Mykolo Romerio universitetas

ISSN 1822-8038 (online)
INTELEKTINĖ EKONOMIKA
INTELLECTUAL ECONOMICS
2025, No. 19(2), p. 77–98

THE ROLE OF ENVIRONMENTAL MANAGEMENT ACCOUNTING AS A MEDIATION OF THE INFLUENCE OF GREEN PRODUCT AND GREEN PROCESS INNOVATION TO IMPROVE SUSTAINABILITY PERFORMANCE

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DOI:10.13165/IE-25-19-2-03

Abstract

Purposes: This study investigates the role of environmental management accounting in mediating the influence of green product and green process innovation on the sustainability performance of small and medium enterprises in Indonesia. While sustainable business practices are increasingly crucial, many Indonesian enterprises struggle to meet international export standards due to resource constraints and inadequate environmental compliance.

Design/methodology/approach: Grounded in legitimacy theory, this research employs a quantitative approach to analyze data from enterprises in Bali.

Findings: The findings reveal that both green product and green process innovations positively contribute to sustainability performance. Moreover, environmental management accounting plays a significant mediating role in strengthening these relationships. The study provides empirical support for legitimacy theory in emerging economies and

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underscores the importance of integrating environmental accounting practices with green innovation strategies.

Implications: For practitioners, the results suggest that adopting environmental management systems can improve both ecological and business outcomes. Policymakers may consider developing targeted support programs to facilitate this transition toward sustainable enterprise development.

Originality: This study lies in integrating green innovation and environmental management accounting (EMA) to improve the sustainability performance of SMEs in Indonesia, especially Bali. This study also extends the application of legitimacy theory to the context of developing countries and highlights the mediating role of EMA, which is still rarely studied, in the relationship between green innovation and sustainability.

Keywords: Sustainability Performance, Green Innovation, Environmental Accounting, Small Enterprises, Legitimacy Theory.

JEL Classification: Q56, M41, L25

Introduction

The sustainability performance of Indonesian export MSMEs is low, accounting for only 15.7% of non-oil exports, compared to ASEAN peers such as Singapore (41%), Thailand (29%), and China (60%). Despite having the highest number of MSMEs in Southeast Asia, their competitiveness in international markets remains weak (Traiyarach & Banjongprasert, 2022). Competitive advantages in corporate strategy help companies succeed globally, focusing on profit generation and retention to sustain their business in the modern market (Schaltegger & Hörisch, 2017). Companies need strategies that not only deliver benefits but also consider environmental impacts to ensure a sustainable future for their businesses (Hayati & Fatarib, 2022). MSME exports must align with market trends and shift towards environmentally friendly business processes (Zhang et al., 2022; Saepudin & Yunifer, 2023). Indonesia builds a green economy ecosystem to support Sustainable Development Goals (Lukin et al., 2022), resulting in an improvement in exports.

The government promotes a green MSME export program for sustainability, market expansion, and continuity (Gerschewski et al., 2020; Jamil et al., 2021). The Indonesian government, particularly the Ministry of Trade and the Ministry of Cooperatives, is focusing on the sustainable performance of MSME exports, directing MSME exports in accordance with sustainability principles, namely the triple bottom line and the green economy agenda (Ozanne et al., 2016). Green MSME is one of the forms of commitment the Indonesian government has on the agenda for climate change internationally (Rossi et al., 2022). Green MSME exports aim to protect climate and biodiversity through eco-friendly products and practices (Gelderman & Vijgen, 2021; Szabo & Webster, 2021). Based on the definition, a

business process participant not only focuses on profit but also pays attention to the impact generated by the business activity, namely, on the environment and society. However, as a small, even a micro, the process of implementing draft green is still in part aspects (Gohar & Indulska, 2020; Yousaf et al., 2021). For example, there are handicraft MSMEs that focus only on reducing environmental footprint from the production process (efficiency), sourcing power from green sources, and offering products and services that are green, such as renewable energy (Abdi et al., 2025; Sharma et al., 2022; Zhang et al., 2022).

State-of-the-art research has been reported in several studies previously focused on the export of oil and gas from developed countries. However, Wang et al. (2021) highlight that research connecting green products, green process innovation, Environmental Management Accounting, and performance sustainability exports in the MSME industry in developing countries remains limited. In addition, Awan et al. (2021) also mention a study on the performance sustainability of MSMEs' industrial exports in developing countries, ignoring green products, green process innovation, and Environmental Management Accounting. The adoption of Environmental Management Accounting arises from financing constraints that hinder MSMEs' green innovation and export processes (Gibassier & Alcouffe, 2018; Saputra & Dharmawan, 2025). To enhance performance sustainability, MSMEs should adopt environmental accounting and management to support green product and process innovation (Calheiros-Lobo et al., 2023; Villena-Manzanares & Souto-Pérez, 2016). Legitimacy theory links Environmental Management Accounting to stakeholder approval, enhancing company sustainability, performance, and reducing risks (Arifah & Kim, 2022). These findings align with Zumente et al. (2022), who showed that the level of implementation and disclosure of sustainability, including environmental aspects within ESG, remains low and inconsistent. Therefore, companies need a more structured environmental measurement system to avoid greenwashing and increase the credibility of their sustainability performance. Green Products have an impact on Sustainability Performance (Luan et al., 2022), but other studies show the opposite results (Braik et al., 2024). Green Process Innovation has an impact on Sustainability Performance (Cheng et al., 2023), but previous research also found the opposite results (Q. Zhang & Jiang, 2025). Based on the Gap Research, researchers added the mediating role of Environmental Management Accounting. This is because Environmental Management Accounting (EMA) in the relationship between Green Product Innovation and Sustainability Performance, as well as between Green Process Innovation and Sustainability Performance, is essential. EMA provides information that converts green initiatives into measurable sustainability outcomes. By providing cost and environmental impact data, EMA helps companies develop environmentally friendly products and improve sustainability performance. In addition, EMA monitors resource and waste efficiency in process innovation, enabling sound financial management and supporting simultaneous improvements in economic and environmental performance. This bridges green innovation and sustainability outcomes.

The show highlights novel research on MSME performance, sustainability, and exports, focusing on Indonesia, while noting limitations in green products and process innovation

studies (Arifah & Kim, 2022). Research lacks focus on Environmental Management Accounting's role in export performance sustainability; Indonesia's empirical results are limited (Gunarathne et al., 2021). The study was done in Bali because the structure of Balinese handicraft MSME exports has unique characteristics compared to those of provinces other than Indonesia (Arifah & Kim, 2022). The tourism industry, as a pillar of the economy, offers significant opportunities to boost economic activity (Monroy-Rodríguez & Caro-Carretero, 2023). Furthermore, this study advances sustainable MSME export research by integrating green product innovation, green process innovation, and Environmental Management Accounting (EMA) into one framework. This approach addresses the limited prior studies examining EMA's mediating role between green innovation and sustainability performance in developing countries (Suryantini et al., 2023).

Literature review

Legitimacy Theory

Legitimacy theory plays an important role in understanding how SMEs can obtain approval from stakeholders through practicing sustainability (Amos, 2024). This theory states that a company needs to fulfill social and environmental responsibilities to be considered legitimate by the community, government, and market players (Ahmed & Shafiq, 2022). In the context of green MSMEs, legitimacy is achieved by adopting green products and green process innovation, as well as integrating Environmental Management Accounting as a tool for measuring and communicating the impact on the environment to stakeholders (Chaudhry et al., 2020). Implementation of green practices not only increases the image of the company but also reduces risks and market pressures, thus supporting continuity of business in the long term (Baah et al., 2021). Thus, the theory of legitimacy explains why SMEs need to link their business strategies with principles of sustainability, not only to fulfill external demands but also to strengthen their competitive position in the global market.

Green Product and Sustainability Performance

Various studies have shown that green products have a significant influence on improving companies' performance and sustainability. For example, research by Kanagaraj et al. (2015) found that a product-friendly environment not only increases satisfaction and makes consumers aware of the environment, but also strengthens the company's image as a responsible entity in an ecological way. This is in line with Huong et al. (2021) findings, which state that innovation based on the environment can create a superior competitive advantage while reducing negative impacts on the environment. Another study by Li et al. (2022) revealed that green products are capable of opening up new markets, especially in countries with strict environmental regulations, thus increasing the performance of economic and sustainability companies. However, research in the context of MSMEs, such as that conducted by Song et al. (2020), shows that the effectiveness of green products in pushing performance sustainability is often hampered by limitations in source power and

a lack of financial support. This insight is consistent with arguments by Suryantini et al. (2023), who emphasize that strengthening SMEs' competitive advantage requires strategic capabilities and technology-oriented practices, suggesting that green product development also depends on firms' ability to integrate supporting strategic resources. Based on the findings, this research formulates the hypothesis that green products have a positive effect on the performance and sustainability of MSMEs' exports. Hypothesis: This is based on arguments that a product-friendly environment not only fulfills the increasing demands of the global market for green products but also strengthens the legitimacy of the company in the eyes of stakeholders, so that, in the end, it pushes performance sustainability (Papoutsi & Sodhi, 2020). Thus, the development of green products is expected to become a key strategy for MSMEs to compete in the international market while contributing to sustainable development.

Green Process Innovation and Sustainability Performance

Various studies have disclosed the impact of positive green process innovation on companies' performance and sustainability. A study by Wang et al. (2021) shows that production process innovation based on the environment, such as efficiency, energy, and waste reduction, not only lowers operational costs but also improves the performance of the company's environment. Findings. This is reinforced by Begum et al. (2022)research, which states that Companies that adopt green process innovation tend to achieve better performance and sustainability. Good because they are capable of fulfilling the standard regulatory environment and demands, increasingly making consumers aware of the sustainability ecosystem.

Furthermore, research by Shahzad et al. (2020) in the MSME sector revealed that the application of green production processes, like using renewable and recyclable materials, and reducing waste, has a significant impact on Power competition export, and has a negative impact on the environment. However, research in the context of developing countries by Xie et al. (2022) found that the effectiveness of green process innovation is often constrained by limitations in technology and a lack of financial incentives, especially for small-scale MSMEs. Based on empirical evidence, this research formulates the hypothesis that green process innovation has a positive impact on performance, sustainability and export of MSMEs. Hypothesis: This is based on arguments that green process innovation not only increases efficiency, sources power, and reduces waste, but also strengthens the legitimacy of companies in the eyes of global stakeholders, as they increasingly demand that businesses practice sustainable business practices. Thus, green process innovation is expected to become a main booster for MSMEs to reach superior performance and sustainability, both from an economic, social, and environmental aspect.

Environmental Management Accounting as a Mediator

Studies have shown that Environmental Management Accounting plays a crucial role as a mediator in connecting practice with green performance sustainability. According to Gunarathne and Lee (2021), a system accounting environment provides a framework for measurement and reporting that enables companies to internalize the impact of ecological factors on strategic decisions. Research by La Soa et al. (2024) found that companies

that implement an Environmental Management Accounting tend to be more effective in changing green product and green process innovation initiatives, leading to improved performance and sustainability, because this facilitates the allocation of optimal power and monitoring the impact on the environment. A case study on MSMEs by Manurung et al. (2022) revealed that limitations in measuring the benefits of green practices often become a major constraint, where Environmental Management Accounting plays a role as a tool for quantifying and communicating the benefits to stakeholders. This finding aligns with Zumente et al. (2022), who asserted that the level of implementation and disclosure of sustainability, including environmental aspects within ESG, remains low and inconsistent. Therefore, companies need a more structured environmental measurement system, such as the EMA, to increase accountability and avoid greenwashing practices. Findings from Christ and Burritt (2018) strengthen the mediation. This is especially critical in developing countries, where pressure is institutionalized. For sustainability, it is not yet balanced with adequate capacity for management. Based on the runway theoretical and empirical findings, this research formulates the hypothesis that accounts for the significant mediating influence of the Environmental Management Accounting on positive green product and green process innovation towards performance sustainability export of MSMEs. The main argument is that without an adequate system of accounting, economic and ecological benefits from innovation in green are difficult to measure, allocate, and communicate in an effective way. Playing a role as a mediator, the Environmental Management Accounting not only transforms green practice to become superiorly competitive, but also bridges the gap in information between companies and stakeholders' interests, thus strengthening legitimacy and performance sustainability in the long term (Amir & Chaudry, 2019; Asiaei et al., 2021; Uyar, 2020).

The influence of green products on sustainability performance can be justified through their ability to create added value that serves a triple bottom line, namely, simultaneously providing economic, environmental, and social benefits (Liu et al., 2023). Economically, green products designed with material and energy efficiency can reduce production costs in the long term, while opening access to new, environmentally conscious markets, thereby increasing profitability and achieving sustainable competitive advantage. From an environmental perspective, these products intrinsically reduce their ecological footprint through the use of fewer resources, recycled content, and ease of recycling at end-of-life, which directly contributes to improved environmental performance indicators (Asad, 2024; L. Li et al., 2020). Meanwhile, from a social dimension, the presence of green products strengthens the company's brand image and legitimacy in the eyes of consumers, investors, and regulators, ultimately building loyalty and trust, which are the foundation for the company's long-term sustainability (Asad, 2024). Therefore, integrating environmentally friendly principles into product development is not only a responsive strategy but also a direct and significant strategic investment that drives improvements in the organization's overall sustainability performance (Gulzar et al., 2024).

H1. Green Product is associated with Sustainability Performance

The influence of Green Process Innovation on sustainability performance can be justified through its ability to transform a company's core operations to become leaner and more environmentally friendly, directly reducing waste and inefficiency (Sarfraz et al., 2022). Process innovations such as the implementation of energy-efficient technologies, water and waste recycling systems, and supply chain optimization directly reduce natural resource consumption, pollutant emissions, and waste volume, significantly improving environmental performance. The accompanying economic impacts, in the form of reduced operational costs from energy, water, and raw material savings, as well as reduced waste management costs, directly contribute to increased long-term profitability and productivity (economic performance) (Ozilhan Ozbey et al., 2024). Furthermore, cleaner and more efficient processes also strengthen the company's image among stakeholders, comply with increasingly stringent environmental regulations, and create a healthier work environment, which in turn improves social performance (Rustiarini et al., 2022). Thus, Green Process Innovation serves as a fundamental lever linking operational efficiency to the achievement of holistic sustainability goals, making it a key pillar for improving overall sustainability performance (Ma et al., 2017).

H2. Green Process Innovation is associated with Sustainability Performance.

The influence of green products on sustainability performance, moderated by Environmental Management Accounting (EMA), provides strong justification that the presence of EMA not only strengthens but also sharpens the contribution of green product innovation (Lutfi et al., 2023). Without EMA, the positive impacts of green products may be purely qualitative and difficult to measure financially. However, with EMA intervention, all environmental costs and benefits associated with the product life cycle, from design and raw material acquisition to production and recycling, can be quantified and managed effectively. This moderation ensures that green product development focuses not solely on environmental aspects but is also integrated with rational economic considerations (Alnaim & Metwally, 2024a; Enbaia et al., 2024; Fuzi et al., 2022). EMA provides accurate data that enables companies to identify which areas of green products are most cost-efficient and impactful, allowing for more strategic and targeted resource allocation for innovation (Ozilhan Ozbey et al., 2024). Ultimately, EMA acts as a catalyst, transforming green products from mere token initiatives into measurable strategic investments, directly optimizing sustainability performance by creating a clear synergy between environmental excellence and sustainable financial profitability (Huynh & Nguyen, 2024).

H3. Environmental Management Accounting mediates the relationship between Green Product and Sustainability Performance.

The moderated influence of Green Process Innovation on Sustainability Performance by Environmental Management Accounting (EMA) is strongly justified because EMA acts as a reinforcing mechanism that transforms process innovation into measurable and economically valuable sustainability outcomes (Huynh & Nguyen, 2024). Without EMA, the benefits of green process innovation, such as reduced energy or water consumption, often remain mere technical figures disconnected from management decision-making systems

(Asad, 2024). The presence of EMA moderates this relationship by providing a tool to quantify cost savings from resource efficiency, calculate reduced waste management costs, and assess the economic value of reduced emissions, so that the positive impact of Green Process Innovation is not only visible in environmental indicators but also directly reflected in improved financial performance. (Alnaim & Metwally, 2024).

H4. Environmental Management Accounting mediates the relationship between Green Process Innovation and Sustainability Performance

Methods

In this research, the researcher uses an assessment method based on philosophical positivism. This research also studied the influence of variables. The main reason for using explanatory methods is to test the proposed hypothesis. It is expected that this study will explain the relationship and influence between the free and bound variables within the hypothesis. A procedure study was conducted to establish natural conditions for MSMEs' export endeavors in Bali, the research location. Involvement researcher is at the minimum level, namely when explaining the study procedure to respondents. The unit of analysis is an organization, represented by the company's manager. Quantitative analysis based on the approach method analysis multivariate use model equality structure, or SEM (structural equation modeling), as PLS.

Study This use technique sampling suggested by Hair et al. (2019) with do analysis Power use G*Power 3.1.9.7 application. Application: This uses an a priori sample size for the structural equation model, which is determined before data collection. Researchers need a minimum sample size from the very beginning to make the right decision and avoid problems after data collection. Based on the G*Power mechanism, the minimum sample size for the analysis is 74. Here is an explanation of the definitions and operations of each variable, along with the indicators used in the research. Green Products are products designed and manufactured with minimal environmental impact and that are good throughout their production, use, and disposal. Products. This fulfills criteria for a friendly environment, such as using natural materials that can be recycled or reducing waste.

Table 1: Indicators Measurement Green Product Variable

Indicator Code	Statement Indicator	Likert Scale (1-5)
GP1	Our products use a material-friendly standard environment (e.g., organic and recycled).	1 (Strongly Disagree) – 5 (Strongly Agree)
GP2	Our products reduce the use of material chemistry, which is dangerous in the production process.	

Indicator Code	Statement Indicator	Likert Scale (1-5)
GP3	Our products have a certification environment (e.g., eco-label, organic, or green).	

Source: (Choi & Johnson, 2019; Zameer et al., 2020; Zhang et al., 2022)

Green Process Innovation refers to innovations in production processes that aim to increase efficiency, generate power, reduce waste, and minimize environmental impact. Examples include the use of renewable energy, waste recycling, and material efficiency.

Table 2: Indicators Measurement Green Process Innovation Variable

Indicator Code	Statement Indicator	Likert Scale (1-5)
GPI1	Our company uses technology to produce energy (e.g., solar panels) cost-effectively.	1 (Strongly Disagree) – 5 (Strongly Agree)
GPI2	Our company implements a system to recycle and reduce waste production.	
GPI3	Our company reduces the use of materials that are poisonous in the production process.	

Source: (Awan et al., 2021; Khan et al., 2021)

Environmental Management Accounting (EMA) is a system of accounting used to identify, measure, and allocate cost—and benefit-related impacts from business activities. It helps companies make sustainable decisions.

Table 3: Indicators Measurement Variables Environmental Management Accounting

Indicator Code	Statement Indicator	Likert Scale (1-5)
EMA1	Our company has a system that tracks the cost environment (e.g., costs, waste, energy).	1 (Strongly Disagree) – 5 (Strongly Agree)
EMA2	Our company uses environmental data in planning strategy.	
EMA3	Our company reports performance to stakeholders (e.g., CSR reports).	

Source: (Chaudhry et al., 2020; Gibassier & Alcouffe, 2018; Gunarathne & Lee, 2021)

Sustainability Performance is the ability of a company to reach a balance between economic, social, and environmental aspects in terms of length. Variable: This is measured through improvement efficiency, compliance with regulations, and improvement in the image of the company.

Table 4: Indicators Measurement Sustainability Performance Variables

Indicator Code	Statement Indicator	Likert Scale (1-5)
SP1	Our company is experiencing an improvement in sales because of a product-friendly environment.	1 (Strongly Disagree) – 5 (Strongly Agree)
SP2	Our company fulfills the international environmental international (e.g., ISO 14001).	
SP3	Our company gets positive feedback from consumers because we practice sustainability.	

Source: (Lăzăroiu et al., 2020; Saputra et al., 2023; Sharma et al., 2021)

Results and discussion

A validity test was conducted to determine whether the study's indicators truly measure the construct in question. The criteria used are mark outer loading > 0.7 and Average Variance Extracted (AVE) > 0.5.

Table 5: Validity Test Results Convergent

Variables	Indicator	Outer Loading	AVE
Green Product (GP)	GP1	0.82	0.68
	GP2	0.84	
	GP3	0.79	
Green Process Innovation (GPI)	GPI1	0.81	0.71
	GPI2	0.88	
	GPI3	0.83	
Environmental Management Accounting (EMA)	EMA1	0.85	0.73
	EMA2	0.87	
	EMA3	0.82	
Sustainability Performance (SP)	SP1	0.86	0.75
	SP2	0.89	
	SP3	0.83	

Based on Table 5, the Validity test results show that all indicators have outer loading > 0.7, fulfilling the condition of validity being convergent. AVE values> 0.5 show that variables have good validity. A reliability test was done to measure the internal consistency

of indicators in a construct. The criteria used were Composite Reliability (CR) > 0.7 and Cronbach's Alpha (α) > 0.6.

Table 6: Reliability Test Results

Variables	Cronbach's Alpha (α)	Composite Reliability (CR)
Green Product (GP)	0.82	0.88
Green Process Innovation (GPI)	0.85	0.90
Environmental Management Accounting (EMA)	0.87	0.91
Sustainability Performance (SP)	0.86	0.92

Based on the reliability test results in Table 6, all variables have a Cronbach's Alpha > 0.6 and CR > 0.7, so they are reliable. Statistics descriptive used to describe the characteristics of respondents and the data distribution

Table 7: Statistics Descriptive Variables Study

Variables	Mean	Std. Dev.	Min	Max
Green Product (GP)	4.12	0.78	2.00	5.00
Green Process Innovation (GPI)	3.98	0.85	1.00	5.00
Environmental Management Accounting (EMA)	3.75	0.91	1.00	5.00
Sustainability Performance (SP)	4.05	0.82	2.00	5.00

Based on Table 7, it is concluded that the scale measurement is 1 (Strongly Disagree) – 5 (Strongly Agree). A mean value > 3.5 shows that a large proportion of respondents agree with the statement submitted. The hypothesis was tested using partial least squares structural equation modeling (PLS-SEM) with a see mark path coefficient and p-value.

Table 8: Hypothesis Test Results

Hypothesis	Path Coefficient (β)	T-Statistic	P-Value	Conclusion
H1: GP → SP (Green Product → Sustainability Performance)	0.32	3.45	0.001	Accepted
H2: GPI → SP (Green Process Innovation → Sustainability Performance)	0.28	2.98	0.003	Accepted

Hypothesis	Path Coefficient (β)	T-Statistic	P-Value	Conclusion
H3: GP → EMA → SP (EMA Mediation)	0.18	2.15	0.032	Accepted
H4: GPI → EMA → SP (EMA Mediation)	0.21	2.42	0.016	Accepted

Based on the results hypothesis in **Table 8, the** Research results show that GP ($\beta = 0.32$, $p < 0.05$) and GPI ($\beta = 0.28$, $p < 0.05$) are influential positive predictors against SP. EMA mediates the influence of GP and GPI on SP with $\beta = 0.18$ ($p < 0.05$) and $\beta = 0.21$ ($p < 0.05$)**.** The Sobel test is performed to test the significance of mediation in Environmental Management Accounting (EMA). Sobel Test Results confirm that Environmental Management Accounting (EMA) in a significant way mediates the GP → SP ($\beta = 0.18$, $p < 0.05$) and GPI → SP ($\beta = 0.21$, $p < 0.05$).

Table 9: Sobel Test Results

Connection	Sobel Z-Value	P-Value	Conclusion
GP → EMA → SP	2.10	0.036	Significant
GPI → EMA → SP	2.35	0.019	Significant

Based on the Sobel test in Table 9, then found that a P-value < 0.05 shows significant EMA mediation.

Discussion

Research results show that Green Product (GP) is influential and significant to Sustainability Performance (SP) with a coefficient of = 0.32 ($p < 0.01$). Findings: This is in line with a study previously conducted by Chen et al. (2012), who found that a product-friendly environment increases consumer satisfaction and image of the company, thus pushing performance sustainability. Zhang et al. (2022) also stated that green products open up new markets in countries with a tight regulatory environment, which in the end increases power competition exports. However, the results contradict the study by Choi and Johnson (2019), who found that the effectiveness of green products in MSMEs is often hampered by limitations in source power and a lack of financial support. This possibility happens because of the different research contexts, where MSMEs in Bali have received support from the government and actors in tourism to develop green products (Zhou et al., 2021). Legitimacy theory explains that a company needs to fulfil stakeholder expectations, including those

of consumers and regulators, to be considered legitimate (Saputra, Mu'ah, et al., 2022). In this context, green products function as a tool of legitimacy because: 1) They fulfill the increasing demands of the global market, prioritizing a product-friendly environment. 2) Improve the image of the company as a responsible entity in a way that is ecological, so as to reduce the risk of rejection from consumers or regulators. 3) Opening access to export markets that require a standard environment, such as the European Union or the United States (Amos, 2024). Thus, the adoption of green products not only increases the performance economy but also strengthens the legitimacy of MSMEs in the eyes of stakeholders, which ultimately pushes performance sustainability (Saputra, Subroto, et al., 2022).

Hypothesis test results H2 show that Green Process Innovation (GPI) is positively influential on Sustainability Performance (SP) with a coefficient ($\beta = 0.28$, $p < 0.01$). Findings: This is consistent with the study by Xie et al. (2019), which stated that green process innovation (such as efficiency, energy, and cycle-repetitive waste) reduces operational costs and improves the performance of the environment. Wang et al. (2021)also found that companies with more GPI are capable of fulfilling standard regulations and demands of a conscious consumer environment. However, research by Shahzad et al. (2020)in developing countries discloses that GPI is often constrained by limitations in technology and a lack of financial incentives. This is not fully seen in the study. This is because MSMEs in Bali have received support from the industry, tourism, and government programs to adopt green technology (Li et al., 2022). Legitimacy theory explains that GPI helps SMEs get recognition from stakeholders through: 1) Compliance with the regulatory environment, which reduces the risk of sanctions, law, or market rejection. 2) Efficient source power, which not only lowers costs but also strengthens the image of the company as a responsible business. 3) Response to pressure from institutions, where global market players are increasingly demanding sustainable practices in production (Ashfaq et al., 2023; Qing et al., 2022). Thus, GPI plays a role as a legitimacy strategy that enables MSMEs to survive in global competition while also increasing performance sustainability (Tariq et al., 2017).

Sobel Test Results confirm that Environmental Management Accounting (EMA) mediates in a significant way. Findings of this test: This is supported by Johnstone (2018), who stated that EMA helps companies measure and allocate the cost environment in an effective way. Appiah et al. (2020)also found that EMA increases the effectiveness of initiatives green with data to make strategic decisions. However, research by Amir et al. (2020) discloses that Many MSMEs are having difficulties implementing EMA because of the complexity of the system and a lack of source power. In this research, limitations can be overcome because MSMEs in Bali have received training from the government and business associations. EMA plays a role as a legitimacy mediator because: 1) Communicating the impact environment to stakeholders through report performance sustainability, which increases transparency and accountability. 2) Internalizing the external cost (e.g., pollution) in decision-making so that the company is considered more responsible. 3) Fulfill increasing demands from investors and consumers who care about practicing business sustainability (Chaudhry & Amir, 2020). Thus, EMA not only bridges the gap between innovation, green,

and performance sustainability but also strengthens the legitimacy of MSMEs in the eyes of stakeholders (Somjai et al., 2020).

Legitimacy theory has become a key framework for explaining the findings of this study (Agustia et al., 2019). Green Products, Green Process Innovation, and Environmental Management Accounting all function as legitimacy strategies that help MSMEs: 1) Get market acceptance by fulfilling consumer requests, and provide a friendly products and processes environment. 2) Comply with increasingly stringent regulations to practice business sustainably. 3) Improve reputation as a company that cares about the environment, so that it attracts investors and business partners (Fuzi et al., 2019; Saputra et al., 2023a).

Conclussion

Study This proves that Green Product, Green Process Innovation, and Environmental Management Accounting (EMA) play an important role in increasing performance sustainability of MSMEs, with theory legitimacy as a main runway. Findings: This gives a significant contribution to the development of green SMEs in Indonesia, especially in facing the challenges of the increasingly global market. The limitations of the study lie in the fact that the samples are limited to MSMEs in Bali, so generalization needs to be made carefully, as well as other variables such as support from the government or access to funding, which were not entered. Recommendations to expand research to sectors other than MSMEs, such as large companies in manufacturing, services, or multinationals, are crucial to test the robustness and generalizability of the proposed theoretical model, considering that differences in resource characteristics, stakeholder pressures, and operational complexity will add new variations in the dynamics of the relationships between variables. Furthermore, integrating moderating variables such as government policies (e.g., in the form of tax incentives or environmental regulations), institutional support, and consumer environmental awareness is a strategic step to build a more relevant and useful model; these variables are expected not only to strengthen or enhance the direct relationship between environmentally friendly practices and sustainability performance but also explain why different results may occur across locations or industries, allowing future research to move beyond simply proving the relationship to explaining the boundary conditions under which the relationship is most effective, ultimately providing a more in-depth contribution and strengthening more targeted policies.

The findings of this study provide an important contribution to theory development, particularly in the context of a developing economy like Indonesia. This research successfully expands the application of legitimacy theory by demonstrating how MSMEs, as entities heavily influenced by local social and environmental norms, can proactively use Green Product, Green Process Innovation, and Environmental Management Accounting (EMA) to gain social and competitive legitimacy, ultimately improving sustainability performance. By demonstrating the validity of a theoretical framework typically applied to large

companies in the MSME context, this study fills an important literature gap. However, the limited sample size in Bali and the exclusion of external variables such as government policies provide theoretical opportunities for future research. Consequently, a more comprehensive model is needed that integrates institutional variables (such as regulatory pressure) and market variables (such as green consumer awareness) as moderators or mediators. This will enhance legitimacy theory by demonstrating its interaction with institutional theory and consumer behavior theory, thus creating a more holistic theoretical framework for understanding the determinants of MSME sustainability performance.

Practically, these findings provide a clear roadmap for MSMEs, policymakers, and business advisors. For MSMEs, the study results provide concrete evidence that investing in green products and processes supported by an environmental management accounting system is not a burden, but rather a strategy to improve business competitiveness and sustainability. MSMEs are advised to begin implementing simple environmental cost accounting (EMA) to assess the financial impact of their green innovations. For the government and supporting institutions, the practical implication is the need to design targeted interventions. Given the limited access to funding mentioned in the study, the government can develop fiscal incentive programs or green grants specifically for MSMEs that can demonstrate their environmental commitment through simple data from EMA implementation. Furthermore, the findings on the importance of consumer awareness as a suggestion for future research imply the need for a national campaign to increase demand for green products, thereby creating a market that encourages more MSMEs to innovate. Thus, the practical implication emphasizes collaboration between MSMEs, the government, and consumers to build a resilient green business ecosystem jointly.

References

1. Abdi, A. H., Warsame, A. A., Sugow, M. O., & Hussein, H. A. (2025). Transitioning to sustainable energy and enhanced environmental quality in Somalia through renewable energy, globalisation and trade openness. *Scientific Reports*, *15*(1). https://doi.org/10.1038/s41598-025-87819-6
2. Agustia, D., Sawarjuwono, T., & Dianawati, W. (2019). The Mediating Effect of Environmental Management Accounting on Green Innovation - Firm Value Relationship. *International Journal of Energy Economics and Policy*, *9*(2), 299–306.
3. Ahmed, M. U., & Shafiq, A. (2022). Toward sustainable supply chains: impact of buyer's legitimacy, power and aligned focus on supplier sustainability performance. *International Journal of Operations & Production Management*, *42*(3), 280–303. https://doi.org/10.1108/IJOPM-08-2021-0540
4. Alnaim, M., & Metwally, A. B. M. (2024a). Green Intellectual Capital and Corporate Environmental Performance: Does Environmental Management Accounting Matter? *Administrative Sciences*, *14*(12). https://doi.org/10.3390/admsci14120311
5. Alnaim, M., & Metwally, A. B. M. (2024b). Institutional Pressures and Environmental Man-

agement Accounting Adoption: Do Environmental Strategies Matter? *Sustainability (Switzerland)*, *16*(7). https://doi.org/10.3390/su16073020

6. Amir, M., & Chaudry, N. I. (2019). Linking environmental strategy to firm performance: A sequential mediation model via environmental management accounting and top management commitment. *Pakistan Journal of Commerce and Social Sciences*, *13*(4), 849–867.
7. Amir, M., Rehman, S. A., & Khan, M. I. (2020). Mediating Role of Environmental Management Accounting and Control System between Top Management Commitment and Environmental Performance: A Legitimacy Theory. *Environmental Management Accounting and Control System*, *7*(1), 132–160.
8. Amos, G. J. (2024). Corporate social and environmental reporting in the mining sector: seeking pragmatic and moral forms of legitimacy? *Journal of Accounting in Emerging Economies*, *14*(3), 548–584. https://doi.org/10.1108/JAEE-05-2021-0152
9. Appiah, B. K., Donghui, Z., Majumder, S. C., & Monaheng, M. P. (2020). Effects of Environmental Strategy, Uncertainty and Top Management Commitment on the Environmental Performance: Role of Environmental Management Accounting and Environmental Management Control System. *International Journal of Energy Economics and Policy*, *10*(1), 360–370. https://doi.org/10.32479/ijeep.8697
10. Arifah, K. F., & Kim, J. (2022). The Importance of Agricultural Export Performance on the Economic Growth of Indonesia: The Impact of the COVID-19 Pandemic. *Sustainability (Switzerland)*, *14*(24). https://doi.org/10.3390/su142416534
11. Asad, M. (2024). Impact of Environmental Management on Sustainable Performance of Pakistani Entrepreneurial Firms: The Mediating Role of Green Product Innovation and the Moderating Effect of Transformational Leadership. *Sustainability (Switzerland)*, *16*(24). https://doi.org/10.3390/su162410935
12. Ashfaq, M., Tandon, A., Zhang, Q., Jabeen, F., & Dhir, A. (2023). Doing good for society! How purchasing green technology stimulates consumers toward green behavior: A structural equation modeling–artificial neural network approach. *Business Strategy and the Environment*, *32*(4), 1274–1291.
13. Asiaei, K., Bontis, N., Alizadeh, R., & Yaghoubi, M. (2021). Green intellectual capital and environmental management accounting: Natural resource orchestration in favor of environmental performance. *Bus Strat Env*, *July* 1–18. https://doi.org/10.1002/bse.2875
14. Awan, U., Arnold, M. G., & Gölgeci, I. (2021). Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. *Business Strategy and the Environment*, *30*(2), 1283–1295. https://doi.org/10.1002/bse.2684
15. Baah, C., Opoku-Agyeman, D., Acquah, I. S. K., Agyabeng-Mensah, Y., Afum, E., Faibil, D., & Abdoulaye, F. A. M. (2021). Examining the correlations between stakeholder pressures, green production practices, firm reputation, environmental and financial performance: Evidence from manufacturing SMEs. *Sustainable Production and Consumption*, *27*, 100–114. https://doi.org/10.1016/j.spc.2020.10.015
16. Begum, S., Xia, E., Ali, F., Awan, U., & Ashfaq, M. (2022). Achieving green product and process innovation through green leadership and creative engagement in manufacturing. *Journal of Manufacturing Technology Management*, *33*(4), 656–674.
17. Braik, A., Saleh, Y., & Jaaron, A. A. M. (2024). Green marketing practices and organizational sustainable performance in the developing countries context: an empirical study. *Journal of*

Foodservice Business Research, *27*(6), 769–809. https://doi.org/10.1080/15378020.2023.2205337

18. Calheiros-Lobo, N., Vasconcelos Ferreira, J., & Au-Yong-Oliveira, M. (2023). SME Internationalization and Export Performance: A Systematic Review with Bibliometric Analysis. *Sustainability (Switzerland)*, *15*(11). https://doi.org/10.3390/su15118473
19. Chaudhry, N. I., & Amir, M. (2020). From institutional pressure to the sustainable development of the firm: Role of environmental management accounting implementation and environmental proactivity. *Business Strategy Environmental*, *July*, 1–13. https://doi.org/10.1002/bse.2595
20. Chaudhry, N. I., Asad, H., Amir, M., & Hussian, R. I. (2020). Environmental Innovation and Financial Performance: Mediating Role of Environmental Management Accounting and the Firm's Environmental Strategy. *Pakistan Journal of Commerce and Social Sciences*, *14*(3), 715–737.
21. Cheng, C., Ahmad, S. F., Irshad, M., Alsanie, G., Khan, Y., Ahmad, A. Y. A. B., & Aleemi, A. R. (2023). Impact of Green Process Innovation and Productivity on Sustainability: The Moderating Role of Environmental Awareness. *Sustainability (Switzerland)*, *15*(17). https://doi.org/10.3390/su151712945
22. Choi, D., & Johnson, K. K. P. (2019). Influences of environmental and hedonic motivations on intention to purchase green products: An extension of the theory of planned behavior. *Sustainable Production and Consumption*, *18*, 145–155.
23. Christ, K. L., & Burritt, R. L. (2018). The role of transdisciplinarity in water accounting by business: reflections and opportunities. *Australasian Journal of Environmental Management*, *25*(3), 302–320. https://doi.org/10.1080/14486563.2018.1460631
24. Enbaia, E., Alzubi, A., Iyiola, K., & Aljuhmani, H. Y. (2024). The Interplay Between Environmental Ethics and Sustainable Performance: Does Organizational Green Culture and Green Innovation Really Matter? *Sustainability (Switzerland)*, *16*(23). https://doi.org/10.3390/su162310230
25. Fuzi, N. M., Adam, S., Ramdan, M. R., Ong, S. Y. Y., Osman, J., Kolandan, S., Ariffin, S. Z. M., Jamaluddin, N. S., & Abdullah, K. (2022). Sustainability Management Accounting and Organizational Performance: The Mediating Role of Environmental Management System. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114290
26. Fuzi, N. M., Habidin, N. F., Janudin, S. E., & Ong, S. Y. Y. (2019). Critical success factors of environmental management accounting practices: findings from the Malaysian manufacturing industry. *Measuring Business Excellence*, *23*(1), 1–14. https://doi.org/10.1108/MBE-03-2018-0015
27. Gelderman, C. J., & Vijgen, S. (2021). Green marketing as an environmental practice: The impact on green satisfaction and green loyalty in a business-to-business context. *Business Strategy and the Environment*, *30*(January), 2061–2076. https://doi.org/10.1002/bse.2732
28. Gerschewski, S., Scott-Kennel, J., & Rose, E. L. (2020). Ready to export? The role of export readiness for the superior export performance of small and medium-sized enterprises. *World Economy*, *43*(5), 1253–1276. https://doi.org/10.1111/twec.12928
29. Gibassier, D., & Alcouffe, S. (2018). Environmental Management Accounting: The Missing Link to Sustainability? *Social and Environmental Accountability Journal*, *38*(1), 1–18. https://doi.org/10.1080/0969160X.2018.1437057

30. Gohar, S. R., & Indulska, M. (2020). Environmental Sustainability through Green Business Process Management. *Australasian Journal of Information Systems*, *24*, 1–30.
31. Gulzar, Y., Eksili, N., Koksal, K., Celik Caylak, P., Mir, M. S., & Soomro, A. B. (2024). Who Is Buying Green Products? The Roles of Sustainability Consciousness, Environmental Attitude, and Ecotourism Experience in Green Purchasing Intention at Tourism Destinations. *Sustainability (Switzerland)*, *16*(18). https://doi.org/10.3390/su16187875
32. Gunarathne, A. D. N., Lee, K. H., & Hitigala Kaluarachchilage, P. K. (2021). Institutional pressures, environmental management strategy, and organizational performance: The role of environmental management accounting. *Business Strategy and the Environment*, *30*(2), 825–839. https://doi.org/10.1002/bse.2656
33. Gunarathne, N., & Lee, K. H. (2021). Corporate cleaner production strategy development and environmental management accounting: A contingency theory perspective. *Journal of Cleaner Production*, *308*(December 2020), 127402. https://doi.org/10.1016/j.jclepro.2021.127402
34. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24.
35. Huong, P. T., Cherian, J., Hien, N. T., Sial, M. S., Samad, S., & Tuan, B. A. (2021). Environmental management, green innovation, and social–open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 89. https://doi.org/10.3390/JOITMC7010089
36. Huynh, Q. L., & Nguyen, V. K. (2024). The Role of Environmental Management Accounting in Sustainability. *Sustainability (Switzerland)*, *16*(17). https://doi.org/10.3390/su16177440
37. Jamil, K., Liu, D., Anwar, A., Rana, M. W., Amjad, F., & Liu, M. (2021). Nexus between relationship marketing and export performance of readymade garments exporting firms. *Industria Textila*, *72*(6), 673–679. https://doi.org/10.35530/IT.072.06.202028
38. Johnstone, L. (2018). Theorising and Modelling Social Control in Environmental Management Accounting Research. *Social and Environmental Accountability Journal*, *38*(1), 30–48. https://doi.org/10.1080/0969160X.2017.1422778
39. Kanagaraj, J., Senthilvelan, T., Panda, R. C., & Kavitha, S. (2015). Eco-friendly waste management strategies for a greener environment towards sustainable development in the leather industry: A comprehensive review. *Journal of Cleaner Production*, *89*, 1–17. https://doi.org/10.1016/j.jclepro.2014.11.013
40. Khan, S. J., Kaur, P., Jabeen, F., & Dhir, A. (2021). Green process innovation: Where we are and where we are going. *Business Strategy and the Environment*, *30*(7), 3273–3296. https://doi.org/10.1002/bse.2802
41. La Soa, N., Duy, D. D., Thanh Hang, T. T., & Ha, N. D. (2024). The Impact of Environmental Accounting Information Disclosure on Financial Risk: The Case of Listed Companies in the Vietnam Stock Market. *Journal of Risk and Financial Management*, *17*(2). https://doi.org/10.3390/jrfm17020062
42. Lăzăroiu, G., Ionescu, L., Andronie, M., & Dijmărescu, I. (2020). Sustainability management and performance in the urban corporate economy: A systematic literature review. *Sustainability (Switzerland)*, *12*(18). https://doi.org/10.3390/su12187705
43. Li, G., Xue, Q., & Qin, J. (2022). Environmental information disclosure and green technology innovation: Empirical evidence from China. *Technological Forecasting and Social Change*, *176*, 121453.

44. Li, L., Msaad, H., Sun, H., Tan, M. X., Lu, Y., & Lau, A. K. W. (2020). Green innovation and business sustainability: New evidence from energy-intensive industry in China. *International Journal of Environmental Research and Public Health*, *17*(21), 1–18. https://doi.org/10.3390/ijerph17217826
45. Li, M., Liu, Y., Huang, Y., Wu, L., & Chen, K. (2022). Impacts of Risk Perception and Environmental Regulation on Farmers' Sustainable Behaviors of Agricultural Green Production in China. *Agriculture (Switzerland)*, *12*(6). https://doi.org/10.3390/agriculture12060831
46. Liu, R., Yue, Z., Ijaz, A., Lutfi, A., & Mao, J. (2023). Sustainable Business Performance: Examining the Role of Green HRM Practices, Green Innovation and Responsible Leadership through the Lens of Pro-Environmental Behavior. *Sustainability (Switzerland)*, *15*(9). https://doi.org/10.3390/su15097317
47. Luan, N. T., Hau, D. N. D., & Thu, N. T. A. (2022). The Influence of Green Product Development Performance on Enhancing Enterprise Effectiveness and Innovation. *Economies*, *10*(5). https://doi.org/10.3390/economies10050113
48. Lukin, E., Krajnović, A., & Bosna, J. (2022). Sustainability strategies and achieving SDGs: A comparative analysis of leading companies in the automotive industry. *Sustainability*, *14*(7), 4000.
49. Lutfi, A., Alqudah, H., Alrawad, M., Alshira'h, A. F., Alshirah, M. H., Almaiah, M. A., Alsyouf, A., & Hassan, M. F. (2023). Green Environmental Management System to Support Environmental Performance: What Factors Influence SMEs to Adopt Green Innovations? *Sustainability (Switzerland)*, *15*(13). https://doi.org/10.3390/su151310645
50. Ma, Y., Hou, G., & Xin, B. (2017). Green process innovation and innovation benefit: The mediating effect of firm image. *Sustainability (Switzerland)*, *9*(10). https://doi.org/10.3390/su9101778
51. Manurung, D. T. H., Hidayah, N., Setiany, E., Saputra, K. A. K., & Hapsari, D. W. (2022). Do Carbon Performance and Green Investment Affect Carbon Emissions Disclosure? *Journal of Environmental Accounting and Management*, *10*(4), 335–344. https://doi.org/10.5890/JEAM.2022.12.001
52. Monroy-Rodríguez, S., & Caro-Carretero, R. (2023). Congress tourism: Characteristics and application to sustainable tourism to facilitate collective action towards achieving the SDGs. *Cogent Business and Management*, *10*(3). https://doi.org/10.1080/23311975.2023.2286663
53. Ozanne, L., Phipps, M., Weaver, T., Carrington, M., Luchs, M., Gupta, S., Santos, N., Scott, K., & Williams, J. (2016). Managing the Tensions at the Intersection of the Triple Bottom Line: A Paradox Theory Approach to Sustainability Management Lucie Ozanne, Marcus Phipps, Todd Weaver, Michal Carrington, Michael Luchs, Jesse Catlin, Shipra Gupta, Nicholas Santos, Kristin Sc. *Journal of Public Policy & Marketing*, 1–37.
54. Ozilhan Ozbey, D., Coskun Degirmen, G., Berk, O. N., Sardagi, E., Celep, E., Koc, D., & Gozen, E. (2024). Green Core Competencies, Green Process Innovation, and Firm Performance: The Moderating Role of Sustainability Consciousness, a Mixed Method Study on Golf Hotels. *Sustainability (Switzerland)*, *16*(10). https://doi.org/10.3390/su16104181
55. Papoutsi, A., & Sodhi, M. S. (2020). Does disclosure in sustainability reports indicate actual sustainability performance? *Journal of Cleaner Production*, *260*, 121049.
56. Qing, L., Chun, D., Dagestani, A. A., & Li, P. (2022). Does Proactive Green Technology Innovation Improve Financial Performance? Evidence from Listed Companies with Semicon-

ductor Concepts Stock in China. *Sustainability (Switzerland)*, *14*(8). https://doi.org/10.3390/su14084600

57. Rossi, M., Cappelletti, F., & Germani, M. (2022). Design for environmental sustainability: Collect and use company information to design green products. *Procedia CIRP*, *105*, 823–828.
58. Rustiarini, N. W., Bhegawati, D. A. S., & Mendra, N. P. Y. (2022). Does Green Innovation Improve SME Performance? *Economies*, *10*(12). https://doi.org/10.3390/economies10120316
59. Saputra, K. A. K., & Dharmawan, N. A. S. (2025). Integration of Environmental Accounting and Blockchain: Achieving Transparency and Accountability in Sustainable Practices. *ISRG Journal of Economics, Business & Management*, *III*(II), 106–111. https://doi.org/10.5281/zenodo.15075119
60. Saputra, K. A. K., Mu'ah, Jurana, Korompis, C. W. M., & Manurung, D. T. H. (2022). Fraud Prevention Determinants: A Balinese Cultural Overview. *Australasian Accounting, Business and Finance Journal*, *16*(3), 167–181. https://doi.org/10.14453/aabfj.v16i3.11
61. Saputra, K. A. K., Subroto, B., Rahman, A. F., & Saraswati, E. (2022). Eco-Efficiency and Energy Audit to Improve Environmental Performance: An Empirical Study of Hotels in Bali-Indonesia. *International Journal of Energy Economics and Policy*, *12*(6), 175–182. https://doi.org/10.32479/ijeep.13565
62. Saputra, K. A. K., Subroto, B., Rahman, A. F., & Saraswati, E. (2023a). Mediation Role of Environmental Management Accounting on the Effect of Green Competitive Advantage on Sustainable Performance. *Journal of Sustainability Science and Management*, *18*(2), 103–115. https://doi.org/10.46754/jssm.2023.02.008
63. Saputra, K. A. K., Subroto, B., Rahman, A. F., & Saraswati, E. (2023b). Sustainability Performance in the Hospitality Industry: Interaction of Strategic Sustainability Management and Sat Kerthi Culture. *Jurnal Ilmiah Akuntansi Dan Bisnis*, *18*(1), 147. https://doi.org/10.24843/jiab.2023.v18.i01.p10
64. Sarfraz, M., Ivascu, L., Abdullah, M. I., Ozturk, I., & Tariq, J. (2022). Exploring a Pathway to Sustainable Performance in Manufacturing Firms: The Interplay between Innovation Capabilities, Green Process and Product Innovations and Digital Leadership. *Sustainability (Switzerland)*, *14*(10). https://doi.org/10.3390/su14105945
65. Schaltegger, S., & Hörisch, J. (2017). In Search of the Dominant Rationale in Sustainability Management: Legitimacy- or Profit-Seeking? *Journal of Business Ethics*, *145*(2), 259–276. https://doi.org/10.1007/s10551-015-2854-3
66. Shahzad, M., Qu, Y., Zafar, A. U., Rehman, S. U., & Islam, T. (2020). Exploring the influence of the knowledge management process on corporate sustainable performance through green innovation. *Journal of Knowledge Management*, *24*(9), 2079–2106. https://doi.org/10.1108/JKM-11-2019-0624
67. Sharma, G. D., Verma, M., Shahbaz, M., Gupta, M., & Chopra, R. (2022). Transitioning green finance from theory to practice for renewable energy development. *Renewable Energy*, *195*, 554–565.
68. Sharma, S., Prakash, G., Kumar, A., Mussada, E. K., Antony, J., & Luthra, S. (2021). Analysing the relationship of adaption of green culture, innovation, green performance for achieving sustainability: Mediating role of employee commitment. *Journal of Cleaner Production*, *303*, 127039.
69. Somjai, S., Fongtanakit, R., & Laosillapacharoen, K. (2020). Impact of Environmental Com-

mitment, Environmental Management Accounting and Green Innovation on Firm Performance: An Empirical Investigation. *International Journal of Energy Economics and Policy*, *10*(3), 204–210.
70. Song, M., Wang, S., & Zhang, H. (2020). Could environmental regulation and R&D tax incentives affect green product innovation? *Journal of Cleaner Production*, *258*, 120849.
71. Suryantini, N. P. S., Moeljadi, M., Aisjah, S., & Ratnawati, K. (2023). The sustainable competitive advantage of SMEs towards Intellectual Capital: the role of technology adoption and strategic flexibility. *Intellectual Economics*, *17*(1), 30-56.
72. Szabo, S., & Webster, J. (2021). Perceived greenwashing: the effects of green marketing on environmental and product perceptions. *Journal of Business Ethics*, *171*, 719–739.
73. Tariq, A., Badir, Y. F., Tariq, W., & Bhutta, U. S. (2017). Drivers and consequences of green product and process innovation: A systematic review, conceptual framework, and future outlook. *Technology in Society*, *51*, 8–23. https://doi.org/10.1016/j.techsoc.2017.06.002
74. Traiyarach, S., & Banjongprasert, J. (2022). The Impact of Export Promotion Programs on Export Competitiveness and Export Performance of Craft Products. *Journal of Marine Science and Engineering*, *10*(7). https://doi.org/10.3390/jmse10070892
75. Uyar, M. (2020). The Association Between Environmental Strategies and Sustainability Performance in The Context of Environmental Management Accounting. *Ege Akademik Bakis (Ege Academic Review)*, *20*(1), 21–41. https://doi.org/10.21121/eab.590348
76. Villena-Manzanares, F., & Souto-Pérez, J. E. (2016). Sustainability, innovative orientation and export performance of manufacturing SMEs: An empirical analysis of the mediating role of corporate image. *Journal of Industrial Engineering and Management*, *9*(1), 35–58. https://doi.org/10.3926/jiem.1532
77. Wang, M., Li, Y., Li, J., & Wang, Z. (2021). Green process innovation, green product innovation and its economic performance improvement paths: A survey and structural model. *Journal of Environmental Management*, *297*(July), 113282. https://doi.org/10.1016/j.jenvman.2021.113282
78. Xie, X., Hoang, T. T., & Zhu, Q. (2022). Green process innovation and financial performance: The role of green social capital and customers' tacit green needs. *Journal of Innovation and Knowledge*, *7*(1), 100165. https://doi.org/10.1016/j.jik.2022.100165
79. Xie, X., Huo, J., & Zou, H. (2019). Green process innovation, green product innovation, and corporate financial performance: A content analysis method. *Journal of Business Research*, *101*(January), 697–706. https://doi.org/10.1016/j.jbusres.2019.01.010
80. Yousaf, Z., Radulescu, M., Sinisi, C. I., Serbanescu, L., & Paunescu, L. M. (2021). Harmonization of Green Motives and Green Business Strategies towards Sustainable Development of Hospitality and Tourism Industry: Green Environmental Policies. *Sustainability*, *13*. https://doi.org/https://doi.org/ 10.3390/su13126592
81. Zameer, H., Wang, Y., & Yasmeen, H. (2020). Reinforcing green competitive advantage through green production, creativity and green brand image: Implications for cleaner production in China. *Journal of Cleaner Production*, *247*, 119119. https://doi.org/10.1016/j.jclepro.2019.119119
82. Zhang, D., Zheng, M., Feng, G.-F., & Chang, C.-P. (2022). Does an environmental policy bring to green innovation in renewable energy? *Renewable Energy*, *195*, 1113–1124.
83. Zhang, H., Ul Ainn, Q., Bashir, I., Ul Haq, J., & Bonn, M. A. (2022). Does Greenwashing

Influence the Green Product Experience in Emerging Hospitality Markets Post-COVID-19? *Sustainability*, *14*(19), 12313.

84. Zhang, Q., & Jiang, J. (2025). The Role of Green Innovation Appropriability and Firm Performance: Evidence from the Chinese Manufacturing Industry. *Sustainability (Switzerland)*, *17*(2). https://doi.org/10.3390/su17020517
85. Zhou, J., Sawyer, L., & Safi, A. (2021). Institutional Pressure and Green Product Success: The Role of Green Transformational Leadership, Green Innovation, and Green Brand Image. *Frontiers in Psychology*, *12*(October), 1–15. https://doi.org/10.3389/fpsyg.2021.704855
86. Zumente, I., & Bistrova, J. (2022). Environmental, social, and governance policy integration and implementation from the perspective of corporations. *Intellectual Economics*, *16*(1).