

From Strategic Planning to Innovation: The Mediating Role of Environmental Proactivity in Food Industry Firms

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Abstract: This study examines how strategic planning and environmental proactivity relate to firm-level innovation in small and medium-sized enterprises. Drawing on the resource-based view and dynamic capabilities perspective, the study conceptualizes strategic planning and environmental proactivity as complementary organizational capabilities that enable firms to respond to sustainability-related challenges while fostering innovation. Recent research has emphasized that environmental proactivity can function as a strategic resource rather than compliance-driven costs. However, empirical evidence on how these capabilities jointly relate to different types of innovation remains limited. Using survey data from 185 food industry firms and covariance-based structural equation modeling, the study examines relationships between strategic planning, environmental proactivity, operational innovation, and market-oriented innovation. The results indicate that strategic planning is positively associated with operational innovation and market-oriented innovation. Environmental proactivity shows a strong positive relationship with operational innovation and a moderate but significant association with market-oriented innovation. The study contributes to sustainability and innovation research by demonstrating how strategic and environmental capabilities jointly shape innovation within SMEs. For practitioners, the findings highlight the importance of integrating environmental considerations into formal strategic planning processes to support innovation.

Keywords: Strategic Planning, Environmental Proactivity, Innovation, SMEs, Food Industry

1. Introduction

Firms across industries face increasing pressure to respond simultaneously to competitive dynamics and escalating environmental demands. Climate change, resource scarcity, and tightening environmental regulation have shifted sustainability from a peripheral concern to a central strategic issue for firms. In parallel, innovation remains a key mechanism through which firms seek to enhance competitiveness, efficiency, and market relevance. As a result, understanding how sustainability-oriented practices interact with firm-level innovation has become a critical topic in management research (Delmas, Lyon, & Maxwell, 2019).

A growing body of literature suggests that environmental initiatives can function not only as compliance mechanisms but also as sources of strategic advantage. Early work grounded in the resource-based view argued that environmental proactivity may generate valuable, rare, and difficult-to-imitate resources (Aragón-Correa & Sharma, 2003). More recent studies have extended this view by emphasizing the role of organizational capabilities, such as strategic planning and environmental proactivity in enabling firms to adapt to sustainability-related challenges while fostering innovation (Teece, 2007, 2018).

Strategic planning represents a central managerial capability through which firms articulate long-term objectives, allocate resources, and coordinate organizational activities. Prior research has consistently linked strategic planning to improved firm performance and innovation outcomes (Mousa, Ali, & Gurler, 2024), particularly in small and medium-sized enterprises where formal structures are often less developed (Brinckmann, Grichnik, & Kapsa, 2010). By providing clarity of direction and coherence in decision-making, strategic planning may also facilitate the integration of environmental considerations into core business processes rather than treating them as isolated initiatives.

Environmental proactivity refers to a firm's voluntary and forward-looking efforts to reduce environmental impacts beyond regulatory requirements. Empirical research increasingly shows that environmentally proactive firms are more likely to engage in innovation activities, as sustainability challenges often stimulate process and product improvements and the exploration of new markets (Dangelico & Vocalelli, 2017). From a dynamic capabilities perspective, environmental proactivity can be viewed as a sensing and seizing capability that enables firms to anticipate environmental pressures and reconfigure resources accordingly (Teece, 2007).

Despite these advances, important gaps remain in the literature. While prior studies have examined the links between environmental practices and innovation, they often treat innovation as a unidimensional construct. This approach overlooks the possibility that different types of innovation—such as operational innovation aimed at efficiency improvements and market-oriented innovation focused on products, markets, and

commercialization—may respond differently to strategic and environmental capabilities. Second, existing research has largely focused on large firms, leaving smaller firms underrepresented, even though they play a critical role in sustainability transitions (Delmas et al., 2019). Third, relatively little empirical work has examined how strategic planning and environmental proactivity jointly relate to innovation outcomes within an integrated structural framework.

Addressing these gaps, the present study investigates how strategic planning and environmental proactivity are associated with two distinct dimensions of innovation: operational innovation and market-oriented innovation. Drawing on the resource-based view and the dynamic capabilities framework, the study conceptualizes strategic planning and environmental proactivity as complementary organizational capabilities that jointly shape firms' innovation behavior. Using survey data from 185 firms operating in food industry and applying covariance-based structural equation modelling, the study empirically tests a model linking these capabilities to innovation outcomes.

This study contributes to sustainability and innovation research by showing that environmental proactivity is positively associated with both operational and market-oriented innovation, while strategic planning acts as an enabling capability supporting innovation alongside environmental initiatives. By distinguishing between operational and market-oriented innovation, the study provides a more nuanced understanding of how sustainability-oriented capabilities translate into different innovation outcomes. The findings also offer practical insights by emphasizing the importance of integrating environmental considerations into formal strategic planning processes rather than treating them as reactive measures.

2. Theory and Hypotheses

2.1 Strategic Planning and Innovation

Strategic planning is commonly understood as the extent to which firms articulate goals and develop long-term plans to guide activities and allocate resources systematically (Armstrong, 1982). In a similar vein, Wolf and Floyd (2017) conceptualize strategic planning as a relatively formalized and structured process encompassing strategy formulation, implementation, and control. This structured orientation provides a foundation for coordinating organizational efforts and aligning resources with strategic objectives. Innovation, in turn, has been conceptualized from multiple perspectives. At the organizational level, it reflects a firm's propensity to be creative, proactive, future-oriented, open to change, and willing to take risks (Shoham et al., 2012). From a process perspective, innovation involves the generation and implementation of new or improved products, services, processes, or practices aimed at enhancing firm competitiveness (Forsman, 2011). Underpinning these processes are organizational capabilities, which capture a firm's ability to sense environmental changes, learn, and respond effectively (Den Hertog et al., 2010). More broadly, capabilities can be viewed as mechanisms that transform resources into desired outcomes (Dutta et al., 2005), or as bundles of skills and knowledge that enable firms to coordinate activities and leverage assets for competitive advantage (Day, 1994). Within this context, innovation capability is a multidimensional construct and can be understood as a firm's ability to acquire, integrate, and apply knowledge to generate new ideas, products, or processes (Hurtado-Palomino et al., 2022). Lawson and Samson (2001) further conceptualize innovation capability as a framework of organizational actions that enhance the success of innovation activities. Together, these perspectives emphasize that innovation capability is rooted in organizational learning, resource integration, and coordinated action.

A growing body of research suggests that strategic planning plays a critical role in the development of such capabilities. Empirical studies link strategic planning to outcomes such as innovativeness (Davis & Bendickson, 2021) and strategic learning (Sirén & Kohtamäki, 2016), indicating that planning processes contribute to capability building. Firms facing changing conditions tend to develop planning approaches that balance flexibility with specificity. In line with this view, Araújo et al. (2022) argue that strategic planning supports both the development and execution of dynamic capabilities by enabling firms to identify opportunities, align internal resources, and coordinate actions in pursuit of innovation. Strategic planning also facilitates innovation by providing strategic direction, helping firms anticipate environmental changes, mobilize resources efficiently, and align innovation initiatives with long-term objectives (Posch & Garaus, 2020; Araújo et al., 2022). Furthermore, planning routines structure how knowledge is gathered, interpreted, and utilized, thereby enabling organizations to respond to emerging opportunities.

However, the relationship between strategic planning and innovation is not uniform across all forms of innovation. For instance, service innovation may follow different underlying mechanisms than product

innovation, reflecting its more intangible and process-oriented nature (Jansen et al., 2016). Innovation is commonly understood as a multidimensional construct comprising several dimensions, such as product, process, market, behavioral, and strategic innovativeness (Wang & Ahmed, 2004). Consequently, the influence of strategic planning on innovation outcomes is likely to vary across different types and dimensions of innovation, depending on how strategic intentions are translated into specific organizational practices.

2.2 Environmental Proactivity as a Strategic Capability

Environmental proactivity refers to firms' forward-looking efforts to reduce their environmental impact beyond regulatory compliance (Aragón-Correa & Sharma, 2003; González-Benito & González-Benito, 2006; Delmas et al. 2011). Such efforts include setting environmental goals, systematically measuring environmental performance, and integrating environmental considerations into purchasing, production, and product design decisions (González-Benito & González-Benito, 2006). While environmental proactivity primarily aims to improve firms' environmental performance, it has also been linked to improved overall firm performance (e.g., Könönen & Joensuu-Salo, 2025; Torrent-Sellens, Ficapal-Cusí, & Enache-Zegheru, 2022). From a resource-based and dynamic capabilities perspective, environmental proactivity can be understood as a strategic capability that enables firms to sense emerging environmental demands, seize new opportunities, and reconfigure internal processes accordingly (Teece, 2007; Aragón-Correa & Sharma, 2003). In this sense, environmental proactivity reflects a firm's orientation toward anticipating and addressing environmental challenges through organizational actions. It is therefore closely related to firms' broader proactive strategic orientation (Sharma et al., 2007; Tyler et al., 2023).

Environmental proactivity has been shown to foster learning and cross-functional collaboration (Kitsis & Chen, 2023; Sharma & Vredenburg, 1998), thereby supporting firms' ability to generate and implement innovation. Proactive environmental practices often require firms to rethink production processes, invest in cleaner technologies, and develop new solutions that reduce resource use and environmental harm (Dangelico & Vocalelli, 2017). As a result, environmental proactivity is particularly closely linked to operational innovation, as it directly challenges existing routines and encourages process improvements. Environmental proactivity can also support market-oriented innovation by enabling firms to respond to changing customer preferences, differentiate offerings, and access environmentally conscious markets (Dangelico & Pujari, 2010).

Importantly, environmental proactivity may serve as a mechanism that translates strategic intent into concrete innovation activities. While strategic planning defines goals and directions, environmental proactivity operationalizes these intentions by embedding them into day-to-day practices and decision-making processes.

2.3 Hypotheses Development

Strategic planning provides a foundation for environmental proactivity by articulating long-term objectives and legitimizing investments in environmental practices. Firms with more systematic planning are better positioned to anticipate future environmental requirements, allocate resources to environmental initiatives, and integrate environmental considerations into their overall strategy. Furthermore, prior research indicates that environmental proactivity tends to co-occur with a broader proactive strategic orientation within firms (Tyler et al., 2023; Sharma et al., 2007). As systematic strategic planning reflects such an orientation, firms engaging in it are more likely to adopt proactive environmental practices. Consequently, strategic planning is expected to be positively associated with environmental proactivity.

H1: Strategic planning is positively associated with environmental proactivity.

Strategic planning may directly influence innovation outcomes (Davis & Bendickson, 2021), particularly those related to markets and commercialization. By clarifying strategic priorities and growth paths, planning activities can support decisions related to product development, market entry, and the adoption of new distribution channels. Therefore, a positive relationship between strategic planning and market-oriented innovation is expected.

In contrast, the relationship between strategic planning and operational innovation is less straightforward. Operational innovation often involves incremental process improvements and efficiency-enhancing changes that emerge from learning-by-doing and problem-solving rather than from formal strategic plans alone. As such, strategic planning may not be sufficient to directly stimulate operational innovation without complementary mechanisms.

H2a: Strategic planning is positively associated with market-oriented innovation.

H2b: Strategic planning is positively associated with operational innovation.

Environmental proactivity is expected to have a positive effect on both operational and market-oriented innovation. Environmental proactivity frequently requires changes in production processes, investments in new technologies, and improvements in resource efficiency (Dangelico & Vocalelli, 2017), thereby fostering operational innovation. At the same time, environmental proactivity can enhance firms' ability to develop environmentally differentiated products, strengthen their market position, and respond to environmentally conscious customers (Dangelico & Pujari, 2010), supporting market-oriented innovation.

H3a: Environmental proactivity is positively associated with operational innovation.

H3b: Environmental proactivity is positively associated with market-oriented innovation.

Taken together, strategic planning and environmental proactivity suggest a sequential process through which strategic intent is translated into innovation outcomes. Strategic planning alone may be insufficient to drive certain forms of innovation, particularly operational innovation, unless it is accompanied by proactive environmental practices that embed strategic goals into organizational routines and processes. Environmental proactivity thus functions as a mediating mechanism linking strategic planning to innovation.

H4a: Environmental proactivity mediates the relationship between strategic planning and operational innovation.

H4b: Environmental proactivity mediates the relationship between strategic planning and market-oriented innovation. model of the study.

3. Data and Method

3.1 Data Collection

The data were collected in 2024 through an online survey targeting Finnish SMEs operating in food sector. The sampling frame was constructed using Vainu database, which provides comprehensive coverage of Finnish limited liability companies. The survey link was distributed to identified firms, and responses were obtained primarily from CEOs and owner-managers. The response rate was approximately 10%. However, as the survey targeted the entire population of Finnish food-industry SMEs and the respondent firms represented a broad cross-section of the industry, including bakery (30%), meat and fish (14%), beverage (17%), and dairy (3%) companies, and different firm sizes, the achieved sample can be considered broadly representative of the target population.

Following data collection, large firms (defined as those employing 250 or more employees) were excluded from the dataset to ensure consistency with the SME definition. The final sample comprised 185 firms, representing a heterogeneous group of SMEs in terms of firm size. Approximately 31% of the firms were solo entrepreneurs (0–1 employees), while 24% employed 2–4 individuals. Firms with 5–9 employees accounted for 16% of the sample, and 9% had 10–19 employees. The remaining 19% of firms employed 20 or more people.

With respect to firm age, 27% of the firms were younger than five years, 25% were between 5 and 9 years old, and 12% were 10–19 years old. More established firms were also well represented: 24% were between 20 and 49 years old, and 12% were at least 50 years old.

3.2 Measures

All constructs were measured using validated scales or items from prior literature. While established scales were used for strategic planning and environmental proactivity, the innovation measures were operationalized to capture firm-level innovation outcomes in line with prior research. Minor wording adjustments were made to ensure clarity and relevance for the target respondents. All items were measured using a seven-point Likert scale, where higher values indicate stronger agreement or better performance relative to competitors (1 = strongly disagree / much worse than competitors; 7 = strongly agree / much better than competitors).

Strategic planning (SP) was measured using four items adapted from Posch and Garaus (2020). The scale captures the extent to which firms engage in systematic and goal-oriented planning activities. Respondents were asked to indicate the degree to which the following statements describe their firm:

- SP1: We have clear business goals.

- SP2: We know what we need to do to reach our business goals.
- SP3: We have a clear strategy for achieving our business goals.
- SP4: We have a clear plan for implementing our business model.

Environmental proactivity was measured using seven items adapted from González-Benito and González-Benito (2005). Respondents were asked to evaluate the extent to which the following statements apply to their firm's operations:

- EP1: We have clear goals and long-term plans for managing environmental impacts.
- EP2: We have established procedures for measuring and assessing our environmental impacts.
- EP3: We utilize environmental aspects in our marketing.
- EP4: We take environmental considerations into account when selecting subcontractors or suppliers.
- EP5: We replace environmentally harmful materials or components with environmentally friendly alternatives.
- EP6: We consider reusability and recyclability in our packaging design.
- EP7: We prefer environmentally friendly products or materials in our purchasing decisions.

Innovation was operationalized as firm-level innovation performance, reflecting both process-related (operational) and market-related (product and commercialization) outcomes. This approach is consistent with prior literature conceptualizing innovation as a multidimensional construct encompassing both process improvements and market-oriented outputs (e.g., product development and commercialization) (Wang & Ahmed, 2004; OECD/Eurostat, 2018).

Operational innovation (OI) was measured using three items reflecting improvements in internal processes, efficiency, and operational capabilities. Respondents were asked to assess their firm's performance relative to competitors:

- OI1: Our company has improved its production or service processes.
- OI2: Our company has enhanced efficiency in its operations.
- OI3: Our company has improved its capacity or operational performance.

Market-oriented innovation (MI) was measured using three items capturing product development, market expansion, and commercialization activities. Respondents evaluated their firm relative to competitors:

- MI1: Our company has introduced new or significantly improved products or services.
- MI2: Our company has entered new markets or customer segments.
- MI3: Our company has improved its commercialization or market performance.

3.3 Measurement Model

The measurement model was assessed using confirmatory factor analysis (CFA) with AMOS (N = 185). Four latent constructs were specified: Strategic Planning, Environmental Proactivity, Operational Innovation, and Market-Oriented Innovation. All indicators were measured on seven-point Likert scales.

Model fit indices indicated an acceptable to good fit to the data ($\chi^2 = 225.62$, $df = 111$, $\chi^2/df = 2.03$, CFI = .947, TLI = .935, RMSEA = .075, 90% CI [.061, .089]). Given the sensitivity of the chi-square statistic to sample size (N = 185), incremental and absolute fit indices were emphasized.

All standardized factor loadings were statistically significant ($p < .001$) and exceeded the recommended threshold of .50, providing support for convergent validity (see Table 1). Composite reliability (CR) values ranged from .755 to .934, exceeding the recommended minimum of .70. Average variance extracted (AVE) values ranged from .507 to .779, indicating that each construct explained more than half of the variance in its indicators (See Table 2).

Table 1: Standardized factor loadings

Construct	Indicator	Standardized Loading
Strategic Planning	SP1	0.891
	SP2	0.892
	SP3	0.839

Construct	Indicator	Standardized Loading
	SP4	0.908
Environmental Proactivity	EP1	0.815
	EP2	0.760
	EP3	0.813
	EP4	0.801
	EP5	0.833
	EP6	0.753
	EP7	0.792
Operational Innovation	OI1	0.798
	OI2	0.922
	OI3	0.606
Market-Oriented Innovation	MOI1	0.756
	MOI2	0.682
	MOI3	0.697

Note: All loadings significant at $p < .001$.

Table 2: Construct reliability and convergent validity

Construct	CR	AVE
Strategic Planning	0.934	0.779
Environmental Proactivity	0.923	0.633
Operational Innovation	0.825	0.618
Market-Oriented Innovation	0.755	0.507

Discriminant validity was assessed using the Fornell–Larcker criterion (see Table 3). For each construct, the square root of AVE exceeded its correlations with other constructs, supporting discriminant validity. In addition, the maximum shared variance (MSV) for each construct was lower than its AVE.

Table 3: Discriminant validity (Fornell–Larcker criterion)

Construct	SP	EP	OI	MOI
Strategic Planning (SP)	0.883			
Environmental Proactivity (EP)	0.522	0.796		
Operational Innovation (OI)	0.337	0.470	0.786	
Market-Oriented Innovation (MOI)	0.449	0.417	0.561	0.712

Note: Diagonal elements (bold) represent $\sqrt{\text{AVE}}$.

To account for shared content and method variance within Environmental Proactivity, residual covariances were specified between two pairs of indicators reflecting (1) formalized environmental management practices (long-term goals and established measurement procedures) and (2) concrete environmentally responsible material and purchasing decisions. These modifications were theoretically justified and limited to indicators within the same construct.

Overall, the results indicate satisfactory reliability, convergent validity, and discriminant validity of the measurement model, supporting its suitability for subsequent structural model analysis.

4. Results

4.1 Structural Model and Model Fit

The hypothesized structural model was estimated using structural equation modeling (SEM) with maximum likelihood estimation in AMOS. Strategic Planning was specified as an antecedent of Environmental Proactivity, which in turn was modeled as a predictor of two innovation dimensions: Operational Innovation and Market-oriented Innovation. Firm size (LnSize) and firm age (LnAge) were included as control variables predicting both innovation outcomes.

Overall, the model demonstrated an acceptable fit to the data. Although the chi-square statistic was significant ($\chi^2 = 284.74$, $df = 142$, $p < .001$), this is expected given the sample size and model complexity. The relative chi-square ($\chi^2/df = 2.01$) indicated a reasonable fit. Incremental fit indices suggested good model fit (CFI = .932, TLI = .918, IFI = .933). The RMSEA value of .076 (90% CI [.063, .088]) indicated acceptable approximation error. The fit indices suggest that the proposed structural model fits the data adequately.

4.2 Direct Effects

The standardized path estimates are presented in Table 4. Strategic Planning showed a strong and positive effect on Environmental Proactivity ($\beta = .523$, $p < .001$), indicating that firms with more developed strategic planning practices are more likely to engage in proactive environmental management.

Environmental Proactivity was positively associated with both innovation dimensions. Specifically, it had a strong positive relationship with Operational Innovation ($\beta = .401$, $p < .001$) and a moderate positive relationship with Market-oriented Innovation ($\beta = .262$, $p = .011$). These results suggest that environmentally proactive firms are more likely to invest in process improvements, efficiency-enhancing innovations, and operational development, as well as in market- and commercialization-oriented innovations.

In contrast, Strategic Planning did not have a significant direct effect on Operational Innovation ($\beta = .044$, $p = .613$). However, Strategic Planning was positively related to Market-oriented Innovation ($\beta = .240$, $p = .018$), indicating that strategic planning may directly support market-facing innovation activities, such as product development and market expansion.

Regarding control variables, firm size was positively related to both Operational Innovation ($\beta = .359$, $p < .001$) and Market-oriented Innovation ($\beta = .306$, $p = .001$). Firm age was negatively related to Market-oriented Innovation ($\beta = -.220$, $p = .017$), while its effect on Operational Innovation was not significant.

Table 4: Structural paths (standardized estimates)

Path	β	p
Environmental Proactivity $\leftarrow$ Strategic Planning	.523	< .001
Operational Innovation $\leftarrow$ Strategic Planning	.044	.613
Market-oriented Innovation $\leftarrow$ Strategic Planning	.240	.018
Operational Innovation $\leftarrow$ Environmental Proactivity	.401	< .001
Market-oriented Innovation $\leftarrow$ Environmental Proactivity	.262	.011
Operational Innovation $\leftarrow$ LnSize	.359	< .001
Market-oriented Innovation $\leftarrow$ LnSize	.306	.001
Operational Innovation $\leftarrow$ LnAge	-.010	.897
Market-oriented Innovation $\leftarrow$ LnAge	-.220	.017

4.3 Indirect Effects and Mediation Analysis

To examine whether Environmental Proactivity mediates the relationship between Strategic Planning and innovation outcomes, indirect effects were assessed using bootstrapped estimates (2,000 resamples). The results indicate that Environmental Proactivity plays a central mediating role (see Table 5).

Strategic Planning had a positive indirect effect on Operational Innovation via Environmental Proactivity (standardized indirect effect $\beta = .210$). Given that the direct effect of Strategic Planning on Operational

Innovation was not significant, this pattern is consistent with an indirect-only mediation, suggesting that Strategic Planning contributes to operational innovation primarily by fostering environmentally proactive practices.

Similarly, Strategic Planning exhibited a positive indirect effect on Market-oriented Innovation through Environmental Proactivity ($\beta = .137$). While Strategic Planning also had a significant direct effect on Market-oriented Innovation, the presence of a substantial indirect effect indicates complementary partial mediation. This suggests that Strategic Planning enhances market-oriented innovation both directly and indirectly by strengthening firms' environmental proactivity.

Total effects further support this interpretation. The total effect of Strategic Planning on Operational Innovation was $\beta = .254$, whereas the total effect on Market-oriented Innovation was $\beta = .377$, highlighting the stronger overall association between Strategic Planning and market-oriented innovation activities.

Table 5: Direct, indirect, and total effects of Strategic Planning (standardized)

Outcome	Direct Effect	Indirect Effect via Environmental Proactivity	Total Effect
Operational Innovation	.044	.210	.254
Market-oriented Innovation	.240	.137	.377

Overall, the results demonstrate that environmental proactivity is a key mechanism linking strategic planning to innovation outcomes. While strategic planning alone does not directly drive operational innovation, it strongly promotes environmental proactivity, which in turn translates into both operational and market-oriented innovations. These findings underscore the importance of integrating environmental considerations into strategic planning processes to foster innovation in resource-intensive industries.

5. Discussion

This study set out to examine how strategic planning and environmental proactivity jointly relate to different dimensions of firm-level innovation in SMEs. The results provide clear support for the view that these capabilities operate as complementary rather than independent drivers of innovation. In particular, the findings demonstrate that strategic planning is strongly associated with environmental proactivity, which in turn has significant positive effects on both operational innovation and market-oriented innovation.

Importantly, the results reveal distinct patterns across innovation dimensions. While strategic planning has a direct effect on market-oriented innovation, its effect on operational innovation is fully indirect, operating through environmental proactivity. This suggests that formal planning alone is insufficient to drive process-related innovation unless it is translated into concrete environmental practices embedded in daily operations.

These findings contribute to the resource-based view and dynamic capabilities literature by empirically demonstrating how strategic and environmental capabilities interact in shaping innovation outcomes. Consistent with prior theoretical arguments (Aragón-Correa & Sharma, 2003; Teece, 2007, 2018), environmental proactivity appears to function as a key mechanism through which firms sense and respond to sustainability-related challenges while reconfiguring their operational processes. At the same time, strategic planning provides the direction and resource alignment necessary for market-oriented innovation activities, such as product development and market expansion.

Taken together, the results suggest that innovation in sustainability-oriented contexts is not driven by isolated capabilities but by their interaction. In particular, environmental proactivity translates strategic intent into actionable practices, thereby enabling firms to achieve both efficiency-oriented and market-facing innovation outcomes.

Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

AI tools (ChatGPT) were used solely for language editing and proofreading of the manuscript.

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