



Analysis Of Green Leadership's Impact On Operational Efficiency In Small Industrial MSMEs In Indonesia: A Literature Review

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Abstract. *This study explores the impact of green leadership on operational efficiency in small industrial MSMEs in Indonesia through a qualitative literature review. By examining existing academic works, the research identifies the key role of green leadership in enhancing organizational performance by integrating environmental sustainability into decision-making and operational practices. The findings suggest that green leadership fosters improved resource utilization, energy conservation, and innovative environmentally-friendly practices, which contribute to operational efficiency. Leaders who prioritize sustainability within MSMEs help promote responsible resource use, reduce waste, and enhance productivity, despite the resource constraints typical of small enterprises. The study further reveals that while green leadership shows promise in optimizing operational processes, challenges such as limited financial resources, technological adoption, and managerial capacity impede full implementation. In conclusion, the paper highlights the importance of green leadership in achieving both ecological and operational gains in MSMEs and recommends that policymakers and business leaders collaborate to promote sustainable practices in small-scale industries. The study provides critical insights for enhancing MSME competitiveness while addressing environmental responsibilities.*

Keywords: Green Leadership; Operational Efficiency; MSMEs; Sustainability; Literature Review.

INTRODUCTION

The global discourse on sustainability has grown significantly, influencing both large-scale industries and micro, small, and medium enterprises (MSMEs) (BPS, 2023). In this context, green leadership has emerged as a modern leadership paradigm that integrates environmental values into managerial and operational decision-making (Chen & Chang, 2013). Although MSMEs serve as vital economic drivers in Indonesia, limited financial and technological resources often hinder their adoption of sustainable practices (Suharto, 2019). Therefore, studying how green leadership can enhance operational efficiency within MSMEs provides theoretical and practical insights into sustainable business strategies.

Operational efficiency is a crucial determinant of MSME competitiveness, especially in sectors characterized by limited resources, high labor intensity, and intense market competition. Inefficient operations can hinder productivity, increase costs, and limit growth potential. Simultaneously, environmental initiatives often require upfront investments and changes in processes, which may either enhance or challenge operational efficiency depending on how

effectively they are implemented. Understanding how green leadership influences these dynamics is essential to help MSMEs achieve sustainable growth without compromising efficiency.

Previous studies have explored the influence of leadership styles on organizational performance, with some research highlighting the benefits of environmentally conscious leadership in large corporations and manufacturing firms. For instance, studies have shown that green leadership can positively affect corporate social responsibility initiatives, employee engagement, and long-term financial performance. However, empirical research specifically focusing on small industrial MSMEs in Indonesia is scarce. Existing studies often overlook the unique challenges faced by small enterprises, such as limited access to capital, low technological adoption, and insufficient managerial capacity, which can mediate the relationship between green leadership and operational efficiency.

This study aims to fill this gap by analyzing the impact of green leadership on operational efficiency in small industrial MSMEs in Indonesia. The novelty of this research lies in its focus on the intersection of environmental leadership and operational performance within the context of small-scale industries, providing practical insights for managers and policymakers. By addressing this underexplored area, the study contributes to a better understanding of how sustainable leadership practices can enhance operational outcomes in resource-constrained MSMEs, offering a pathway for combining environmental responsibility with business efficiency.

Despite the growing awareness of environmental sustainability, small industrial MSMEs in Indonesia face significant challenges in integrating green practices into their operations. While green leadership has been recognized as a driver of sustainable organizational behavior in larger firms, its impact on operational efficiency in resource-constrained MSMEs remains unclear. Many small enterprises struggle with limited financial resources, inadequate managerial skills, and low technological adoption, which can hinder the effective implementation of environmentally friendly initiatives. Consequently, there is uncertainty regarding whether green leadership can simultaneously promote environmental responsibility and operational efficiency in these enterprises.

Moreover, previous research has largely focused on large-scale industries or service sectors, leaving a critical gap in understanding how leadership that prioritizes sustainability influences productivity, cost management, and overall operational performance in small industrial settings. Addressing this gap is essential for providing actionable insights to MSME managers, industry associations, and policymakers who aim to foster sustainable growth while maintaining competitiveness.

Research Questions

Based on the problem identified, this study aims to answer the following research questions:

1. How is green leadership currently practiced in small industrial MSMEs in Indonesia?
2. Which aspects of operational efficiency (e.g., cost reduction, productivity, process optimization) are most influenced by green leadership?

LITERATURE REVIEW

Green leadership emphasizes the harmony between achieving corporate objectives and preserving environmental balance (Northouse, 2021). Chen and Chang (2013) argue that leaders with environmental awareness are more likely to encourage innovation and integrate eco-friendly practices throughout production systems. Operational efficiency, as described by Suharto (2019), involves optimizing resource utilization to achieve high productivity while minimizing waste. For MSMEs, this efficiency can manifest through sustainable sourcing, improved energy management, and effective waste reduction strategies (BPS, 2023).

Green Leadership

Green leadership refers to a leadership style in which organizational leaders prioritize environmental sustainability in decision-making, operations, and organizational culture. Leaders adopting this approach encourage eco-friendly practices, resource efficiency, and sustainable business strategies, influencing employees' behaviors and organizational outcomes. Previous studies indicate that green leadership promotes environmental awareness, innovation in green

practices, and alignment of corporate strategies with sustainability goals (Egri & Herman, 2000; Robertson & Barling, 2013). In the context of small enterprises, green leadership is critical because resource constraints and limited managerial capacity require strategic guidance from leadership to successfully implement sustainability initiatives.

Operational Efficiency in MSMEs

Operational efficiency refers to the ability of an organization to deliver goods or services with optimal use of resources, including time, labor, materials, and capital. For MSMEs, efficiency is a key determinant of competitiveness and sustainability. Efficient operations reduce costs, enhance productivity, and improve responsiveness to market demands. Prior research demonstrates that operational efficiency in small enterprises can be influenced by leadership, organizational culture, and process innovation (Slack et al., 2013; Gunasekaran et al., 2015). However, balancing efficiency with sustainable practices is a nuanced challenge, particularly in small industrial MSMEs, which often operate under resource limitations.

The Relationship Between Green Leadership and Operational Efficiency

Empirical studies in larger firms suggest that green leadership positively influences operational efficiency by fostering environmentally friendly innovations, improving resource management, and increasing employee engagement in sustainable practices (Zhang et al., 2018; Mousa & Othman, 2020). Leaders who integrate green strategies into operational planning can achieve both environmental and performance benefits, such as reduced waste, energy savings, and streamlined production processes. Nevertheless, research specifically examining this relationship in small industrial MSMEs is limited, particularly in developing country contexts like Indonesia. Resource constraints, low technology adoption, and managerial capacity in small firms may moderate the effectiveness of green leadership in improving operational efficiency.

Challenges and Opportunities for MSMEs in Implementing Green Leadership

Small industrial MSMEs face several barriers in adopting green practices, including limited financial resources, low awareness of environmental regulations, and lack of technical expertise (OECD, 2019). At the same time, opportunities exist in the form of government incentives, market demand for sustainable products, and the potential for operational cost savings through energy efficiency and waste reduction. Green leadership plays a vital role in navigating these challenges, aligning organizational strategy with sustainability goals, and motivating employees to participate actively in green initiatives.

RESEARCH METHODS

This study employs a **narrative literature review** to explore the impact of green leadership on operational efficiency in small industrial MSMEs in Indonesia. Unlike systematic reviews, the narrative approach allows for an integrative discussion of existing theories and empirical findings, providing flexibility to examine how green leadership is practiced and how it influences operational outcomes such as productivity, process optimization, and resource utilization.

Relevant literature was sourced from academic journals, books, and credible reports, focusing on studies published in the last ten years to ensure contemporary relevance. The review covered topics including green leadership, environmentally conscious management, operational efficiency, and MSME development. While the search included global studies, particular attention was given to research applicable to small industrial enterprises in Indonesia or similar developing-country contexts.

The literature was analyzed thematically, identifying key patterns, relationships, and gaps. Emphasis was placed on understanding how leaders implement sustainability initiatives, the practices supporting operational efficiency, and the resulting organizational outcomes. Challenges faced by small industrial MSMEs, such as limited resources and managerial capacity, were also highlighted to contextualize the discussion.

Based on the synthesis, a **conceptual framework** was developed linking green leadership to operational efficiency. This framework illustrates the mechanisms through which environmentally

conscious leadership can enhance productivity, process optimization, and resource management in small industrial enterprises. The insights from this review also informed the formulation of research questions and hypotheses, providing a structured basis for examining the role of green leadership in improving operational performance within resource-constrained MSMEs.

RESULTS AND DISCUSSION

The synthesis of existing literature indicates that green leadership substantially contributes to organizational efficiency and sustainability performance. Leaders who adopt green values create systems that promote responsible production, employee awareness, and cost efficiency through reduced resource consumption (Chen & Chang, 2013). In MSMEs, this leadership approach enables small-scale industries to improve competitiveness by integrating sustainability into everyday operations. Such practices enhance brand reputation, attract environmentally conscious consumers, and ensure long-term operational resilience (Northouse, 2021).

Current Practices of Green Leadership in Small Industrial MSMEs in Indonesia

The study indicates that green leadership is increasingly recognized among small industrial MSMEs in Indonesia, although its implementation varies significantly depending on the size, resources, and managerial capabilities of the enterprise. Consistent with Robertson and Barling (2013), leaders in these MSMEs who adopt green leadership practices focus on fostering environmental awareness among employees, promoting sustainable production processes, and encouraging resource efficiency. Many small industrial MSMEs implement initiatives such as reducing energy consumption, minimizing waste, and using eco-friendly materials in production. However, the findings also highlight challenges in fully operationalizing green leadership. Limited financial resources, low access to advanced technology, and lack of formal sustainability training constrain the ability of small MSMEs to systematically integrate green practices. This aligns with OECD (2019), which notes that small enterprises often face structural barriers to adopting environmental initiatives despite their potential benefits. Additionally, the study suggests that leadership commitment plays a pivotal role: enterprises with proactive leaders are more likely to prioritize sustainability in daily operations, communicate its importance to employees, and integrate eco-friendly practices into business strategy.

Overall, while green leadership is present in small industrial MSMEs in Indonesia, it is often practiced in a **pragmatic and incremental way**, focusing on simple, cost-effective sustainability initiatives rather than comprehensive environmental strategies.

Impact Green Leadership on Operational Efficiency

The analysis shows that green leadership positively influences multiple dimensions of operational efficiency, confirming insights from Zhang et al. (2018) and Mousa and Othman (2020). Among the aspects of operational efficiency, the study identifies **resource optimization**, **process optimization**, and **productivity** as the most significantly affected by green leadership.

- **Resource Optimization:** Leaders who promote sustainable practices encourage careful use of raw materials, energy, and labor. This reduces waste, lowers operational costs, and allows MSMEs to allocate limited resources more effectively. The findings support the literature, which emphasizes that green leadership encourages resource-efficient behaviors that directly improve operational performance (Robertson & Barling, 2013).
- **Process Optimization:** Green leadership also drives improvements in production processes. By motivating employees to adopt cleaner and more efficient workflows, MSMEs can streamline operations, reduce bottlenecks, and enhance overall efficiency. This aligns with Gunasekaran et al. (2015), who note that process innovation under environmentally conscious leadership enhances performance outcomes.
- **Productivity:** The study indicates that employee engagement under green leadership indirectly boosts productivity. Employees who understand the value of sustainability are more motivated to participate in efficient operations, adhere to standardized procedures, and minimize errors. This supports the argument by Egri and Herman (2000) that green leadership fosters organizational behaviors conducive to performance improvements.

The findings suggest that while cost reduction is influenced by green leadership, it is primarily a **secondary benefit** resulting from improved resource use and process efficiency. In contrast,

productivity and process optimization appear to be **directly strengthened** by environmentally conscious leadership.

CONCLUSION AND RECOMMENDATION

The discussion highlights several practical implications:

1. **Leadership Development:** MSMEs should invest in developing green leadership skills among managers to systematically implement sustainable practices.
2. **Incremental Sustainability Practices:** Given resource constraints, small industrial MSMEs can start with low-cost initiatives such as energy conservation, waste reduction, and eco-friendly procurement.
3. **Employee Engagement:** Leaders should actively involve employees in sustainability initiatives to enhance process efficiency and productivity.
4. **Policy Support:** Policymakers and industry associations can provide training, incentives, and resources to support small industrial MSMEs in adopting green practices effectively.

This research concludes that green leadership is a critical determinant of operational efficiency and sustainable performance in MSMEs. By embedding ecological values within leadership practices, MSMEs can develop strategic capabilities that drive both economic and environmental gains. It is recommended that organizations and policymakers collaborate to promote green leadership programs, supporting small business leaders in implementing environmentally responsible management systems.

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