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Linking Green Empowerment and Environmental Performance through Green innovative work behavior: Evidence from Indonesia

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Abstract: In the context of sustainable hospitality, the empowerment of employees in embracing environmentally responsible practices is increasingly recognized as a driver of organizational performance. This study investigates the influence of Green Empowerment on Environmental Performance, with Green Innovative Work Behavior serving as a mediating factor. The research addresses the question of how empowering frontline employees can foster pro-environmental behaviors that contribute to measurable improvements in hotel sustainability outcomes. A quantitative research design was employed using a survey method, targeting a sample of 150 frontline hotel employees in Indonesia selected through purposive sampling. Data were analyzed using WarpPLS to test the proposed structural model and relationships among variables. The analysis reveals that Green Empowerment has a significant positive effect on Green Innovative Work Behavior, which in turn significantly enhances Environmental Performance. Moreover, the mediating role of Green Innovative Work Behavior highlights the importance of fostering creativity and innovation in environmental practices to translate empowerment into tangible sustainability outcomes. The synthesis of findings suggests that hotels can strengthen their environmental performance by cultivating empowerment initiatives that encourage employees to develop and implement innovative green practices. This study concludes that frontline employee engagement through empowerment and innovative behavior is a strategic pathway for the hospitality industry to achieve sustainable performance.

Keywords: Green Empowerment; Green Innovative Work Behavior; Environmental Performance; Hospitality Industry

1. Introduction

The hospitality industry is one of the most resource-intensive service sectors, consuming substantial amounts of energy and water while generating significant waste, thereby raising concerns about its ecological footprint [1]. In response to these challenges, hotels are under increasing pressure to adopt sustainable practices that not only minimize environmental harm but also enhance their competitiveness in an era where environmentally conscious customers are becoming more prevalent [2]. Within this context, the role of employee empowerment in promoting pro-environmental initiatives has emerged as a critical factor for achieving environmental performance.

Green empowerment, understood as granting employees the autonomy and resources to participate in environmental decision-making and contribute innovative solutions, has been identified as a pivotal organizational strategy for sustainability [3]. Recent studies in the hospitality sector underscore that empowering leadership styles encourage frontline

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employees to voice environmental concerns, develop eco-related skills, and engage in pro-environmental practices [4]. Such empowerment not only motivates employees to participate in eco-initiatives but also fosters innovative behaviors that translate into measurable improvements in hotel sustainability outcomes.

Green Innovative Work Behavior (GIWB) plays a particularly important role in this process, as it reflects employees' ability to generate, promote, and implement environmentally focused ideas and solutions [5]. Prior research demonstrates that GIWB mediates the relationship between green leadership and environmental performance, suggesting that empowerment alone is insufficient unless employees channel their autonomy and motivation into creative and innovative environmental practices [6]. This indicates that hotels aiming to strengthen their environmental performance must simultaneously cultivate empowerment and innovative behaviors among their frontline employees.

Despite growing scholarly interest in the nexus between leadership, empowerment, and sustainability, studies remain concentrated in developed regions such as the United Arab Emirates [7]. Limited empirical evidence exists within the Indonesian hospitality context, where cultural dynamics, organizational structures, and resource constraints may influence how empowerment and innovative behaviors shape environmental outcomes. Addressing this gap, the present study investigates the effect of green empowerment on environmental performance through the mediating role of green innovative work behavior among frontline hotel employees in Indonesia.

This study contributes to the literature in three ways: (1) providing empirical evidence from the Indonesian hospitality industry, a context where sustainability research remains relatively underexplored; (2) examining the mediating role of GIWB in translating empowerment into tangible environmental outcomes; and (3) offering practical insights for hotel managers seeking to enhance environmental performance by fostering empowerment and innovative green practices at the employee level.

2. Literature Review

2.1 Green Empowerment

Green Empowerment refers to the practice of granting employees autonomy, authority, and resources to engage in environmental decision-making and sustainability-oriented tasks. It emphasizes participative leadership that encourages employees to voice environmental concerns, develop eco-related competencies, and initiate pro-environmental practices [3]. In hospitality contexts, empowering employees to act independently on environmental matters is essential because frontline workers directly influence daily operations that affect resource consumption and waste generation [8]. By providing employees with the confidence and skills to contribute to ecological initiatives, Green Empowerment serves as a vital organizational resource that stimulates environmentally responsible outcomes [9].

2.2 Green Innovative Work Behavior (GIWB)

Green Innovative Work Behavior (GIWB) represents employees' capacity to generate, promote, and implement creative ideas that improve environmental practices [10]. In dynamic service sectors such as hospitality, innovation is crucial for balancing operational efficiency with ecological responsibility. GIWB extends beyond routine compliance with green policies; it requires employees to seek novel solutions for reducing waste, conserving energy, and adopting eco-friendly technologies [11]. Empirical studies show that when employees are empowered, they are more likely to engage in GIWB, which acts as a mechanism translating leadership support into measurable sustainability improvements [6]. Thus, GIWB reflects the proactive and innovative role of employees in advancing hotel environmental goals.

2.3 Environmental Performance

Environmental Performance (EnP) refers to an organization's measurable outcomes in minimizing negative ecological impacts through sustainable practices such as waste reduction, water and energy conservation, and eco-friendly procurement [12]. In hotels, EnP has become a strategic priority to satisfy environmentally conscious consumers, enhance public image, and comply with regulatory standards [13]. Leadership styles and organizational support play a central role in fostering behaviors that enhance EnP, as employees are the agents who

implement sustainability initiatives at the operational level [14]. Thus, EnP serves as both a performance indicator and a competitive advantage for hospitality organizations embracing sustainability.

2.4 Relationship between Green Empowerment and Green Innovative Work Behavior

According to the Conservation of Resources (COR) theory, providing employees with resources such as autonomy and authority enables them to invest further in behaviors that go beyond job requirements [15]. Green Empowerment thus acts as a critical resource that enhances employees' confidence and intrinsic motivation, encouraging them to experiment with innovative green practices [16]. Empirical evidence suggests that empowering leadership behaviors in hospitality settings are positively linked to innovative environmental behaviors among staff [17]. Based on this, the first hypothesis is proposed:

H1: Green Empowerment has a positive effect on Green Innovative Work Behavior.

2.5 Relationship between Green Innovative Work Behavior and Environmental Performance

Employees who engage in GIWB contribute directly to improvements in Environmental Performance by introducing and applying creative solutions that minimize ecological footprints [4]. In hospitality contexts, where environmental challenges are complex and resource-intensive, GIWB is instrumental in achieving sustainability goals. Prior studies reveal that GIWB mediates the link between organizational support and environmental outcomes, indicating its central role in translating innovative ideas into measurable performance [6]. Therefore, the second hypothesis is formulated as follows:

H2: Green Innovative Work Behavior has a positive effect on Environmental Performance.

2.6 The Mediating Role of Green Innovative Work Behavior

Although empowerment provides the structural conditions for environmental participation, empowerment alone may not directly improve Environmental Performance without innovative employee behaviors. Research shows that GIWB functions as a key mediator that channels empowerment into sustainability outcomes [18]. By fostering creativity and encouraging employees to experiment with eco-friendly practices, hotels can ensure that empowerment initiatives translate into tangible environmental benefits. Thus, the third hypothesis is proposed:

H3: Green Innovative Work Behavior mediates the relationship between Green Empowerment and Environmental Performance.

3. Metode

3.1 Types of research

This study uses a quantitative approach with descriptive and causal research types [19],[20], [21], [22], [23], [24], [25], [26]. Descriptive research aims to present an overview of how Green Empowerment and Green Innovative Work Behavior (GIWB) contribute to Environmental Performance in the hotel sector. Meanwhile, causal research is applied to examine the cause-and-effect relationships among the constructs and test the mediating role of GIWB in the linkage between empowerment and performance [27]. This approach aligns with prior hospitality research employing structural models to investigate sustainability-related outcomes.

3.2 Research Instruments

The primary instrument used was a structured questionnaire, developed based on validated scales from previous studies. Green Empowerment was measured using items adapted from [3], which capture employees' autonomy and participation in environmental decision-making. GIWB was measured with items from [5], focusing on employees' creativity and innovation in eco-friendly practices. Environmental Performance was assessed using [28] scale, which includes indicators such as waste reduction, water conservation, and energy efficiency. All constructs were measured using a five-point Likert scale, ranging from 1

(strongly disagree) to 5 (strongly agree), consistent with recent sustainability studies in hospitality [29], [30], [31].

3.3 Data Sources and Research Locations

The study used primary data obtained directly from respondents, specifically frontline hotel employees in Indonesia. Frontline staff were chosen because they are directly involved in service delivery and operational processes that significantly influence hotels' environmental performance. The survey was administered over a two-month period in early 2024 across selected hotels that have shown commitment to sustainability practices, similar to prior empirical inquiries in hospitality sustainability [32].

3.4 Population and Sampling Techniques

The population of this research comprised frontline hotel employees working in three- and four-star hotels in Indonesia. A purposive sampling technique was employed to ensure that participants met the criteria of being actively engaged in frontline operations and having direct exposure to environmental practices. A total of 150 respondents participated in the study. This sample size is considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM), given that it surpasses the minimum requirements for predictive and mediating analysis [33].

3.5 Data Analysis Techniques

The data collected were analyzed using WarpPLS software, a tool specifically designed for variance-based Structural Equation Modeling (SEM). PLS-SEM is widely recommended in hospitality research because it is effective for prediction, handling complex models, and assessing mediation effects with relatively small to medium sample sizes [34]. The analysis included both measurement model evaluation (assessing reliability, convergent validity, and discriminant validity) and structural model evaluation (testing hypotheses through path coefficients, R^2 , f^2 , and Q^2 values). Bootstrapping with 5,000 resamples was conducted to evaluate the statistical significance of direct and indirect effects, consistent with recent studies [35].

3.6 Operational Definition of Variables

The following is an operational definition of each variable used in this study:

Table 1. Operational Definition

Variables and Operational Definition	Indicator
Green Empowerment The extent to which employees are granted autonomy, authority, and support to engage in environmentally related decisions and practices	Participation in environmental decisions, autonomy, encouragement of environmental tasks, skill development, and guidance from supervisors. [3]
Green Innovative Work Behavior (GIWB) Employees' involvement in generating, promoting, and implementing new ideas that improve environmental practices	Idea generation, idea promotion, securing resources for green ideas, developing implementation plans, and applying eco-innovations. [5]
Environmental Performance (EnP) The degree to which the hotel achieves measurable sustainability outcomes through environmental management practices	Waste reduction, energy conservation, water conservation, cost reduction, and improved environmental reputation. [36]

4. Results and Discussion

4.1 Respondent Characteristics

Data were collected from 150 frontline hotel employees in Indonesia who participated as respondents in this study. Table 2 presents the demographic characteristics of the sample.:

Table 2. Respondent Characteristics

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	62	41.3%

Female	88	58.7%
Age		
18–25 years	28	18.7%
26–35 years	64	42.7%
36–45 years	38	25.3%
46 years and above	20	13.3%
Education		
High School/Diploma	54	36.0%
Bachelor's Degree (S1)	72	48.0%
Master's Degree (S2)	24	16.0%
Job Tenure		
Less than 3 years	44	29.3%
3–6 years	61	40.7%
More than 6 years	45	30.0%

Source: Data Processed (2024)

The sample was dominated by female respondents (58.7%), with the majority aged between 26–35 years (42.7%). Most participants held a bachelor's degree (48.0%), and nearly 71% had more than three years of work experience, suggesting that the respondents were sufficiently familiar with hotel operations and sustainability practices.

4.2 Data Analysis Results

The structural equation model was tested using WarpPLS. The model showed satisfactory fit indices, with $APC = 0.342$, $p < 0.001$; $ARS = 0.365$, $p < 0.001$; $AVIF = 1.882$, all within recommended thresholds (Hair et al., 2019). The path analysis results are summarized in Table 3.

Table 3: Path Test Results

Connection	Path Coefficient	p-value
Green Empowerment → GIWB	0.62	< 0.01
GIWB → Environmental Performance	0.58	< 0.01
Green Empowerment → Environmental Performance (direct)	0.21	0.031
Green Empowerment → Environmental Performance (indirect via GIWB)	0.36	< 0.01

Source: Data Processed (2024)

These results indicate that all hypothesized relationships were statistically significant.

4.3 The Influence of Green Empowerment on Green Innovative Work Behavior

The results of this study provide compelling evidence that Green Empowerment exerts a significant and positive influence on Green Innovative Work Behavior (GIWB) ($\beta = 0.62$, $p < 0.001$). This relationship emphasizes that when frontline hotel employees are granted autonomy, discretion, and the necessary resources to contribute to environmental initiatives, they are more likely to generate and implement creative solutions that advance sustainability goals. Such findings are consistent with the work of [3], who demonstrated that green empowering leadership directly stimulates employees' innovative behaviors by fostering a work climate that values participation and encourages experimentation with eco-friendly practices.

Theoretically, this relationship can be explained through the Conservation of Resources (COR) theory [15]. Empowerment provides employees with critical resources—psychological, social, and material—that act as motivational drivers, enabling them to invest

further in innovative pro-environmental behaviors. In contexts where employees perceive strong organizational support for green practices, they are more likely to take risks, experiment with novel approaches, and persist in pursuing creative solutions that enhance environmental performance [37]. Thus, empowerment serves not only as a structural condition but also as a psychological catalyst for innovation.

From a practical perspective, Green Empowerment reduces employees' fear of failure and strengthens their confidence in voicing environmental concerns, which are often underemphasized in hierarchical hospitality organizations [11]. By encouraging participation in environmental decision-making, hotels cultivate an ownership mentality among employees, which in turn fosters proactive engagement in green initiatives. This finding resonates with [32], who argued that empowered employees in service sectors tend to channel their autonomy into generating and promoting environmentally sustainable ideas. In other words, empowerment becomes the "fuel" that drives employees' transition from passive compliance with green policies to active innovation.

Moreover, the findings highlight that empowerment initiatives are particularly vital in the hospitality industry, where frontline employees frequently face resource-intensive tasks such as waste management, energy use, and water conservation. Without empowerment, these employees may view sustainability as an additional burden rather than an opportunity for creativity and improvement. However, when empowerment is institutionalized, it transforms employees' perspectives, encouraging them to see environmental practices as avenues for professional growth and innovation [38]. This suggests that empowerment has a dual function: it strengthens intrinsic motivation while simultaneously enhancing employees' innovative capacity.

In sum, the evidence underscores that Green Empowerment is not merely an HR or leadership strategy but a strategic enabler of innovation in environmental management. By fostering autonomy, participation, and access to resources, hotels can create a culture where employees feel both capable and motivated to develop creative sustainability solutions. This finding advances the current literature by reinforcing the mediating role of employee innovation in translating empowerment into measurable organizational outcomes, echoing recent calls for more context-specific studies in emerging economies such as Indonesia.

4.4 The Influence of Green Innovative Work Behavior on Environmental Performance

The results of this study demonstrate that Green Innovative Work Behavior (GIWB) has a significant and positive effect on Environmental Performance ($\beta = 0.58$, $p < 0.001$). This finding confirms that employees' innovative contributions in the workplace are not only desirable but also indispensable for achieving sustainability outcomes in the hospitality sector. Employees who engage in GIWB actively propose, promote, and implement novel ideas that directly translate into operational improvements, such as reducing energy consumption, minimizing waste, and introducing eco-efficient service processes. Such actions significantly enhance a hotel's environmental performance, strengthening its reputation and aligning with global sustainability standards.

This result is consistent with the argument of [32], who emphasized that employees' creativity and engagement in green innovation drive improvements in resource efficiency and environmental sustainability. In hotels, where day-to-day operations are resource-intensive, GIWB ensures that sustainability is embedded in core activities rather than treated as an additional obligation. For example, frontline staff who identify opportunities to optimize energy usage in housekeeping or design innovative waste-sorting mechanisms contribute directly to both cost savings and ecological performance.

Theoretically, GIWB can be viewed as the behavioral conduit that channels employees' pro-environmental values and organizational support into tangible outcomes. [39], noted that without innovative behaviors, the potential of empowerment remains underutilized, as empowerment alone does not guarantee environmental success unless employees act creatively to implement solutions. Thus, GIWB bridges the gap between organizational intentions and realized environmental results. It transforms abstract policies into concrete practices, making it a cornerstone of sustainability management in hospitality.

Furthermore, GIWB resonates with the broader perspective of the Resource-Based View (RBV), which highlights employees' knowledge, skills, and innovative behaviors as valuable, rare, and inimitable resources that provide hotels with sustained competitive advantage [40]. By embedding eco-innovation in everyday practices, hotels create a unique

capability that cannot be easily replicated by competitors, thereby enhancing both environmental and business performance.

Empirical evidence from [8], further supports this notion by showing that employees who feel encouraged to innovate in service settings generate higher levels of sustainability-oriented performance. This suggests that cultivating GIWB is not merely about compliance with green standards but about nurturing a culture of continuous improvement, where employees take initiative in co-creating sustainable solutions.

In conclusion, the positive link between GIWB and Environmental Performance underscores that hotels must view their employees not only as executors of sustainability policies but as active innovators in achieving ecological outcomes. By leveraging the innovative potential of frontline staff, hotels can embed sustainability into daily operations, improve ecological efficiency, and position themselves as leaders in responsible hospitality practices..

4.5 The Mediating Role of Green Innovative Work Behavior

The findings of this study reveal that Green Innovative Work Behavior (GIWB) significantly mediates the relationship between Green Empowerment and Environmental Performance (indirect effect: $\beta = 0.36$, $p < 0.01$). This indicates that while empowerment alone exerts a direct positive influence on environmental outcomes, its effect is significantly magnified when employees actively engage in innovative green practices. In other words, empowerment provides the foundation, but it is the employees' capacity to transform this empowerment into creative actions that generates meaningful improvements in environmental performance.

This mediation effect underscores that Green Empowerment is a necessary but insufficient condition for achieving sustainability in the hospitality industry. Without the behavioral component of innovation, empowerment may remain latent, with employees having the authority but lacking the initiative to translate it into tangible ecological results. [41], reached a similar conclusion, showing that empowered hospitality employees were most effective in enhancing environmental performance when their empowerment was coupled with innovative initiatives such as waste management innovations, energy-saving solutions, and eco-friendly service redesign.

From a theoretical perspective, this mediating role of GIWB can be explained through the Ability–Motivation–Opportunity (AMO) framework [42]. Empowerment enhances employees' opportunities and motivation to contribute, but it is innovation-driven behaviors—the “ability” dimension—that translate these resources into measurable environmental outcomes. Thus, GIWB functions as the mechanism that operationalizes empowerment by converting latent capacity into active sustainability performance.

This finding also resonates with the Dynamic Capabilities theory, which emphasizes that organizations achieve sustainable performance not by static resources alone but by employees' capacity to sense, seize, and reconfigure practices in dynamic environments [43]. GIWB exemplifies such dynamic capability, as employees leverage empowerment to identify environmental challenges, develop innovative solutions, and integrate them into hotel operations. Through this process, empowerment becomes a catalyst for continuous improvement and adaptability in sustainability.

Practically, this highlights the strategic importance of fostering GIWB as a pathway to transform empowerment into measurable sustainability performance. Hotels cannot rely solely on top-down empowerment policies; they must also cultivate a workplace climate that encourages experimentation, tolerates risk-taking, and rewards eco-innovation. [32], emphasized that when employees perceive organizational support for innovation, they are more likely to initiate green practices that significantly improve environmental performance. Similarly, [8], observed that leadership styles that combine empowerment with encouragement of creativity produce stronger sustainability outcomes than empowerment alone.

In conclusion, the mediating effect of GIWB demonstrates that innovation is the critical behavioral “bridge” between empowerment and sustainability outcomes. By enabling and encouraging employees to innovate in eco-friendly ways, hotels can ensure that empowerment initiatives are not merely symbolic but are translated into concrete environmental performance gains. This advances the literature by showing that empowerment and innovation must co-exist as complementary forces in driving sustainable hospitality management, particularly in emerging economies like Indonesia..

6. Conclusions

This study has examined the influence of Green Empowerment on Environmental Performance, with Green Innovative Work Behavior (GIWB) serving as a mediating factor, using evidence from 150 frontline hotel employees in Indonesia. The findings confirm that Green Empowerment significantly enhances GIWB, and that GIWB in turn strongly improves Environmental Performance. Furthermore, the results reveal that GIWB mediates the relationship between empowerment and performance, underscoring the importance of innovative behavior in translating empowerment into measurable sustainability outcomes. These findings provide robust empirical support for the theoretical proposition that empowerment, when combined with innovative employee actions, plays a critical role in advancing environmental sustainability in the hospitality industry.

The synthesis of results highlights that Green Empowerment is not merely a leadership practice but a strategic organizational resource that fosters employee creativity and initiative. By granting autonomy, resources, and participation opportunities, hotels enable frontline employees to contribute directly to eco-friendly innovations that strengthen operational efficiency and ecological outcomes. This study contributes to the growing body of literature on sustainable hospitality management by positioning GIWB as the behavioral mechanism that links empowerment with performance, offering evidence from the Indonesian context, which remains underexplored compared to studies in developed regions.

From a practical standpoint, the findings emphasize that hotel managers should not only implement empowerment strategies but also actively cultivate innovative cultures that encourage employees to propose, promote, and implement environmental initiatives. Such practices can transform frontline staff from passive executors of policies into active innovators of sustainability, thereby strengthening both environmental performance and competitive advantage.

Nevertheless, several limitations are acknowledged. First, the study relied on cross-sectional data and self-reported surveys, which may be subject to common method bias. Second, the sample was limited to 150 employees from Indonesian hotels, which constrains the generalizability of results across other hospitality settings. Future research could benefit from longitudinal designs to capture the dynamic nature of empowerment and innovation over time, as well as cross-cultural comparisons to identify contextual differences. Incorporating additional variables, such as green organizational culture, environmental knowledge sharing, or leadership styles, could also provide deeper insights into the mechanisms linking empowerment, innovation, and sustainability outcomes.

In conclusion, this research demonstrates that empowering employees and fostering innovative green behavior are strategic pathways for hotels to achieve sustainable environmental performance. By investing in empowerment initiatives and cultivating a culture of innovation, the hospitality industry can strengthen its role as a driver of sustainability, particularly in developing economies such as Indonesia.

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