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The Strategic Nexus of Entrepreneurial Orientation and Sustainability Practices: A Systematic Review Using the Antecedents-Decisions-Outcomes (ADO) Framework

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ABSTRACT

Contemporary global challenges, ranging from climate change to increasing socio-economic inequality, compel business enterprises to fundamentally redefine their objective beyond mere short-term profitability. The traditional concept of Entrepreneurial Orientation (EO) describes a firm's strategic posture typically measured by innovativeness, proactiveness, and risk-taking dimensions. However, the literature has shifted focus to specialised orientations that explicitly integrate sustainability objectives include Green Entrepreneurial Orientation (GEO) and Social Entrepreneurial Orientation (SEO). This transition highlights a critical strategic shift where innovation and risk must be institutionally directed toward ethical and ecological goals. This study aims to address conceptual fragmentation and inconsistent empirical findings by rigorously synthesising the specific pathways, mechanisms, and boundary conditions through which EO and its specialised forms (GEO and SEO) translate into tangible sustainable business performance. We utilise the robust Antecedents-Decisions-Outcomes (ADO) framework to structure the synthesis of extant literature, predominantly focusing on quantitative studies involving Small and Medium Enterprises (SMEs) in emerging economies. The ADO framework allows for a systematic decomposition of knowledge into drivers, strategic choices, and performance consequences. The findings confirms a complex, mediated causal architecture. Antecedents, such as entrepreneurial leadership, individual values, and external institutional pressure, drive organisational strategic decisions. The core mediating mechanisms that channel EO into results are Green Innovation (GI) and Sustainable Supply Chain Management (SCCM) practice. The resulting Outcomes consistently span the Triple Bottom Line (economic, environmental, and social performance). Crucially, EO functions as a strategic amplifier or moderator, enhancing the impact of sustainable practices on performance, but its success is highly contingent on internal capabilities and external conditions.

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1. Introduction

1.1 The Confluence of Entrepreneurship and Sustainability

Contemporary global challenges, ranging from climate change to increasing socio-economic inequality, compel business enterprises to fundamentally redefine their objectives beyond mere short-term profitability [1,2]. This strategic evolution demands holistic consideration of economic, environmental, and social concerns, encapsulated within the concept of sustainable development [3, 4]. Entrepreneurship, inherently characterised by attributes such as innovativeness, proactiveness, and calculated risk-taking, is widely recognised as a pivotal mechanism capable of driving this fundamental transition towards more sustainable economic models [5].

The traditional concept of Entrepreneurial Orientation (EO) describes a firm's strategic posture, typically measured by these three dimensions (innovativeness, proactiveness, and risk-taking) [5,6]. However, in response to growing ecological pressures and sustainability mandates, the literature has shifted focus to specialised orientations that explicitly integrate sustainability objectives. Key variants emerging in the literature include Green Entrepreneurial Orientation (GEO), which specifically directs entrepreneurial efforts toward environmental concerns, and Social Entrepreneurial Orientation (SEO), which aims to address the broader triple bottom line (TBL) of economic, environmental, and social performance [7,8]. This transition highlights a critical strategic shift where innovation and risk must be institutionally directed towards ethical and ecological goals, establishing TBL adherence as an intentional strategic imperative rather than an incidental outcome.

1.2 Problem Statement and Research Gaps

Despite the increasing scholarly interest in the EO-performance relationship, existing empirical results remain inconsistent, particularly when examining sustainability outcomes [9]. This inconsistency underscores a significant gap, a lack of clarity regarding specific underlying mechanisms and critical boundary conditions that govern how and when EO, GEO, or SEO translate into tangible sustainability performance [10-12].

Moreover, the conceptual fragmentation in this domain necessitates a rigorous synthesis. While numerous studies investigate drivers of GEO and its effect on performance, knowledge remains limited regarding the exact roles of specific mediating factors and moderating factors that influence the EO and Corporate Environmental Performance link [13,14]. A structured review is required to systematically map the complex causal pathways across different organisational contexts, particularly focusing on resource-constrained settings like Small and Medium-sized Enterprises in emerging economies [2,15,16].

To address the identified gaps and guide the systematic synthesis, this review seeks to answer the following research questions: RQ1: How does Entrepreneurial Orientation (EO) and these specialised variants (GEO and SEO) translate into sustainable business performance? Specifically, what are the primary mediating mechanisms that channel entrepreneurial intent to measurable sustainable outcome? RQ2: What organisational or contextual factors significantly influence or condition the strength of the relationship between entrepreneurial orientation and sustainable performance outcome? RQ3: What are the distinct sustainable performance dimensions examined by the extant literature, and how do the causal pathways vary across different firm types and geographical context? RQ4: How can the Antecedents, Decisions, and Outcomes related to sustainable entrepreneurial orientation be systematically organised, mapped, and presented using the ADO framework to clarify the field's current theoretical structure?

The primary objectives of this study is to analyse and synthesise the mechanisms through which Entrepreneurial Orientation (EO) and its specialised variants (GEO and SEO) translate into sustainable business performance. Specifically, this study aims to identify and evaluate the mediating mechanisms and contextual moderators that influence the strength of the relationship between entrepreneurial orientation and measurable sustainable outcomes. Furthermore, this study seeks to categorize the distinct dimensions of sustainable performance across the extant literature, comparing how these causal pathways vary according to firm types and geographical contexts. Finally, this study intends to systematically map and organise these findings using the ADO framework, thereby clarifying the current theoretical structure of the field and providing a roadmap for future scholarly inquiry.

1.3 Methodology and Significance of the Study

To address the identified knowledge gaps and overcome conceptual fragmentation, this systematic literature review utilises the Antecedents-Decisions-Outcomes (ADO) framework [17]. The ADO framework is a robust model for structured synthesis, allowing for the decomposition and assembly of existing knowledge into a coherent cause-and effect sequence by identifying the underlying drivers, mapping the resultant strategic choices or actions, and synthesising the observable consequences [18].

This rigorous application of the ADO framework provides a comprehensive conceptual map, delineating the causal architecture linking entrepreneurial intent to sustainable outcomes. The significant of this study lies in its ability to bridge the gap between traditional and entrepreneurial theory and modern sustainability imperatives by synthesising empirical pathways across diverse organisational and geographic context, notably illuminating the challenges and opportunities faced by SMEs in emerging economies where much of the recent empirical work is concentrated [19, 20, 21].

Theoretically, it contributes to the academic discourse by moving beyond simple correlations to explore the mediating processes, utilising the ADO framework to provide a rigorous structural foundation for Sustainable Entrepreneurial Orientation. This helps researchers understand not just if entrepreneurships leads to sustainability, but how and under what specific conditions. Practically, the findings offer a strategic blueprint for business leaders and entrepreneurs, allowing them to identify the internal decisions and external factors required to convert green or social intent into tangible performance. By highlighting how these pathways differ across various industries and regions, this study provides managers with the nuance needed for effective resource allocation. Socially, this research supports the advancement of global sustainability goals by providing a clearer understanding of the drivers behind social and environmental value creation, ultimately informing policymakers on how to better incentivise and support purpose-driven enterprises.

1.4 Theoretical Foundations of Sustainable Entrepreneurship

Research linking entrepreneurial orientation and sustainability is predominantly grounded in establishing strategic management theories that explain how firms accumulate and utilise internal resources and external responsiveness to achieve sustained competitive advantage.

1.4.1 Resource-Based View (RBV) and Natural Resource-Based View (NRBV)

The Resource-Based View (RBV) posits that firm performance stems from the possession and deployment of valuable, rare, inimitable, and non-substitutable (VRIN) resources. In the sustainability domain, this logic is extended through the Natural Resource-Based View (NRBV) [2,5]. The NRBV argues that specialised orientations like GEO allow firms, particularly SMES, to leverage unique green recourse capabilities, such as Green Intellectual Capital or Green Innovation, to derive a competitive advantage that directly translates into sustainable performance [22]. This framework confirms that investing in green practices is a mechanism for value creation, not merely a cost centre [11,19].

1.4.2 Dynamic Capabilities View (DCV)

The Dynamic Capabilities View (DCV) explains how organisations adapt to rapidly changing and volatile environments. Within the context of sustainability, DCV is critical for addressing disruptions like technological turbulence and market crises [19,23].The literature positions EO, green entrepreneurial leadership, and Strategic Flexibility (SF) as essential dynamic capabilities that enable firms to continuity sense, seize, and reconfigure their resource base to manage the complexity of sustainable integration [16,24]. For instance, certain studies show that digital transformation capability, supported by EO, impacts environmental and social performance, which in turn drives economic sustainability [14].

1.4.3 Institutional theory

Institutional theory explains why firms adopt specific practices based on external pressures, like regulatory, normative, and cognitive, rather than solely internal economic efficiency. This theory is particularly salient in explaining the adoption of green and social practices [25]. Studies confirm that institutional pressure has a significant positive influence on management commitment, safety training, and safety promotion policies in SMEs [26]. Furthermore, external pressure provides the impetus for SMEs to achieve a competitive advantage in international markets by embracing sustainable entrepreneurship practices [27].

1.5 The Evolution of Entrepreneurial Orientation Concepts

The literature reviewed emphasises the conceptual evolution from the generic EO to more specialised, mission-driven orientations. Firstly, Green Entrepreneurial Orientation (GEO) is critically important for achieving Corporate Environmental Performance (CEP) [28]. Research synthesises the literature regarding the organisational drivers of GEO and highlights gaps concerning mediating and moderating factors influence the GEO and CEP link. Secondly, Social Entrepreneurial Orientation (SEO) is broader, explicitly aiming for sustainable development across the TBL [8]. SEO is proposed as playing a key role in setting organisational direction towards sustainable development and achieving performance [7]. In the non-profit sector, Social Entrepreneurial Orientation significantly and positively influences social value, particularly for ensuring organisational sustainability during crises [12]. Lastly, Human Entrepreneurial Orientation (HEO) represents an enlarged entrepreneurial strategic posture that emphasises personal values and credos of the entrepreneurs as fundamental drivers for sustainable adoption [29]. The focus on individual values is particularly important in small businesses where the founder's personality heavily influences strategic direction [30].

1.6. Operationalising Sustainable Practice and Performance

The operationalisation of sustainability involves specific managerial and operational actions, particularly within the supply chain, and is measured through multi-faceted outcomes. The adoption of Sustainability Supply Chain Practices (SSCM) is driven by entrepreneurial orientation and sustainability culture [31,32]. Studies differentiate between basic practices like monitoring systems and advanced practices like strategic redefinition and new product or process development, noting that EO is particularly influential in driving the adoption of more demanding advanced practices [33]. Green Supply Chain Management (GSCM) practices act as a primary mechanism to translate GEO into firm sustainability performance [34-36].

Sustainable performance transcends simple financial metrics. Research uses a multi-dimensional TBL view, incorporating by economic performance like profitability, sales, and market share [27,37] environmental performance like cleaner production, reduced waste, development of eco-friendly goods or procedures [14, 38] and social performance like worker involvement, employee satisfaction, creating social value for the community, and health and safety management practices [26,39].

2. Methodology

The overarching objective of this Systematic Literature Review is to systematically identify, classify, and synthesise the relationship between Entrepreneurial Orientation (EO) and Sustainability Practice (SP). We conducted the review following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. The corpus was sourced from publication indexed in Scopus database using keywords related to “Entrepreneurial Orientation” and “Sustainability Practice”. This resulted in 170 articles. The inclusion criteria were empirical or conceptual studies, English language, and peer-reviewed articles. In total, there were 122 articles, but only 80 articles were retrieved. Figure 1 below shows the identification, screening and the inclusion process based on the PRISMA protocol.

The literature analysed spans from 2002 to 2025, indicating a rapidly growing field of study, particularly since 2017. The vast majority of empirical investigations centre on Small and Medium-sized Enterprises (SMEs) across diverse global contexts with notable concentration in emerging economies.

The ADO framework facilitates the organisation of research findings into a logical causal structure, allowing for a systematic analysis of the entire body of knowledge [18]. Antecedents are the inputs or starting conditions that influence a firm’s willingness or ability to engage in sustainable entrepreneurial activities. They represent the underlying drivers, motivations, barriers, or enablers [18]. Decisions represent the actions, strategic choices, or mechanisms deployed by the organisation in response to antecedents. They often manifest as mediating variables in empirical models [18]. Outcomes are the consequences or results that stem from the strategic decisions and entrepreneurial actions, typically measured across the TBL dimensions of performance.

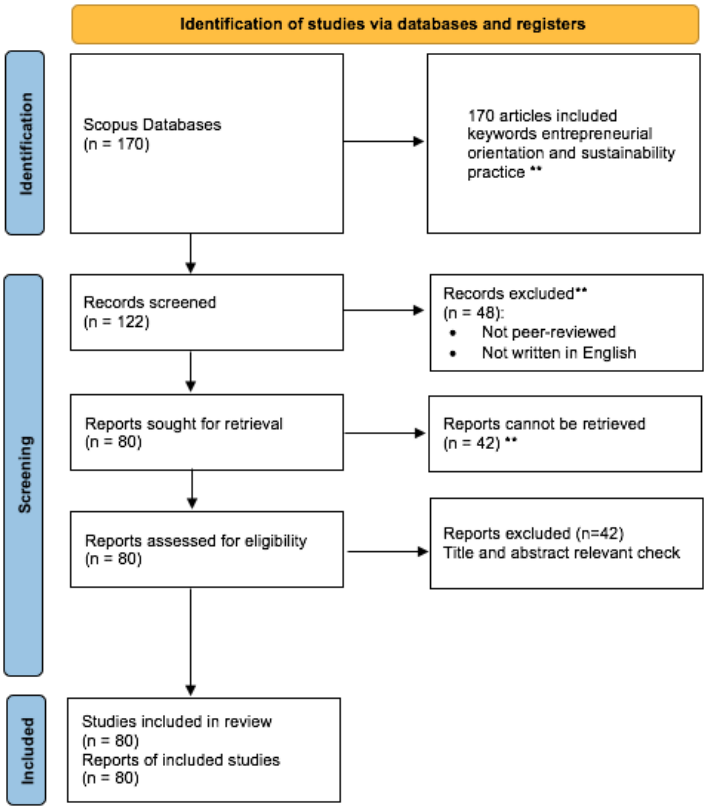

Fig 1. PRISMA protocol for identification, screening, and inclusion process [40]

3. Results and Discussion

3.1 Descriptive Analysis of the Literature Corpus

A systematic review of the literature corpus reveals distinct trends regarding the evolution, geographic focus, methodologies, and theoretical underpinnings of research linking entrepreneurial orientation (EO) and sustainability practices

3.1.1 Publication trends

The field exhibits a rapid growth trajectory, with articles spanning from foundational studies in the early 2000s to the present, including prospective publications in 2025. This chronological spread indicates a maturing field, shifting from initial conceptualisations to rigorous empirical validation, with the vast majority contributions published post-2017. The prevalence of very recent studies (2020 – 2025) underscores the academic community's intense current focus on sustainable entrepreneurship as a critical response to global challenges and crises. Figure 2 below shows the publication trends.

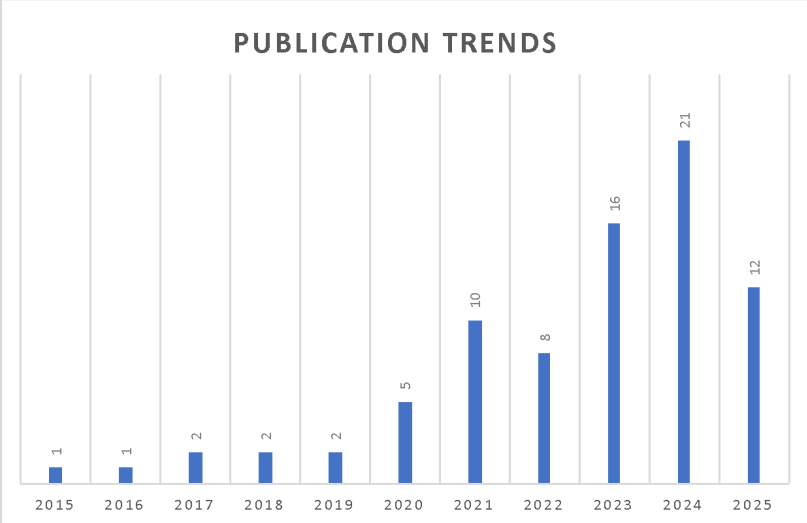

Fig. 2. Publication trends

3.1.2 Geographic and contextual focus

The empirical landscape is heavily skewed toward Small and Medium-sized Enterprises (SMEs) and micro-businesses, reflecting the practical importance of these resource-constrained firms in driving sustainability adoption globally [2,16].

Table 1
Geographic and contextual focus

Geographic Region	Countries	Industry Context	Source
Asia	Pakistan, Vietnam, Bangladesh, China, India, Malaysia, Tanzania, Kuwait, Saudi Arabia, Indonesia, Philippines, Iran	Manufacturing, Textile, Fisheries, Food & Beverages, Craft/Handicraft, Hospitality	[2,5,11,13,19,21,39, 41,42,43,44]
Europe	Italy, Austria, Spain, Ireland, Netherlands, Romania, UK	SMEs in bio-economy, Financial sector, Public and Private Comparison, Performing Arts, Sports Clubs	[3,29, 33,45,46,47, 48]
Latin America	Chile	Manufacturing, University students	[4,49]

This geographical distribution confirms the review's focus on emerging economies, where sustainable practices often offer a competitive advantage in global supply chains, but institutional support and resources are limited. The contexts frequently involve volatile or resource-scarce environments, such as the Tanzanian Nile perch fishery or the Vietnamese textile sector [5,39].

3.1.3 Methodological approaches

The field is characterised by a reliance on quantitative, cause-and-effect modelling to test complex pathways. The predominant technique used in Quantitative Modeling is Partial Least Squares Structural Equation Modeling (PLS-SEM) and covariance-based SEM. This is suitable for

testing the mediating roles of practices like GSCM and the moderating roles of factors like Competitive Intensity or Entrepreneurial Orientation itself. Data collection is primarily cross-sectional via structured questionnaires targeting managers, CEOs, or entrepreneurs.

An advanced and increasingly important technique in Configurational Analysis is fuzzy-set Qualitative Comparative Analysis (fsQCA). This method moves beyond linear causality to identify complex combinations of factors that are necessary or sufficient for achieving high sustainable performance, particularly useful in defining success in SMEs.

Qualitative and Mixed Methods such as case studies, ethnographic research, and in-depth interviews provide rich details, especially concerning the role of individual entrepreneurs' values and contextual duality.

3.1.4 Theoretical underpinnings

The theoretical foundation of the EO and sustainability relationship is multifaceted like resource-based theory, dynamic capability, contextual and behavioural theory. The Resource-based View (RBV) and its extension, the Natural Resource-based View (NRBV), are the most frequent bases, arguing that sustainability success stems from unique green capabilities and internal resource leverage [15]. The Dynamic Capabilities View (DCV) is essential for explaining how firms sense and seize sustainable opportunities, positioning EO, and Strategic Flexibility as vital mechanisms for adaptation in turbulent environments [23]. Institutional Theory explains why external pressures compel firms toward green and social practices [25,50]. Other relevant theories include the Upper Echelon Perspective, Social Capital Theory (SCT), and behavioural models like the Theory of Planned Behaviour (TPB) and Effectuation/Causation [8,20,24,51].

3.2 Antecedents: The Role of Organisational and Individual Drivers

The literature identifies several critical inputs that predispose a firm toward successful sustainable entrepreneurial orientation.

3.2.1 Individual commitment and leadership as foundation

In small enterprises, the characteristics of the leader or entrepreneur often override formal organisational structures, which aligns with the principles of the Upper Echelons Theory. Research consistently confirms that individual factors are powerful antecedents or strategic orientation [52, 53]. Sustainable entrepreneurs tend to derive their will to act more sustainably from their personal values or traits [29]. For instance, farmers exhibiting a more developed entrepreneurial identity are demonstrably more likely to adopt sustainable agricultural practices and engage in supportive contractual schemes [54].

Furthermore, leadership styles and human resource practices are fundamental drivers. Green Leadership and Green Human Resource Management (GHRM) significantly influence employees' Green Entrepreneurial Orientation (GEO) and subsequent pro-environmental behaviour [50,55]. This demonstrates that top-down strategic commitment is a necessary prerequisite. The firm's leadership must explicitly champion the green mission before organisational GEO can effectively translate into widespread initiatives.

3.2.2 The synergistic power of multiple orientations

Entrepreneurial Orientation rarely operates in isolation. Successful sustainable firms often integrate multiple strategic orientations, recognising that a holistic approach maximises performance benefits. GEO frequently co-exists with Market Orientation (MO) [56]. This evidence suggests that GEO has a significant positive influence on MO, implying that a proactive, risk-taking green mindset encourages the firm to actively gather and respond to market intelligence related to sustainability needs [52].

Moreover, the complementary effects of combining EO, MO, and Sustainability Orientation (SO) are found to be highly beneficial for maximising growth-based performance in SMEs [57]. The joint effects of EO and MO are notably stronger than other combinations, and the direct effect of SO alone is considerably weaker than its joint implementation with either EO or MO [57]. This synthesis confirms that a balanced and integrated strategic posture is superior to relying on a single orientation for sustainable performance.

3.2.3 Institutional context and external pressures

External environmental and institutional contexts function as powerful antecedents. Institutional pressure, encompassing regulatory mandates and normative expectations, drives the adoption of green innovation and influences management practices such as health and safety protocols [26, 32].

Stakeholder pressure from key supply chain partners, specifically customers and suppliers, is also identified as an essential external driver for adopting Social and Environmental Sustainable Supply Chain Management (SCCM) practices [31]. The literature also identifies Green Technological Turbulence (GTT) as a relevant moderating context, reinforcing the GEO-Green Innovation link, indicating that market uncertainty about green technologies encourages entrepreneurial innovation [2,22].

3.3 Decisions: Mediating Mechanisms for Sustainable Value Creation

Decisions represent the operational and strategic actions through which entrepreneurial intent is converted into sustainable outcomes. These mechanisms typically function as mediating variables that bridge the gap between organisational orientation and performance results.

3.3.1 Green Innovation (GI) as the central strategic action

Green Innovation (GI), encompassing both product and process innovation, is repeatedly identified as the critical mechanism that successfully mediates the GEO and Firm Performance pathway [19,37]. Studies show that GEO facilitates the development of GI, which in turn boosts economic performance [37]. Similarly, Green Product Innovation partially mediates the relationship between GEO and firm performance [15,19].

The effectiveness of innovation is context-dependent. Research investigating the mediating role of green innovation finds that businesses established for a longer time gain more performance benefits from green invention and utility-model innovation when coupled with resource acquisition, compared to younger enterprises [58]. Furthermore, for firms in resource-scarce settings, Technological Innovation Capabilities (TIC) mediate the link between strategic orientations, such as Entrepreneurial Leadership and Network Orientation and start-up performance, demonstrating the critical nature of adaptive technologies for sustainable growth [16].

3.3.2 Sustainable Supply Chain Management (SSCM) practices

Operationalising a green mindset requires embedding sustainable practices deep within the value chain. Green Supply Chain Management (GSCM) practices partially mediate the relationship between GEO and sustainable firm performance [34,36]. This suggests that entrepreneurial intent (GEO) must be formalised into operational routines (GSCM) to deliver measurable results.

Furthermore, studies show that Internal Lean Practices (ILPs) fully mediate the effect of entrepreneurial orientation on both environmental and social performance [4]. This highlights that internal operational efficiency, a key component of lean management, acts as the necessary operational bridge that transforms a general entrepreneurial inclination into concrete environmental and social development gains.

3.3.3 Adaptation and resilience strategies

In volatile business environments, firms must adopt strategies that ensure continuity and adaptability. The need for a Sustainable Resilience Strategy (SRS) is identified as crucial for micro-businesses facing the dual pressures of digitalisation and sustainability [59]. SRS acts as a mediator, converting a high strategic orientation toward Sustainable Development Goals (SDGs) into tangible sustainable business practices, thereby linking ambition to implementation [59]. Additionally, Strategic Flexibility (SF) is found to bridge entrepreneurial strategies like entrepreneurial leadership to firm performance, confirming that adaptive capability is a key driver of sustainability growth in resource-constrained contexts [16].

Table 2
Synthesis of empirical relationships between EO/GEO and sustainable performance

Antecedent	Decision/ Mediator	Outcome	Type of Effect	Context	Source
GEO	Green Innovation (GI)	Firm Performance (EP)	Indirect (Mediation)	Italian SMEs	[53]
EO	Sustainability Practices (SP)	SME Performance	Indirect (Mediation)	China	[60]
GEO	GSCM Practices	Sustainable Firm Performance (TBL)	Partial Mediation	Bangladeshi Textiles	[21]
EO	Internal Lean Practices (ILPs)	Environmental and Social Performance	Full Mediation	Chilean Manufacturing	[4]
GHRM, Green Leadership	GEO, GI, GOI	Green Reputation (GR)	Partial Mediation	Saudi Tourism/ Hospitality	[37]
Sustainability Orientation	Psychological Capital	Entrepreneurial Intensity	Mediation	Indian MSMEs	[61]

3.4 Outcomes: Achieving Multi-Dimensional Performance

The results of entrepreneurial and sustainable decisions are consistently measured across the three dimensions of the TBL, along with strategic non-financial outcomes.

3.4.1 Triple bottom line success

Strategic orientations, particularly GEO coupled with effective mediating decisions, like GSCM and GI, positively impact all three TBL dimensions, economic, environmental, and social performance [15,34]. For example, the findings from Bangladeshi textile firms confirm that GEO and MO influence GSCM practices, which positively affect the economic, environmental, and social dimensions of sustainable firm performance [21,36]. Moreover, evidence suggests that Environmental Sustainability (ES) may be foundational, indicating that it could be a prerequisite for achieving social performance in SMEs [33].

3.4.2 Financial Leverage

While GEO often shows a direct link to environmental performance, the relationship with financial performance is frequently channelled through intermediary non-financial outcomes. Sustainable development practices positively affect financial performance indirectly via key factors such as enhanced customer loyalty, increased employee satisfaction, and improved corporate reputation [39, 50]. Similarly, entrepreneurial orientation influences social sustainability supply chain practices, which, when coupled with sustainability culture, can lead to enhanced social value, thereby strengthening economic outcomes indirectly. [32,33].

3.5 Discussions

The most nuanced findings in the literature arise when examining the moderating factors that determine the success or failure of the relationship between EO and SP.

3.5.1 Entrepreneurial orientation as a performance amplifier

Entrepreneurial orientation functions not just as a causal antecedent but also significantly as a strategic amplifier [23]. For Vietnamese firms, the moderating role of EO means that the positive impact of sustainable development practices on financial performance is stronger for firms that are already more innovative, proactive, and willing to take risks [6,20]. This relationship highlights that the risk-taking element inherent in EO maximises the returns derived from environmental and social investments.

However, this amplification effect carries significant risk. In a crucial counter-finding, some studies show that Entrepreneurial Orientation can exert a significant negative moderating effect on the relationship between green innovation and sustainable performance in firms that have insufficient green innovation efforts [25]. When firms take entrepreneurial risks (High EO) without the necessary innovative capacity (low GI) to successfully execute new, complex green strategies, this orientation can undermine sustainable performance due to reckless investment or organisational overreach. This underscores that GEO must be strategically managed, balancing the exploitation and exploration endeavours required for successful Green Ambidexterity [2].

Table 3
The role of moderators in EO and sustainability research

Relationship Moderated	Moderator Variable	Observed Effect	Context	Source
EO and Sustainability Practice (SP)	Competitive Intensity	Weakened	Emerging Economy SMEs	[62]
GEO and Cleaner Production Practice	Competitive Aggressiveness	Weakened	Germany	[63]
Sustainable Practice to Financial Performance	Entrepreneurial Orientation	Strengthened	Vietnamese Firms	[20]
Green Innovation and Sustainable Performance	Entrepreneurial Orientation	Weakened (If GI is low)	Listed Chinese Firms	[25]
GEO and Performance (Financial/Environmental)	Green Technology Dynamism	Strengthened	Pakistani SMEs	[19]
Digital Capability and Digital Sustainable Entrepreneurship (DSE)	Manager's Cognition of Sustainable Opportunities (MCSO)	Strengthened	Chinese MSMEs	[64]
Economic/Social Value and SME Performance	Entrepreneurial Orientation	Strengthened	Indian SMEs	[23]

3.5.2 The configurational necessity of context

Configurational analysis, such as fsQCA, provides a deeper understanding of the conditions required for sustainable success. For instance, achieving high adoption of Circular Economy (CE) practices in SMEs requires a combination of internal and external social capital and adaptive capacity [65]. Crucially, this combination is effective only when the firm operates within a pro-sustainable environment [66]. If the external environment does not actively support sustainability efforts, even firms with strong internal capabilities and orientations may fail to successfully adopt CE practices [3]. This demonstrates that systemic issues related to institutional support are critical boundary conditions for internal strategic efforts.

3.5.3 The digital transformation imperative

Digitalisation is emerging as a powerful contextual factor and a key strategic decision. Digital Capabilities (DC) are positively correlated with Digital Innovation Orientation (DIO), and DIO partially mediates the relationship between DC and Digital Sustainable Entrepreneurship (DSE) [64]. This places digitalisation firmly as a necessary intermediate mechanism for modern sustainable endeavours, especially in the pollutive industry [64].

Furthermore, the acceptance of advanced technology, such as Blockchain, is found to positively influence GEO, particularly among younger entrepreneurs, through the mediating mechanism of digital knowledge sharing [23]. This suggests that technological absorption and entrepreneurial orientation are becoming increasingly symbiotic for sustainable strategic positioning [41,67].

4. Conclusion, Limitations, and Future Research

4.1 Conclusion of the Systematic Review

This systematic literature review, structured by the Antecedents-Decisions-Outcomes (ADO) framework, provides a comprehensive analysis of the relationship between entrepreneurial orientation (EO) and sustainability practices (SP). The analysis reveals that the effectiveness of entrepreneurial strategic postures is fundamentally conditional and mechanistically mediated.

The literature confirms that specialised orientations (GEO,SEO,HEO) function as crucial Antecedents, driven predominantly by managerial values, leadership commitment (GHRM, Green Leadership), and contextual factors like institutional and stakeholder pressure. These orientations are not ends in themselves but serve as necessary enablers for key Decisions, chiefly Green Innovation (GI) and Sustainable Supply Chain Management (GSCM) practices, which are the operational capabilities that physically create value. The resulting Outcomes are released across the Triple Bottom Line, with financial performance often being indirect consequences of strengthened non-financial elements like corporate reputation and customer loyalty. Ultimately, EO functions as a strategic amplifier, enhancing the returns on sustainable investments, provided the underlying innovative capabilities are sufficient to manage the inherent risk.

4.2 Limitations of Extant Research

Despite the recent proliferation of studies, several limitations persist in the extant literature. From geographic and sectoral skew, the empirical findings are heavily concentrated in Small and Medium-sized Enterprises (SMEs) and specialised sectors within emerging Asian economies. This concentration limits the generalisability of the findings to large corporations or highly regulated service sectors in developed economies.

From the methodological skew, the predominant reliance on cross-sectional survey methods provides only a snapshot of dynamic organisational processes. This methodological limitation restricts the ability to track the true, long-term evolution of orientations, adaptive practices, and performance over time, neglecting the dynamism inherent in the entrepreneurial journey. Thus, the reliance on linear modelling sometimes obscures complex non-linear causal patterns, when mediation is widely explored. The need for more configurational analyses is evident to precisely map the necessary and sufficient conditions that lead to sustainable success, reducing causal ambiguity inherent in complex systems.

4.3 Future Research Agenda

The synthesis identifies four primary agendas for future research to further refine the theoretical understanding and practical application of the EO and sustainability nexus.

4.3.1 Longitudinal studies on EO maturity and performance

Future research should prioritise longitudinal study design to capture temporal dynamics. Specifically, future research should track the evolution of GEO implementation over extended periods to determine precisely how the moderating influence of firm age and resource acquisition, which currently appear to favour older firms in benefiting from green innovation, develops over time. Such studies are essential to understand the long-term resilience and sustained competitive advantage derived from EO.

4.3.2 Deeper exploration of antecedents

A systematic analysis of how diverse institutional and cultural contexts condition the effectiveness of EO adoption is warranted. This includes investigating variations across countries, examining the influence of cultural dimensions, and conducting comparative studies between public and private sectors to understand differences in motivational drivers and policy environments. Explicitly mapping the impact of the pro-sustainable environment's variables observed in configurational studies is necessary to inform effective policy design.

4.3.3 Integrating digitalisation as a decision mechanism

Digital transformation capabilities should be treated as essential Decision mechanisms, moving beyond their typical role as control variables. Future research should focus explicitly on how digital technologies are strategically integrated to enable advanced GEO and improve information and knowledge flow. Empirical validation of how digital knowledge sharing mediates the relationship between technological acceptance and GEO, particularly among next-generation entrepreneurs, will be crucial.

4.3.4 Bridging the environmental-social gap in outcomes

The current literature exhibits a relative skew toward environmental performance compared to social outcomes. Future studies must employ balanced TBL metrics to comprehensively assess success. Specifically, there is a need to rigorously investigate how the social dimensions of EO, translate into measurable social value creation, equity, and poverty reduction, particularly in vulnerable communities or specific sectors like health and safety management in the food industry. Applying configurational methods to map the necessary and sufficient paths solely toward social performance will clarify the unique requirements for success in this often-understudied dimension.

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References

[1] Mazhar, Rabia, Abdul Ghafoor, Bi Xuehao, and Zou Wei. "Fostering Sustainable Agriculture: Do Institutional Factors Impact the Adoption of Multiple Climate-Smart Agricultural Practices among New Entry Organic Farmers in Pakistan?" *Journal of Cleaner Production* 283 (2021): 124620. https://doi.org/10.1016/j.jclepro.2020.124620.

[2] Hossain, Mohammad Imtiaz, Tze San Ong, Yasmin Jamadar, Boon Heng Teh, and Ariful Islam. "Nexus among Green Entrepreneurship Orientation, Green Ambidexterity Innovation, Green Technological Turbulence and Green Performance: Moderated-Mediation Evidence from Malaysian Manufacturing SMEs." *European Journal of Innovation Management*, (2024). https://doi.org/10.1108/ejim-04-2024-0495.

[3] Kraus, Sascha, Janina Burtscher, Thomas Niemand, Norat Roig-Tierno, and Pasi Syrjä. "Configurational Paths to Social Performance in SMEs: The Interplay of Innovation, Sustainability, Resources and Achievement Motivation." *Sustainability* 9, no. 10 (2017): 1828. https://doi.org/10.3390/su9101828.

[4] Chavez, Roberto, Wantao Yu, Muhammad Shakeel Sadiq Jajja, Antonio Lecuna, and Brian Fynes. "Can Entrepreneurial Orientation Improve Sustainable Development through Leveraging Internal Lean Practices?" *Business Strategy and the Environment* 29, no. 6 (2020): 2211–25. https://doi.org/10.1002/bse.2496.

[5] Salehe, Mwanahimisi A, Jennifer K. Sesabo, Nsubili Isaga, and Eliaza Mkuna. "Individual Entrepreneurial Orientation and Firm Performance: The Mediating Role of Sustainable Entrepreneurship Practices." *Sustainable Technology and Entrepreneurship* 3, no. 3, (2024): 100079. https://doi.org/10.1016/j.stae.2024.100079.

[6] Thanh Tiep Le, Cuong Cao Ngo, and Ha Pham. "How to Drive Business Model Innovation for Food and Beverage Enterprises after the Pandemic: Evidence from an Emerging Economy." *European Journal of Innovation Management*, (2023). https://doi.org/10.1108/ejim-06-2022-0349.

[7] Halberstadt, Jantje, Thomas Niemand, Sascha Kraus, Gadaf Rexhepi, Paul Jones, and Norbert Kailer. "Social Entrepreneurship Orientation: Drivers of Success for Start-Ups and Established Industrial Firms." *Industrial Marketing Management* 94 (2021): 137–49. https://doi.org/10.1016/j.indmarman.2020.06.012.

[8] Ameer, Farah, and Naveed R. Khan. "Manager's Age, Sustainable Entrepreneurial Orientation and Sustainable Performance: A Conceptual Outlook" *Sustainability* 12, no. 8 (2020): 3196. https://doi.org/10.3390/su12083196

[9] Albhirat, Muath Maqbool, Siti Nur 'Atikah Zulkiffli, Hayatul Safrah Salleh, and Nur Amalina Mohamad Zaki. "A Study on Strategic Entrepreneurship Orientations: Indicators, Differential Pathways, and Multiple Business Sustainability Outcomes." *International Journal of Sustainable Development & Planning* 18 no. 5 (2023): 1625. https://doi.org/10.18280/ijsdp.180534

[10] Samal, Arbind, Nitin Koshta, Asit Tripathy, Roopendra Roopak, and Sachin Kumar Mangla. "Identifying the Drivers of Commitment to Organizational Sustainability in SMEs: The Role of Entrepreneurial Orientation, Organization Climate and Innovative Workplace Behavior." *Production Planning & Control* 36, no. 5 (2025): 593–606. https://doi.org/10.1080/09537287.2023.2291376.

[11] Shivani, Shivani, Manisankar Datta, Sheema Sharma, and Shiveta Singh. "Peering into the mechanism: Uncovering Critical Drivers of Green Entrepreneurial Orientation through Total Interpretive Structural Modelling." *International Journal of Entrepreneurial Behaviour & Research* 31, no. 4 (2025): 914-953. https://doi.org/10.1108/IJEBR-05-2024-0558.

[12] Samad, Nur Hayati Ab, Noor Hazlina Ahmad and Rina Fadhilah Ismail. "Social entrepreneurial orientation and social value of nonprofit organisation during crises." *Edelweiss Applied Science and Technology* 8, no. 1 (2024): 45-58. https://doi.org/10.55214/25768484.v8i1.415

[13] Yaghoubi Farani, Ahmad, Saeid Karimi, Mina Sajedi, and Pouria Ataei. "The Effect of Environmental Sustainability Orientations and Entrepreneurial Orientations on the Performance of Greenhouses." *Scientific Reports*, 14 no. 1 (2024). https://doi.org/10.1038/s41598-024-52062-y.

[14] Kumar, Vinod, Sachin Kumar, Sheshadri Chatterjee, and Marcello Mariani. "Optimizing the Digital Transformation Capability for Enhancing Economic Sustainability of Entrepreneurial Venture: The Moderating Role of Entrepreneurial Orientation." *IEEE Transactions on Engineering Management* (2024): 1–15. https://doi.org/10.1109/tem.2024.3387540.

[15] Dahri, Abdul Samad, Ummi Naiemah Binti Saraih, Junaid Rehman, Anas A. Salameh, and Fatuma Namisango. "Deriving Green Competitive Advantage in the SMEs: A Sustainable Firm Performance Perspective." *Sustainable Futures* 9 (2025): 100618. https://doi.org/10.1016/j.sftr.2025.100618.

[16] Neupane, Bishnu Prasad, Seweryn Zielinski, and Celene B. Milanes. "Startup Success in Hospitality & Tourism SMEs in Emerging Economies: How Innovation and Growth Are Driven by Entrepreneurial Orientation, Networking Strategy, Leadership, and Flexibility." *Sustainability*, 17 no. 8 (2025): 3485. https://doi.org/10.3390/su17083485.

[17] Paul, Justin, Puja Khatri, and Harshleen Kaur Duggal. "Frameworks for Developing Impactful Systematic Literature Reviews and Theory Building: What, Why and How?" *Journal of Decision Systems* 33, no. 4 (2023): 1–14. https://doi.org/10.1080/12460125.2023.2197700.

[18] Khatri, Puja and Harshleen Kaur Duggal. "Well-being of higher education consumers: A review and research agenda." *International Journal of Consumer Studies* 46, no. 5 (2022): 1564-1593. https://doi.org/10.1111/ijcs.12783.

[19] Asad, Muzaffar, Mazin Aledeinat, Tha'er Majali, Dmaithan Almajali, and Fayiz Shrafat. "Mediating Role of Green Innovation and Moderating Role of Resource Acquisition with Firm Age between Green Entrepreneurial Orientation and Performance of Entrepreneurial Firms." *Cogent Business & Management* 11, no. 1 (2023. https://doi.org/10.1080/23311975.2023.2291850.

[20] Roxas, Banjo. "Environmental Sustainability Engagement of Firms: The Roles of Social Capital, Resources, and Managerial Entrepreneurial Orientation of Small and Medium Enterprises in Vietnam." *Business Strategy and the Environment* (2021). https://doi.org/10.1002/bse.2743.

[21] Habib, Md. Ahashan, Yukun Bao, and Aboobucker Ilmudeen. "The Impact of Green Entrepreneurial Orientation, Market Orientation and Green Supply Chain Management Practices on Sustainable Firm Performance." *Cogent Business & Management* 7, no. 1 (2020). https://doi.org/10.1080/23311975.2020.1743616.

[22] Abdullah Kaid Al-Swidi, Mohammed A Al-Hakimi, Jaafar Al-Sarraf, and Al. "Innovate or Perish: Can Green Entrepreneurial Orientation Foster Green Innovation by Leveraging Green Manufacturing Practices under Different Levels of Green Technology Turbulence?" *Journal of Manufacturing Technology Management* 35, no. 1 (2024): 74–94. https://doi.org/10.1108/jmtm-06-2023-0222.

[23] Vrontis, Demetris, Ranjan Chaudhuri, and Sheshadri Chatterjee. "Adoption of Digital Technologies by SMEs for Sustainability and Value Creation: Moderating Role of Entrepreneurial Orientation" *Sustainability* 14, no. 13 (2022): 7949. https://doi.org/10.3390/su14137949

[24] Johnson, Matthew P., and Jacob Hörisch. "Reinforcing or Counterproductive Behaviors for Sustainable Entrepreneurship? The Influence of Causation and Effectuation on Sustainability Orientation." *Business Strategy and the Environment* 31, no. 3 (2021): 908–20. https://doi.org/10.1002/bse.2925.

[25] Zhang, Qiang, Xiumei Zhu, and Min-Jae Lee. "Exploring Institutional Pressures, Green Innovation, and Sustainable Performance: Examining the Mediated Moderation Role of Entrepreneurial Orientation" *Sustainability* 16, no. 5 (2024): 2058. https://doi.org/10.3390/su16052058

[26] Hassan, Hazrat, Qianwei Ying, Habib Ahmad, and Sana Ilyas. "Factors that Sustain Health and Safety Management Practices in the Food Industry" *Sustainability* 11, no. 15 (2019): 4001. https://doi.org/10.3390/su11154001

[27] Muhammad Auwal, Abdullahi, Zainalabidin Mohamed, Mad Nasir Shamsudin, Juwaidah Sharifuddin, and Fazlin Ali. "External Pressure Influence on Entrepreneurship Performance of SMEs: A Case Study of Malaysian Herbal Industry." *Journal of Small Business & Entrepreneurship* 32 no. 2 (2020): 149–71. https://doi.org/10.1080/08276331.2018.1509504.

[28] Ameer, Farah, and Naveed R. Khan. "Green Entrepreneurial Orientation and Corporate Environmental Performance: A Systematic Literature Review." *European Management Journal* 41 no. 5 (2023): 755-778. https://doi.org/10.1016/j.emj.2022.04.003.

[29] Vesci, Massimiliano, Antonio Botti, Rosangela Feola, Emanuela Conti, and Ayman El Tarabishy. "Bridging Theory and Practice in the Humane Entrepreneurship Domain: Insights from Small and Medium Italian Enterprises." *Journal of Small Business and Enterprise Development* 30 no. 3 (2023): 567-586. https://doi.org/10.1108/jsbed-11-2021-0465.

[30] Windapo, Abimbola. "Entrepreneurial Factors Affecting the Sustainable Growth and Success of a South African Construction Company" *Sustainability* 10, no. 4 (2018): 1276. https://doi.org/10.3390/su10041276

[31] Vidal, Natalia, Wellington Spetic, Simon Croom, and Donna Marshall. "Supply chain stakeholder pressure for the adoption of sustainable supply chain practices: Examining the roles of entrepreneurial and sustainability orientations." *Supply Chain Management: An International Journal* 28, no. 3 (2023): 598-618. https://doi.org/10.1108/SCM-08-2021-0370.

[32] Yoowattana, Pattaravis, Boriboon Chalong, and Kulnaree Maneechote. "The Sustainable Culture and Entrepreneurial Orientation as Antecedents of Socially Sustainable Supply Chain." *International Journal of Supply Chain Management* 8, no. 6 (2019): 360. https://doi.org/10.59160/ijscm.v8i6.4157

[33] Marshall, Donna, Lucy McCarthy, Paul McGrath, and Marius Claudy. "Going above and Beyond: How Sustainability Culture and Entrepreneurial Orientation Drive Social Sustainability Supply Chain Practice Adoption." *Supply Chain Management: An International Journal* 20, no. 4 (2015): 434–54. https://doi.org/10.1108/scm-08-2014-0267.

[34] Anin, Emmanuel Kwabena, Daniel Etse, Gilbert Anyowuo Okyere, and Darlington Bright Yao Adanfo. "Green Entrepreneurial Orientation and Firm Performance: Do Green Purchasing and Supply Chain Integration Matter?" *Cogent Business & Management* 11, no. 1 (2024). https://doi.org/10.1080/23311975.2024.2377762.

[35] Maurya, Shyam, Dilnavoz Shavkidinova, Vivek Shrivastava, and Satya Subrahmanyam. "Effects of Green Supply Chain Management Practices on Environmental and Firm Sustainability Performance." *Acta Innovations* (2025): 13-22.

[36] Habib, Md Ahashan, Yukun Bao, Nurun Nabi, Marzia Dulal, Asma Ansary Asha, and Mazedul Islam. "Impact of strategic orientations on the implementation of green supply chain management practices and sustainable firm performance." *Sustainability* 13, no. 1 (2021): 340. https://doi.org/10.3390/su13010340

[37] Alshebami, Ali Saleh. "Green innovation, self-efficacy, entrepreneurial orientation and economic performance: Interactions among Saudi small enterprises." *Sustainability* 15, no. 3 (2023): 1961. https://doi.org/10.3390/su15031961

[38] Yadav, Hitesha, Arpan Kumar Kar, Smita Kashiramka, and Nripendra P. Rana. "How does change in CEOs' strategic orientations in their social media communication impact firm performance during crisis? A longitudinal study." *Technological Forecasting and Social Change* 208 (2024): 123649. https://doi.org/10.1016/j.techfore.2024.123649

[39] Phan, Thi Thu Hien, Hiep Xuan Tran, Trung Thanh Le, Ninh Nguyen, Simon Pervan, and Manh Dung Tran. "The relationship between sustainable development practices and financial performance: A case study of textile firms in Vietnam." *Sustainability* 12, no. 15 (2020): 5930. https://doi.org/10.3390/su12155930

[40] Page, Matthew J., Joanne E. McKenzie, Patrick M. Bossuyt, Isabelle Boutron, Tammy C. Hoffmann, Cynthia D. Mulrow, Larissa Shamseer et al. "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews." bmj 372 (2021). https://doi.org/10.1136/bmj.n71

[41] Muneeb, Farhan Muhammad, Ricardo Filipe Ramos, Peter Fernandes Wanke, and Faryal Lashari. "Revamping sustainable strategies for hyper-local restaurants: a multi-criteria decision-making framework and resource-based view." *FIIB Business Review* (2023): 23197145231161232. https://doi.org/10.1177/23197145231161232

[42] Sawaean, Fahad Awad Aber, and Khairul Anuar Mohd Ali. "THE NEXUS BETWEEN LEARNING ORIENTATION, TQM PRACTICES, INNOVATION CULTURE, AND ORGANIZATIONAL PERFORMANCE OF SMES IN KUWAIT." *Interdisciplinary Journal of Information, Knowledge & Management* 16, no. 2021 (2021). https://doi.org/10.28945/4743

[43] Kristinae, Vivy, I. Wardana, I. G. A. K. Giantari, and A. G. J. U. S. C. M. Rahyuda. "The role of powerful business strategy on value innovation capabilities to improve marketing performance during the COVID-19 pandemic." *Uncertain Supply Chain Management* 8, no. 4 (2020): 675-684. https://doi.org/10.5267/j.uscm.2020.8.005

[44] Roxas, Banjo, Nicholas Ashill, and Doren Chadee. "Effects of entrepreneurial and environmental sustainability orientations on firm performance: A study of small businesses in the Philippines." *Journal of Small Business Management* 55 (2017): 163-178. https://doi.org/10.1111/jsbm.12259

[45] Paiva, Luis Eduardo Brandão, Vânia Maria Jorge Nassif, Tereza Cristina Batista de Lima, and Sílvia Maria Dias Pedro Rebouças. "Between sustainability and innovation: Relations with an entrepreneurial intention in Brazil and Spain." *Contaduría y administración* 69, no. 1 (2024). https://doi.org/10.22201/fca.24488410e.2024.5034

[46] Nuus, Ferdy FF, Petra CM Neessen, Cosmina L. Voinea, and Marjolein CJ Caniëls. "Sustainable Innovation in the financial sector during the Corona crisis: how discontinuity affects sustainable innovation, sustainable entrepreneurial orientation, and absorptive capacity." *Sustainability* 14, no. 11 (2022): 6621. https://doi.org/10.3390/su14116621

[47] Trip, Diana-Teodora, Ramona Simut, and Daniel Badulescu. "Do size and ownership determine the willingness for sustainable innovations in Spa and health tourism? A case study on Baile Felix spa resort, Romania." *Sustainability* 15, no. 19 (2023): 14501. https://doi.org/10.3390/su151914501

[48] Smith, Anne MJ, Peter Duncan, David Edgar, and Julie McColl. "Responsible and sustainable farm business: Contextual duality as the moderating influence on entrepreneurial orientation." *The International Journal of Entrepreneurship and Innovation* 22, no. 2 (2021): 88-99. https://doi.org/10.1177/1465750320944702

[49] Pinuer, Francisco Villegas, Leslier Valenzuela-Fernández, Joan Llonch Andreu, and Pilar López Belbeze. "Environmental sustainability and their factors in SMEs: A multiple case study of Spain and Chile." *Cuadernos de Gestión* 22, no. 1 (2022): 35-50. https://doi.org/10.5295/cdg.211370fv

[50] Al-Romeedy, Bassam Samir, and Thaib Alharethi. "Leveraging green human resource management for sustainable tourism and hospitality: A mediation model for enhancing green reputation." *Discover Sustainability* 6, no. 1 (2025): 67. https://doi.org/10.1007/s43621-025-00829-2

[51] Mishra, Manoj Kumar, Nidhi Sharma, Sunil Kumar, and Mohd Asif Shah. "Catalyzing green entrepreneurial behavior: the role of intentions and selective factors." *Cogent Business & Management* 11, no. 1 (2024): 2337959. https://doi.org/10.1080/23311975.2024.2337959

[52] Jansson, Johan, Jonas Nilsson, Frida Modig, and Gabriella Hed Vall. "Commitment to sustainability in small and medium-sized enterprises: The influence of strategic orientations and management values." *Business strategy and the environment* 26, no. 1 (2017): 69-83. https://doi.org/10.1002/bse.1901

[53] Alerasoul, S. Alireza, Giovanna Afeltra, Ricarda B. Bouncken, and Henri Hakala. "The synergistic impact of market and technology orientations on sustainable innovation performance: evidence from manufacturing firms." *International Journal of Entrepreneurial Behavior & Research* 28, no. 6 (2022): 1556-1580. https://doi.org/10.1108/IJEBR-10-2021-0799

[54] Rossi, Eleonora Sofia, Valentina C. Materia, Francesco Caracciolo, Emanuele Blasi, and Stefano Pascucci. "Farmers in the transition toward sustainability: what is the role of their entrepreneurial identity?." *Frontiers in Sustainable Food Systems* 7 (2023): 1196824. https://doi.org/10.3389/fsufs.2023.1196824

[55] Alherimi, Nadin, Zeki Marva, Khalid Hamarsheh, and Ayman Alzaatreh. "Employees' pro-environmental behavior in an organization: a case study in the UAE." *Scientific reports* 14, no. 1 (2024): 15371. https://doi.org/10.1038/s41598-024-66047-4

[56] De Guimaraes, Julio Cesar Ferro, Eliana Andrea Severo, and César Ricardo Maia de Vasconcelos. "The influence of entrepreneurial, market, knowledge management orientations on cleaner production and the sustainable competitive advantage." *Journal of cleaner production* 174 (2018): 1653-1663. https://doi.org/10.1016/j.jclepro.2017.11.074

[57] Khizar, Hafiz Muhammad Usman, Jawad Iqbal, Junaid Khalid, and Zahid Hameed. "Unlocking the complementary effects of multiple strategic orientations on firm performance: an interplay of entrepreneurial, sustainability and market orientation." *Kybernetes* 53, no. 6 (2024): 1939-1957. https://doi.org/10.1108/K-03-2022-0319

[58] Jalil, Muhammad Farhan, Dayang Affizzah Binti Awang Marikan, Azlan Ali, and Mohamad bin Jais. "The influence of blockchain technology on green entrepreneurial orientation through digital knowledge sharing among Gen Y

and Gen Z entrepreneurs: A multigroup analysis." *Sustainable Futures* (2025): 100636. https://doi.org/10.1016/j.sftr.2025.100636

[59] Astuty, Eriana, Ivan Diryana Sudirman, and Rudy Aryanto. "Sustainable resilience strategy: unleash the micro-businesses's potential in the digitalization and sustainability era." *Cogent Business & Management* 11, no. 1 (2024): 2313672. https://doi.org/10.1080/23311975.2024.2313672

[60] Anwar, Rana Salman, Shanayyara Mahmood, Muhammad Ramzan, Hina Adeeb, Alsadig Ahmed, Valentin Marian Antohi, Costinela Fortea, Monica Laura Zlati, Alina Meca, and Laurentiu Nicolae Pricope. "Impact of the Mediating and Moderating Roles of Sustainable Entrepreneurial Intentions on Business Performance in Chinese SMEs." *Sustainability* 17, no. 1 (2024): 76. https://doi.org/10.3390/su17010076

[61] Sisodia, Swati, and Sumaira Jan. "Investigating the Role of Psychological Capital as a Mediating Variable in the Relationship between Sustainability Orientation and Entrepreneurial Intensity." *Sustainability and Climate Change* 15, no. 5 (2022): 335-350. https://doi.org/10.1089/scc.2022.0078

[62] Akomea, Samuel Yaw, Ahmed Agyapong, Godwin Ampah, and Hannah Vivian Osei. "Entrepreneurial orientation, sustainability practices and performance of small and medium enterprises: evidence from an emerging economy." *International Journal of Productivity and Performance Management* 72, no. 9 (2023): 2629-2653. https://doi.org/10.1108/IJPPM-06-2021-0325

[63] Farooq, Muhammad Shoaib, and Maimoona Salam. "Moderated-Mediation of Competitive Aggressiveness and Green Supply Chain Learning in the Relationship between Green Entrepreneurial Orientation and Cleaner Production Practices." *Social Responsibility Journa*l 21, no 3 (2025). https://doi.org/10.1108/SRJ-05-2024-0320

[64] Xu, Guangping, Guangyuan Hou, and Jinshan Zhang. "Digital Sustainable Entrepreneurship: A Digital Capability Perspective through Digital Innovation Orientation for Social and Environmental Value Creation" Sustainability 14, no. 18: 11222 (2022). https://doi.org/10.3390/su141811222

[65] Alcalde-Calonge, Alberto, Pablo Ruiz-Palomino, and Francisco José Sáez-Martínez. "Fostering circular economy in small and medium-sized enterprises: The role of social capital, adaptive capacity, entrepreneurial orientation and a pro-sustainable environment." *Business Strategy and the Environment* 33, no. 8 (2024): 8882-8899. https://doi.org/10.1002/bse.3948

[66] Salem, Islam Elbayoumi, Ahmed Mohamed Elbaz, Alamir Al-alawi, Nasser Alhamar Alkathiri, and Zakaria Elkhwesky. "Is eco-label hotel engagement the pathway to sustainability practices via entrepreneurial resilience and orientation in Oman? Findings from PLS-SEM and fsQCA." *International Journal of Contemporary Hospitality Management* 35 no. 2 (2023): 717-742. https://doi.org/10.1108/IJCHM-02-2022-0229

[67] Ismail, Ismail Juma. "The role of technological absorption capacity, enviropreneurial orientation, and green marketing in enhancing business' sustainability: evidence from fast-moving consumer goods in Tanzania." Technological Sustainability 2, no. 2 (2023): 121-141. https://doi.org/10.1108/TECHS-04-2022-0018