Indonesian Journal of Sustainability Accounting and Management
ISSN 2597–6214 | e–ISSN 2597–6222
DOI: 10.20448/ijsam.v9i1.7265

Investigating Determinants of SMEs' Green Practices: A Literature Review and Proposed Model

Erni Ernawati[1] * | Diyah Ratna Fauziana[2]

[1]*Sekolah Tinggi Manajemen PPM, Jakarta, Indonesia*
[2]*Sekolah Tinggi Manajemen PPM, Jakarta, Indonesia*

*Correspondence to: Erni Ernawati, Sekolah Tinggi Manajemen PPM, Jl Menteng Raya No. 9-19, Jakarta Pusat, Indonesia.
E-mail: erniernawati344@gmail.com

Abstract: This study aims to identify the drivers of green practices, the types of green practices employed, and the green performance of small and medium-sized enterprises (SMEs) using a systematic literature review approach. Three stages of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Protocol were carried out, involving 37 empirical-based articles. These articles were selected from a total of 2,662 documents gathered from the Scopus and ProQuest databases based on the objectives of this study. The content analysis method was employed to identify themes related to green drivers, practices, and performance, which were used to develop the model as the study's proposition. The green drivers of SMEs' green practices include green entrepreneurship orientation, green market orientation, green regulations, and green relational motives. The implemented green practices encompass green marketing, procurement, operations, logistics and transportation, human resource management, innovation, and product design. Green performance comprises economic, social, and environmental aspects. The proposed model is subject to validation in future research to clarify the drivers of green practice in SMEs that contribute to their sustainable business performance. The results of this study are beneficial for improving a firm's green performance by implementing relevant green practices within the organization.

Keywords: green innovation, green practices, green performance, SMEs, sustainability

Article info: Received 1 May 2025 | revised 20 June 2025 | accepted 27 June 2025

Recommended citation: Ernawati, E., & Fauziana, D. R. (2025). Investigating Determinants of SMEs' Green Practices: A Literature Review and Proposed Model. *Indonesian Journal of Sustainability Accounting and Management, 9*(1), 144–165. https://doi.org/10.20448/ijsam.v9i1.7265

INTRODUCTION

The green economy is gaining increasing attention from all business stakeholders, including governments, economists, environmentalists, businesses, and international organizations, due to the growing threat of environmental issues such as climate change, global food insecurity, and ecological degradation (Akalibey et al., 2023). The green economy is defined as a low-carbon, resource-efficient, and socially inclusive economy (The United Nations Environmental Program, 2024). To support the transition toward sustainability through a green economy, business entities must focus on achieving performance across three aspects, commonly referred to as the triple bottom line, which encompasses economic, social, and environmental aspects. Several key performance parameters of the green economy, as assessed by the Global Green Economy Index (GGEI), include

leadership, policy, cleantech investment, and sustainable tourism. The United Nations Environmental Program (UNEP) classifies several green economy performance indicators as indicators of environmental issues and targets, indicators for policy interventions, and indicators of policy impacts on well-being and equity (Ryszwaska, 2015). The study integrates various green economy performance indicators across several dimensions, including ecosystem and natural capital, emissions, pollution, waste, resource consumption, poverty, social inequalities, economy, environmental policy and strategies, and specific green economy sectors. The diversity of green economy indicators presented by previous studies enriches the benchmarks for measuring green economy performance in business entities. Hence, it presents challenges in selecting indicators that align with the unique characteristics of an organization's business model.

One of the indicators used to measure global green economy performance is the Green Growth Index (GGI), which encompasses several dimensions, including efficient and sustainable resource use, protection of natural capital, green economic opportunities, and social inclusions (GGGI, 2023). Recently, the measurement initiatives for green growth performance have been conducted at national, regional, and global levels. The results of the 2022 assessment indicated regional green performance scores, as illustrated in Figure 1. High scores were observed in European countries, ranging from 60 to 80 on a scale of 0 to 100, in stark contrast to the scores in African and Asian countries, which ranged from 40 to 60. Several countries still had below-average scores, indicating a significant need to raise awareness and improve green performance, particularly in developing countries in Asia and Africa.

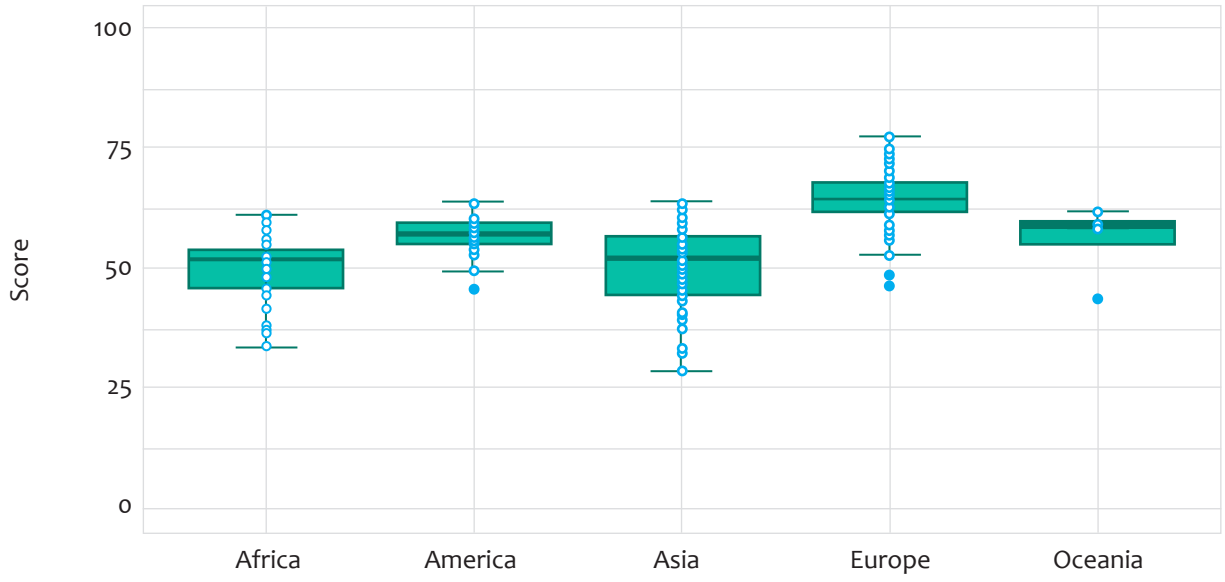

Figure 1 Green Growth Score in 2022 (adapted from Green Growth Index, 2023)

Green performance is significantly influenced by the behavior of business entities and non-profit organizations through their commitment to implementing green practices. Based on the scale of operations, business entities are classified into four categories: micro, small, medium, and large organizations. The need

for all-scale organizations to implement green practices is steadily increasing, not only for the sustainability of the organization itself, but also for the well-being of its communities. In contrast to the business's ultimate goal of increasing profitability, green practices are perceived as resource-consuming initiatives that result in unprofitable activities. Most studies have examined sustainable practices in large-scale organizations, including manufacturing companies and major enterprises. Limited studies have discussed the green practices of small and medium enterprises (SMEs), identifying a research gap that is addressed in this study. Studies of SMEs are essential for tailoring strategies that meet their specific needs, as a few studies discuss green topics in SMEs. Moreover, they face challenges in implementing green practices due to their limited resources and lack of knowledge about green business (Purwandani & Michaud, 2021). Appropriate intervention initiatives are necessary to enhance green practices in SMEs. Therefore, it is crucial to examine the green drivers that influence their intention to implement green practices, which contribute to their sustainable performance.

This study aims to identify the determinants of green practices implemented by SMEs, the types of green practice they adopt, and the green performance of SMEs. A systematic literature review was conducted, and a model was built based on the results of the literature analysis and the relationships between variables. The research questions addressed in this study were: (1) What are the drivers of green practices in SMEs? (2) What green practices are implemented by SMEs? (3) What are the measures of success of SMEs' green practices?

The findings of this study are expected to contribute to the existing body of knowledge on green practices by developing a model of green practices of SMEs. The proposed model should be tested in future research, and the results should serve as a reference for the government or other stakeholders in designing intervention strategy to enhance SMEs' green practices.

METHODS

This study was conducted in two phases to obtain the proposed model as a result of the research process. The first phase employed a systematic literature review (SLR) approach based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) protocol, which consists of three phases: initiation, screening, and final selection of eligible documents for further analysis. The second phase is the model development phase, which uses the results of the analyzes in the first phase based on the relationships between elements. The sequence of the activities used in this study is illustrated in Figure 2.

The articles were selected from the Scopus and ProQuest databases to ensure their high quality, as all articles underwent peer-review. To ensure that the analysis was based on actual green practices implemented by businesses and that the study's results could be applied in practice, only empirical studies were included in the analyses. The keywords used for the search process were "green AND business", with a time frame limitation of the last three years (2020–2023). The short timeframe was chosen to provide an up-to-date overview of organizations' green practices during and after the COVID-19 global pandemic. Most SMEs were unable to operate their businesses during the pandemic, and there are still limited capacities to scale up their business. A total of 1,198 articles were retrieved from the Scopus database, and 1,464 articles were sourced from the ProQuest database. The total number of articles obtained during the first search was 2,662 documents.

To identify the research gap within the scope of the article's topic, VOS Viewer was used to include all relevant documents in the application. As illustrated in Figure 3, previous studies on SMEs have predominantly focused on topics such as sustainability and sustainable development.

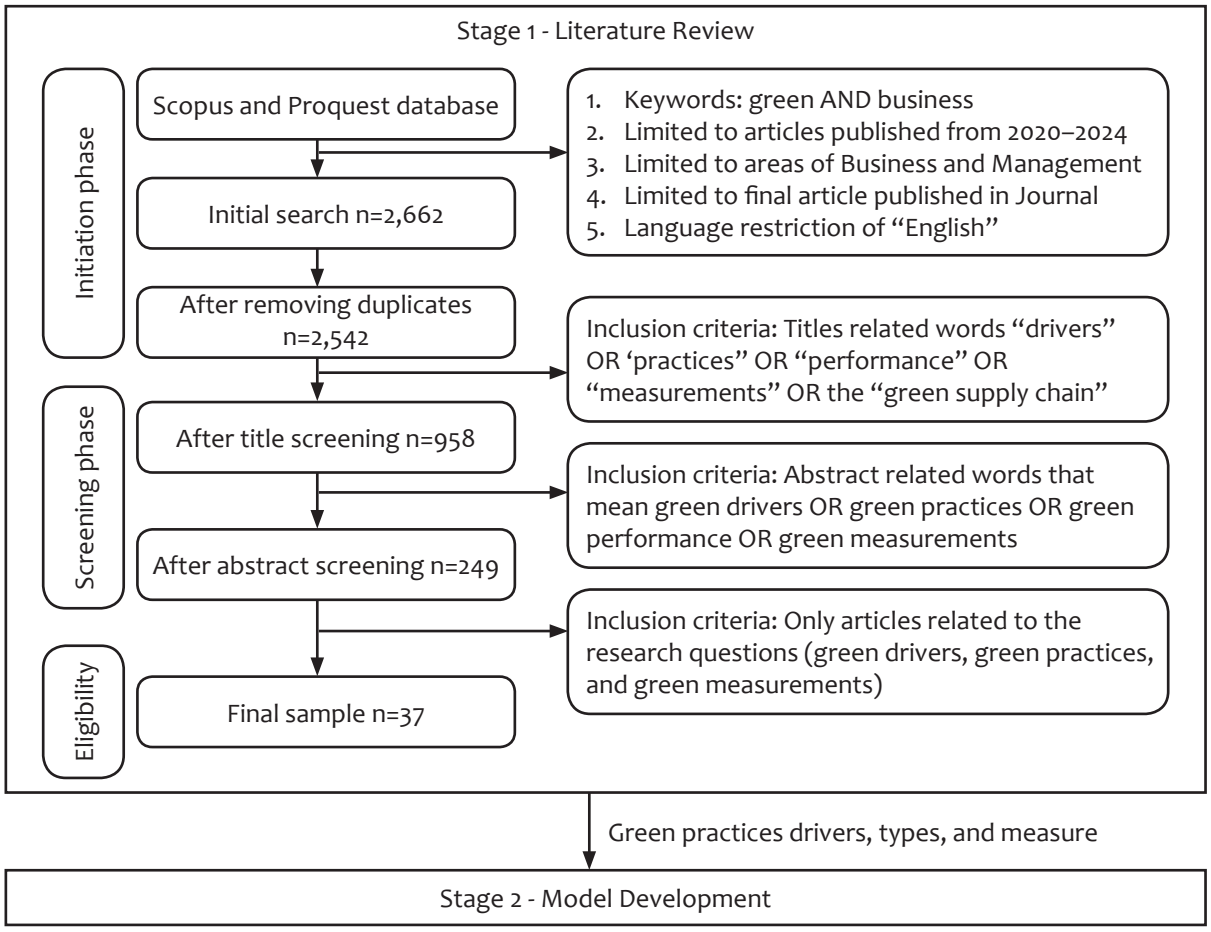

Figure 2 The Sequential of the study

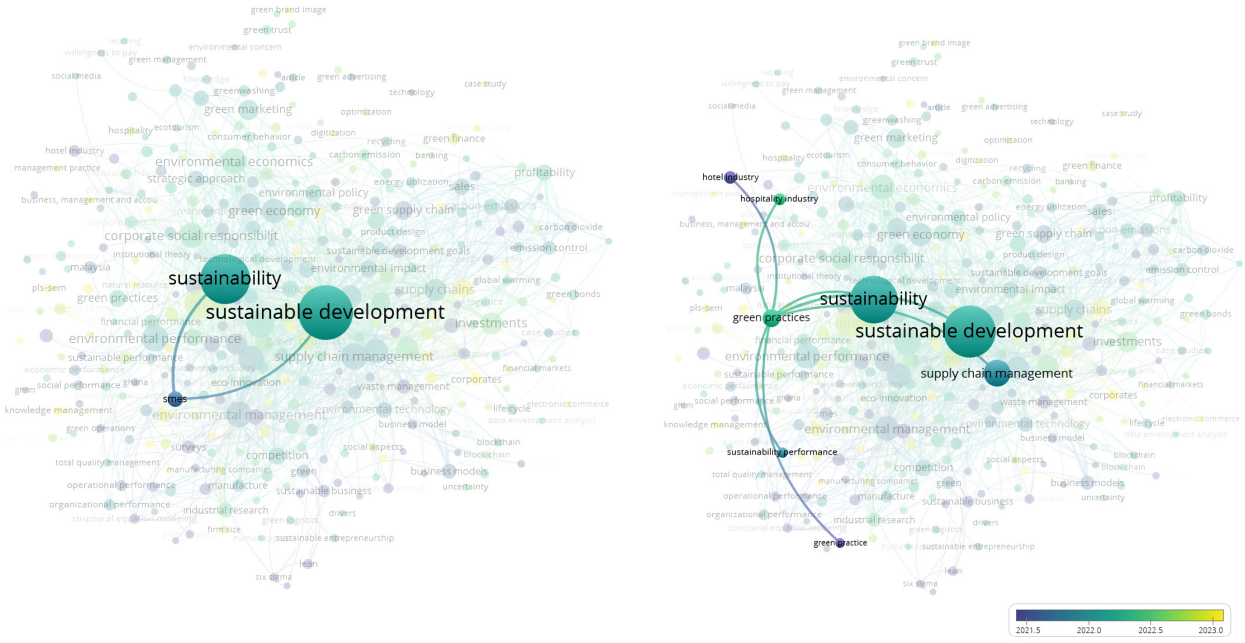

Figure 3 The Research gap described using a VOS Viewer application

However, in the articles retrieved from the Scopus and ProQuest databases, there was an evident lack of studies that specifically address the green practices adopted by SMEs, thereby presenting a research gap that this study aims to fill. Previous research has discussed green practices in supply chain management, sustainability, and sustainable development. Sustainable performance has also been associated with green practices as a related topic. Studies conducted in 2021–2022 have explored green practices within hotels and hospitals as research subjects. Since most hotels and hospitals are large-scale business entities, their behaviors differ significantly from those of SMEs. The identified research gap is illustrated in Figure 4.

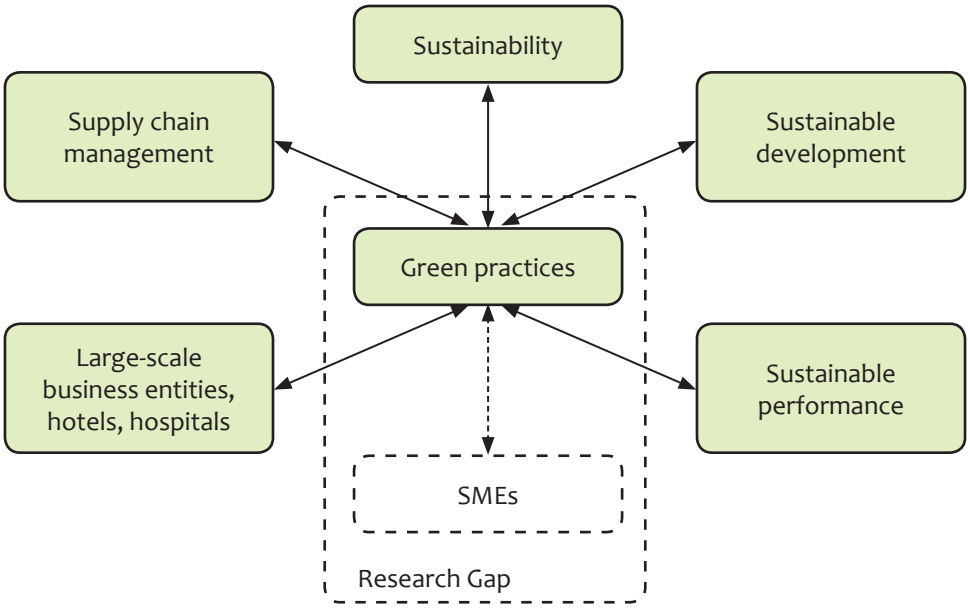

Figure 4 Research gap

After conducting a process of checking for duplicates, 120 articles were identified as duplicates and were therefore removed. The titles and abstracts of the articles were screened using several keywords related to the research questions, including "green drivers," "green practices," and "green performance". Other synonymous terms, such as "green measurements" or "green supply chain," were also applied, yielding 249 articles. The next stage involved selecting articles by reading the full text of each document, followed by a coding process to address the research questions. Finally, 37 articles were selected for further analysis.

A content analysis approach was used to categorize keywords by the research questions. The coding processes based on the keywords were conducted, followed by a clustering step that identifies variables explaining green drivers, green practices, and green performance in SMEs. The clusters were grouped to simplify classification and build a conceptual model, as illustrated in Figure 5. Based on Porter's (1995) original value chain model, a green value chain model was developed as a reference. A proposed model was developed by synthesizing the articles and using a green value chain model as a basis, describing the assumptions of relationships between variables and is recommended for further in-depth research.

A study by Rehman et al. (2021) revealed that green innovation, which involves the implementation of green practices, serves as a mediator between green intellectual capital, one of the key drivers of green practices, and environmental performance. Priyashantha & Priyangaa (2022) noted that green human resource management, as organizations' green practice, is strengthening the implementation of its green strategies. The

result is supported by a study conducted by Ratnamiasih et al. (2022), which revealed that green training has a significant impact on green human capital as one of the firm's green practices. Therefore, we have the following hypotheses:

H1: Green practice drivers affect the green practice implementations

H2: Green practice implementations affect the green performance

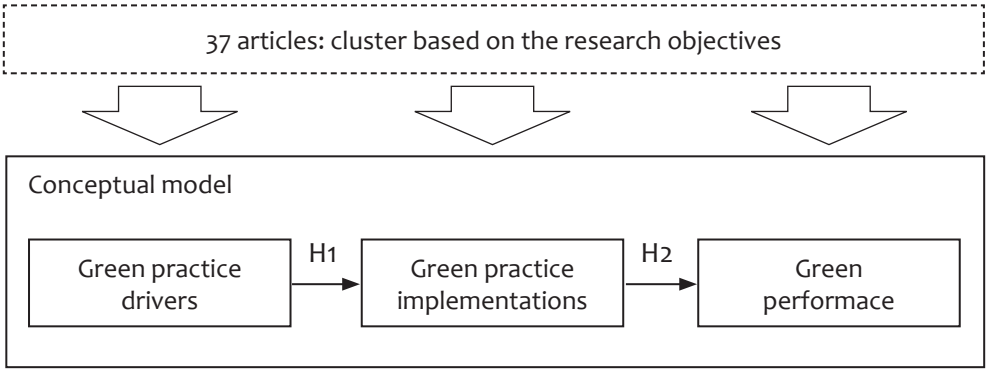

Figure 5 Developing conceptual model

RESULTS AND DISCUSSION

After conducting the final stage, 37 articles were selected and classified according to their responses to each research question. The 31 titles of journals publishing the articles listed in Table 1 describe various topics and scope of the journals. Several articles discussed either the background of SMEs implementing green practices, the types of green practices adopted, SMEs' green performance, or a combination of these aspects. The majority of the journals cover topics related to sustainability, environmental issues, and economics. Only three journals have published more than one article discussing green practices in SMEs, focusing on drivers, types of practices, or green performance, which indicates a limitation in research on green practices in SMEs.

Table 1 List of journals publishing the selected articles

No	Journal Title	Number of articles
1	Quality – Access to Success	4
2	Sustainability	3
3	International Journal of Management and Sustainability	2
4	Advances in Management and Applied Economics	1
5	Discover Sustainability	1
6	Economies	1
7	Environment Systems & Decisions	1
8	Environmental Science and Pollution Research	1

9	Global Business & Finance Review	1
10	International Journal of Business Ecosystem & Strategy	1
11	International Journal of Energy Economics and Policy	1
12	IOP Conference Series. Earth and Environmental Science	1
13	Journal of Open Innovation: Technology, Market, and Complexity	1
14	Social Sciences	1
15	Systems	1
16	The South East Asian Journal of Management	1
17	Academic Journal of Interdisciplinary Studies	1
18	African Journal of Business and Economic Research	1
19	Asia Pacific Journal of Marketing and Logistics	1
20	Benchmarking	1
21	Cogent Business and Management	1
22	Contaduria y Administracion	1
23	International Journal of eBusiness and eGovernment Studies	1
24	International Journal of Economics and Business Administration	1
25	International Journal of Productivity and Performance Management	1
26	Journal of Engineering and Technology Management - JET-M	1
27	Journal of Industrial Engineering and Management	1
28	Journal of Manufacturing Technology Management	1
29	Journal of Small Business and Enterprise Development	1
30	Society and Business Review	1
31	Uncertain Supply Chain Management	1

Green Practice Drivers

Several green practice drivers for SMEs were identified through an analysis of excerpts from selected articles. The interpretation process translated these quotes into factors outlined in Table 2. The green practice drivers for SMEs are then grouped into several clusters: green entrepreneurship orientation, green market orientation, green incentives, green regulations, and green relational motives.

Table 2 Green practice drivers of SMEs

Reference	Green practice drivers	Clusters
Utaminingsih et al., 2020	1. Role of management 2. Environmentally-friendly behavior: • institutional environment • entrepreneurial orientation • green technology	Green entrepreneurship orientation Green entrepreneurship orientation

Bawakyillenuo & Agbelie, 2021	Environmental consciousness	Green entrepreneurship orientation
Purwandani & Michaud, 2021	1. Internal motivations 2. The opportunity to obtain a better public image, especially in the market	Green entrepreneurship orientation Green market orientation
Thomas et al., 2021	Stakeholders' requirements	Green market orientation
Martinez-Martinez et al., 2022	Green knowledge	Green entrepreneurship orientation
Ozgul, 2022	Environmental orientation	Green entrepreneurship orientation
Polas et al., 2022	Sustainable orientation & attitude	Green entrepreneurship orientation
Sunarjo et al., 2022	1. Instrumental motives 2. Relational motives 3. Moral motives	Green entrepreneurship orientation Green relational motives Green entrepreneurship orientation
Tjahjadi et al., 2022	Green human capital readiness	Green entrepreneurship orientation
Abdelwahed et al., 2023	1. Green entrepreneurial skills 2. Green opportunities 3. Entrepreneurial motivation 4. Green incentives 5. Availability of capital to conduct green initiatives 6. Green entrepreneurial self-efficacy	Green entrepreneurship orientation Green market orientation Green entrepreneurship orientation Green incentives Green entrepreneurship orientation Green entrepreneurship orientation
Agusdin et al., 2023	1. Green innovation capability 2. Green entrepreneurship orientation	Green entrepreneurship orientation Green entrepreneurship orientation
Almeida & Wasim, 2023	1. Internal factors: • the eco-innovation strategy • the organization's sector of activities • the market orientation • the adoption of environmental systems, and the internal competencies	Green entrepreneurship orientation
	2. External factors: • the relevance of environmental regulations • market pressures • collaborative partnerships • the positioning of competitors.	1. Green regulations 2. Green market orientation 3. Green relational motives
Dwiputri et al., 2023	Intellectual capital	Green entrepreneurship orientation
Febriatmoko et al., 2023	Green market orientation	Green market orientation
Mankgele, 2023	Green entrepreneurial self-efficacy	Green entrepreneurship orientation
Sulastiningsih et al., 2023	Green entrepreneurship motivation	Green entrepreneurship orientation
Sumiati et al., 2023	Pro-Environmental Behaviors (task-related pro-environmental behavior & proactive pro-environmental behavior)	Green entrepreneurship orientation
Alshebami et al., 2024	1. Environmental self-identity 2. Green mindfulness	Green entrepreneurship orientation Green entrepreneurship orientation
Bolaji et al., 2024	1. Environmental regulations 2. Supplier relationship	Green regulations Green relational motives

Green entrepreneurship orientation consists of several internal organizational factors, including sustainable orientation, commitment, and attitude to preserve a way of life for the future (Bawakyillenuo & Agbelie, 2021; Ozgul, 2022; Polas et al., 2022), green entrepreneurship motivation (Purwandani & Michaud, 2021; Sunarjo et al., 2022; Abdelwahed et al., 2023; Sulastiningsih et al., 2023), green entrepreneurial knowledge (Martinez-Martinez, 2022; Dwiputri et al., 2023) and skills (Abdelwahed et al., 2023), green innovation capability (Utaminingsih et al., 2020; Agusdin et al., 2023; Almeida & Wasim, 2023), and green human capital readiness (Tjahjadi et al., 2022). A green entrepreneurial orientation, encompassing green knowledge, commitment, and attitude, influences the adoption of green innovation, ultimately leading to economic sustainability. Abdelwahed et al. (2023) further explained that green entrepreneurial self-efficacy (GESE) is also a significant driver of green practices in SMEs. It refers to confidence in the knowledge and skills of SME human resources to address environmental challenges. GESE can emerge when individuals possess green knowledge and skills that are translated into green innovation capabilities. Align with this study, Mankgele (2023) noted that GESE has a significant relationship with an organizations' environmental performance, and the mediating role of green innovation is also significant. Alshebami et al. (2024) supported this result, revealing that green self-efficacy is positively influenced by environmental self-identity and green mindfulness and increases green entrepreneurial intention. This study was conducted in Saudi Arabia, and the respondents were students studying entrepreneurship who are potential entrepreneurs and aspire to become 'green' entrepreneurs in the future.

The 'green' entrepreneurs were classified into two types based on their perception of green businesses: entrepreneurs who consider environmental impacts before conducting their businesses and those who do not engage in organizations that harm the environment (Bawakyillenuo & Agbelie, 2021; Alshebami et al., 2024). These characteristics underlie the type of leadership business owners exhibit in managing their companies. Green transformational leadership, as one of the leadership types, is crucial for SME owners and managers to enhance the organization's green orientation and capacity (Ozgul, 2022).

External demands, including those from the market and other green-oriented stakeholders, also serve as determinants of SMEs' green practices, classified as green market orientation. Market demand and competitor positioning are among the key driving factors (Almeida & Wasim, 2023), while opportunities to implement green practices are positively correlated with green behavior in SMEs (Abdelwahed et al., 2023). Thomas et al. (2023) mapped various stakeholders using importance-performance map analysis. They revealed that communities, employees, and competitors are stakeholders with high levels of importance and performance, making them critical priorities. Meanwhile, customers were found to have a low level of importance but a high level of performance. Bolaji et al. (2024) support this result, revealing that stakeholder pressures do not influence the adoption of green supply chain management. The study contrasts with the findings of Almeida & Wasim (2023) on Portuguese SMEs, which indicate that external factors play a more significant role in shaping eco-innovation strategies. The main drivers were market pressures, alongside regulations, collaboration with other organizations on green practices, and competition.

Government regulations on green practices and incentives in SMEs are additional drivers (Almeida & Wasim, 2023; Bolaji et al., 2024). A study by Febriatmoko et al. (2023), which focused on the government and society's attention to the environment, revealed that green market orientation affects SMEs' marketing performance through organizational ambidexterity. Better green market orientation will increase the intention to practice green marketing by producing environmentally friendly products or services. An organization's ambidexterity is achieved by cultivating a culture that supports innovative ideas and processes, encourages effective green marketing practices, and yields good marketing performance.

The study conducted by Almeida & Wasim (2023) and Bolaji et al. (2024) noted that while regulations encourage green practices, the sustainability benefits are not immediate, as they involve other parties beyond the SMEs themselves. Collaborations with stakeholders in the supply chain ecosystem to exchange knowledge and skills in implementing green initiatives enhance the organization's capability. Bolaji et al. (2024) support this result, showing that supplier relationships influence green adoption throughout the supply chain. However, Abdelwahed et al. (2023) found that green incentives had a significant influence on green entrepreneurship in Saudi Arabian SMEs in both monetary and non-monetary forms. Some programs implemented in Saudi Arabia include a taxation system that supports green business activities and government initiatives, offering low-interest financing and supporting eco-friendly ventures. In line with this study, Purwandani & Michaud (2021) revealed that a lack of capital was the central barrier for SMEs to implement green practices. A study by Bharati (2022) suggests that green finance investment initiatives conducted by government, large-scale business entities, and financial institutions can help SMEs develop their businesses while reducing the harmful effect on the environment. According to the study, green finance investment initiatives include investments that support the growth of environmentally friendly organizations and minimize environmental costs.

Green Practice Implementations

The implementation of green practices varies significantly across industries, with some differences influenced by organizational size and scope. Based on the collected articles, several clusters were identified that depicted groups of green practices categorized by their functional roles within companies. Some articles provided analysis with a broader scope, addressing green practices both upstream and downstream of the supply chain. Other studies have focused on functional areas, including marketing, operations, and human resources. The process of clustering the practices is presented in Table 3.

Table 3 Green practices of SMEs

Reference	Green practices/initiatives	Clusters
Irimias & Mitev, 2020	Digital technologies supporting organization transformation	Green innovation
Maziriri, 2020	1. Green packaging, including size and weight reduction, and the use of environmentally friendly materials	Green product design
	2. Green advertising or ecological marketing practices	Green marketing
Utaminingsih et al., 2020	Environmentally friendly technology adoption	Green operations
Muangmee et al., 2021	Sustainable process and produce green products and services	Green innovation
Thomas et al., 2021	Green innovation, including produce new products, processes, organizational changes, and marketing solutions	Green innovation
Yousaf, 2021	All the innovation initiatives of producing products and services that have the purposes of preserving environmental	Green innovation
Abubakar et al., 2022	Green innovation, including product innovation (using environmentally friendly materials) and process innovation (reducing hazardous waste and energy consumption)	Green innovation
Ali, 2023	Green supply chain practices, including design, purchasing, production, marketing, and logistics processes	Green product design Green operations Green marketing Green logistics and transportation

Almeida & Wasim, 2022	Eco-innovation for products and processes	Green innovation
Alvarez et al., 2022	Green information technologies adoption	Green innovation
Bhatti et al., 2022	1. Green management practices, including processes of reduction, reuse, and recycling	Green operations
	2. Technological innovation, including technology usage, technology competitiveness, and technology adoption processes	Green innovation
Martinez-Martinez et al., 2022	Incremental & radical eco-innovation	Green innovation
Qazi et al., 2022	Green in-store operations, include green packaging, waste management, and packages weight reduction	Green operations
Rustiarini et al., 2022	Development of environmentally friendly products and processes preserves nature and improves economic performance	Green innovation
Siregar & Pinagara, 2022	Green supply chain management practices, comprises of eco-design, green purchasing, reverse logistics	Green product design Green operations Green logistics
Tjahjadi et al., 2022	Green supply chain management, including eco-friendly product design, reduction of toxic material usage, supplier green development program	Green product design Green operations
Widhiastuti & Muafi, 2022	Green creativity	Green innovation
Adela et al., 2023	1. Green product (products that prevent, reduce, or eliminate negative effect to environment)	Green product design
	2. Green process (process related to energy saving, reuse, remanufactured material, and the use of cleaner technology)	Green operations
	3. Green package (storing goods technique having a low impact on the environment)	Green product design
	4. Green place (the process of selecting channels that minimize the environmental damage)	Green logistics and transportation
	5. Green promotion (initiatives in educating stakeholders about a company's environmental efforts, commitments, and accomplishment)	Green marketing
Agusdin et al., 2023	Green product development, including product features, design, package, and eco-labeling	Green product design
Dwiputri et al., 2023	Green innovation, including the using of less energy consumption materials and producing the eco-design products	Green innovation
Endiana et al., 2023	Green intellectual capital (green human capital, green structural capital, and green relational capital)	Green human resource management
Sumiati et al., 2023	1. Green products	Green product design
	2. Green processes	Green operations
Altassan, 2024	1. Green human resource management practices (to promote environmentally responsible behaviors among employees)	Green human resource management
	2. Green innovation or eco-innovation, sustainable innovation, and environmental innovation	Green innovation
Khusnah & Soewarno, 2024	Green innovation to produce environmentally friendly products	Green innovation
Zihan & Makhbul, 2024	Human resources practices that promote sustainable use of resources and reduce environmental impact	Green human resource management

According to Ali (2023), the scope of green supply chain practices includes green design, purchasing, production, marketing, and logistics. The study aligns with the findings of Tjahjadi et al. (2022), who analyzed green supply chain practices covering green product design and green operations. Supply chain eco-centricity moderates the relationship between green supply chain management practices and supply chain performance, namely environmental performance and operational cost performance (Siregar & Pinagara, 2022). It means that the organization's tendency to learn 'green' from other supply chain actors or stakeholders encourages increased supply chain performance.

Most studies have defined green product design as the use of environmentally friendly materials in product design and production processes (Ali, 2023; Siregar & Pinagara, 2022; Tjahjadi et al., 2022). A study by Adela et al. (2023) further defines a green product as "products that prevent, reduce, or eliminate negative effects on the environment", meaning that every element of the product is designed with environmental friendliness in mind, including product features, product packaging, and eco-labeling (Agusdin et al., 2023). The study revealed that to develop green products, organizations should develop the green innovation capability among their employees, encompassing both process and product aspects. Environmental collaboration with partners who possess superior capabilities and supporting infrastructure is one alternative for implementing green practices (Achmad et al., 2023).

Green packaging practices, as part of green product design, encompass efforts to minimize the size and weight of the products (Maziriri, 2020). By reducing the size or weight, the required packaging can also be made smaller and lighter. The materials used in green packaging are designed to be environmentally friendly, such as those that are reusable or recyclable (Adela et al., 2023). In addition to green packaging, Maziriri (2020) revealed that green advertising practices in SMEs are correlated with business performance. This practice involves persuading environmentally conscious buyers to purchase products that benefit the environment through eco-friendly messaging and marketing. In contrast to green advertising defined by Maziriri (2020), Adela et al. (2023) viewed green promotion practices as initiatives aimed at educating stakeholders about the company's environmental efforts, commitments, and achievements, which positively impact sustainable business performance. The stakeholders analyzed in the study included buyers, shareholders, employees, and other relevant parties with interests in the organization.

The production process is a core activity for SMEs that manufacture goods, especially in terms of material usage, including raw and supporting materials. The transformation of materials into end products often requires methods that are supported by technology, such as the digitalization of processes. The level of digital technology adoption describes an organization's digital maturity level and affects its business performance and green development (Irimias & Mitev, 2020). Another study by Alvarez et al. (2022) revealed that the adoption of green information technology has a positive impact on the organization's performance, increasing efficiency through cost reduction and enhancing the quality of processes, including process improvement. The adoption of technology also has a positive impact on customer perceptions of the company.

The adoption of cleaner technology is part of the green practices of SMEs (Utaminingsih et al., 2020; Adela et al., 2023). Process technologies that enable the recycling or remanufacturing of defective products into the production process reduce waste during manufacturing (Bhatti et al., 2022; Adela et al., 2023). In addition to green production practices, several articles have discussed green logistics and transportation practices in SMEs. Moving products from one point to another along the supply chain requires careful planning to optimize warehouse locations and transportation modes. Reducing distribution costs, minimizing fuel consumption, and controlling pollution are the key elements of green logistics and transportation (Ali, 2023). In contrast to

other studies, Adela et al. (2023) examined green places as a variable for selecting distribution channels and infrastructure that minimize environmental harm, and the result showed that green places have an insignificant effect on business performance. As defined by Goh (2019), a green place focuses on distributing environmentally friendly products to customers while considering environmental concerns.

Green innovation is one of the most frequently discussed green practices among SMEs. It encompasses the development of new products, the creation of new processes, changes in organizational management, and the design of problem-solving solutions in marketing (Thomas et al., 2021), aligning with the types of innovation described by the OECD, including product innovation, process innovation, organizational innovation, and marketing innovation. Supporting this research, Yousaf (2020) revealed that the process of co-creating green values through the development of eco-friendly products and processes drives organizations to initiate green innovation. Environmental collaboration among SMEs is a form of co-creation that enhances the performance of both the environment and society (Achmad et al., 2023). The relation motives drive SMEs to develop collaborations with their stakeholders in order to exchange resources and benefits. The lack of capital and capabilities in SMEs can be addressed through collaboration with investors who not only provide funding but also help develop organizational skills and knowledge by offering training and workshops to enhance the organizations' competitiveness in the market. In line with the study by Achmad et al. (2023), Alcalde-Heras & Carillo. (2023) found that collaboration has a positive relationship with eco-innovation development, specifically in terms of product, process, and marketing eco-innovation. The most effective type of collaboration is "learning by doing, using, interacting" (DUI)-vertical, which involves various partners in SMEs' supply chain, including suppliers, manufacturers, customers and other supporting stakeholders in the both upstream dan downstream of the supply chain. The DUI mode of business model utilizes experience-based tacit knowledge among employees.

Other studies also focused on product innovation and process innovation as key components of green innovation (Muangmee et al., 2021; Abubakar et al., 2022; Rustiarini et al., 2022; Dwiputri et al., 2023; Khusnah & Soewarno, 2024; Zihan & Makhbul, 2024). Green product innovation involves the development of new products that utilize environmentally friendly materials characterized by efficient energy and resource use, zero pollution, and the ability to be easily recycled and reused. Hence, green process innovation involves production processes that minimize the use of materials and natural resources while reducing hazardous waste, thereby improving organizational profitability and economic sustainability. However, Muangmee et al. (2021) stated that green innovations have the most significant influence on the economics and environmental performance of organizations.

Green product and process innovations have a positive relationship with the sustainable performance of organizations, with management support as a critical factor (Zihan & Makhbul, 2024). Hence, green human resource management practices encourage eco-innovation (Altassan, 2024; Zihan & Makhbul, 2024), using the green intellectual capital of human resources (Endiana et al., 2023). Green creativity as an intellectual capital of human resources, has a significant impact on organizational performance (Widhiastuti & Muafi, 2022). The study analyzes the idea generation and the development process of environmentally friendly products, such as natural dye batik, in small- and medium-scale batik businesses.

Green Performance

Business performance refers to the outcomes achieved by executing business strategies and utilizing resources available to a business entity. Green performance, as a component of business performance, has been discussed in several articles and represents the dimensions of sustainability performance encompassing economic, social,

and environmental performance (Abubakar et al., 2022; Endiana et al., 2023). While other articles used varied variables, they can generally be grouped into these three categories of sustainability performance.

The parameters used for economic performance include profitability (Ali, 2023; Bhatti et al., 2022; Qazy et al., 2022; Tjahjadi et al., 2022; Adela et al., 2023; Dwiputri et al., 2023; Khusnah & Soewarno, 2024), cost reduction and efficiency (Utaminingsih et al., 2020; Qazy et al., 2022; Tjahjadi et al., 2022; Khusnah & Soewarno, 2024), sales and market share growth (Ali, 2023; Bhatti et al., 2022) and energy consumption (Qazi et al., 2022). Quantitative figures were used as a parameter for economic performance in all the selected articles. A study by Ali (2023) revealed that green supply chain practices transform organizations into evidence-oriented problem-solving firms, improving their business process performance and, in turn, the organization's overall performance. A healthy business atmosphere is essential for encouraging employees' intention to engage in green activities.

Social performance is described by various factors, including quality improvement and employee skills development (Khusnah & Soewarno, 2024), stakeholder well-being, social projects, and educational opportunities (Qazi et al., 2022). Other metrics include employee skill improvement and customer complaints (Tjahjadi et al., 2022), as well as consumer loyalty, social recognition, and employee satisfaction (Maziriri, 2020). The study of Abubakar et al. (2022) described social performance as a component of sustainable business performance and competitiveness, with measurements including the 3-year metrics of employee motivation, employee education and training, and health and safety performance. Across several articles, employee knowledge and skills are the most frequently analyzed parameters, as described in Maziriri (2020) as worker fulfillment. Meanwhile, the external social impact of companies focuses on customer satisfaction and loyalty. Other parameters to measure social impact are the effect of building goodwill with customers, communities, society, stakeholders, and the government (Qazi et al., 2022). Reducing the harm to the environment is crucial for fostering a better relationship between firms and their stakeholders.

Most studies use the level of environmental degradation to describe environmental performance, whether in terms of producing eco-friendly products or processes (Adela et al., 2023), reducing waste and pollution, or minimizing the use of hazardous materials (Qazi et al., 2022). According to the study by Qazi et al. (2022), green in-store operations in supermarkets, convenience stores, and small retail outlets have a greater impact on environmental performance than economic performance. In other words, the green practices implemented in sales outlets did not directly result in increased product sales. Adela et al. (2023) found that green marketing practices, including green products, green processes, green packaging, and green promotion, improved business performance. The study collected data from employees of medium and large companies. At the same time, a survey by Qazi et al. (2022) indicated that organization size influences the relationship between green practices and business performance. It is easier for large-scale organizations to invest in new opportunities, including the infrastructures and tools supporting their green practices, compared to a small organization. Most studies analyze the green practices of manufacturing companies or large-scale organizations, while limited literature is available on the adoption of green practices in SMEs.

A study by Sumiati et al. (2023) supported Adela et al. (2023), stating that green human resource management practices have a significant impact on SMEs' business performance. Enhancing employees' understanding and capabilities to adopt green practices in daily operations is essential for achieving corporate goals such as gaining a competitive advantage in their industry. Competitive advantage was analyzed by Endiana et al. (2023) as a predictor of green human resource performance, with indicators including environmental training, employees' environmental goals, contributions to environmental management, and rewards for environmental performance. Green human resource management practices are expected to enhance SMEs' green innovation in Saudi Arabia (Altassan, 2024). In line with a study by Ali (2023), Altassan (2024) noted that green organizational

climate fosters green innovation by implementing green goals and encouraging environmentally friendly behaviors. The employees' green performance is measured and the regulations change their mentality. The study revealed that the organizational support contributes to improved business performance. The measures obtained from the selected articles are listed in Table 4.

Table 4 Green performance of SMEs

Reference	Green performance	Clusters
Maziriri, 2020	Business performance in subjective measurements, including consumer loyalty, social acknowledgement, and worker fulfilment	Social performance
Utaminingsih et al., 2020	Cost and resource efficiency	Economic performance
Abubakar et al., 2022	Sustainable business performance and competitiveness	1. Economic performance 2. Social performance 3. Environmental performance
Ali, 2023	SMEs' performance, including market share, sales growth, and profitability	Economic performance
Almeida & Wasim, 2022	Company's sustainability and performance	Economic performance
Bhatti et al., 2022	SMEs' success performance, including sales and profitability enhancement, and market share growth	Economic performance
Qazi et al., 2022	1. Environmental performance, including waste and pollution reduction, and the prevention of hazardous substances usage, and environmental accidents minimization	Environmental performance
	2. Social performance, including the well-being of stakeholders, social projects conducted, and educational opportunities for people	Social performance
	3. Economic performance, including cost and profitability, cost efficiency, and energy consumption	Economic performance
Tjahjadi et al., 2022	Business performance, including sales, cost efficiency, and profitability increasing, employees' skills improvement, and customer complaints decreasing	1. Economic performance 2. Social performance
Adela et al., 2023	Business performance, including business' sales and profitability, and less environmental damage products and processes	1. Economic performance 2. Environmental performance
Agusdin et al., 2023	Marketing performance	Economic performance
Dwiputri et al., 2023	Financial performance and sustainability	Economic performance
Endiana et al., 2023	Green human resource performance	Environmental performance
Sumiati et al., 2023	Environmental performance	Environmental performance
Altassan, 2024	Organizational environmental performance, including customer interactions and satisfaction, organization's commitment and support	Environmental performance
Khusnah & Soewarno, 2024	Business performance, including cost efficiency, profitability, customer loyalty, quality improvement, and employee skills development	1. Economic performance 2. Social performance

A Proposed Model

After identifying the clusters of green drivers, practices, and performance, a model was developed to capture these findings. A generic value chain (Porter, 1995) was employed to derive the proposed green value chain as illustrated in Figure 6. The green practices obtained from the articles were classified into the primary activities that deliver the value of 'green' to the customer and supporting activities: green human resources management, green innovation and technology, and green procurement. Providing an appropriate firm infrastructure, in terms of both quantity and quality, which supports auxiliary activities, is essential for producing optimal values in primary activities. It requires organizations' commitment to make green investments themselves or to collaborate with partners or investors.

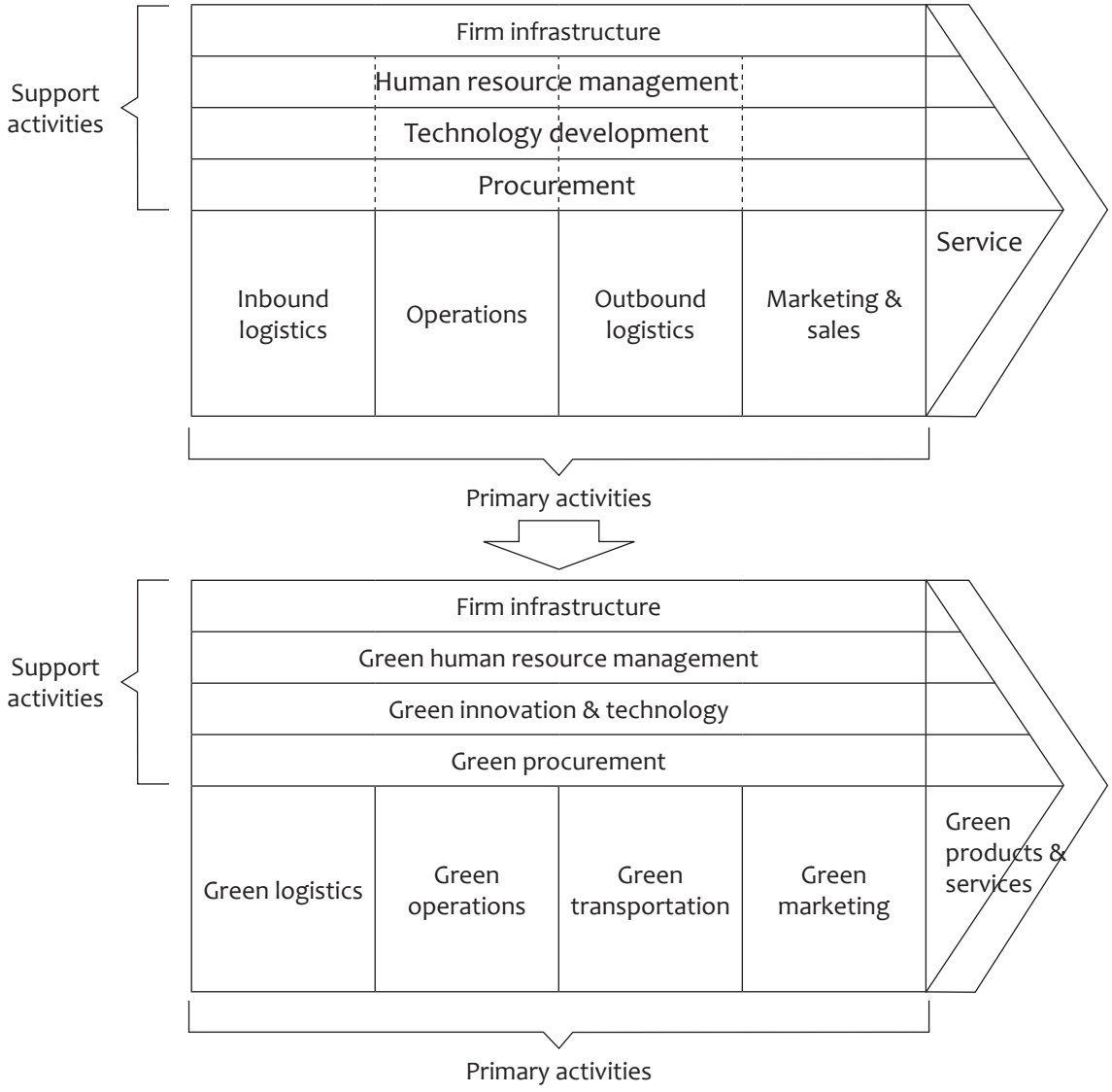

Figure 6 Green value chain model derived from the generic value chain (Porter, 1995)

By managing the linkage between primary activities, the value delivered aligns with customer requirements. Hence, this organizational value becomes a competitive advantage for SMEs within their respective industries.

The performance of the SMEs is measured using sustainability parameters, including economic, social, and environmental performance which are relevant to the 'green values' that are developed and implemented in primary and support activities within the value chain. A model is proposed for analysis in future research, consisting of the variables: green drivers, green practices, and green performance in SMEs, as illustrated in Figure 7.

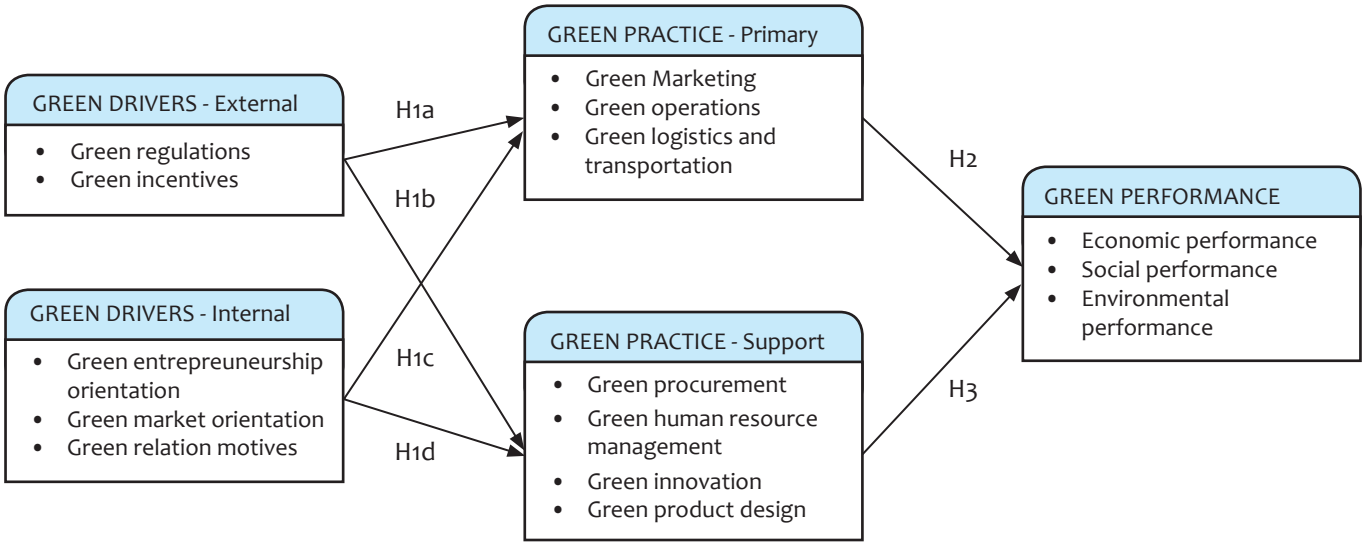

Figure 7 Proposed model of SMEs' green practice

The model in Figure 7 integrates the key elements that drive green practices in SMEs, including internal drivers such as green entrepreneurial orientation, green market orientation, and green incentives, along with external drivers, such as regulations, green incentives, and market pressure. Internal drivers refer to the motivations and incentives within an organization that propel it to engage in activities that impact its green performance. In contrast, external drivers are initiatives originating from outside the SMEs that encourage the organization to implement green practices. These drivers lead to the implementation of various green practices, including green supply chain management, marketing, production, and human resource management.

The green practices are classified into two categories according to the value chain diagram in Figure 7, namely the primary and supporting activities. Green marketing, operations, logistics, and transportation are primary activities, while green procurement, human resource management, innovation, and product design are grouped under supporting activities. Within the organization's value chain, both types of activities play a crucial role in delivering products or services required by customers. Ultimately, these practices impact the green performance of SMEs measured across the dimensions of economic, social, and environmental performance.

The model was developed based on literature review processes and fill the research gap regarding green behavior in SMEs and its impact on their sustainable performance. The integration process between the results of data processing from 37 papers and the green value chain illustrated in Figure 6 was carried out to produce a classification within the proposed model. Most studies investigate the relationship of limited factors. Hence, a comprehensive picture of the connectivity is not obtained. A study by Gupta & Nagpal (2020) highlighted that green dimensions significantly relate to firms' operational performance. This study supported by Makhdalena & Zulvina (2024), revealed that environmental practices affect financial performance of the firms.

The relationships between variables in this study are still based on H1 – H3 hypotheses, which is considered as its limitation. The proposed model serves as a framework for future research to further validate and test the relationships between these variables, thus providing a clearer understanding of how SMEs can optimize green practices to enhance their sustainability performance. Understanding the determinants of green practices in SMEs enables stakeholders to intervene more effectively, increasing the frequency or effectiveness of SMEs activities in supporting their sustainable performance. For instance, developing a green climate within the organization is also essential to encourage workers to adopt green innovation practices (Altassan, 2024). The organization's commitment to providing infrastructure and technology that support its green practices is mandatory.

Another limitation of this study is the limited number of databases used due to the high-quality of the published articles. Other databases should also be considered to gain access to more articles that analyze various topics related to SMEs' green practices. The time horizon also needs to be tested by extending the study period as a criterion for article selection, specifically to a range of more than five years, which will provide insights into the differences in SME behavior regarding green practices before and after the COVID-19 pandemic. A validation process of the proposed model as the output of this study, using a quantitative approach, is highly recommended.

CONCLUSION

Based on the literature review conducted, research on green practices in SMEs remains limited, offering ample opportunity for further exploration. Previous studies on green practices have been conducted on large-scale business entities, which directly impact their green performance. Given the substantial number of SMEs, especially in developing economies countries, their potential influence on green performance within their supply chain is significant. Therefore, it is essential to identify the factors that drive SMEs to implement green practices and to examine their relationship with the relevant green performance outcomes. The proposed model in this study serves as a reference for understanding the factors influencing green practices in the business processes of SMEs, including both core and supporting activities. By encouraging SMEs to adopt green practices, the goal is to achieve sustainable performance that encompasses economic, social, and environmental aspects, thereby ensuring the long-term sustainability of the organization. The model provides an alternative perspective for understanding the external and internal drivers that encourage SMEs to adopt green practices, thereby enabling relevant stakeholders to provide targeted interventions. Insights from the study results are valuable knowledge for relevant stakeholders to develop SMEs' green performance through enhancing green practices and facilitating their drivers. Limitations include a focus on publications of SMEs' studies, and in a future, this should be broadened to include studies of large companies, such as manufacturers and other processing firms. Empirical research is recommended later to gain insights into green practices in industries. The validation process of the model through field testing in further research, employing a quantitative approach, will result in a comprehensive and detailed depiction of the green behavior of SMEs.

ORCID

Erni Ernawati https://orcid.org/0000-0003-0776-791X
Diyah Ratna Fauziana https://orcid.org/0009-0008-4441-9096

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