progress towards the UN's Sustainable Development Goals (SDGs) through the government's commitment to sustainable development, highlighted in strategic goals and development plans such as the 12th and 13th National Economic and Social Development plans [16]. The nation is transforming its economy through the Bio-Circular-Green Economy (BCG) Model. This model leverages knowledge, technology, and innovation to enhance competitiveness by integrating bioeconomy, circular economy, and green economy principles to produce high-value, eco-friendly products and services [17]. Small and medium-sized enterprises (SMEs) play a crucial role in this transformation, contributing significantly to employment and GDP. Enhancing SME competitiveness is essential for economic growth and social development [18].

2.2. Sustainable Entrepreneurship: A Multiple Orientations Paradigm

Sustainable entrepreneurship merges entrepreneurship and sustainability, crucial for transitioning to a sustainable economy [19]. It involves integrating sustainability and profitability into business models [20]. Defined by Schaltegger and Wagner [21] it aims for balanced integration of social, ecological, and economic aspects. Research suggests combining EO with SO to achieve competitive advantage [11, 13, 22]. Under the dynamic capabilities approach, strategic change towards sustainability involves multiple orientations, including exploration, identification, and reconfiguration capabilities, and viewing environmental issues as opportunities [13, 23]. Dynamic capabilities help firms reassess strategies, achieve growth, and implement sustainable development, addressing complex environmental pressures and transforming threats into opportunities [24]. EO and SO are dynamic capabilities that jointly promote sustainable entrepreneurship [11].

2.2.1. Entrepreneurial Orientation (EO)

Entrepreneurial orientation (EO) is a key concept in entrepreneurial research and strategic management, defined as a firm's strategic approach involving entrepreneurial decisions, processes, practices, and actions [2, 13]. EO encompasses various dimensions, including innovativeness, risk-taking, and proactivity [25] helping firms transform activities and enhance performance Akomea, et al. [5] and Volkmann, et al. [19]. Lumpkin and Dess [26] explain that "innovativeness" entails developing or improving products, services, or processes through creativity and research and development (R&D). "Risk-taking" reflects making bold decisions, such as incurring debt or committing

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resources to uncertain ventures. "Proactiveness" involves anticipating and acting on future opportunities by monitoring the environment and customer needs. While EO positively impacts firm performance, there is limited research on its environmental and social aspects [7].

2.2.2. Sustainability Orientation (SO)

Sustainability orientation (SO) is a firm's strategic stance, recently emerging in literature. It integrates environmental and societal issues into business strategies, driving innovation and competitive advantage [27]. It impacts economic, environmental, and social outcomes [28]. Research explores the relationship between SO and EO, suggesting firms should integrate both for sustainable development [11]. This integration requires balancing economic, social, and environmental aspects [23].

2.3. Leaders' Sustainability Competencies

Leaders guide organizations through challenges and integrating sustainability into business practices [29]. They act as agents of change, fostering strategic orientation towards sustainability with a "triple bottom line" approach [29, 30]. One target of the UN's SDGs is to ensure leaders gain knowledge and skills for sustainable development [7]. However, confusion persists about achieving these goals and training future entrepreneurs [31]. Recent studies have identified key competencies for sustainable development and training future managers. Lans, et al. [32] identify key competencies through qualitative and quantitative studies. These include systems-thinking, foresighted thinking, strategic management, normative competence, action competence, interpersonal competence, and embracing diversity. Lalangui and Oswaldo [7] further combine strategic management and action competencies, crucial for entrepreneurs and sustainability and identified four key competencies for SMEs: "Systems-thinking competence": understanding complex systems across social, environmental, and economic domains. "Foresighted thinking": evaluating long-term impacts of decisions. "Normative competence": applying sustainable values and goals. Action competence: engaging in responsible actions for sustainability. "Interpersonal competence": facilitating collaborative problem-solving. These competencies help leaders enhance long-term performance and integrate sustainability into business practices.

2.4. Firm Performance

Global sustainability discussions have highlighted sustainable entrepreneurship as a key research topic [7]. Scholars define it as business activities that support social, environmental, and economic development [21]. Three research approaches exist: environmental entrepreneurship, which balances environmental and business goals [33] social entrepreneurship, which focuses on creating social value [34, 35] and an integrated approach that combines environmental, social, and economic aspects [7]. This research uses the integrated approach to explore how EO impacts SMEs' sustainable performance, with SO as a mediator, recognizing the multidimensional nature of firm performance [36].

2.5. Hypothesis Development

2.5.1. Leaders' Sustainability Competences and Sustainability Orientation

Leaders in SMEs are crucial for value creation, resource allocation, and adapting business models to meet customer demands [29, 37]. They act as key agents of change, steering strategic orientation towards sustainability [30, 32, 38]. Therefore, to achieve organizational success, especially in sustainability, leaders need diverse knowledge, competencies, and skills Boeske [30]. Lalangui and Oswaldo [7] discover that skilled leaders better explore sustainable opportunities and implement proactive practices. Therefore, the following hypothesis is formulated.

H_1: In Thai SMEs, leaders' sustainability competences positively relate to sustainable orientation.

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2.5.2. Entrepreneurial Orientation and Sustainability Orientation

A firm's strategic orientation is crucial for performance and competitive advantage [13]. Relying on a single orientation can lead to failure [39] especially in markets concerned with social and environmental issues [13, 23]. Empirical evidence suggests that integrating different orientations, like combining EO with SO, results in better performance than adopting EO alone Roxas, et al. [22]. Al Awadhi [40] indicates that EO positively impacts the sustainability of small companies in both developed and developing markets, providing a long-term competitive advantage. EO helps small companies reduce globalization challenges and seize market opportunities. Furthermore, Akomea, et al. [5] indicate that higher levels of EO, such as innovativeness, proactiveness, and risk-taking, enhance sustainability efforts and improve SME performance in emerging economies. Therefore, the following hypothesis is formulated.

H2: In Thai SMEs, entrepreneurial orientation positively relates to sustainable orientation.

2.5.3. Sustainability Orientation and Firm Performance

Globalization, regulations, and customer demand drive firms towards sustainability, yielding long-term benefits [13, 23]. Balancing economic, environmental, and social aspects helps companies align shareholder and stakeholder interests. Consequently, SO is becoming increasingly popular as more companies integrate it into their core strategies [41]. Implementing a sustainability strategy can reduce energy and water consumption, cut costs, and improve profits by 60% [42]. In addition. a study of Malaysian SMEs by Wan Mustapa, et al. [13] shows that SO improves social and environmental outcomes, brand image, and competitiveness. A study of Gazi, et al. [28] supports that corporate social responsibility boosts environmental performance. SMEs in developing countries that focus on social and environmental responsibilities adopt ethical practices, promote social fairness, and ensure sustainability. This leads to better efficiency in resource usage, and waste management, reducing emissions and pollution. Karia and Davadas Michael [43] provide evidence that Malaysian firms investing in sustainability enhance social performance, particularly employee well-being, and quality of life. Given the positive impact of SO on business performance, the following hypotheses are proposed:

H_{3a} In Thai SMEs, sustainable orientation positively relates to economic performance.

H_{4a} In Thai SMEs, sustainable orientation positively relates to environmental performance.

H_{5a} In Thai SMEs, sustainable orientation positively relates to social performance.

2.5.4. Mediating Role of Sustainability Orientation

Empirical studies on the relationship between EO, SO, and firm performance (economic, social, and environmental) are limited. Some scholars emphasize the need to consider the complementary effects of EO and SO on performance [5]. Studies often analyze EO or SO separately, leading to inconsistent and sometimes negative or nonsignificant results [44, 45]. Prior studies suggest that EO alone may not be sufficient to improve performance and firms should integrate sustainability into their strategies along with entrepreneurial proclivity to achieve sustainable results [22].

Drawing on contingency theory, Ngo [46] indicates that a firm's strategic posture mediates the relationship between EO and performance in Vietnamese SMEs. Firms need to adapt their resources, capabilities, and strategies to achieve sustainable performance. Similarly, Wan Mustapa, et al. [13] suggest that Malaysian SMEs should adopt a long-term orientation, combining with SO for sustainable performance. Akomea, et al. [5] confirm that sustainability schemes mediate the relationship between EO and sustainable performance in SMEs in emerging economies. Companies that adopt proactive, innovative, and risk-taking behaviors tend to implement corporate sustainability strategies, integrating environmental, social, and economic factors, benefiting them when committed to the community and environment [7].

This research aims to fill a gap by proposing a linear relationship between EO and SO, with SO mediating the impact on business performance. Although some authors recognize the influence of these orientations on performance, there is no consensus on the nature of this relationship [27]. The

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relationship is less clear when adopting both EO and SO sequentially [5]. Therefore, a multiple strategic orientation assessment would provide a more accurate understanding. This research investigates sustainable entrepreneurship from a multiple strategic orientation approach and its impact on economic, environmental, and social performance indicators. Given the beneficial influence of EO on sustainable performance, with SO as a mediator, the following hypotheses are formulated:

H₆ In Thai SMEs, the positive relationships for EO-firm performance; economic performance, environmental performance, and social performance, are mediated by SO.

Based on the set of hypothetical relationships described above, the conceptual model of the study is presented in Figure 1.

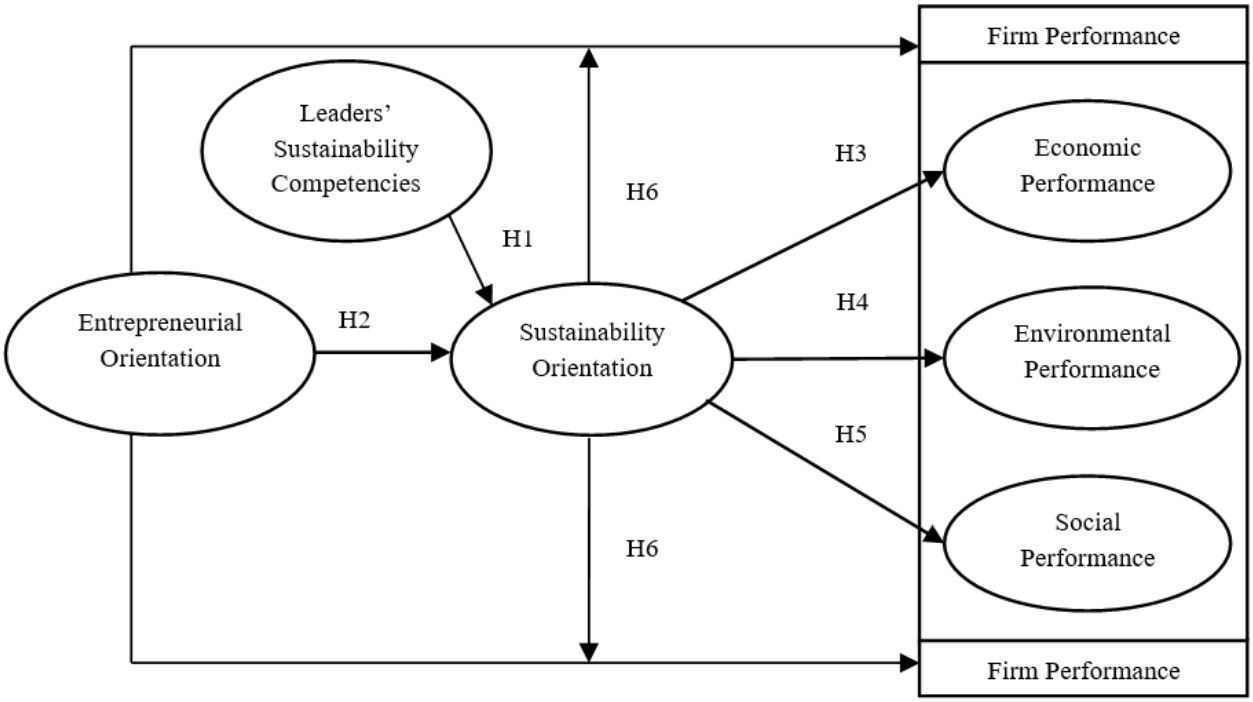

Figure 1.
Conceptual Framework.

3. Research Methodology

3.1. Sampling Process and Rationale

Following approval from the Human Research Ethics Committee at the University of the Thai Chamber of Commerce (UTCCEC/Exempt034/2024), participants were thoroughly briefed on the study's objectives and procedures, and their involvement was entirely voluntary. Data were collected from 410 SME owner-managers or CEOs through survey questionnaires. The sample frame included companies with fewer than 200 employees that have been in business for over a year. This specific sample frame was chosen to ensure the inclusion of SMEs that are representative of the typical size and operational duration in the Thai market. SMEs are crucial for Thailand's economic development, and understanding their strategic orientations towards sustainability can provide valuable insights for enhancing their performance. The rationale for selecting SMEs with fewer than 200 employees is based on their significant contribution to employment and GDP, as highlighted in the Office of SMEs Promotion (OSMEP) report [18]. Additionally, focusing on firms that have been in business for over a year ensures that the respondents have sufficient experience and knowledge to provide reliable data.

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To minimize potential bias and protect respondent privacy, this research ensured anonymity and confidentiality. The survey was designed to be straightforward and easy to understand, reducing the likelihood of misinterpretation and enhancing the accuracy of responses. After removing 25 questionnaires due to missing data, 385 usable questionnaires remained, resulting in a valid response rate of 92.39%. Most participating SMEs were in the service sector (38.80%), followed by manufacturing (32.10%) and trading (29.10%), spread across all regions of Thailand. They were classified as small-sized enterprises in manufacturing (12.50%) and trading and service (33.30%), and medium-sized enterprises in manufacturing (19.60%) and trading and service (34.60%). Most companies have been in operation for over 20 years (28.20%), followed by 6-10 years (27.60%), and both 11-20 years and 1-5 years (22.10%), indicating they were not early-stage startups.

3.2. Assessment of Common Method Variance

To address common method bias, several procedures and statistical techniques were employed. First, the survey questions were clearly formulated to avoid ambiguity and ensure respondents understood each item. Second, respondent confidentiality was guaranteed, encouraging honest and unbiased responses. Third, Harmon's Single Factor Test was conducted to assess common method bias. In this study, unrotated factor analysis showed that no single factor accounted for more than 50% of the variance, with Factor 1 explaining only 32.58%. This indicates the absence of common method bias, consistent with suggestions by Lowry and Gaskin [47]. These steps collectively ensured the reliability and validity of the collected data.

3.3. Measurements

This research uses measures of leaders' sustainability competencies, EO, SO, and firm performance. Leaders' sustainability competencies were adapted from Lalangui and Oswaldo [7] and Lans, et al. [32] covering systems thinking, foresighted thinking, action competence, normative competence, and interpersonal competence. The EO measure was based on influential studies by Covin and Slevin [48] and Miller [25] using a scale developed by Covin and Wales [2] and Zhang, et al. [49] to assess innovativeness, risk-taking, and proactiveness. EO was modeled as a higher-order reflective construct [50]. SO was measured using a scale adapted from Muñoz and Dimov [51] based on Kuckertz and Wagner [52] focusing on economic, social, and environmental aspects. Firm performance was categorized into economic, social, and environmental dimensions, with items adapted from Khan and Quaddus [53] and Raymond, et al. [54].

4. Results

Structural Equation Modeling (SEM) was used for quantitative data analysis to test the theoretical framework and hypotheses. The two-step approach was used, starting with confirmatory factor analysis (CFA) to test the constructs' reliability and validity, followed by path analysis to test the proposed hypotheses.

4.1. Measurement Model Analyses

Confirmatory factor analysis (CFA) was conducted to evaluate the constructs' reliability, convergent validity, and discriminant validity. Each construct's measurement model was initially examined and refined separately before combining them into the full CFA model. The model's goodness-of-fit was assessed, and modifications were made until an acceptable fit was achieved. The analysis of reliability and validity for each construct is provided in detail below (refer to Tables 2 and 3).

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Table 2.
Construct Measures and Validity Measurement.

Constructs[1]	Items[a]	Mean	SD	Std. Loadings
Systems thinking competence	ST3	4.03	0.76	0.67
	ST4	3.94	0.80	0.82
	ST6	3.98	0.76	0.80
Action competence	AC1	4.12	0.68	0.71
	AC4	4.01	0.71	0.83
	AC5	4.03	0.74	0.86
Normative competence	NC3	3.96	0.67	0.77
	NC6	4.09	0.70	0.72
Interpersonal Competence	IC4	3.95	0.77	0.82
	IC5	4.01	0.69	0.88
Innovativeness	INNO1	4.05	0.84	0.81
	INNO2	4.24	0.73	0.90
Risk-taking	RISK2	3.74	0.83	0.67
	RISK4	4.06	0.72	0.84
Proactiveness	PRO3	4.10	0.77	0.91
	PRO4	4.10	0.76	0.82
Sustainability orientation	SO1	3.96	0.74	0.57
	SO4	4.27	0.70	0.79
	SO5	4.16	0.72	0.81
	SO6	4.27	0.74	0.90
Economic performance	ECON1	3.79	0.91	0.85
	ECON3	3.84	0.89	0.93
	ECON4	3.81	0.89	0.93
Social performance	SOCIAL1	3.82	0.89	0.92
	SOCIAL2	3.75	0.95	0.89
Environmental performance	ENVT3	4.08	0.80	0.90
	ENVT4	4.16	0.73	0.86

Note: [1]Please specify your level of agreement with each statement using a five-point scale, where 1 means "strongly disagree" and 5 means "strongly agree." [a]Item was kept during the scale validation process.

Table 3.
Descriptive Statistics, Reliability, and Validity of the Constructs.

	Mean	SD	AVE	Alpha	CR	1	2	3	4	5	6
1. Leader competence	4.01	0.58	0.55	0.91	0.99	*0.74*					
2. EO	4.05	0.54	0.65	0.84	0.96	0.58	*0.81*				
3. SO	4.12	0.60	0.67	0.85	0.93	0.71	0.61	*0.82*			
4. Economic	3.81	0.84	0.72	0.93	0.96	0.37	0.46	0.29	*0.85*		
5. Social	3.79	0.88	0.74	0.90	0.96	0.56	0.46	0.47	0.48	*0.86*	
6. Environment	4.12	0.72	0.81	0.87	0.81	0.49	0.43	0.48	0.40	0.53	*0.90*

Note: The diagonal numbers show the square root of AVE for each construct. The numbers below the diagonal represent the correlations between the constructs, indicating their inter-relationships.

Cronbach's alpha for each construct ranged from 0.84 to 0.93, exceeding the 0.70 threshold, indicating acceptable reliability and internal consistency. Composite reliability (CR) values ranged from 0.81 to 0.99, also above the 0.70 cut-off (see Table 3). All factor loadings were statistically significant ($p < 0.001$; ranging from 0.57 to 0.93), demonstrating convergent validity (see Table 2). Discriminant validity was confirmed as the average variance extracted (AVE) for all constructs exceeded the 0.50 threshold (ranging from 0.55 to 0.81), and the square root of the AVE for each construct was greater than its correlations with other constructs (see Table 3).

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4.2. Hypotheses Testing

After establishing the measurement models, a full structural equation model (SEM) was estimated to evaluate the goodness-of-fit and validate the hypothesized causal relationships among latent variables. The initial structural equation model did not fit well: CMIN/DF = 15.34, SRMR = 0.07, RMSEA = 0.22, GFI = 0.89, and CFI = 0.89. To improve the fit, non-significant relationships were removed. Adding paths from "EO" to "economic performance" and from "economic performance" to "social" and "environmental performance" improved the model: CMIN/DF = 2.58, SRMR = 0.04, RMSEA = 0.09, GFI = 0.96, and CFI = 0.95. The modified model in Figure 2 was considered acceptable.

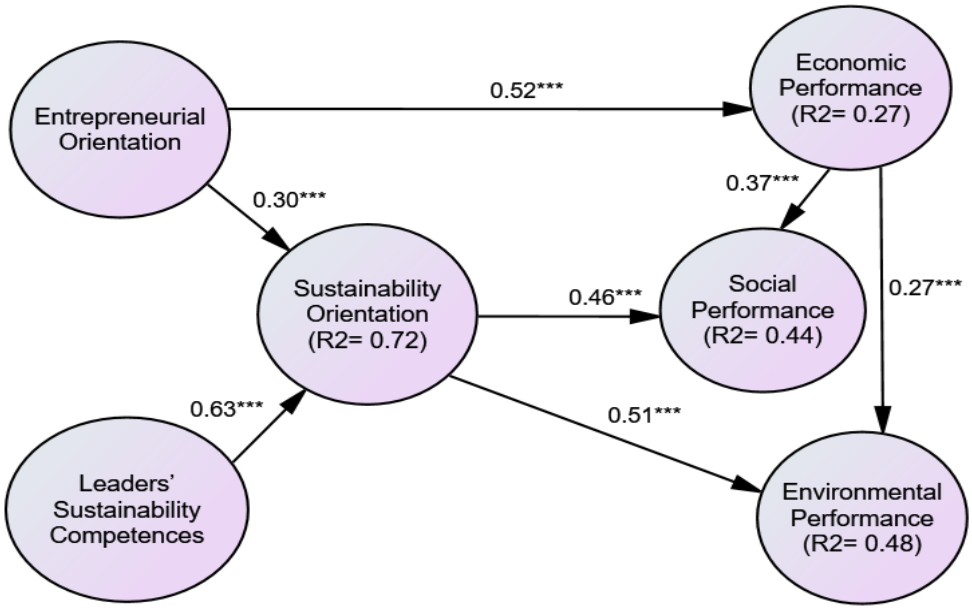

Figure 2.
Final Model of leaders' sustainability competencies, EO, SO, and performance.
Note: * significant at $p < 0.05$, ** significant at $p < 0.01$, *** significant at $p < 0.001$.

Figure 2 confirms most hypotheses (See Table 4). Leaders' sustainability competences positively impacted SO ($\beta = 0.63$, $p < 0.001$), supporting H1. EO positively influenced SO ($\beta = 0.30$, $p < 0.001$), supporting H2. SO positively affected social ($\beta = 0.46$, $p < 0.01$) and environmental performance ($\beta = 0.51$, $p < 0.001$), supporting H4 and H5. However, SO's direct effect on economic performance was not significant ($\beta = -0.04$, $p > 0.05$), rejecting H3. Bootstrapping results show that SO significantly mediates the EO–social performance ($\beta = 0.37$, $p < 0.01$) and EO–environmental performance ($\beta = 0.27$, $p < 0.001$) relationships. However, SO's indirect effect on the EO–economic performance relationship was not significant ($\beta = 0.07$, $p > 0.05$), partially supporting H6. These findings confirmed SO's mediating role between EO and SME sustainable performance in Thailand. Beyond the hypothesized model, EO positively impacted economic performance ($\beta = 0.52$, $p < 0.001$), suggesting direct effects on financial indicators and indirect effects on sustainable performance through SO. Economic performance positively influenced social ($\beta = 0.37$, $p < 0.001$) and environmental performance ($\beta = 0.27$, $p < 0.001$). The model explained 72% of SO and 27%, 44%, and 48% of economic, social, and environmental performance, respectively.

Table 4.
Summary of the Hypothesis Testing.

Hypotheses	Path coefficients	Estimate (β)	S.E.	C.R.	p values	Status
H1	LSC → SO	0.63***	0.06	9.89	< 0.001	Support
H2	EO → SO	0.30***	0.06	4.64	< 0.001	Support
H3	SO → EP	-0.04	0.06	-1.19	> 0.05	Reject
H4	SO → SP	0.46***	0.05	8.49	< 0.001	Support
H5	SO → ENVP	0.51***	0.06	9.01	< 0.001	Support
H6	EC→SO→EP	0.07	0.05	1.08	> 0.05	Reject
	EC→SO→SP	0.37***	0.05	0.85	<0.001	Support
	EC→SO→ENP	0.27***	0.05	0.77	<0.001	Support

Note: * ** $p < 0.001$, * * $p < 0.01$, * $p < 0.05$; LSC = leaders' sustainability competences; SO = sustainability orientation; EO = entrepreneurial orientation; EP = economic performance; SP = social performance; ENP = environmental performance.

5. Discussion

The findings of this research provide significant insights into the interplay between leaders' sustainability competencies, EO, SO, and firm performance in the context of Thai SMEs. The positive relationship between leaders' sustainability competencies and SO underscores the importance of leadership in driving sustainability and organizational success. The findings align with Álvarez-García, et al. [1] showing that leaders who possess strong sustainability skills are better equipped to integrate environmental and social considerations into their strategic decisions, thereby fostering a culture of sustainability within their firms. Other studies also highlight the role of leaders as key agents of change in promoting SO [29, 30, 32, 38]. This is particularly true for SMEs, which rely heavily on their leaders' competences.

The study also highlights the critical role of EO in enhancing SO. Firms with a high EO are more likely to adopt innovative, proactive, and risk-taking behaviors that align with sustainable development goals. This finding is consistent with previous research that suggest entrepreneurial firms are better positioned to identify and exploit opportunities that contribute to both economic and sustainable outcomes Akomea, et al. [5]; Roxas, et al. [22] and Al Awadhi [40]. Akomea, et al. [5] confirm that a strong EO positively influences sustainability of SME, thereby enhancing sustainable development. This association leads to a sustainable competitive advantage, helping small companies overcome globalization hurdles and maximize market opportunities [40].

Interestingly, while SO positively influences social and environmental performance, its impact on economic performance is not significant. This suggests that while sustainability practices can enhance a firm's reputation and operational efficiency, they may not directly translate into immediate financial gains [27]. Although SO is seen as a strategic resource for improved financial performance, empirical findings are mixed. Some studies show a positive relationship [55] others a negative one [44] and some find no significant link [45]. These inconsistencies are due to varying study contexts[27, 55] measurement methods [12] and missing variables [27]. The finding aligns with the notion that the benefits of sustainability investments may accrue over a longer period and may require complementary factors such as market conditions, competitive strategies, and customer knowledge competence to realize financial returns [23, 27]. Further research on mediators between SO and economic performance, especially in diverse contexts, is recommended.

The direct positive impact of EO on economic performance indicates that entrepreneurial activities, characterized by innovation and market responsiveness, are crucial for financial success. However, the indirect effects of EO on social and environmental performance through SO highlight the need for a balanced approach that integrates entrepreneurial and sustainability orientations. This integrated approach can help firms achieve comprehensive performance outcomes that encompass economic, social, and environmental dimensions. These findings support previous research suggesting that EO alone is insufficient for better results. Firms should integrate sustainability with entrepreneurial capabilities for

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long-term success [12, 22]. Therefore, firms need to adjust their internal resources, capabilities, and strategies to achieve higher sustainable performance [4].

This research shows that economic performance positively influences social and environmental performance. The findings align with Álvarez-García, et al. [1] indicating that improved economic performance leads to enhanced non-economic performance, including social performance. Financial and non-financial measures complement each other, encouraging investment in future opportunities [36, 56]. A meta-analysis conducted by Öztürk, et al. [15] suggests that relying solely on financial measures provides a narrow perspective and may fail to capture other performance aspects due to changes in business activities and objectives [57]. Integrating economic, social, and environmental measures offers a better understanding of the mediating effect of SO on EO-performance relationship across different business goals [28, 35].

6. Conclusion

This research examines how Thai SMEs' strategic orientations towards sustainability impact their economic, social, and environmental outcomes. It focuses on the influence of leaders' sustainable competences and EO on SO, and how these factors affect the firm's sustainable performance. The study tests a theoretical framework linking leaders' competences, EO, SO, and firm performance, finding most hypotheses supported except for SO's impact on economic performance. The findings underscore the critical importance of integrating EO and SO for achieving sustainable performance. EO drives innovation, proactivity, and risk-taking, which are essential for economic success. However, to achieve comprehensive performance outcomes that encompass economic, social, and environmental dimensions, firms must also adopt SO. This integration ensures that entrepreneurial activities are aligned with sustainability goals, fostering long-term resilience and competitive advantage.

7. Research Contributions

7.1. Contributions to Theory

This research contributes to the entrepreneurship literature by addressing the gap in understanding how EO influences sustainable performance in SMEs in developing countries like Thailand. It provides an integrative framework showing EO's direct impact on economic performance and indirect effects on social and environmental performance through SO. The findings highlight the importance of integrating EO and SO for superior performance across various contexts. This study also addresses limitations in sustainability literature by demonstrating the mediating role of SO in the EO-performance relationship and emphasizing the need for both financial and non-financial performance measures. Additionally, it advances knowledge on the impact of leaders' sustainability competencies on SO, filling gaps in understanding the antecedents and outcomes of SO. The novelty lies in analyzing the relationship between leaders' sustainability competencies, EO, SO, and firm performance in Thai SMEs, contributing to transdisciplinary studies on entrepreneurial and sustainability-oriented activities. This research provides evidence that EO, complemented by SO and driven by leaders' sustainability skills, can enhance economic, environmental, and social performance.

7.2. Contributions to Practice

This study provides several insights for managerial practice. SMEs and entrepreneurs should adopt a strong EO to enhance economic performance through innovativeness, proactiveness, and risk-taking. However, balancing economic performance with social and environmental responsibilities is crucial due to globalization and stakeholder pressures. Adopting a SO alongside entrepreneurial strategies can help SMEs achieve long-term competitive advantage and superior performance across economic, social, and environmental dimensions. Firms should integrate sustainability into their strategic decisions, committing to ethical practices, social fairness, and environmental protection to enhance efficiency and reduce environmental impact. Investing in sustainability also boosts social performance, improving

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employee wellbeing and quality of life. Additionally, adopting a multidimensional approach to performance measurement, considering both financial and non-financial indicators, provides a comprehensive understanding of organizational success and identifies areas for improvement. Importantly, the success of SMEs often hinges on leaders' vision and competencies. Therefore, SMEs should invest in developing leaders' sustainability competencies through training programs that focus on systems thinking, foresighted thinking, normative competence, and interpersonal skills to foster a culture of sustainability.

This research also aids the Thai government and policymakers in supporting and promoting the development of SMEs. Policymakers can support SMEs by creating an enabling environment that encourages entrepreneurial activities aligned with sustainable development goals, providing access to resources, financial support, and training programs. Facilitating easy access to resources and funds is necessary to boost innovation and sustainable growth, leading to greater economic and non-economic benefits for businesses and the nation. Overall, this research enhances the understanding of sustainable entrepreneurship and offers practical recommendations for SMEs to improve their performance and competitiveness in a rapidly changing business environment.

7.3. Future Research Directions

While this research provides valuable insights, it has limitations that offer opportunities for future studies. First, the findings are based on Thai SMEs, which may limit the generalizability of the results to other sectors or countries. Future research should test the model in different contexts to verify reliability. Moreover, the study uses cross-sectional data, making it difficult to establish cause-and-effect relationships. Longitudinal studies could provide stronger support for the findings. Additionally, the study does not cover all aspects of strategic orientation, leaders' sustainability competencies, and mediating factors. Future research should explore additional orientations, competencies, and factors to enhance understanding. Besides, the study examines overall entrepreneurial orientation but not individual dimensions. Future research should investigate the independent effects of each dimension on sustainability orientation and performance. Finally, the quantitative approach limits the depth of participants' experiences. A mixed-methods design combining quantitative and qualitative approaches could provide a more comprehensive understanding.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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