Asian Management and Business Review, Volume 6 Issue 2, 2026: 492-509

Green entrepreneurial orientation on green radical innovation and environmental performance: The role of supply chain learning

Muhammad Ali Fikri[1]*, Sinta Putri Anggraini[2], Arwin Yafi Rahmatullah[3]

[1]Universitas Ahmad Dahlan, Yogyakarta, Indonesia
[2]Sekolah Tinggi Ekonomi Islam Darul Qur'an Minak Selebah, Lampung 34196, Indonesia
[3]Universitas Bumigora, Nusa Tenggara Barat, Indonesia

Article History
Received : 2025-09-09
Revised : 2026-05-02
Accepted : 2026-05-05
Published : 2026-07-28

Keywords:
Green entrepreneurial orientation; supply chain learning; green radical innovation; environmental performance.

***Corresponding author:**
muhammad.fikri@mgm.uad.ac.id

DOI:
10.20885/AMBR.vol6.iss2.art12

Abstract

This study investigates the influence of green entrepreneurial orientation on green radical innovation and environmental performance, with supply chain learning serving as a mediating variable. A quantitative research approach was employed using a structured questionnaire distributed to 265 employees across four 4-star hotels in Yogyakarta. Analysis was conducted using PLS-SEM. Results show green entrepreneurial orientation positively affects green radical innovation and supply chain learning but does not directly improve environmental performance. Supply chain learning is found to significantly enhance both green radical innovation and environmental performance and mediates the effect of green entrepreneurial orientation on both outcomes. The originality of this study lies in integrating dynamic capability theory and the knowledge-based view to explain the mechanisms through which green entrepreneurial orientation fosters learning and innovation in the hospitality supply chain. Findings contribute theoretically by clarifying the indirect pathways through which green entrepreneurial orientation generates environmental value. Practically, the study highlights that hotel managers should strengthen cross-supply chain learning processes, optimize environmental performance, and accelerate green innovation.

Introduction

Environmental degradation has intensified over the past two decades, increasing pressure on governments and industries to integrate sustainability principles into business operations (Leonidou et al., 2017; Das & Rangarajan, 2020). The hospitality industry is particularly exposed to this pressure due to its high consumption of energy and water, significant waste generation, and growing carbon emissions (Wang et al., 2018; Nilashi et al., 2019). Globally, the tourism sector is estimated to contribute approximately 8% of total carbon emissions, largely originating from transportation and accommodation services (UNEP, 2021). These conditions require hotels not only to deliver high-quality services but also to implement environmentally responsible operational practices in order to meet regulatory requirements and stakeholder expectations (UNWTO, 2022). As tourism continues to expand, hotels are expected not only to deliver high-quality services but also to operate in an environmentally responsible manner to meet regulatory requirements and rising stakeholder expectations, particularly in destinations with strong ecological and cultural sensitivity such as Yogyakarta (Mustofa et al., 2024).

To respond to these challenges, green entrepreneurial orientation has emerged as an important strategic capability that enables firms to proactively identify environmental opportunities, take ecological risks, and invest in green innovation (Jiang et al., 2018; Pratono et al., 2019). Prior studies suggest that green entrepreneurial orientation can stimulate green radical innovation by encouraging firms to adopt environmentally friendly technologies and redesign

E ISSN 2775-202X

products and processes (Guo et al., 2018; Ozturk et al., 2024). Through this orientation, firms become more proactive in allocating resources to green initiatives and initiating environmentally oriented innovations. However, empirical findings regarding its impact on environmental performance remain inconsistent. Several studies report that green entrepreneurial orientation does not automatically translate into improved environmental outcomes, particularly when firms lack sufficient organizational capabilities to absorb, implement, and coordinate green strategies effectively (Demirel et al., 2019; Guo et al., 2017). This inconsistency indicates green entrepreneurial orientation alone is insufficient to generate environmental performance and that additional organizational mechanisms are required.

One mechanism that may explain this gap is supply chain learning. Supply chain learning refers to a firm's ability to acquire, assimilate, and apply knowledge through interactions with internal units and external partners as suppliers and customers (Flint et al., 2008; Huo et al., 2021a). Firms with green entrepreneurial orientation tend to collaborate more and exchange knowledge across supply chain partners, which facilitates collective learning and capability development (Shan et al., 2016; Guo et al., 2018). Recent studies emphasize that learning-based collaboration across the supply chain enhances innovation capability, operational efficiency, and environmental sustainability (Farrukh et al., 2022; Alreahi et al., 2023).

Several empirical studies in the hospitality sector also support the importance of learning, collaboration, and green practices in improving hotel performance. For example, Karakaş-Kelten et al. (2026) found that the adoption of green practices and collaboration with supply chain partners significantly improved environmental performance among hotels in Turkey. Similarly, Han et al. (2019) reported that environmentally oriented strategies and innovation initiatives positively influenced sustainable performance in hotel operations. Martínez-Pérez et al. (2015) also showed that eco-innovation in Spanish hotels contributed to both environmental and operational performance improvements. Nevertheless, empirical research that explicitly examines mediating supply chain learning between green entrepreneurial orientation and sustainability outcomes remains limited, particularly in the hospitality sector and in developing economy contexts.

Green radical innovation central role in addressing environmental challenges faced by hotels. Unlike incremental improvements, green radical innovation involves fundamental changes in products, processes, or technologies that significantly reduce environmental impacts (Chen et al., 2014; Castellacci & Lie, 2017). Such innovations typically require extensive knowledge exchange, experimentation, and coordination across organizational boundaries. In this context, supply chain learning functions as an enabling capability that allows firms to translate green entrepreneurial orientation into radical innovation outcomes by facilitating access to green technologies, best practices, and external expertise (Dai et al., 2015; Guo et al., 2018). However, few studies have jointly examined green entrepreneurial orientation, supply chain learning, green radical innovation, and environmental performance within a single integrative framework. This study aims to analyze the effect of green entrepreneurial orientation on green radical innovation and environmental performance with supply chain learning as a mediating variable.

Environmental performance represents the ultimate outcome of firms' green strategies and innovation efforts. Prior studies suggest that firms with learning capabilities and collaborative supply chain relationships are better positioned to improve environmental performance through reduced waste, energy efficiency, and compliance with environmental regulations (Huo et al., 2021b; Farrukh et al., 2022). Without effective learning mechanisms, firms may struggle to translate entrepreneurial orientation into measurable environmental outcomes, resulting in short-term inefficiencies or limited performance improvements (Demirel et al., 2019; Guo et al., 2017).

The hospitality industry uses a large portion of natural resources and produces a significant amount of waste and pollutants, making it one of the sectors with considerable environmental impacts (Nilashi et al., 2019). Hotels therefore play an important role in encouraging environmentally friendly consumption patterns through the adoption of sustainable operational practices. Implementing a green supply chain is considered a strategic approach for the hotel industry to transform its operations toward greater environmental responsibility (Migdadi, 2023). In response to growing demand for sustainability, green initiatives have increasingly been adopted

as a new business model in the hospitality sector to support innovation, environmental protection, and the delivery of high-quality sustainable products and services (Martínez-Perez et al., 2015; García-Pozo et al., 2015; Alonso-Almeida et al., 2016).

Yogyakarta was selected as the research context because it is one of Indonesia's main tourism destinations and has experienced rapid growth in both tourism activities and hotel development. This expansion has intensified environmental pressures, particularly related to increased energy and water consumption and waste generation from hotel operations. As a cultural city with strong ecological and social values, sustainability is a critical concern to ensure that economic development does not undermine environmental integrity and local wisdom. Previous studies indicate that while tourism in Yogyakarta significantly contributes to economic growth, it also generates environmental problems, especially in waste management (Mustofa et al., 2024). In this context, hotels in Yogyakarta are expected not only to provide comfortable and high-quality services for guests but also to adopt sustainable practices that address environmental challenges, such as greenhouse gas emissions, water pollution, and food waste (Wang et al., 2018).

Literature Review and Hypotheses Development

Dynamic capabilities theory and the knowledge-based view are used to explain how green entrepreneurial orientation contributes to green radical innovation and environmental performance through supply chain learning. Dynamic capabilities theory by Teece et al. (1997) emphasizes a firm's ability to sense environmental opportunities, seize them through strategic resource allocation, and transform organizational structures to respond to dynamic changes. In sustainability research, dynamic capabilities theory has been widely applied to explain how firms adopt green innovation and respond to environmental pressures through proactive and adaptive strategies (Zhou et al., 2018; Demirel et al., 2019). Green entrepreneurial orientation reflects these dynamic capabilities, enabling firms to identify ecological opportunities and reconfigure resources toward environmentally friendly innovations, although the theory alone provides limited insight into the internal mechanisms through which such capabilities are operationalized.

To address this limitation, the knowledge-based view complements dynamic capabilities theory, emphasizing knowledge as a critical strategic resource for achieving sustainable competitive advantage (Grant & Baden-Fuller, 2004; Nonaka, 2007). The knowledge-based view explains how supply chain learning through knowledge acquisition, assimilation, and application among suppliers, firms, and customers facilitates green radical innovation and enhances environmental performance (Huo et al., 2021a; Farrukh et al., 2022). By integrating dynamic capabilities theory and the knowledge-based view, this study conceptualizes supply chain learning as a key mediating mechanism that translates green entrepreneurial orientation into tangible sustainability outcomes. This integrated theoretical framework provides a comprehensive explanation of how hotels leverage entrepreneurial strategies and interorganizational learning to improve innovation capability and environmental performance.

Green entrepreneurial orientation and green radical innovation

Dynamic capabilities theory emphasizes that organizations must be able to integrate, build, and reconfigure internal or external resources to respond to dynamic environmental changes (Teece et al., 1997). Green entrepreneurial orientation reflects a company's ability to sense (detecting environmental opportunities), seize (capitalizing on these opportunities), and transform (adjusting the company's strategy and resources) to create innovative environmentally friendly products (Teece, 2018). Empirical research supports the effect of green entrepreneurial orientation on green radical innovation (Guo et al., 2018). Green entrepreneurial orientation drives significant green radical innovation through a company's ability to orchestrate resources effectively (Al Koliby et al, 2024). Green entrepreneurial orientation contributes significantly to a company's sustainability performance, including aspects of green radical innovation (Ozturk et al., 2024). This finding is reinforced by a meta-analysis showing green entrepreneurial orientation has a positive and significant relationship with corporate sustainability performance, including green radical innovation (Ozturk et al., 2024).
H1: Green entrepreneurial orientation has a positive influence on green radical innovation.

Green entrepreneurial orientation and environmental performance

Dynamic capabilities theory explains that a company's ability to respond to and adapt to environmental changes, including environmental issues, is very important (Teece, 2018). Green entrepreneurial orientation is a manifestation of dynamic capabilities because it encourages companies to continuously build, integrate, and restructure their competencies to respond to ecological challenges and opportunities. Green entrepreneurial orientation contributes to improving environmental performance through several mechanisms (Chen & Chang, 2013; Chuang & Yang, 2013; Jiang et al., 2018). Green entrepreneurial orientation encourages green innovation that helps companies create added value sustainably through exploration and exploitation of environmentally-based market opportunities (Pratono et al., 2019; Guo et al., 2017).
H2: Green entrepreneurial orientation has a positive influence on environmental performance.

Green entrepreneurial orientation and supply chain learning

From the perspective of dynamic capability theory, green entrepreneurial orientation contributes to strengthening learning in the supply chain by exploring external opportunities, leveraging collaborative resources, and transforming sustainable innovation strategies (Teece et al., 1997). Learning in the supply chain includes information exchange, knowledge transfer, and technological capability enhancement among business partners (Shan et al., 2016). By implementing green entrepreneurial orientation, companies can increase collaboration with suppliers and distributors in order to develop innovative, environmentally friendly solutions. Companies with an entrepreneurial focus generally strive to grow rapidly without considering whether they have all the necessary knowledge resources. Being entrepreneurially oriented benefits the learning process and resources within the alliance and encourages management of the supply chain learning process (Shan et al., 2016). Green entrepreneurial orientation affects supply chain learning because it allows companies to continuously update and improve their capabilities in managing a greener and more innovative supply chain (Shan et al., 2016).
H3: Green entrepreneurial orientation has a positive effect on supply chain learning.

Supply chain learning and green radical innovation

Supply chain learning can be categorized into three main stages, namely the initiation stage (information gathering and opportunity identification), the implementation stage (utilization of knowledge for operational improvement and innovation), and the maintenance stage (continuous learning reinforcement) (Guo et al., 2018). Meanwhile, the perspective of dynamic capabilities theory by Teece (2018) suggests that supply chain learning acts as a dynamic capability that enables companies' sensing (detecting opportunities and threats in a green business environment), seizing (utilizing knowledge from the supply chain to develop green innovation), and transforming (reconfiguring resources and strategies to improve sustainability). As confirmed by Guo et al. (2018), acquiring knowledge from external sources can play a positive role in driving innovation that focuses on environmental sustainability. In addition, supply chain learning encourages companies to collaborate with various stakeholders in the supply chain, including green raw material suppliers, research institutions, and environmental regulators (Chen et al., 2014; Dai et al., 2015). The variety of resources and technologies available in the supply chain network enables companies to exchange information on green technologies, share best practices, and collaborate on sustainable innovative projects (Jiang et al., 2018).

Thus, the pathway from supply chain learning to green radical innovation can be explained as follows: knowledge acquisition enables firms to recognize opportunities for eco-innovation, knowledge assimilation strengthens their ability to reconfigure resources toward green technology development, and knowledge application facilitates the creation of breakthrough innovations that fundamentally transform business processes (Guo et al., 2018; Teece, 2018). In this regard, supply chain learning not only fosters incremental improvements but also lays the groundwork for disruptive, environmentally friendly innovations (Chen et al., 2014; Tseng et al., 2019).
H4: Supply chain learning has a positive influence on green radical innovation.

Supply chain learning and environmental performance

The knowledge-based view explains that knowledge is seen as the main source to improve a company's ability to create value and gain competitive advantage (Grant & Baden-Fuller, 2004; Nonaka, 2007). The knowledge-based view emphasizes that knowledge is distributed heterogeneously among companies (Grant & Baden-Fuller, 1995). One form of knowledge-based view application in the supply chain is through supply chain learning, a learning process that involves all actors in the supply chain, including suppliers, core companies, and customers, to accumulate knowledge, strengthen coordination, and create innovations that support sustainability. Previous research has shown that supply chain learning contributes to increased operational flexibility, product innovation, process efficiency, and adaptation to environmental regulations (Willis et al., 2016; Haq et al., 2020; Huo et al., 2021b). Through a collective learning process along the supply chain, companies can identify environmentally friendly practices, reduce waste, optimize the use of energy and raw materials, and create solutions that reduce negative environmental impacts. Supply chain learning enables collaboration in product redesign, green technology development, and implementation of sustainable logistics systems (Caniels et al., 2013; Farrukh et al., 2022).
H5: Supply chain learning has a positive influence on environmental performance.

Green entrepreneurial orientation and green radical innovation: supply chain learning as mediator

Dynamic capabilities theory by Teece et al. (1997) explains that companies with green entrepreneurial orientation show the ability to continuously adapt to changes in the external environment, including developing more sustainable products and production processes. Green entrepreneurial orientation not only directly influences green radical innovation but also indirectly through the mediating role of supply chain learning (Guo et al., 2018). Green entrepreneurial orientation encourages companies to engage in supply chain learning, which ultimately increases green innovation capabilities more significantly (Chen et al., 2014; Dai et al., 2015).

According to the dynamic capability perspective, sensing capabilities enable companies to more quickly capture innovation opportunities from external sources, while seizing and transforming capabilities ensure that this knowledge can be implemented into more advanced and sustainable product innovations (Teece et al., 1997). By adopting green entrepreneurial orientation, companies can develop internal organizational strengths that not only support the creation of innovative, environmentally friendly products, but also increase the components of environmentally friendly technology in their products (Jiang et al., 2018).

Furthermore, green entrepreneurial orientation contributes to shaping the learning process along the supply chain, in turn enabling companies to improve their ability to create new and radical environmental products (Fernández-Mesa & Alegre, 2015). Meanwhile, the study by Ozturk et al. (2024) stated that green entrepreneurial orientation significantly improves sustainability performance in companies, including encouragement of green radical innovation, which is mediated by the cross-organizational learning process.
H6: Supply chain learning mediates the effect of green entrepreneurial orientation on green radical innovation.

Green entrepreneurial orientation and environmental performance: supply chain learning as mediator

The knowledge-based view explains that knowledge gained through supply chain learning becomes a strategic resource that not only strengthens competitiveness but also encourages more effective adoption of green practices (Grant & Baden-Fuller, 2004; Nonaka, 2007). In facing global environmental challenges, green entrepreneurial orientation has emerged as an important strategy in improving environmental performance (Yunis & Michalisin, 2016; Jiang et al., 2018). Green entrepreneurial orientation reflects a company's commitment to integrating innovation, proactivity, and environmental responsibility into its business practices, such as creating environmentally friendly products, reducing harmful emissions, and paying attention to consumer safety and health

(Chen & Chang, 2013; Chuang & Yang, 2013). Supply chain learning plays a role as an important mechanism that bridges the transformation of green entrepreneurial orientation values into environmentally friendly operational and collaborative practices. Supply chain learning enables companies to access, share, and internalize green knowledge from supply chain partners, both from the supplier and customer sides, to improve environmental efficiency, reduce waste, and promote sustainable innovation (Huo et al., 2021a; Yu et al., 2017).

H7: Supply chain learning mediates the effect of green entrepreneurial orientation on environmental performance.

Research Methods

Based on these considerations, this study examines the effect of green entrepreneurial orientation on green radical innovation and environmental performance with supply chain learning as a mediating variable in the hotel industry in Yogyakarta. By linking entrepreneurial orientation, learning processes, and innovation outcomes, this study contributes theoretically by integrating dynamic capabilities theory and the knowledge-based view to explain how green entrepreneurial strategies generate sustainability outcomes through learning mechanisms. Empirically, it provides recent evidence from the hospitality sector in a developing economy, addressing the limited understanding of learning-based pathways that connect green entrepreneurial strategies to innovation and environmental performance.

Although constructs examined in this study green entrepreneurial orientation, supply chain learning, green radical innovation, and environmental performance- were conceptualized at the organizational level, data were collected from individual employees who serve as key informants within their respective organizations. The use of individual respondents to represent organizational-level constructs is a well-established approach in strategic management and organizational behavior research. Employees, particularly those involved in managerial, operational, and sustainability-related functions, possess adequate knowledge and direct experience regarding organizational strategies, innovation activities, and supply chain processes. Therefore, they are capable of providing reliable and valid assessments of firm-level practices. In this study, respondents were selected from various functional departments such as operations, procurement and administration, as well as from different hierarchical positions including staff, supervisors and managers. This diversity ensures collected data reflect a comprehensive understanding of organizational practices rather than purely individual opinions. Furthermore, using multiple respondents within each organization helps reduce single-informant bias and enhances data validity. Accordingly, although unit analysis is organization-level, individual-level data are considered appropriate proxies for capturing organizational-level constructs.

Similar perceptual approaches have been widely implemented in supply chain management, environmental management, and entrepreneurial orientation studies (Jiang et al., 2018; Guo et al., 2018; Huo et al., 2021b). This method is particularly relevant in the hotel industry where employees interact directly with operational systems, sustainability initiatives, and supply chain workflows. Using employees as informants reduces the risk of key informant bias and enables a more accurate reflection of organizational practices across functional units. Therefore, the use of 265 individual responses is statistically appropriate and methodologically justified to represent hotel-level sustainable practices through individual-level perceptual measures.

Furthermore, the use of multiple respondents within each organization helps reduce single-informant bias and provides a more representative reflection of organizational conditions across departments and functional units. This perceptual measurement approach has been widely adopted in organizational research where access to objective firm-level data is limited or where constructs such as learning processes, entrepreneurial orientation, and innovation practices are inherently perceptual and behavior-based. Therefore, while the theoretical constructs refer to organizational phenomena, the use of employee-level data is methodologically acceptable when respondents evaluate organizational practices rather than personal attitudes or behaviors.

Nevertheless, this study acknowledges that the number of organizations involved is relatively limited, as the data were collected from four hotels. Future research could strengthen the

robustness and generalizability of findings by adopting a mixed-methods approach. In such an approach, the surveyed hotels may also be treated as case organizations, allowing researchers to complement quantitative findings with qualitative insights obtained through interviews, observations, or document analysis. This strategy would enable deeper exploration of organizational processes underlying green practices and supply chain learning.

Furthermore, when applying a case-based or mixed-method design, it is important to evaluate whether the selected hotels exhibit sufficient diversity in organizational characteristics to support polar sampling and meet the criteria of theoretical sampling as proposed by Yin (2018). If the selected cases do not adequately represent variation in size, ownership, operational practices, or sustainability maturity, future studies should consider including a larger number of hotels to ensure stronger theoretical generalization.

Data collection procedure

Data were collected through structured questionnaires distributed directly to 265 employees at four 4-star hotels in Yogyakarta. The research object was based on their structured management systems, greater availability of resources, and stronger stakeholder pressure to adopt sustainable practices compared to lower-class hotels. Prior to distribution, each hotel's management provided approval and facilitated access to departments involved in sustainability-related operations. Respondents completed the questionnaire voluntarily and anonymously, reducing evaluation apprehension and minimizing common method bias. To further mitigate common method bias, this study incorporated procedural remedies such as ensuring confidentiality, randomizing questionnaire items, and separating predictor and criterion variables into different questionnaire sections.

The measurement of constructs was adapted from previous studies: green entrepreneurial orientation has 5 indicators from Zhao et al. (2008), Jiang et al. (2018), and Li et al. (2010). Supply chain learning has 6 indicators from Flint et al. (2008). Green radical innovation has 4 indicators from Dai et al. (2015) and Li et al. (2008). Environmental performance has 6 indicators from Vanalle et al. (2017).

Ethical considerations

Participation in this study was voluntary, and all respondents were informed that their responses would be used solely for academic research. No identifying information was collected, and hotel names were anonymized to protect institutional privacy. The study complied with standard ethical guidelines for research involving human participants.

Figure 1 explains the framework of this research. According to Ghozali (2021), indicators with correlation values above 0.7 are considered valid. To test the reliability value between indicators of the constructs that form it, composite reliability is used. Hypothesis testing results are based on p-values < 0.05; the hypothesis is declared accepted (Ghozali, 2021).

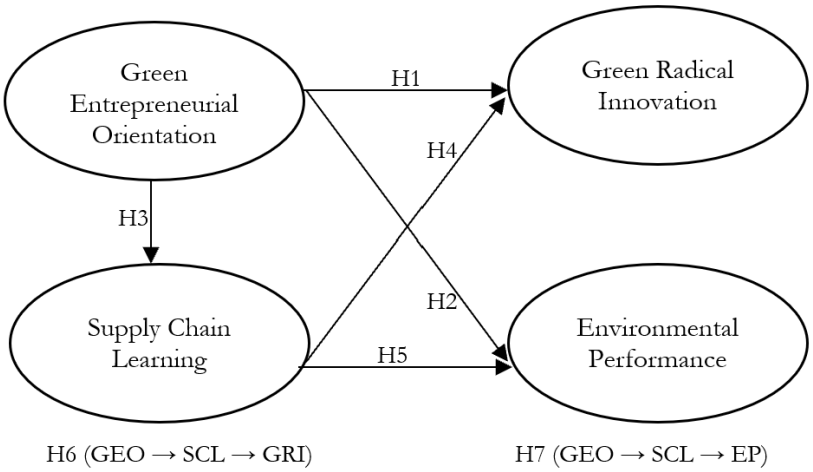

Figure 1. Research Framework

Results and Discussion

Overall, respondents represent a diverse workforce with sufficient work experience and income variation, indicating that they are capable of providing informed perceptions regarding organizational practices and sustainability-related activities. The data in Table 1 describe the characteristics of respondents along with the corresponding sample size in the study.

Table 1. Descriptive Statistics

Characteristics	Frequency	Percentage
Gender		
Male	105	39.62%
Female	160	60.38%
Ages		
22–26 Years old	35	13.20%
27–31 Years old	105	39.63%
32–36 Years old	75	28.30%
37–41 Years old	35	13.20%
>42 Years old	15	5.67%
Work Periods		
1–3 Years	70	26.41%
4–6 Years	145	54.72%
7–9 Years	30	11.32%
> 9 Years	20	7.55%
Income		
IDR 1,000,001–2,000,000	30	11.33%
IDR 2,000,001–3,000,000	95	35.85%
IDR 3,000,001–4,000,000	75	28.30%
IDR 4,000,001–5,000,000	40	15.09%
> IDR 5,000,000	25	9.43%
Position		
Staff	120	45.28%
Supervisor	85	32.08%
Manager	60	22.64%
Department		
Operations	95	35.85%
Housekeeping	50	18.87%
Food & Beverage	60	22.64%
Procurement	30	11.32%
Administration	30	11.32%

Source: Primary data processing

Although the constructs examined in the study were conceptualized at the organizational level, data were collected from individual employees who served as key informants. This approach is widely used in strategic management and organizational behavior research, where employees are regarded as knowledgeable sources of organizational practices. Therefore, their responses are not limited to personal opinions but reflect organizational-level conditions. Furthermore, using multiple respondents helps reduce single-informant bias and enhances the reliability of findings. Accordingly, individual-level data are considered appropriate for representing organizational-level constructs in this study. Including respondents from various organizational positions and departments ensures that participants possess sufficient knowledge of organizational strategies and operational practices. Employees in departments such as operations, procurement, and management are directly involved in implementing sustainability initiatives, supply chain coordination, and innovation activities. Therefore, their responses are considered appropriate for capturing the organizational-level constructs green entrepreneurial orientation, supply chain learning, green radical innovation, and environmental performance.

An analysis was conducted to build a prediction model using the SmartPLS tool. Figure 2 describes the validity results for the influence of variables.

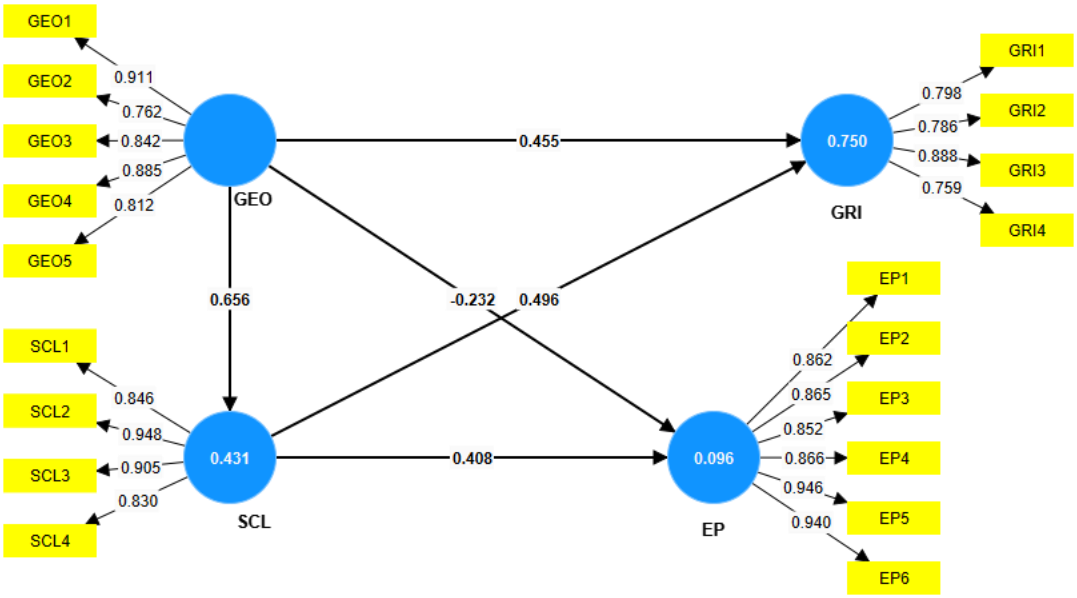

Figure 2. Convergent Validity Test

Table 2. Outer Loading and AVE Test

Variables	Indicators	Outer Loading	AVE	Result
Green Entrepreneurial Orientation (GEO)	GEO1	0.911	0.712	Valid
	GEO2	0.762		
	GEO3	0.842		
	GEO4	0.885		
	GEO5	0.812		
Supply Chain Learning (SCL)	SCL1	0.846	0.781	Valid
	SCL2	0.948		
	SCL3	0.905		
	SCL4	0.830		
Green Radical Innovation (GRI)	GRI1	0.798	0.655	Valid
	GRI2	0.786		
	GRI3	0.888		
	GRI4	0.759		
Environmental Performance (EP)	EP1	0.862	0.791	Valid
	EP2	0.865		
	EP3	0.852		
	EP4	0.866		
	EP5	0.946		
	EP6	0.940		

Source: Primary data processing

In Table 2, all constructs demonstrate satisfactory convergent validity, with indicator loadings and AVE values exceeding.

Table 3. Reliability Test

Variables	Cronbach's Alpha (CA)	Composite Reliability (CR)
Green Entrepreneurial Orientation (GEO)	0.898	0.925
Green Radical Innovation (GRI)	0.823	0.883
Supply Chain Learning (SCL)	0.905	0.934
Environmental performance (EP)	0.947	0.958

Source: Primary data processing

The reliability of the measurement model was assessed using CA and CR in Table 3. All constructs demonstrate satisfactory internal consistency, as both reliability measures exceed the

recommended threshold of 0.70 (Hair et al., 2017). These results indicate that the indicators consistently measure their respective constructs and provide reliable representations of green entrepreneurial orientation, supply chain learning, green radical innovation, and environmental performance. Therefore, the measurement model meets reliability criteria and is suitable for further structural model analysis.

Table 4. R-Square

	R-Square	R-Square Adjusted
Environmental performance (EP)	0.064	0.057
Green Radical Innovation (GRI)	0.610	0.608
Supply Chain Learning (SCL)	0.688	0.685

Source: Primary data processing

The explanatory power of the structural model was assessed using the coefficient of determination (Chin, 1998). As shown in Table 4, green entrepreneurial orientation explains a substantial proportion of the variance in supply chain learning, while green entrepreneurial orientation and supply chain learning jointly explain a moderate proportion of the variance in green radical innovation. In contrast, the model explains a relatively small proportion of the variance in environmental performance, indicating that environmental performance is influenced by additional factors beyond those included in the current model.

Table 5. Fornell-Larcker Criterion

Variables	EP	GEO	GRI	SCL
Environmental Performance (EP)	0.893			
Green Entrepreneurial Orientation (GEO)	0.038	0.844		
Green Radical Innovation (GRI)	0.185	0.780	0.809	
Supply Chain Learning (SCL)	0.206	0.696	0.825	0.830

Source: Primary data processing

Based on Table 5, AVE for environmental performance (EP) is 0.893, green entrepreneurial orientation (GEO) is 0.844, supply chain learning (SCL) is 0.830, and green radical innovation (GRI) is 0.809. These values indicate that each construct has adequate discriminant validity and can be clearly distinguished from the other constructs in this research model (Fornell-Larcker, 1981).

Table 6. Direct and Indirect Path Coefficient Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T-statistics (|O/STDEV|)	P-values
GEO → GRI	0.455	0.455	0.054	8.375	0.000
GEO → EP	-0.232	-0.234	0.092	2.517	0.012
GEO → SCL	0.656	0.658	0.041	16.063	0.000
SCL → GRI	0.496	0.497	0.052	9.534	0.000
SCL → EP	0.408	0.408	0.098	4.156	0.000
GEO → SCL → GRI	0.326	0.327	0.039	8.375	0.000
GEO → SCL → EP	0.268	0.269	0.067	4.011	0.000

Source: Primary data processing

Discussion

Green entrepreneurial orientation and green radical innovation

Table 6 shows that companies with a green entrepreneurial orientation tend to be able to produce environmentally friendly radical innovations. Khalid et al. (2020) prove that green entrepreneurial orientation, social innovation, and innovation facilitate green radical innovation and support company performance. Green entrepreneurial orientation provides the foundation and strategic

intent to adopt environmentally friendly innovations that are radical and transformative in nature (Zhou et al., 2018).

Furthermore, this finding is supported by the work of Song and Yu (2018), who emphasized that green-oriented entrepreneurs often push the boundaries of traditional innovation by making sustainability a key driver of change. This orientation enables firms to adopt disruptive green technologies and processes that significantly reduce environmental impacts. In this regard, green entrepreneurial orientation not only supports green radical innovation but also aligns firms' long-term sustainability goals and competitive advantage (Schaltegger & Wagner, 2011).

Companies with green entrepreneurial orientation can both sense opportunities and seize them in the form of green radical innovation. This shows that green entrepreneurial orientation serves as an initial dynamic capability that drives the creation of radically new environmentally friendly products or processes. These results are in line with Teece (2018) view that an orientation towards innovation and sustainability allows organizations to continuously adapt and create environmentally based competitive advantages.

Green entrepreneurial orientation and environmental performance

Green entrepreneurial orientation does not positively influence environmental performance. Although this relationship is statistically significant, its negative direction indicates that a higher level of green orientation does not automatically improve environmental performance and may even decrease it in certain contexts. This can be interpreted as a consequence of trade-offs in implementing green strategies in the early stages, such as high investment costs for green innovation, technological unpreparedness, or a lack of organizational competence in managing green transformation efficiently. Several previous studies provide similar indications. Teece (2012) and Guo et al. (2017) explain that although green entrepreneurial orientation is important as a strategic direction, positive results on environmental performance will only occur if accompanied by organizational capabilities to absorb, implement, and disseminate green knowledge effectively. Without such support, green entrepreneurial orientation can lead to inefficiency or ineffectiveness in achieving environmental targets. In addition, Demirel et al. (2019) noted that many companies that have just implemented green entrepreneurial orientation experience decreased efficiency due to the initial burden of green investment and internal resistance to change.

Several previous studies provide similar evidence. Guo et al. (2017) found that companies with green entrepreneurial orientation may still experience declining environmental performance when internal absorptive capacity is weak, because adopting green initiatives requires adequate organizational learning and adaptation mechanisms. Similarly, Teece (2012) emphasized that dynamic capabilities are necessary to translate entrepreneurial orientation into tangible performance outcomes. Without these capabilities, such an orientation can lead to resource misallocation and inefficiency. Jiang et al. (2018) noted that although green entrepreneurial orientation promotes environmental initiatives, many companies struggle to translate this orientation into measurable environmental benefits because of resistance to change and technological barriers. Green entrepreneurial orientation itself can even create short-term inefficiencies before long-term environmental benefits are realized (Demirel et al., 2019; Guo et al., 2017).

Green entrepreneurial orientation and supply chain learning

Green entrepreneurial orientation positively influences supply chain learning. Based on dynamic capability theory by Teece (2014), this reflects the transforming function, where green entrepreneurial orientation encourages collaborative learning in the supply chain as a form of organizational adaptation to changing environmental challenges. Results align with Shan et al. (2016), which show that companies with green entrepreneurial orientation tend to create a learning atmosphere, encourage learning behavior, and provide space for a learning environment within the company. When a company implements green entrepreneurial orientation, it affects supply chain learning because it encourages learning behavior, facilitates a learning environment, and provides support for the supply chain learning process (Pratono et al., 2019).

Green-oriented entrepreneurial firms are more likely to engage in organizational learning processes as they seek to integrate sustainability into their operations (Yousaf et al., 2022). This includes learning from supply chain partners, adapting to regulatory and market changes, and continuously improving green practices. Therefore, green entrepreneurial orientation positively influences supply chain learning by promoting a mindset open to change, experimentation, and collaboration across the supply chain (Chen et al., 2014; Shan et al., 2016). It not only supports internal learning processes but also enhances knowledge sharing among partners, enabling companies to co-create green solutions and adapt quickly to environmental demands.

Supply chain learning and green radical innovation

Supply chain learning positively influences green radical innovation. This indicates that a higher level of supply chain learning significantly enhances a company's ability to develop green radical innovation (Guo et al., 2018). The more intensive the learning process throughout the supply chain—through knowledge acquisition, assimilation, and application—the greater the company's potential to create breakthrough green innovations (Zhu et al., 2019). This finding implies that companies engaged in collaborative learning with suppliers, customers, and other stakeholders are better able to generate innovative solutions that transform products, processes, and technologies to achieve sustainability goals (Chen et al., 2014; Dai et al., 2015).

Knowledge flows across the supply chain enhance eco-innovation performance, enabling companies to create more sustainable solutions (Zhu et al., 2019). Jiang et al. (2018) further asserted that collaboration between supply chain partners accelerates the development of radical innovations, while Tseng et al. (2019) highlighted that sustainability-driven learning fosters disruptive innovation processes. Zeng et al. (2017) explained that this learning and collaboration process aligns with the dynamic capabilities framework, where supply chain learning enables companies to sense, utilize, and transform resources into groundbreaking environmental innovations. Thus, based on previous empirical evidence, supply chain learning serves as a strategic learning mechanism that not only supports incremental improvements but also encourages the creation of radical environmentally friendly innovations, positioning companies to achieve long-term sustainability and competitiveness. When companies focus on supply chain learning and collaborate with their partners, they are also able to share information, develop technology, and pursue green radical innovation.

Supply chain learning and environmental performance

Supply chain learning positively influences environmental performance. Companies that actively engage in knowledge sharing and collaboration with suppliers, customers, and other stakeholders are more adaptable in adopting environmentally friendly technologies and better able to implement sustainable practices, such as waste reduction, efficient energy use, and environmentally friendly production processes. Knowledge is a key strategic resource that can generate competitive advantage when companies are able to access, assimilate, and apply it effectively (Grant & -Fuller, 2004; Nonaka, 2007).

In the context of supply chain collaboration, companies rely not only on internal knowledge but also on external knowledge built through strategic partnerships, which supports greater environmental efficiency (Yunis & Michalisin, 2016). Guo et al. (2017) also found that organizations that systematically develop connectivity with external partners are more successful at identifying ecological opportunities that generate green added value. Furthermore, research by Woldesenbet et al. (2012) and Teece (2014) shows that market dynamics demanding sustainability encourage companies to reconstruct their internal and external resources through continuous learning, including learning from supply chain partners. Empirical evidence also supports these findings. Supply chain learning increases a company's agility in adopting environmentally friendly practices (Huo et al., 2021a), while Farrukh et al. (2022) confirm that cross-organizational knowledge sharing supports improved environmental performance through energy efficiency and waste minimization. Therefore, if companies actively practice supply chain learning, they can achieve superior environmental outcomes by integrating sustainable operations.

Green entrepreneurial orientation and green radical innovation with supply chain learning as mediation

Supply chain learning mediates the influence of green entrepreneurial orientation on green radical innovation. Firms with green entrepreneurial orientation are more likely to engage in collaborative learning across the supply chain, sharing and integrating green knowledge with their partners (Shan et al., 2016; Pratono et al., 2019). This learning capability enables them to acquire new insights, adapt green technologies, and co-develop innovative environmental solutions. Guo et al. (2018) found that higher levels of supply chain learning are often driven by entrepreneurial orientation, and this, in turn, increases a firm's capacity to generate green radical innovation. Therefore, the presence of supply chain learning enhances the pathway from green entrepreneurial orientation to green radical innovation, making it an effective mediating mechanism. Companies that foster green entrepreneurial orientation not only benefit directly from innovation but also indirectly through increased learning across the supply chain, which amplifies their green innovation outcomes.

Green entrepreneurial orientation and environmental performance with supply chain learning as mediation

Supply chain learning mediates the influence of green entrepreneurial orientation on environmental performance. Teece (2014) views dynamic capacity, including learning, as important for identifying and exploiting environmental opportunities. Demirel et al. (2019) and Farrukh et al. (2022) also state that collaborative learning encourages companies to develop more innovative and integrated green solutions. Furthermore, Huo et al. (2021b) emphasize that learning in the supply chain supports the development of organizational capabilities needed to carry out sustainable innovation, including in green product design and efficient resource management. Green entrepreneurial orientation encourages companies to continuously update and enhance their capabilities in managing environmentally friendly and innovative supply chains, promoting supply chain learning (Shan et al., 2016). With supply chain learning, companies can improve operational flexibility, product innovation, process efficiency, and adaptation to environmental regulations (Huo et al., 2021a). Thus, the mediating role of supply chain learning strengthens the understanding that green entrepreneurial orientation needs to be facilitated through a strong learning system to achieve optimal environmental performance.

Conclusion

This study shows that green entrepreneurial orientation has a positive effect on green radical innovation, a negative effect on environmental performance, and a positive effect on supply chain learning. Supply chain learning has a positive effect on green radical innovation and on environmental performance. Supply chain learning mediates the effects of green entrepreneurial orientation on both green radical innovation and environmental performance. However, this study also has limitations, such as the sample size of 265 employees, all of whom were from a single hotel in Yogyakarta. This may not represent the full range of opinions, thoughts, and knowledge of individuals regarding the variables studied. For further research, using more diverse methods, such as in-depth interviews or observations, can help overcome obstacles in completing questionnaires and yield more accurate, objective data. In terms of research objects, further research should not focus on a single company or organization but should involve several companies in the same or different industries, so the results can reflect conditions more broadly.

Theoretical implications

This study contributes to the literature on green entrepreneurship and supply chain management by integrating dynamic capabilities theory and the knowledge-based view to explain how green entrepreneurial orientation affects sustainability outcomes indirectly through supply chain learning. The findings clarify that green entrepreneurial orientation functions as a dynamic capability that requires complementary knowledge-based mechanisms to translate entrepreneurial intent into environmental value, helping to explain the inconsistent empirical evidence regarding its direct effect on environmental performance. Furthermore, this study extends green innovation research by empirically confirming the mediating role of supply chain learning in linking entrepreneurial

orientation to green radical innovation, highlighting interorganizational learning as a critical mechanism in sustainability-driven innovation, particularly in the hospitality sector of a developing economy.

Practical implications

From a managerial perspective, the findings emphasize that green entrepreneurial strategies are more effective when supported by robust supply chain learning processes. Hotel managers should actively foster knowledge sharing, collaboration, and learning with suppliers and strategic partners rather than relying solely on entrepreneurial commitment to environmental values. Investments in employee training, cross-functional learning initiatives, and digital supply chain platforms enhance the development of green radical innovation and improve environmental performance. By embedding learning-oriented practices into supply chain relationships, organizations can strengthen operational efficiency and achieve sustainable competitive advantage in increasingly sustainability-driven markets.

Acknowledgment

We thank the employees of the hotel in Yogyakarta, Indonesia, for participating in this study and assisting with data collection. We also thank anonymous reviewers for their helpful comments and suggestions.

References

Al Koliby, I. S., Al-Hakimi, M. A., Zaid, M. A. K., Khan, M. F., Hasan, M. B., & Alshadadi, M. A. (2024). Green entrepreneurial orientation and technological green innovation: does resource orchestration capability matter? *The Bottom Line, 37*(1), 45–70. https://doi.org/10.1108/BL-06-2023-0199

Alonso-Almeida, M. D. M., Rocafort, A., & Borrajo, F. (2016). Shedding light on eco-innovation in tourism: a critical analysis. *Sustainability, 8*(12), 1262. https://doi.org/10.3390/su8121262

Alreahi, M., Bujdosó, Z., Dávid, L. D., & Gyenge, B. (2023). Green supply chain management in the hotel industry: a systematic review. *Sustainability, 15*(7), 5622. https://doi.org/10.3390/su15075622

Caniels, M. C. J., Lenaerts, H. K. L., & Gelderman, C. J. (2013). Explaining the dynamics of information sharing in supply chains. *Supply Chain Management: An International Journal, 18*(4), 414–423. https://doi.org/10.1108/SCM-09-2012-0289

Castellacci, F., & Lie, C. M. (2017). A taxonomy of green innovators: empirical evidence from South Korea. *Journal of Cleaner Production, 143*, 1036–1047. https://doi.org/10.1016/j.jclepro.2016.12.016

Chen, Y. S., & Chang, C. H. (2013). Enhance environmental commitments and green intangible assets toward green competitive advantages: an analysis of structural equation modeling (SEM). *Quality & Quantity, 47*(2), 529–543. https://doi.org/10.1007/s11135-011-9535-9

Chen, Y.-S., Chang, C.-H., & Lin, Y.-H. (2014). The determinants of green radical and incremental innovation performance: green shared vision, green absorptive capacity, and green organizational ambidexterity. *Sustainability, 6*(11), 7787–7806. https://doi.org/10.3390/su6117787

Chin, W., W. (1998). The partial least squares approach for structural equation modeling. In George A. Marcoulides (Ed.), *Modern Methods for Business Research*, Lawrence Erlbaum Associates.

Chuang, S. H., & Yang, C. L. (2013). Key success factors when implementing a knowledge management system in the health care industry. *Journal of Medical Systems, 37*(6), 1–10. https://doi.org/10.1007/s10916-013-9985-3

Dai, J., Cantor, D. E., & Montabon, F. L. (2015). How environmental management competitive pressure affects a focal firm's environmental innovation activities: a green supply chain perspective. *Journal of Business Logistics, 36*(3), 242–259. https://doi.org/10.1111/jbl.12094

Das, M., & Rangarajan, K. (2020). Impact of policy initiatives and collaborative synergy on sustainability and business growth of Indian SMEs. *Indian Growth and Development Review, 13*(3), 607–627. https://doi.org/10.1108/IGDR-09-2019-0095

Demirel, P., Li, Q. C., Rentocchini, F., & Tamvada, J. P. (2019). Born to be green: new insights into the economics and management of green entrepreneurship. *Small Business Economics, 52*(4), 759–771. https://doi.org/10.1007/s11187-017-9933-z

Farrukh, M., Lee, J. W. C., Sajid, M., & Waheed, A. (2022). Entrepreneurial orientation and sustainability orientation: the mediating role of sustainable supply chain management practices. *Sustainability, 14*(5), 2786. https://doi.org/10.3390/su14052786

Fernández-Mesa, A., & Alegre, J. (2015). Entrepreneurial orientation and export intensity: examining the interplay of organizational learning and innovation. *International Business Review, 24*(1), 148–156. https://doi.org/10.1016/j.ibusrev.2014.07.004

Flint, D. J., Larsson, E., Gammelgaard, B., & Mentzer, J. T. (2008). Exploring processes for customer value insights, supply chain learning and innovation: an international study. *Journal of Business Logistics*, *29*(1), 257–281. https://doi.org/10.1002/j.2158-1592.2008.tb00078.x

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.2307/3151312

García-Pozo, A., Sánchez-Ollero, J. L., & Marchante-Lara, M. (2015). Eco-innovation and management: an empirical analysis of environmental good practices and labour productivity in the Spanish hotel industry. *Innovation: Organization & Management, 17*(1), 58–68. https://doi.org/10.1080/14479338.2015.1011057

Ghozali, I. (2021). *Partial Least Squares: Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS 3.3*. Badan Penerbit Universitas Diponegoro.

Grant, R. M., & Baden-Fuller, C. (1995). A knowledge-based theory of inter-firm collaboration. *Academy of Management Best Papers Proceedings, 1995*(1), 17–21. https://doi.org/10.5465/ambpp.1995.17536229

Grant, R. M., & Baden-Fuller, C. (2004). A knowledge accessing theory of strategic alliances. *Journal of Management Studies, 41*(1), 61–84. https://doi.org/10.1111/j.1467-6486.2004.00421.x

Guo, H., Tang, J., Su, Z., & Katz, J. A. (2017). Opportunity recognition and SME performance: the mediating effect of business model innovation. *R&D Management, 47*(3), 431–442. https://doi.org/10.1111/radm.12219

Guo, Y., Wang, L., & Xie, Y. (2018). Green innovation, green entrepreneurial orientation and supply chain learning: evidence from manufacturing firms in China. *Business and Management*. https://doi.org/10.20944/preprints201805.0232.v1

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Sage Publications.

Han, H., Yu, J., & Kim, W. (2019). Environmental corporate social responsibility and the strategy to boost the airline's image and customer loyalty intentions. *Journal of Travel & Tourism Marketing, 36*(3), 371–383. https://doi.org/10.1080/10548408.2018.1557580

Haq, M. A. U., Aslam, S., & Irum, S. (2020). Green supply chain management, environmental collaboration and sustainable performance: evidence from manufacturing firms.

International Journal of Innovation Science, 12(3), 333–352. https://doi.org/10.1108/IJIS-12-2018-0135

Huo, B., Gu, M., Wang, Z., & Zhao, X. (2021a). Supply chain learning, integration, and agility: an extended resource-based view. *International Journal of Operations & Production Management*, *41*(5), 501–528.

Huo, B., Haq, M. Z. U., & Gu, M. (2021b). The impact of information sharing on supply chain learning and flexibility performance. *International Journal of Production Research, 59*(5), 1411–1434. https://doi.org/10.1080/00207543.2020.1824082

Jiang, W., Chai, H., Shao, J., & Feng, T. (2018). Green entrepreneurial orientation for enhancing firm performance: a dynamic capability perspective. *Journal of Cleaner Production, 198*, 1311–1323. https://doi.org/10.1016/j.jclepro.2018.07.104

Karakaş-Kelten, Z., Savaş, H., Balcioğlu, Y. S., & Sezen, B. (2026). The impact of green supply chain management practices on performance: an PLS-SEM analysis for environmentally friendly accommodation enterprises. *Future Business Journal, 12*(1), Article 87. https://doi.org/10.1186/s43093-026-00766-0

Khalid, N., Salykova, L., & Capar, N. (2020). The contribution of environmental strategies, entrepreneurial innovation and entrepreneurial orientation in enhancing firm environmental performance and energy efficiency. *International Journal of Energy Economics and Policy, 10*(3), 282–288. https://doi.org/10.32479/ijeep.9226

Leonidou, L. C., Christodoulides, P., Kyrgidou, L. P., & Palihawadana, D. (2017). Internal drivers and performance consequences of small firm green business strategy: the moderating role of external forces. *Journal of Business Ethics, 140*(3), 585–606. https://doi.org/10.1007/s10551-015-2670-9

Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., & Rao, S. S. (2010). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega, 34*(2), 107–124. https://doi.org/10.1016/j.omega.2004.08.002

Li, S., Rao, S. S., Ragu-Nathan, T. S., & Ragu-Nathan, B. (2008). Development and validation of a measurement instrument for studying supply chain management practices. *Journal of Operations Management, 23*(6), 618–641. https://doi.org/10.1016/j.jom.2005.01.002

Martínez-Pérez, B., De la Torre-Díez, I., & López-Coronado, M. (2015). Privacy and security in mobile health apps: a review and recommendations. *Journal of Medical Systems, 39*(1), Article 181. https://doi.org/10.1007/s10916-014-0181-3

Migdadi, Y. K. A. (2023). Identifying the best practices in hotel green supply chain management strategy: a global study. *Journal of Quality Assurance in Hospitality & Tourism, 24*(4), 504–544. https://doi.org/10.1080/1528008X.2022.2065657

Mustofa, M. S., Wijaya, A., & Mulyono, K. B. (2024). Tourism development: economic interests and environmental problems (Yogyakarta tourism destinations study, Indonesia). *International Journal of Religion, 5*(6), 816–822. https://doi.org/10.61707/wpmwf309

Nilashi, M., Ahani, A., Esfahani, M. D., Yadegaridehkordi, E., Samad, S., Ibrahim, O., & Akbari, E. (2019). Preference learning for eco-friendly hotels recommendation: a multi-criteria collaborative filtering approach. *Journal of Cleaner Production, 215*, 767–783. https://doi.org/10.1016/j.jclepro.2019.01.012

Nonaka, I. (2007). The Knowledge-Creating Company. *Harvard Business Review, 85*(7–8), 162–171. https://hbr.org/2007/07/the-knowledge-creating-company

Ozturk, R., Öztürk, M., & Kızılkan, Z. (2024). Meta-analysis of the relationship between green entrepreneurial orientation and sustainable firm performance. *Sustainability, 16*(24), 11224. https://doi.org/10.3390/su162411224

Pratono, A. H., Darmasetiawan, N. K., Yudiarso, A., & Jeong, B. G. (2019). Achieving sustainable competitive advantage through green entrepreneurial orientation and market orientation: the role of inter-organizational learning. *The Bottom Line, 32*(1), 2–15. https://doi.org/10.1108/BL-10-2018-0045

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment, 20*(4), 222–237. https://doi.org/10.1002/bse.682

Shan, P., Song, M., & Ju, X. (2016). Entrepreneurial orientation and performance: is innovation speed a missing link? *Journal of Business Research, 69*(2), 683–690. https://doi.org/10.1016/j.jbusres.2015.08.032

Song, W., & Yu, H. (2018). Green innovation strategy and green innovation: the roles of green creativity and green organizational identity. *Corporate Social Responsibility and Environmental Management, 25*(2), 135–150. https://doi.org/10.1002/csr.1445

Teece, D. J. (2012). Dynamic capabilities: routines versus entrepreneurial action. *Journal of Management Studies*, *49*(8), 1395–1401. https://doi.org/10.1111/j.1467-6486.2012.01080.x

Teece, D. J. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies, 45*(1), 8–37. https://doi.org/10.1057/jibs.2013.54

Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management & Organization, 24*(3), 359–368. https://doi.org/10.1017/jmo.2017.75

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Tseng, M.-L., Tan, R. R., Chiu, A. S. F., Chien, C.-F., & Kuo, T.-C. (2019). Circular economy meets industry 4.0: can big data drive industrial symbiosis? *Resources, Conservation and Recycling, 141*, 308–316. https://doi.org/10.1016/j.resconrec.2017.12.028

UNEP. (2021). *Tourism and Climate Change Report*. United Nations Environment Programme.

UNWTO. (2022). *Sustainable Tourism and Climate Action Report*. World Tourism Organization.

Vanalle, R. M., Ganga, G. M. D., Godinho Filho, M., & Lucato, W. C. (2017). Green supply chain management: an investigation of pressures, practices, and performance within the Brazilian automotive supply chain. *Journal of Cleaner Production, 151*, 250-259. https://doi.org/10.1016/j.jclepro.2017.03.066

Wang, J., Wang, S., Wang, Y., Li, J., & Zhao, D. (2018). Extending the theory of planned behavior to understand consumers' intentions to visit green hotels in the Chinese context. *International Journal of Contemporary Hospitality Management, 30*(8), 2810–2825. https://doi.org/10.1108/IJCHM-04-2017-0223

Willis, A., Small, I., & Zurek, M. (2016). Scenarios to project and assess the resilience of food systems. *Global Food Security*, *9*, 17–23. https://doi.org/10.1016/j.gfs.2016.06.002

Woldesenbet, K., Ram, M., & Jones, T. (2012). Supplying large firms: the role of entrepreneurial and dynamic capabilities in small businesses. *International Small Business Journal: Researching Entrepreneurship, 30*(5), 493–512. https://doi.org/10.1177/0266242610396390

Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods (6th ed.)*. Thousand Oaks, CA: Sage

Yousaf, Z., Sahar, N. U., Majid, A., & Yasir, M. (2022). Linking entrepreneurial orientation and green innovation performance: the role of learning capability and transformational leadership. *Journal of Cleaner Production, 367*, 132961. https://doi.org/10.1016/j.jclepro.2022.132961

Yu, W., Chavez, R., Jacobs, M. A., & Feng, M. (2017). Data-driven supply chain capabilities and performance: a resource-based view. *Transportation Research Part E: Logistics and Transportation Review, 114*, 371–385. https://doi.org/10.1016/j.tre.2017.04.002

Yunis, M., & Michalisin, M. D. (2016). An entrepreneurial orientation and environmental sustainability. *Journal of Strategic Innovation and Sustainability*, *11*(2), 9–21.

Zeng, D., Hu, J., & Ouyang, T. (2017). Managing innovation paradox in the sustainable innovation ecosystem: a case study of ambidextrous capability in a focal firm. *Sustainability, 9*(11), 2091. https://doi.org/10.3390/su9112091

Zhao, X., Huo, B., Flynn, B. B., & Yeung, J. H. Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of Operations Management, 26*(3), 368–388. https://doi.org/10.1016/j.jom.2007.08.002

Zhou, Y., Hong, J., Zhu, K., Yang, Y., & Zhao, D. (2018). Dynamic capability matters: uncovering its fundamental role in decision-making of environmental innovation. *Journal of Cleaner Production, 177*, 516–526. https://doi.org/10.1016/j.jclepro.2017.12.208

Zhu, Q., Liu, J., & Lai, K. H. (2019). Corporate green innovation, supply chain learning, and firm performance: evidence from an emerging economy. *Journal of Cleaner Production, 214*, 348–357. https://doi.org/10.1016/j.jclepro.2018.12.302