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SYSTEMATIC LITERATURE REVIEW: GREEN INNOVATION AND SUSTAINABLE STRATEGIC

Dian Irma Aprianti¹ and Ariesta Heksarini²

¹Widya Gama Mahakam University, Faculty of Economics and Business,
Samarinda, Indonesia

²Mulawarman University, Faculty of Economics and Business,
Samarinda, Indonesia

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ABSTRACT

The impact of green innovation and sustainable strategic practices is profound, offering both environmental and business benefits. Organizations that embrace these concepts can drive positive change, enhance their competitiveness, and contribute to a more sustainable future. However, success requires a commitment to long-term thinking, collaboration, and continuous improvement. Green innovation refers to the development and implementation of new products, processes, or business models that reduce environmental impact, conserve resources, and promote sustainability. Sustainable strategic practices involve integrating environmental, social, and governance (ESG) considerations into an organization's core strategy and decision-making processes. The objective of this article is to identify research gaps in green innovation and discuss future implications. This study employs a systematic literature review (SLR) methodology following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Based on predefined inclusion criteria, 55 articles from Google Scholar and Lens.org databases were selected for review. The study identifies key research gaps, including theoretical gaps, thematic gaps (empirical gaps), contextual gaps, and methodological gaps. Furthermore, it provides theoretical and future research implications. This study contributes to the body of knowledge on green innovation by addressing significant knowledge gaps. The insights gained contribute to future research by guiding scholars in designing and conducting studies that fill the identified gaps. Additionally, practitioners can benefit from a deeper understanding of various aspects of green innovation and sustainable strategic practices.

KEYWORDS: - Green Innovation, Sustainable Strategy, Systematic Literature Review, Environmental.

1.0 INTRODUCTION

In the context of sustainability, eco-friendly strategies are not new in achieving organizational goals and have attracted significant attention from various stakeholders, including governments, large and small industries, and even individuals. Environmental issues and social responsibility are reshaping the global economy, where sustainable investments have emerged as a crucial strategy, driving innovation in green technology and influencing decision-making. The expansion of ecological innovation is one of the key global economic priorities, as all nations face critical climate change challenges. The United Nations Sustainable Development Goals, the 2016 Paris Climate Agreement, and various COP26-29 summits in Glasgow, Sharm el-Sheikh, Dubai, and Baku, along with the latest UN (2024) report on the "World Economic Situation and Prospects for 2024," emphasize the need for commitment, action, and responses from all countries.

Green innovation has been suggested by researchers as a strategic tool to sustain sustainable development while achieving competitive advantage (Liu, 2020). It is considered a promising approach to simultaneously achieving economic development and sustainability by focusing on product differentiation, new market entry strategies, cost-saving techniques, and high-level management capabilities (Porter & van der Linde, 1995). The literature on strategic management and organizational learning suggests that innovation is a process of actively acquiring new knowledge and information, effectively managing and integrating diverse knowledge from various sources, and successfully applying it to new products or production processes for value creation (DeCarolis & Deeds, 1999; Eliasson, 1997; Miller et al., 2007).

This study focuses on the research field of sustainability and eco-friendly innovation, given its growing importance due to increasing awareness of natural resource depletion and environmental changes. Sustainability has become a highly relevant area not only for policymakers but also for researchers examining the concept of a green economy. Over the past decade, rising environmental awareness among international regulatory bodies has prompted many countries to question sustainable development.

Research conducted by Song et al. (2019) developed a comprehensive framework for the development and implementation of sustainable strategies and green innovation. Their findings suggest that green innovation can track, monitor, and reduce environmental damage at its source. Green technological innovation can help reduce emissions, conserve energy, and manage adverse environmental impacts effectively, ultimately enhancing sustainability. Meanwhile, research by Iglesia et al. (2023) highlights that green innovation provides differentiation and competitive advantage by integrating sustainability into business processes, attracting environmentally conscious consumers. Cultural practices in sourcing raw materials and developing eco-friendly packaging solutions have minimized environmental impact, leading to the success of "Sustainable

Living Brands." This knowledge, in turn, drives green innovation initiatives for sustainable businesses, such as developing recycled materials and environmentally friendly production techniques.

On the other hand, environmental damage can directly impact a company's operational activities, increasing negative externality costs and damaging corporate reputation (Giudici et al., 2019). However, a research gap identified by Younas et al. (2023) suggests that the relationship between green innovation and sustainable development may not always be direct. Realizing the full potential of green innovation often requires complementary factors, such as improved green performance metrics and supportive policy frameworks, to maximize its benefits effectively.

Research by Gorondutse et al. (2024) identified a gap in the impact of green innovation on business sustainability. Their findings indicate that two dimensions of green innovation significantly influence the sustainability of large manufacturing firms, whereas green process innovation does not. Some organizations view green innovation as an approach to achieving ecological considerations and financial growth simultaneously. Furthermore, green innovation has become an essential tool for businesses to enhance their market share and sustainability. Successful green innovation implementation strengthens market positioning, attracts customers, and gains a competitive edge (Chu et al., 2019). Green innovation includes new or improved products and processes, managerial innovations, and organizational changes that support environmental sustainability (Weng et al., 2015; Ilvitskaya & Prihodko, 2018). Additionally, green innovation is defined as software or hardware innovations related to green processes or products (Chen et al., 2006). However, there remains a lack of empirical and theoretical arguments in the field of green innovation, making it an evolving research area.

Therefore, this study aims to identify research gaps in green innovation and discuss future implications. The primary contribution of this article to the green innovation literature is its focus on sustainability strategies.

2.0 METHOD

To address the research objectives, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram is utilized. This diagram consists of three steps: "identification, screening, and inclusion," as presented in Table 1 below:

Table 1 Article Criteria

No	Inclusion Criterion	Focus On
1	Publication From	2020 – 2025
2	Key Word	<i>Green Innovation, Sustainable Strategic</i>
3	Journal Publication	Elsevier, Emerald
4	Methode	PRISMA (<i>Preferred Reporting Items for Systematic Reviews and Meta-analyses</i>)

Source: processed by the author

PRISMA is highly recommended for Systematic Literature Reviews (SLR) as it helps prevent bias in article selection, analysis, and reporting of findings (Priyashantha et al., 2022). The identification stage includes selecting search terms and criteria. In this study, Green Innovation was chosen as the primary search term, while similar terms were not considered to maintain research focus.

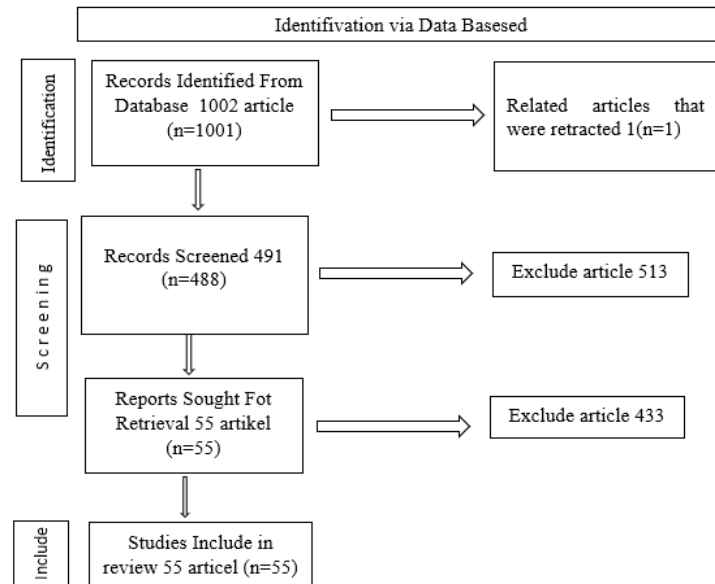


Figure 1: PRISMA article selection flowchart

Source: Review data, 2025

The screening stage involves both automated and manual selection processes. Articles were obtained from Google Scholar and Lens.org, two databases selected for their ease of access and availability of free peer-reviewed articles. The search was limited to the keywords Green Innovation, Green Information, and Sustainable Strategic, with a publication year range from 2020 to 2025. Additionally, only articles published by Elsevier and Emerald were considered, as these publishers are recognized for their high-quality standards and rigorous peer-review processes.

The initial search yielded 1,002 articles related to Green Innovation, Green Information, and Sustainable Strategic. However, one article was retracted by its author. Out of the total, 491 articles were published by Elsevier and Emerald. Following further screening, articles that were not directly relevant to green innovation, green information, and sustainability strategies were excluded. Subsequently, the abstracts of the remaining 55 articles were downloaded and evaluated based on inclusion criteria. At this stage, 433 articles were excluded for not meeting the predefined inclusion criteria outlined in Table 1.

Regarding the timeframe, after 2020, academics have increasingly focused on green innovation, as managers have become more attentive to environmental considerations in organizational sustainability strategies. Therefore, the articles reviewed in this study were limited to the period from 2020 to 2025.

3.0 ANALYSIS

3.1 Study of Green Innovation

Key studies on green innovation conducted by various academics from 2018 to 2022 were examined to understand the differences in the aspects being researched. These studies include both journal articles and conference proceedings at the international and local levels, as presented in Table 2.

Table 2. Green Innovation

No	Topic	Source
1	Green Human Resource	Aggarwal,P & Agarwala, T (2022), Afum et al., (2021), Rubel et al., (2021), Farza, K et al., (2021), Ren,S et al.,(2020),Aboramadan,M (2020), Marrucci,L et al.,(2021), Wang,S et al.,(2022), Darvishmotevali,M & Altinay,L (2022), Abbas,J & Khan,SM (2022)
2	Green Financing	Awawdeh et al., (2021), Yan Min,S & Zhongfei, Chen (2022), Zhenghui, Li et al (2023), Cheng chao, Lv et al.,(2021), Juntao, Anda et al., (2023), Chi Chuan,L & Chien Chiang,L (2022), Cheng Chao,L et al.,(2021), Farza,K et al., (2021), Abbas,J & Mazhar, s (2022), Mungayi,T et al.,2021),
3	Sustainable Green Entrepreneurship	Sadiq,M et al.,(2021), Ameer,F & Khan,R.N (2022), Talpur,Wahid et al.,(2021)
4	Green Consumption/ Green Product	Wang,J et al.,(2021), Sarkar,B et al.,(2020)
	Sustainable Development/ Sustainable Strategic	Amin, M et al .,(2025), Xiao,Bai et al., (2022), Ferlito,R & Faraci,R (2022), Sharma,S et al.,(2024), Journeault,M. et al.,(2021), lavuri,R et al.,(2022),Wang et al.,(2022), Xinyue,W & Wang,Q (2021),Ali,B et al.,(2021)
5	Factor Of Green Innovation	Lozano,P & Collazo (2022), Zhenming, Fang et al., (2021), Quan Jing, Wang et al., (2022), Chouaibi,S & Chouaibi,F (2021), Song,W et.al., (2020), Hao,J & He,F (2022), Le, TT (2022), Liu,X et al.,(2023), Hao,Xioli et al.,(2022), Zameer, H et al.,(2021), Munawar,S et al.,(2022), Xu,Jian et al.,(2020), Shah,N & Soomro,A (2023), Zameer,H et al.,(2020), Junaid et al.,(2021), Baolong,Yuan & Xueyun,C (2022)
6	Green Investment	Chen,Y & Ma,Y (2021)
7	Green Information/ Eco Label	Kumar,P et al., (2021)
8	Green Technology Innovation	Sharif,A., et al (2023), Jiakui,C et al.,(2022), Chang,K et al.,(2023)

Based on Table 2.2, each author is categorized according to the theme presented in their published article. Some studies are conceptual, while others are empirical. Conceptual studies generally cover topics such as eco-friendly innovation, green human resources, the benefits of green technology, and the triple bottom line. Empirical studies primarily focus on green innovation strategies, firm

performance or competitive advantage, drivers of green innovation, factors influencing the adoption of green innovation, determinants of green innovation intention, the impact of environmental orientation dimensions, green culture, stakeholder pressure, green entrepreneurial orientation, green innovation models, environmental practices or green innovation practices, barriers to green innovation or sustainable development dilemmas, and the intention to adopt green innovation.

3.2 Study Analysis by Year

Based on Figure 2, the analysis illustrates the current research trends in the field of green innovation. Figure 2 shows that the majority of studies were conducted in 2021 and 2022, while fewer studies on green innovation were published in 2024. This implies a declining trend in green innovation research in recent years compared to previous periods.

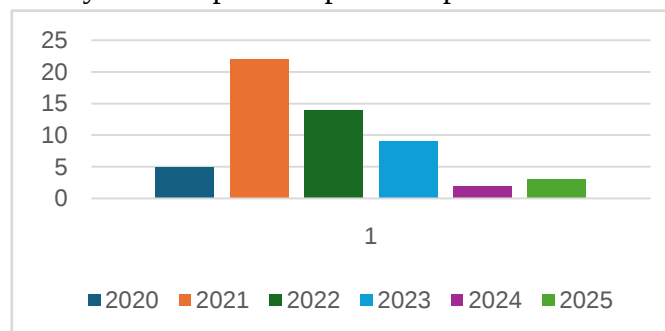


Figure 2. Study by Year

3.3 Study Analysis Based on Research Method

Based on Figure 3, the study analysis by research method shows that 84% (46 studies) employed a quantitative approach, while the remaining 16% (9 studies) used a qualitative approach. The quantitative studies primarily utilized observations, questionnaires, and surveys, whereas the qualitative studies included literature reviews, case studies, and theoretical analyses. The selected studies (N = 55) in this review have analyzed green innovation from various perspectives, with a particular focus on sustainability strategies. An in-depth review and content analysis of each study were conducted to synthesize these findings. Based on the applied methodology, the reviewed papers are categorized into three main groups: Literature Review, Qualitative, and Quantitative. As shown in Table 3, 46 studies are classified as quantitative. These studies fall into three distinct categories: survey questionnaires, email-based studies, and semi-structured interviews. Among these, quantitative research has been widely applied using survey questionnaires as the primary research methodology.

Tabel 3. Research Method Analysis

No	Metode	Sumber
1	Kuantitatif	Aggarwal,P & Agarwala , T (2022), Afum et al., (2021), Rubel et al., (2021), Farza, K et al., (2021), Ren,S et al.,(2020), Aboramadan,M (2020), Marrucci,L et al.,(2021), Wang,S et al.,(2022), Darvishmotevali,M & Altinay,L (2022), Abbas,J & Khan,SM (2022) Awawdeh et al., (2021), Yan Min,S & Zhongfei, Chen (2022), Zhenghui, Li et al (2023), Cheng Chao, Lv et al.,(2021),), Juntao, Anda et al., (2023), Chi Chuan,L & Chien Chiang,L (2022), Abbas,J & Mazhar, s (2022), Mungayi,T et al.,

		(2021),Sadiq,M et al.,(2021), Talpur,Wahid et al.,(2021), Wang,J et al.,(2021), Amin, M et al .,(2025), Sharma,S et al.,(2024), lavuri,R et al.,(2022), Wang et al.,(2022), Xinyue,W & Wang,Q (2021), Lozano,P & Collazo (2022), Quan Jing, Wang et al., (2022), Chouaibi,S & Chouaibi,F (2021), Song,W et.al., (2020), Hao,J & He,F (2022), Le, TT (2022), Liu,X et al.,(2023), Hao,Xioli et al.,(2022), Zameer, H et al.,(2021), Munawar,S et al.,(2022), Xu,Jian et al.,(2020),Shah,N & Soomro,A (2023), Zameer,H et al.,(2020), Baolong,Yuan & Xueyun,C (2022), Chen,Y & Ma,Y (2021), Kumar ,P et al., (2021), Sharif,A., et al (2023), Chang,K et al.,(2023), Jiakui,C et al., (2022),Chang K et al.,(2023)
2	Kualitatif	Ameer,F & Khan,R.N (2022), Sarkar,B et al.,(2020), Xiao,Bai et al.,(2022), Ferlito,R & Faraci,R (2022), Journeault,M. et al.,(2021), Ali,B et al.,(2021), Zhenming, Fang et al., (2021), Junaid et al.,(2021), Cheng chao, Lv et al.,(2021)

Source: Review data, 2025

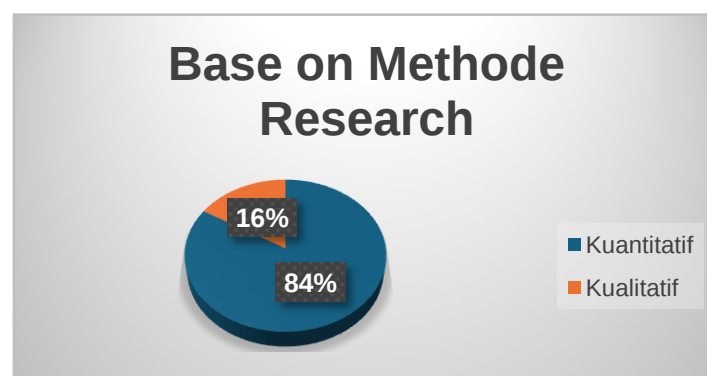


Figure 3: Study Analysis Based on Research Method

3.4 Study Review Based on Concepts and Theories

Figure 4 presents the theoretical foundations of studies on sustainability strategies and green innovation. The majority of studies have applied the Resource-Based Theory as the primary theoretical framework. The second most frequently adopted theory is the Nature-Based View, followed by two studies that utilized the Economic Social Governance (ESG) or Corporate Governance theory. Other theories applied in single studies include Human Capital Theory, the Theory of Financial Development and Economic Growth, the Environmental Performance Concept, Planned Behavior Theory, Social Identity Theory, the Technology Acceptance Model (TAM), the Ability, Motivation, and Opportunity (AMO) framework, Social Exchange Theory (SET), the Dual Factor Theory, Dynamic Capability Theory, and Reasoning Behavior Theory.

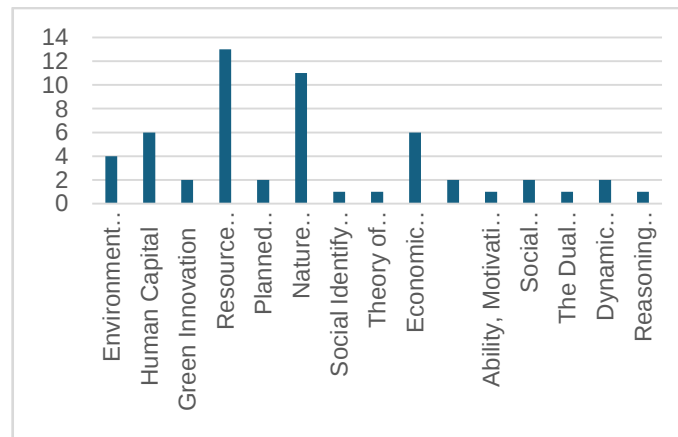


Figure 4: Concepts and Theories

3.5 Study Review by Sector

Most green innovation studies (29 studies) have been conducted in the service and manufacturing sectors, with 12 studies focusing specifically on manufacturing organizations and 10 studies on service organizations. Meanwhile, only two studies have examined the public sector, particularly government institutions, and another two studies have explored small and midsize enterprises (SMEs). This indicates a lack of empirical research in the public sector and SMEs.

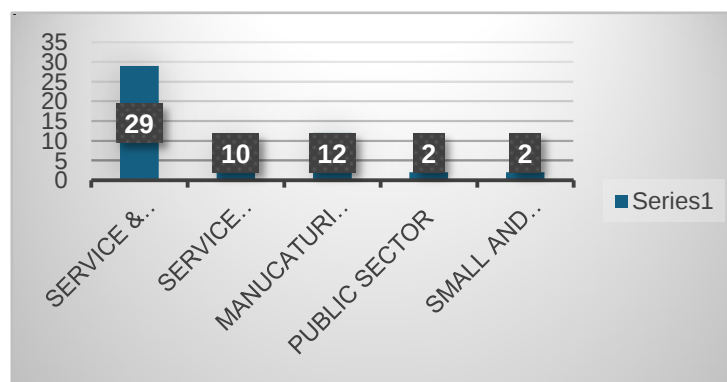


Figure 5: Sector

3.6 Study Review with Environmentally Friendly Innovation Publication

Figure 6 presents the number of publications conducted across various countries. China has the highest number of publications, followed by Pakistan as the second most active country in this research area. Italy ranks third in terms of research output. Among South Asian countries, some—such as Bhutan, Nepal, the Maldives, and Afghanistan—have no recorded studies on green innovation. In Europe, research is represented by Italy, the United Kingdom, Germany, France, Spain, Austria, and Romania. Notably, there is a growing trend in green innovation research in Southeast Asian countries, particularly in Malaysia, Thailand, and Vietnam.

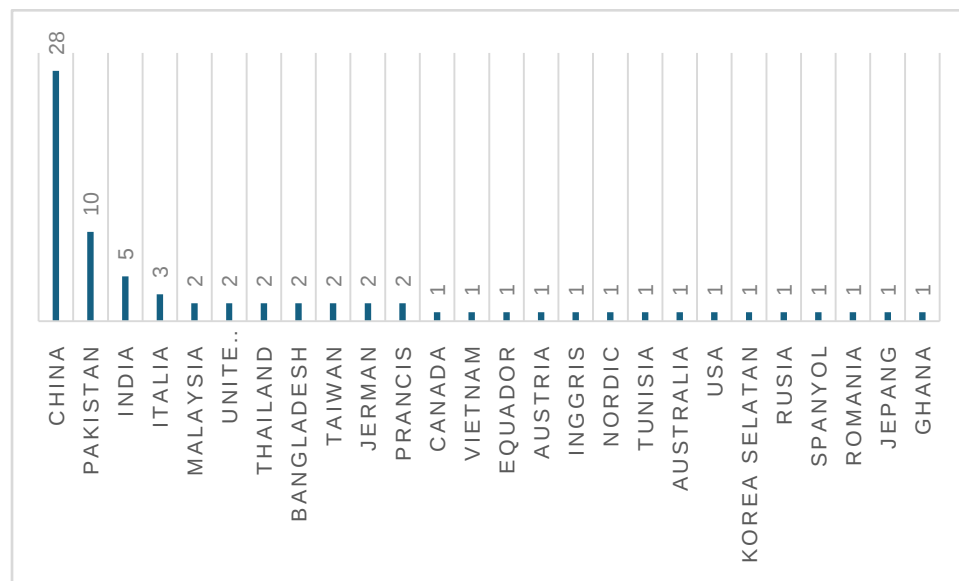


Figure 6: Country

4.0 DISCUSSION

The selected focus of this article revolves around various aspects of Green Innovation and Sustainable Strategy. Therefore, the discussion in this section focuses on theoretical foundations, thematic areas, geographical coverage, and the various methodologies used. Sustainable Strategy and Green Innovation (SGI) is a rapidly growing field aimed at addressing environmental challenges while promoting economic and social development. Despite significant progress, several research gaps remain. Below is an overview of the key areas where further investigation is needed:

4.1 Conceptual and Theoretical Gaps

There is a lack of interdisciplinary integration, where research on green innovation and sustainable strategy is often confined to environmental sciences and engineering. From 1,002 previous studies, researchers narrowed the selection to 55 articles that are specifically relevant to the field of management. While technological innovation is well studied, less emphasis is placed on the social and behavioral dimensions of green innovation, such as consumer adoption, cultural barriers, and public acceptance. Many sustainable strategies utilizing green innovation are developed on a small scale but face significant challenges when scaling up. Limited research explores barriers to scaling green innovation, including infrastructure, financing, and regulatory hurdles. Although green innovation benefits the environment, its economic viability is often questioned. There is a lack of research on sustainable business models that balance profitability with environmental impact. Existing literature does not sufficiently address green management, green human resource management, and gender diversity. Additionally, men and women differ in their sensitivity to nature and concern for others. In this regard, women tend to be more sensitive to ethical and environmental issues.

4.2 Gaps in Sustainable Strategy and Green Innovation Research Across Countries

The role of policy in promoting green innovation as a sustainable strategy is underexplored, particularly in developing countries, despite the need to understand how regulatory frameworks can drive green innovation without stifling creativity. Most research on sustainable innovation focuses

on developed countries, leaving a gap in understanding how these innovations can be adapted to local contexts in developing regions. There is a need for more localized studies that consider the unique challenges and opportunities in developing countries, such as resource constraints, institutional weaknesses, and different market dynamics. Despite growing interest in green innovation, its integration into strategic management frameworks remains underexplored, particularly in developing countries. Research is needed to understand how green innovation can be systematically incorporated into corporate strategic management processes in developing nations, considering their specific economic and regulatory environments. Additionally, the role of government policies and institutional support in fostering green innovation and sustainable strategic management is well-documented in developed countries. However, cultural and social factors influencing sustainable practices and green innovation are often overlooked in the literature. Further research is needed to explore how cultural and social norms in developing countries impact the adoption and implementation of sustainable strategic management and green innovation. This includes understanding the role of community engagement and traditional knowledge.

4.3 Methodological Gaps

The studies reviewed in this research primarily use data collection methods such as surveys, semi-structured interviews, and email questionnaires (see Table 3) to test hypotheses. To minimize common method bias, future research could incorporate additional data collection methods, particularly qualitative data collection techniques, to explore new knowledge in the field of green innovation. The unit of analysis in the reviewed articles consists mainly of chief executives, senior executives, and upper- and middle-level managers. Supervisors, junior employees, and customers have been largely overlooked. Regarding sample size, most empirical studies included in this review use data from fewer than 250 respondents. Therefore, the findings may not be generalizable to a broader segment of firms. Most data collection methods are cross-sectional, with only a few studies employing longitudinal survey designs. Thus, different data collection methods should be considered depending on the nature of future research.

4.4 Future Implications

First, this study identifies key research on Green Innovation within the context of sustainable strategy to provide a comprehensive understanding of Green Innovation and sustainable strategy. Second, this study highlights several research gaps, including theoretical gaps, thematic gaps (empirical gaps), contextual gaps, and methodological gaps. These identified gaps can pave the way for new research opportunities in Green Innovation and Sustainable Strategy. Specifically, the thematic categorization of selected articles aims to present a broad overview of various aspects of research in Green Innovation and Sustainable Strategy. This theme-based modification of the literature can help researchers expand their exploration of key issues in Green Innovation studies. Furthermore, this study can serve as a guide for practitioners in making informed decisions regarding environmentally friendly practices.

5.0 CONCLUSION

The findings of this systematic literature review highlight the significant role of green innovation and sustainable strategic practices in shaping environmental sustainability and corporate competitiveness. Organizations that adopt green innovation can effectively reduce environmental

impact, conserve resources, and enhance long-term sustainability. This study identifies critical research gaps, including theoretical, thematic (empirical), contextual, and methodological gaps, providing a comprehensive roadmap for future research. Additionally, the findings emphasize the importance of integrating Environmental, Social, and Governance (ESG) considerations into strategic decision-making to drive sustainable business practices. While green innovation presents numerous benefits, its effectiveness depends on complementary factors such as supportive policies, green performance metrics, and organizational commitment. Furthermore, the analysis reveals a predominance of quantitative research methodologies in the field, with the Resource-Based View (RBV) being the most frequently applied theoretical framework. However, a decline in the number of recent studies suggests a need for further exploration of emerging trends in green innovation and sustainability strategies. Future research should focus on addressing identified gaps by incorporating diverse methodologies and interdisciplinary perspectives. Practically, businesses can leverage insights from this study to develop strategies that balance economic growth with environmental responsibility. By fostering innovation and sustainability, organizations can enhance their market positioning while contributing to a more sustainable global economy.

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Author Profile

Dian Irma Aprianti was appointed as a permanent lecturer at Widya Gama Mahakam University Samarinda in 2012 in the field of Management. She earned her Bachelor's degree (S1) in International Relations from Muhammadiyah University of Yogyakarta and her Master's degree (S2) in Management Science from the same university.