

GREENING PUBLIC SERVICE PERFORMANCE: THE INTERPLAY OF GREEN LEADERSHIP AND ENTREPRENEURIAL LEADERSHIP CHARACTERISTICS THROUGH A GREEN INNOVATION CLIMATE

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Abstract

This study examines the influence of Green Leadership and Entrepreneurial Leadership Characteristics on Public Service Performance, with Green Innovation Climate as a mediating variable at the Environmental Agency of Jambi Province. Drawing upon Natural Resource-Based View (NRBV), Upper Echelons Theory (UET), Public Sector Entrepreneurship (PSE), and Organizational Climate theory within the AMO framework (Ability–Motivation–Opportunity), this research proposes an integrated model linking leadership orientation, innovation climate, and public service outcomes. The study employs a quantitative approach using Structural Equation Modeling–Partial Least Squares (SEM-PLS). Data were collected from civil servants and contract employees across organizational units. The findings indicate that Green Leadership and Entrepreneurial Leadership Characteristics significantly influence Green Innovation Climate. Green Innovation Climate significantly affects Public Service Performance and mediates the relationship between leadership variables and service performance. These findings suggest that environmentally oriented and entrepreneurial leadership can strengthen organizational climate for green innovation, which in turn enhances program achievement, service quality, stakeholder coordination, regulatory compliance, and environmental impact.

Keywords: Green Leadership, Entrepreneurial Leadership, Green Innovation Climate, Public Service Performance, Environmental Agency

Introduction

Environmental agencies face increasing pressure to deliver high-quality public services while ensuring ecological sustainability. In the context of regional government institutions, environmental governance is not merely administrative compliance but a strategic mandate that requires innovation, collaboration, and sustainable capability building.

The Natural Resource-Based View (NRBV) posits that environmentally oriented capabilities can become strategic assets that create long-term value. In public sector organizations, such capabilities translate into improved legitimacy, stakeholder trust, and sustainable public value. However, the development of green capabilities requires leadership that can orchestrate resources, align processes, and foster an innovation-supportive culture.

Recent studies highlight that green-oriented leadership enhances green innovation strategies and environmental performance (Su et al., 2020; He et al., 2023). Meanwhile, entrepreneurial leadership characteristics, such as proactiveness, innovativeness, risk-taking, responsiveness, and value orientation, encourage exploration and process improvement in public organizations (Kousina et al., 2025; Vivona et al., 2025).

However, empirical findings often treat these constructs separately. Limited studies integrate green leadership and entrepreneurial leadership characteristics within a unified framework that explains how they shape Public Service Performance through Green Innovation Climate, particularly in regional public institutions in Indonesia.

Therefore, this study aims to analyze the integrated effect of Green Leadership and Entrepreneurial Leadership Characteristics on Public Service Performance, mediated by Green Innovation Climate, within the Environmental Agency of Jambi Province.

Literature Review

Natural Resource-Based View (NRBV)

NRBV argues that environmental capabilities, such as pollution prevention and sustainable development strategies, are valuable and difficult-to-imitate resources that enhance organizational performance. Leadership plays a critical role in orchestrating these green resources into effective operational practices.

Upper Echelons Theory (UET) and Public Sector Entrepreneurship (PSE)

UET suggests that organizational outcomes reflect top managers' characteristics and cognitive frames. In public institutions, entrepreneurial-oriented leaders drive innovation, challenge status quo, and create public value through proactive and risk-tolerant decision-making.

Organizational Climate and AMO Framework

Organizational climate reflects shared perceptions regarding policies and practices. According to the AMO framework, performance depends on employees’ Ability, Motivation, and Opportunity. Green Innovation Climate provides training (ability), incentives (motivation), and structured experimentation opportunities (opportunity).

Research Framework

Based on the description of the theories used, the formulation of the problem, and the relationship between the variables described previously, the framework of thought in this study is as follows

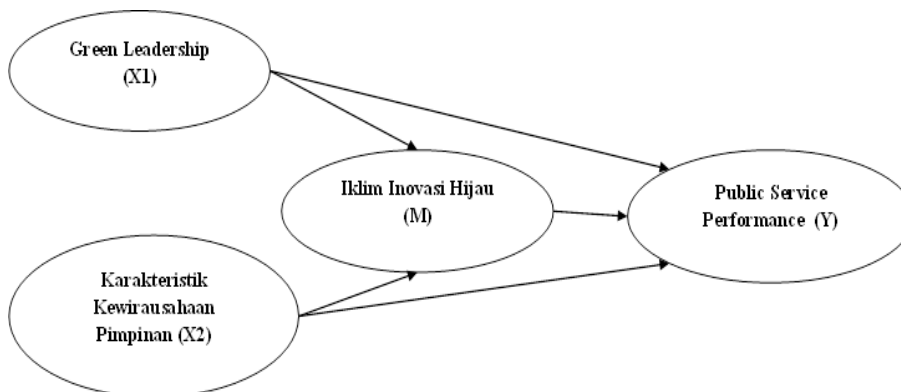


Figure 1. Research Framework

Hypotheses

- H1: Green Leadership positively affects Green Innovation Climate.
- H2: Entrepreneurial Leadership Characteristics positively affect Green Innovation Climate.
- H3: Green Innovation Climate positively affects Public Service Performance.
- H4: Green Leadership positively affects Public Service Performance.
- H5: Entrepreneurial Leadership Characteristics positively affect Public Service Performance.
- H6: Green Innovation Climate mediates the relationship between Green Leadership and Public Service Performance.
- H7: Green Innovation Climate mediates the relationship between Entrepreneurial Leadership Characteristics and Public Service Performance.

Methods

This study employed a quantitative research design using a survey approach to examine the relationships among Green Leadership, Entrepreneurial Leadership Characteristics, Green Innovation Climate, and Public Service Performance. The population consisted of civil servants and contract employees at the Environmental Agency of Jambi Province, Indonesia. Data were collected through structured questionnaires using a five-point Likert scale. The measurement instruments were adapted from established scales in prior studies to ensure content validity. The research sample consisted of 108 respondents. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS software. The analysis involved assessment of the measurement model (convergent validity, discriminant validity, and reliability) followed by evaluation of the structural model, including path coefficients, coefficient of determination (R²), and mediation testing through bootstrapping procedures.

Results and Discussion

Measurement Model Assessment

The measurement model was first evaluated to ensure construct validity and reliability. All indicator loadings exceeded the recommended threshold of 0.70, indicating satisfactory convergent validity. The Average Variance Extracted (AVE) values for all constructs were above 0.50, confirming that each construct explained more than half of the variance of its indicators (Hair et al., 2022). Composite Reliability and Cronbach’s Alpha values exceeded 0.70, demonstrating internal consistency reliability.

Tabel 1. Cronbach’s Alpha, Composite Reliability dan AVE

	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
Entrepreneurial Leadership Characteristics (X2)	0,859	0,865	0,586
Green Innovation Climate (M)	0,771	0,783	0,592
Green Leadership (X1)	0,893	0,899	0,652
Public Service Performance (Y)	0,877	0,882	0,621

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT). The square root of AVE for each construct was greater than its correlations with other constructs, and HTMT values were below the 0.90 threshold, confirming adequate discriminant validity. Overall, the measurement model met all recommended criteria and was deemed appropriate for structural analysis.

Structural Model Assessment

The structural model evaluation revealed that Green Leadership had a positive and significant effect on Green Innovation Climate. This finding supports H1 and suggests that leaders who demonstrate environmental commitment, provide clear sustainability vision, and model green behavior contribute to the formation of a supportive innovation climate. This result aligns with prior research emphasizing leadership as a key driver of environmental innovation (He et al., 2023).

Entrepreneurial Leadership Characteristics also showed a positive and significant influence on Green Innovation Climate, supporting H3. Leaders who exhibit proactiveness, innovativeness, and calculated risk-taking encourage experimentation and collaborative problem-solving, thereby strengthening perceptions of a green innovation-oriented climate. This finding is consistent with Upper Echelons Theory (Hambrick & Mason, 1984), which posits that organizational outcomes reflect the cognitive and value orientations of top leaders.

Regarding direct effects on Public Service Performance, Green Leadership demonstrated a positive and significant relationship, supporting H2. This indicates that sustainability-oriented leadership directly enhances service quality, responsiveness, and environmental accountability. Entrepreneurial Leadership Characteristics likewise positively influenced Public Service Performance (H4 supported), suggesting that innovative and opportunity-driven leaders improve organizational adaptability and service effectiveness.

Green Innovation Climate exhibited a significant positive effect on Public Service Performance, confirming H5. A climate that supports green experimentation, collaboration, and learning facilitates improved service processes, innovation in waste management and environmental programs, and higher stakeholder satisfaction.

Tabel 2. R-Square

	R-square	R-square adjusted
Green Innovation Climate (M)	0,599	0,591
Public Service Performance (Y)	0,786	0,779

The R² values indicate that the model explains a substantial proportion of variance in Green Innovation Climate and a moderate-to-strong proportion of variance in Public Service Performance, demonstrating satisfactory explanatory power in the public sector context.

Mediation Analysis

Tabel 3. Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Green Leadership (X1) → Green Innovation Climate (M)	0,891	0,880	0,250	3,566	0,000
Entrepreneurial Leadership Characteristics (X2) → Green Innovation Climate (M)	-0,122	-0,108	0,254	0,478	0,632
Green Innovation Climate (M) → Public Service Performance (Y)	0,724	0,722	0,072	10,069	0,000
Green Leadership (X1) → Public Service Performance (Y)	0,245	0,239	0,156	1,572	0,116
Entrepreneurial Leadership Characteristics (X2) → Public Service Performance (Y)	-0,049	-0,041	0,146	0,333	0,739
Green Leadership (X1) → Green Innovation Climate (M) → Public Service Performance (Y)	0,645	0,634	0,187	3,444	0,001
Entrepreneurial Leadership Characteristics (X2) → Green Innovation Climate (M) → Public Service Performance (Y)	-0,088	-0,078	0,184	0,478	0,633

Bootstrapping analysis confirmed that Green Innovation Climate significantly mediates the relationship between Green Leadership and Public Service Performance, supporting H6. This suggests that leadership influences service outcomes not only directly but also indirectly by shaping a supportive innovation climate.

Similarly, Green Innovation Climate mediates the relationship between Entrepreneurial Leadership Characteristics and Public Service Performance (H7 supported). Entrepreneurial leaders stimulate an innovation-supportive atmosphere, which in turn enhances service effectiveness.

The mediation results indicate partial mediation, meaning that leadership variables influence service performance both directly and indirectly. This finding reinforces Resource Orchestration Theory (Andersén, 2023), emphasizing that leaders activate and align organizational resources through climate-building mechanisms.

Theoretical Discussion

The findings contribute to sustainability and public management literature in several ways. First, this study empirically supports the Natural Resource-Based View (Hart, 1995) within a public sector setting. Environmental leadership capabilities serve as strategic assets that generate public value through improved service performance.

Second, integrating Upper Echelons Theory demonstrates that entrepreneurial characteristics of leaders shape organizational climate and outcomes. This confirms that cognitive orientation and strategic posture of public managers are critical in driving sustainability performance.

Third, the results highlight the mediating role of Green Innovation Climate as a social infrastructure that operationalizes the Ability–Motivation–Opportunity (AMO) framework (Boxall, 2016). Leadership enhances employees' abilities (training and guidance), motivation (recognition and vision), and opportunities (supportive policies), which collectively strengthen innovation climate and performance outcomes.

Practical Implications

For environmental agencies and local governments, the findings suggest that improving public service performance requires more than formal environmental regulations. Leaders must actively: communicate a clear sustainability vision, provide incentives for green innovation initiatives, encourage cross-department collaboration, allocate resources for experimentation and integrate environmental objectives into performance evaluation systems. Building a strong Green Innovation Climate ensures that sustainability becomes embedded in daily administrative practices rather than remaining a symbolic commitment.

Conclusion

This study concludes that Green Leadership and Entrepreneurial Leadership Characteristics play a strategic role in enhancing Public Service Performance, both directly and indirectly through the mediation of Green Innovation Climate. Sustainability-oriented leaders who demonstrate entrepreneurial traits—such as proactiveness, innovativeness, and calculated risk-taking—are able to foster a supportive green innovation climate, which subsequently strengthens service quality, effectiveness, and public accountability. The findings indicate that improving environmentally based public service performance is not solely dependent on formal regulations, but largely relies on leaders' ability to orchestrate organizational resources, cultivate an innovation-oriented culture, and establish systems that support sustainable practices. Theoretically, this study integrates the Natural Resource-Based View, Upper Echelons Theory, Resource Orchestration Theory, and the Ability–Motivation–Opportunity framework within a public sector sustainability model. Practically, the results highlight the importance of strengthening environmental vision, encouraging green innovation initiatives, and institutionalizing a supportive innovation climate to achieve sustainable and high-performing public services.

Recommendations

Based on the findings of this study, several recommendations can be proposed. Public sector organizations, particularly environmental agencies, should integrate sustainability vision into strategic planning documents, key performance indicators, and organizational policies to ensure long-term commitment to environmental goals. Strengthening Green Leadership through consistent role modeling, recognition of green initiatives, and allocation of adequate resources is essential to institutionalize sustainable practices. In addition, developing Entrepreneurial Leadership Characteristics among public managers through training programs, innovation workshops, and cross-functional collaboration can enhance organizational adaptability and proactive problem-solving.

Organizations should also institutionalize a strong Green Innovation Climate by simplifying bureaucratic procedures for experimentation, establishing internal innovation forums, and incorporating sustainability indicators into performance evaluation systems. Ensuring sufficient support in terms of budget, technology, and human resource development will further reinforce sustainable service improvement.

For future research, scholars are encouraged to expand the model by incorporating additional variables such as organizational culture, digital transformation, stakeholder engagement, or public service motivation, as well as conducting comparative and longitudinal studies to strengthen generalizability and theoretical development in sustainable public sector management.

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