The Role Of Entrepreneurial Leadership In Driving Green Management And Innovation Performance Among Creative Industry SMEs in Bali

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ABSTRACT

This study examines the role of entrepreneurial leadership and green management in driving innovation performance among creative industry SMEs in Bali. Increasing environmental pressures and market uncertainty require SMEs to remain innovative while adopting environmentally responsible management practices. Drawing on Dynamic Capabilities Theory, this study conceptualizes innovation performance as an outcome of internal managerial capabilities orchestrated by entrepreneurial leadership and supported by green management practices. A quantitative explanatory research design was employed using survey data collected from 86 owners or managers of creative industry SMEs in Bali. Data were analyzed using multiple linear regression to test the direct effects of entrepreneurial leadership and green management on innovation performance. The results indicate that both entrepreneurial leadership and green management have a positive and significant effect on innovation performance. However, entrepreneurial leadership demonstrates a more dominant influence, while the contribution of green management is relatively weak, suggesting that environmental practices in SMEs are still largely operational rather than strategically oriented toward innovation. These findings highlight the central role of entrepreneurial leadership in transforming managerial capabilities into innovation outcomes and suggest that green management requires deeper strategic integration to enhance innovation performance in SMEs effectively. This study contributes to the literature by providing empirical evidence from a developing-country context and offers practical implications for strengthening innovation-oriented and sustainable management in creative industry SMEs.

I. INTRODUCTION

In recent years, increasing environmental pressure and market volatility have intensified the challenges faced by small and medium-sized enterprises (SMEs), particularly in Bali, a region dominated by tourism, creative industries, and businesses rooted in local culture. SMEs are not only required to maintain business sustainability (Le et al., 2022) but are also expected to respond proactively to environmental issues while operating under conditions of uncertainty (Xu et al., 2025). These challenges encourage firms to integrate environmental considerations into their managerial practices, giving rise to the concept of green management as a strategic approach to achieving sustainable competitiveness (Carrasco-Carvajal et al., 2023; Sadiq et al., 2025).

Innovation performance is a key factor for SME sustainability, as innovation enables firms to enhance product value, improve process efficiency, and strengthen market competitiveness (Kim & Gang, 2024). Product innovation performance reflects SMEs' ability to develop new products or services (Aristana et al, 2022) or to improve existing ones. Product innovation within SMEs often emerges as a response to changes in consumer preferences, competitive pressure, or sustainability demands. The use of environmentally friendly materials or more sustainable product designs can serve as primary sources of product innovation.

Process innovation performance refers to the extent to which SMEs improve or upgrade their operational processes to become more efficient and effective (Cheah et al., 2024). Process innovation may involve changes in production methods, time management, or distribution systems. The literature emphasizes that process innovation in SMEs is often triggered by resource constraints, which encourage firms to seek more cost-efficient and environmentally friendly ways of working.

Market-oriented innovation relates to SMEs' ability to create innovations that enhance customer value and strengthen market positioning. Market-based innovation reflects how SMEs align products, processes, and marketing strategies with consumer needs and perceptions. SME innovation performance is also reflected in organizational innovation, namely the implementation of new working methods, managerial practices, and organizational arrangements that support sustained innovation (Cirule & Uvarova, 2022). Organizational innovation enables SMEs to build internal flexibility, improve coordination, and create a work environment that is more responsive to market changes and external demands.

Furthermore, organizational innovation in SMEs is increasingly associated with sustainability-oriented innovation, which refers to the firm's ability to generate innovations aligned with environmental sustainability principles. Sustainability-oriented innovation is reflected in the use of eco-friendly materials, the adoption of more efficient and low-waste business practices, and the development of products and processes that reduce negative environmental impacts (Piwowar-Sulej et al., 2025). In Bali's SME context, market orientation toward sustainable and environmentally friendly products is becoming stronger, suggesting that innovation driven by green management and

entrepreneurial leadership has the potential to enhance customer trust and loyalty.

SMEs' ability to innovate is strongly influenced by the characteristics of their leaders, as strategic decision-making is generally centralized in the hands of owners or managers (Roy, 2023). Entrepreneurial leadership is viewed as a leadership style that promotes innovation and guides organizations in a visionary, proactive, opportunity-oriented, and risk-taking manner under conditions of uncertainty (Liu et al., 2025; Sica et al., 2025). Leaders with entrepreneurial characteristics tend to encourage idea generation, experimentation, and business process renewal, ultimately improving SME innovation performance. In addition, growing environmental awareness encourages SMEs to adopt green management practices, such as resource efficiency and environmental impact reduction, which may stimulate both process and product innovation (Li et al., 2024). Thus, the stronger the entrepreneurial leadership possessed by SME owners, the greater the likelihood of achieving superior innovation performance.

In line with this leadership role, green management is understood as managerial practices that place environmental considerations as an integral part of organizational operations and decision-making processes. In the context of SME sustainability, green management is not always manifested through complex environmentally friendly technologies but rather through simple managerial practices oriented toward efficiency and environmental impact reduction (Putri et al., 2025). The literature indicates that green management implementation in SMEs is generally reflected in three main dimensions: environmentally friendly operational practices, which describe the extent to which SMEs apply resource efficiency in the use of raw materials, water, and energy; waste and pollution reduction, which reflects SMEs' commitment to minimizing production waste and environmental harm; and environmental awareness in managerial decision-making, which emphasizes the role of environmental considerations in strategic business decisions.

Thus, green management not only contributes to environmental sustainability but also functions as an internal mechanism that encourages innovation. Accordingly, consistent implementation of green management is expected to positively influence SME innovation performance. Although entrepreneurial leadership and green management are believed to play important roles in driving innovation, empirical studies that simultaneously examine the direct effects of both variables on SME innovation performance remain limited, particularly within local industries in developing regions such as Bali. Previous studies have largely focused on mediation-based models or large firm contexts (Karnadji et al., 2023; Nor-Aishah et al., 2020; Suswandayana et al., 2025). However, in SMEs with simple organizational structures, leadership and managerial practices often exert a direct influence on innovation outcomes.

To explain the theoretical mechanism through which entrepreneurial leadership and green management are translated into innovation performance,

this study adopts the Dynamic Capabilities Theory approach (Teece, 2016). From this perspective, innovation performance is understood as the outcome of dynamic organizational capabilities that enable SME owners to sense changes in market preferences and sustainability demands, seize opportunities through strategic decision-making and the adoption of green management practices, and reconfigure limited resources and operational processes. Entrepreneurial leadership plays a central role in orchestrating these capabilities, given the simple and owner-centered structure of SMEs. Therefore, Dynamic Capabilities Theory provides a relevant framework for understanding how entrepreneurial leadership and environmentally oriented managerial practices are directly translated into SME innovation performance (Rahman et al., 2025).

Previous studies indicate that green management practices can enhance firm competitiveness and innovation-related outcomes (Aristana et al., 2025; Liu et al., 2025). However, empirical findings regarding the direct relationship between green management and innovation performance remain inconsistent, particularly in the SME context. Some studies report positive effects, while others find weak or insignificant relationships (Karnadji et al., 2023; Novitasari & Agustia, 2021). This inconsistency suggests that existing research has primarily focused on direct effects, with limited attention to the mechanisms through which green management is translated into innovation performance.

Based on this discussion, the present study aims to analyze the role of entrepreneurial leadership and green management in influencing SME innovation performance in Bali. This research is expected to provide empirical contributions to understanding key factors that drive SME innovation and to serve as a basis for developing leadership and management strategies oriented toward innovation and sustainability under conditions of business uncertainty.

Based on the research objectives and the proposed conceptual framework, the research questions are formulated as follows:

RQ1: Does entrepreneurial leadership have a significant effect on SME innovation performance in Bali?

RQ2: Does green management have a significant effect on SME innovation performance in Bali?

II. METHODOLOGY

This study adopts a quantitative approach with an explanatory research design aimed at examining the effects of entrepreneurial leadership and green management on the innovation performance of creative industry SMEs in Bali. The quantitative approach was chosen as it enables objective and systematic testing of causal relationships among variables through statistical analysis (Creswell, 2018). The research objects are creative industry SMEs operating in the Province of Bali, particularly in the furniture, souvenir, accessories, and jewelry sectors. SMEs were selected as the focus of this study due to their relatively simple organizational structures and the concentration of strategic decision-

making in the hands of owners or primary managers, which allows leadership and managerial practices to have a direct influence on firms' innovation performance.

The variables in this study consist of entrepreneurial leadership and green management as independent variables, and innovation performance as the dependent variable. Entrepreneurial leadership is defined as the capability of SME owners or managers to lead their businesses in a visionary, proactive, and innovative manner, demonstrate risk-taking behavior, and identify business opportunities under conditions of uncertainty. This variable is measured using five indicators: visionary leadership, proactiveness, risk-taking behavior, innovation orientation, and opportunity recognition. Green management is defined as managerial practices that integrate environmental considerations into operational activities and business decision-making. In the SME context, green management is measured through three main indicators: environmentally friendly operational practices related to resource-use efficiency, waste and pollution reduction reflecting firms' commitment to minimizing environmental impacts, and environmental awareness in managerial decision-making, which indicates the extent to which environmental aspects are considered in determining strategic business directions. Innovation performance is defined as the ability of SMEs to generate and implement innovations that enhance product value, improve process efficiency, and strengthen market competitiveness. This variable is measured through three dimensions: product innovation performance, process innovation performance, and market-oriented innovation/organizational innovation. These dimensions reflect SMEs' innovation outcomes that are practical and relevant to their resource constraints.

The data used in this study are primary data obtained directly from respondents through the distribution of structured questionnaires. The sources of data are SME owners or primary managers, as they possess the most comprehensive understanding of business strategies, managerial practices, and ongoing innovation activities. The sampling technique employed is purposive sampling, with criteria including SMEs that have been operating for at least one year and are directly managed by the owner or primary manager. Based on these criteria, a total of 86 respondents were obtained, which meets the minimum sample size required for multiple linear regression analysis. Data collection was conducted through both offline and online questionnaire distribution, ensuring that respondents understood the research objectives and completed the questionnaires independently. The collected data were then analyzed using multiple linear regression to test the effects of entrepreneurial leadership and green management on SME innovation performance.

III. RESULTS AND DISCUSSION

Results of Multiple Linear Regression Analysis

This analysis highlights the effects of entrepreneurial leadership (X1) and green management (X2) on innovation performance (Y). The results are presented in Table 1.

Table 1. Results of Multiple Linear Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764[a]	.704	.620	1.36739

a. Predictors: (Constant), trust, kualitas layanan

Source: Processed Data

The results of the multiple regression analysis indicate that entrepreneurial leadership and green management have a significant effect on customer satisfaction. The adjusted R^2 value of 0.620 indicates that entrepreneurial leadership and green management together explain 62% of customer satisfaction, while the remaining 38% is explained by other variables outside the research model.

Table 2: t-test Results

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.142	1.110		.128	.898
	X1	.033	.042	.087	.793	.430
	X2	.030	.055	.059	.542	.589

a. Dependent Variable: RES2

Source: Processed Data

Y = 22,840 + 0,154X1 + 0,102X2

1. Entrepreneurial leadership has a positive and significant effect on innovation performance, with a significance value of 0.011 < 0.05.
2. Green management has a positive and significant effect on innovation performance, with a significance value of 0.017 < 0.05

Discussion of Validation Results

The Effect of Entrepreneurial Leadership (X1) on Innovation Performance (Y) of Creative Industry SMEs in Bali

The results indicate that entrepreneurial leadership has a positive and significant effect on innovation performance. These findings are consistent with the development of Dynamic Capabilities Theory (Teece, 2016), which explains that entrepreneurial leaders are capable of *sensing* market opportunities and sustainability demands, *seizing* them through innovative decision-making and risk-taking behavior, and *reconfiguring* limited resources and operational processes. In the context of creative industry SMEs in Bali, which operate under conditions of market uncertainty and environmental pressure, the combination of visionary, innovative, and adaptive leadership behaviors has been shown to enhance product innovation, process innovation, and market-oriented innovation performance. Thus, this study reinforces the view that entrepreneurial leadership functions as an internal mechanism that directly transforms managerial capabilities into tangible innovation outcomes.

However, the relatively low Beta value of 0.064 indicates that although the effect is statistically significant, entrepreneurial leadership is not the sole dominant factor influencing innovation performance in creative industry SMEs in Bali. These findings support previous studies (Liu et al., 2025; Sadiq et al., 2025), which emphasize that entrepreneurial leadership is a critical determinant in shaping innovation performance within the SME sector.

The Effect of Green Management (X2) on Innovation Performance (Y) of Creative Industry SMEs in Bali

The regression analysis results show that green management has a positive effect on the innovation performance of SMEs in Bali, indicating that environmentally oriented managerial practices can directly stimulate innovation. This finding suggests that resource-use efficiency, waste reduction efforts, and environmental awareness in managerial decision-making support SMEs in improving operational processes, developing more sustainable products, and aligning innovation with market preferences.

These results are in line with previous studies (Carballo-Penela et al., 2023; Fernandez, 2025), which highlight that green management practices contribute positively to product and process innovation, although they differ from some other studies that report weak or insignificant relationships in the SME context. Under conditions of limited resources commonly faced by SMEs, the adoption of green management encourages the search for more effective and value-adding ways of operating, making innovation not only a response to environmental demands but also a means of enhancing business competitiveness.

However, the very low Beta value of 0.002 indicates that the influence of green management on innovation performance is relatively weak. This finding implies that green management practices among SMEs tend to be operational and reactive, focusing primarily on efficiency or basic compliance with environmental issues, rather than being fully translated into sources of innovative advantage. In addition, limited resources, small firm size, and

restricted access to environmentally friendly technologies may constrain SMEs' ability to transform green management practices into high-value product and process innovations.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This study indicates that entrepreneurial leadership and green management have positive and significant effects on the innovation performance of creative industry SMEs in Bali, thereby empirically addressing the proposed research questions. The findings confirm that internal factors, namely entrepreneurial leadership and environmentally oriented managerial practices, play important roles in driving SME innovation, particularly within the creative industry sector.

However, entrepreneurial leadership exhibits a more dominant influence than green management, reflecting that the visionary, innovative, and adaptive behaviors of SME owners remain the primary drivers of innovation performance. In contrast, although statistically significant, the contribution of green management is relatively weak, suggesting that such practices are still implemented at an operational level and have not yet been fully leveraged as sources of strategic innovation.

Based on these findings, SME owners and managers are encouraged to prioritize the strengthening of entrepreneurial leadership to enhance innovation performance. At the same time, green management practices should be developed in a more strategic direction to generate higher value-added products and process innovations. Future research is recommended to further investigate the mechanisms that strengthen the relationship between green management and innovation performance, such as the roles of green innovation or dynamic capabilities, and to extend the research context to different sectors and regions.

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