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Green Organizational Practices and Work Engagement: The Mediating Roles of Employee Green Behaviour and Environmental Awareness

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Abstract: Environmental sustainability has encouraged organizations to adopt green management practices that enhance both environmental and employee outcomes. This study examines the effects of Green Human Resource Management, Green Organizational Culture, and Green Transformational Leadership on Work Engagement through the mediating roles of Employee Green Behaviour and Environmental Awareness among millennial employees in Indonesian digital startups. Using a quantitative cross-sectional design, we collected data from 200 respondents and analyzed them using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that Green HRM and Green Transformational Leadership significantly influence Employee Green Behaviour and Environmental Awareness. However, Green Organizational Culture does not significantly affect either mediator. Furthermore, Employee Green Behaviour and Environmental Awareness positively influence Work Engagement. Mediation analysis shows that Employee Green Behaviour mediates the effect of Green Transformational Leadership on Work Engagement, while Environmental Awareness mediates the effects of Green HRM and Green Transformational Leadership on Work Engagement. These findings highlight the importance of green leadership and sustainability-oriented HR practices in enhancing employee engagement within digital startup organizations.

Keywords: Green Human Resource Management, Green Transformational Leadership, Employee Green Behaviour, Environmental Awareness, Work Engagement.

INTRODUCTION

The growing concern for environmental sustainability has encouraged organizations to integrate green practices into their business strategies. Beyond regulatory compliance, organizations are increasingly expected to adopt sustainable human resource practices that promote environmentally responsible behaviors among employees. In this context, Green Human Resource Management (Green HRM) has emerged as a strategic approach to align organizational objectives with sustainability goals through green recruitment, training, performance evaluation, and reward systems (Tran, 2023).

Indonesia has one of the largest digital startup ecosystems in Southeast Asia, with more than 1,700 startups operating across sectors such as e-commerce, fintech, edutech, and healthtech. The rapid growth of digital startups has contributed significantly to the national economy, while simultaneously creating challenges related to employee well-being and retention. Millennial employees, who constitute a large proportion of the workforce in digital startups, tend to value meaningful work, social responsibility, and alignment between personal and organizational values (Garavan et al., 2023). Consequently, fostering work engagement has become a strategic priority for startup organizations. Work engagement refers to a positive and fulfilling work-related state characterized by vigor, dedication, and absorption (Gkikas & Salmon, 2026). Previous studies have shown that engaged employees are more productive, innovative, and committed to organizational goals (Holúbek et al., 2026). Green organizational practices may serve as important antecedents of work engagement by creating meaningful work experiences and enhancing employees' perceptions of contributing to broader environmental and societal objectives. Specifically, Green HRM, Green Organizational Culture, and Green Transformational Leadership may encourage positive employee attitudes and behaviors within organizations (Li et al., 2023).

However, the influence of green organizational practices on work engagement may not occur directly. Employee Green Behaviour, defined as environmentally responsible actions performed by employees at work, may represent an important mechanism linking organizational initiatives to employee outcomes (Alghwail et al., 2026). Similarly, Environmental Awareness may shape employees' understanding of environmental issues and strengthen the alignment between organizational values and individual beliefs, thereby enhancing work engagement (Jiang et al., 2024). Despite increasing scholarly attention toward Green HRM and sustainability-related practices, several research gaps remain. Existing studies have primarily examined environmental performance and pro-environmental behavior as outcomes, while research focusing on work engagement remains limited. Furthermore, studies integrating Green HRM, Green Organizational Culture, and Green Transformational Leadership within a single framework are still scarce. The mediating roles of Employee Green Behaviour and Environmental Awareness have also received limited empirical investigation, particularly within digital startup settings in developing countries such as Indonesia (Abdou et al., 2023).

Therefore, this study aims to examine the effects of Green HRM, Green Organizational Culture, and Green Transformational Leadership on Work Engagement through the mediating roles of Employee Green Behaviour and Environmental Awareness among millennial employees in Indonesian digital startups. The findings are expected to enrich the literature on green organizational practices and employee engagement while providing practical insights for startup organizations seeking to enhance employee engagement through sustainability-oriented initiatives.

Theoretical Review

Social Exchange Theory (SET)

Social Exchange Theory (SET) proposed by Blau (1964) explains that social relationships are based on reciprocal exchanges between parties. Employees tend to reciprocate favorable organizational treatment through positive attitudes and behaviors. When organizations implement environmentally responsible practices, foster green organizational values, and demonstrate green leadership, employees may perceive organizational support and respond by engaging in environmentally responsible behaviors and exhibiting higher work engagement. Therefore, SET provides an appropriate theoretical foundation for explaining the relationships among Green HRM, Green Organizational Culture, Green Transformational Leadership, Employee Green Behaviour, Environmental Awareness, and Work Engagement.

Relationship between Green HRM and Employee Green Behaviour

Green Human Resource Management refers to HR practices designed to encourage employees' environmental awareness and environmentally responsible behaviors (Meng & Zhu, 2026). Green HRM practices such as green recruitment, green training, green performance appraisal, and green rewards can shape employees' environmental values and motivate them to engage in pro-environmental behaviors (Bhutto et al., 2021). In Indonesian digital startups, millennial employees tend to value organizations that demonstrate commitment toward sustainability. When employees perceive that environmental responsibility is embedded within HR practices, they are more likely to adopt environmentally friendly behaviors in the workplace. Therefore, Green HRM is expected to positively influence Employee Green Behaviour.

Relationship between Green HRM and Environmental Awareness

Green HRM practices provide employees with opportunities to develop environmental knowledge and understanding through training and organizational communication (Albrecht et al., 2021). Employees exposed to green HR initiatives are expected to become more aware of environmental issues and their role in supporting organizational sustainability (Abdullah, 2025). Within digital startup environments, sustainability-oriented HR policies may increase employees' awareness regarding the importance of environmental protection. Consequently, Green HRM is expected to enhance Environmental Awareness among millennial employees.

Relationship between Green Organizational Culture and Employee Green Behaviour

Green Organizational Culture represents shared environmental values, beliefs, and norms within an organization (Hareesh, 2025). Organizational cultures emphasizing sustainability encourage employees to align their behaviors with organizational expectations (Guerra-Lombardi et al., 2025). Employees working in digital startups characterized by strong green values may be more likely to engage in environmentally responsible activities such as conserving resources and supporting environmental initiatives. Therefore, Green Organizational Culture is expected to positively influence Employee Green Behaviour.

Relationship between Green Organizational Culture and Environmental Awareness

Organizational culture serves as an important mechanism for transmitting organizational values and shaping employees' perceptions (Hani & Praningrum, 2023). A green organizational culture may enhance employees' understanding of environmental issues and strengthen their environmental concern (Tang et al., 2023). In digital startups where sustainability values are consistently communicated and practiced, millennial employees may develop higher levels of Environmental Awareness. Thus, Green Organizational Culture is expected to positively influence Environmental Awareness.

Relationship between Green Transformational Leadership and Employee Green Behaviour

Green Transformational Leadership refers to leaders' ability to motivate employees toward achieving environmental goals through inspiration and role modeling (Lu, 2025). Leaders who demonstrate environmentally responsible behaviors can influence employees to emulate such behaviors (Tarek et al., 2025). Millennial employees often seek leaders who embody organizational values and provide meaningful direction. Therefore, green transformational leaders may encourage employees to participate in environmentally friendly activities and demonstrate Employee Green Behaviour.

Relationship between Green Transformational Leadership and Environmental Awareness

Transformational leaders inspire employees by increasing their awareness of broader organizational objectives and societal responsibilities (Donald et al., 2026). Green transformational leaders may educate employees regarding environmental challenges and the importance of sustainability practices (Al et al., 2025). Through effective communication and environmental advocacy, green leaders may foster Environmental Awareness among millennial employees in digital startups.

Relationship between Employee Green Behaviour and Work Engagement

Employee Green Behaviour reflects employees' active participation in environmental initiatives and environmentally responsible workplace practices (Febrian et al., 2026). Engaging in such behaviors may provide employees with a sense of purpose and meaningfulness at work, which subsequently enhances work engagement (Febrian et al., 2026). Millennial employees who perceive that their actions contribute positively to society and the environment may become more enthusiastic, dedicated, and absorbed in their work. Therefore, Employee Green Behaviour is expected to positively influence Work Engagement.

Relationship between Environmental Awareness and Work Engagement

Environmental Awareness reflects employees' understanding and concern regarding environmental issues (Febrian, 2024). Employees who recognize the significance of sustainability initiatives may perceive their work as more meaningful and aligned with their personal values (Tran, 2023). Among millennial employees, alignment between organizational values and personal beliefs may strengthen emotional attachment toward work. Therefore, Environmental Awareness is expected to positively influence Work Engagement.

The Mediating Role of Employee Green Behaviour

Based on Social Exchange Theory, employees tend to reciprocate supportive organizational practices through positive behaviors. Green HRM, Green Organizational Culture, and Green Transformational Leadership may encourage Employee Green Behaviour, which subsequently enhances Work Engagement (Garavan et al., 2023). Accordingly, Employee Green Behaviour is expected to mediate the relationships between green organizational factors and Work Engagement.

The Mediating Role of Environmental Awareness

Environmental Awareness may represent an important psychological mechanism through which green organizational practices influence employee outcomes (Gkikas & Salmon, 2026). Organizational sustainability initiatives may strengthen employees' environmental consciousness, which subsequently fosters stronger engagement with their work (Gkikas & Salmon, 2026). Therefore, Environmental Awareness is expected to mediate the relationships between Green HRM, Green Organizational Culture, Green Transformational Leadership, and Work Engagement.

Research Framework and Hypotheses

The research framework illustrates the relationships among Green Human Resource Management (Green HRM), Green Organizational Culture, Green Transformational Leadership, Employee Green Behaviour, Environmental Awareness, and Work Engagement among millennial employees in Indonesian digital startups. This framework is grounded in Social Exchange Theory (SET) proposed by Blau (1964), which suggests that employees tend to reciprocate favorable organizational treatment through positive attitudes and behaviors. Organizations that demonstrate commitment to environmental sustainability through green

practices are expected to encourage employees to exhibit environmentally responsible behaviors, strengthen environmental awareness, and enhance work engagement.

Green HRM, Green Organizational Culture, and Green Transformational Leadership are proposed as organizational antecedents that foster Employee Green Behaviour and Environmental Awareness. Employees who engage in green behaviors and possess higher environmental awareness are more likely to perceive their work as meaningful and aligned with their personal values, resulting in stronger levels of vigor, dedication, and absorption. Therefore, Employee Green Behaviour and Environmental Awareness are expected to mediate the relationships between green organizational practices and Work Engagement. Based on the theoretical review and the proposed research framework, the following hypotheses are formulated:

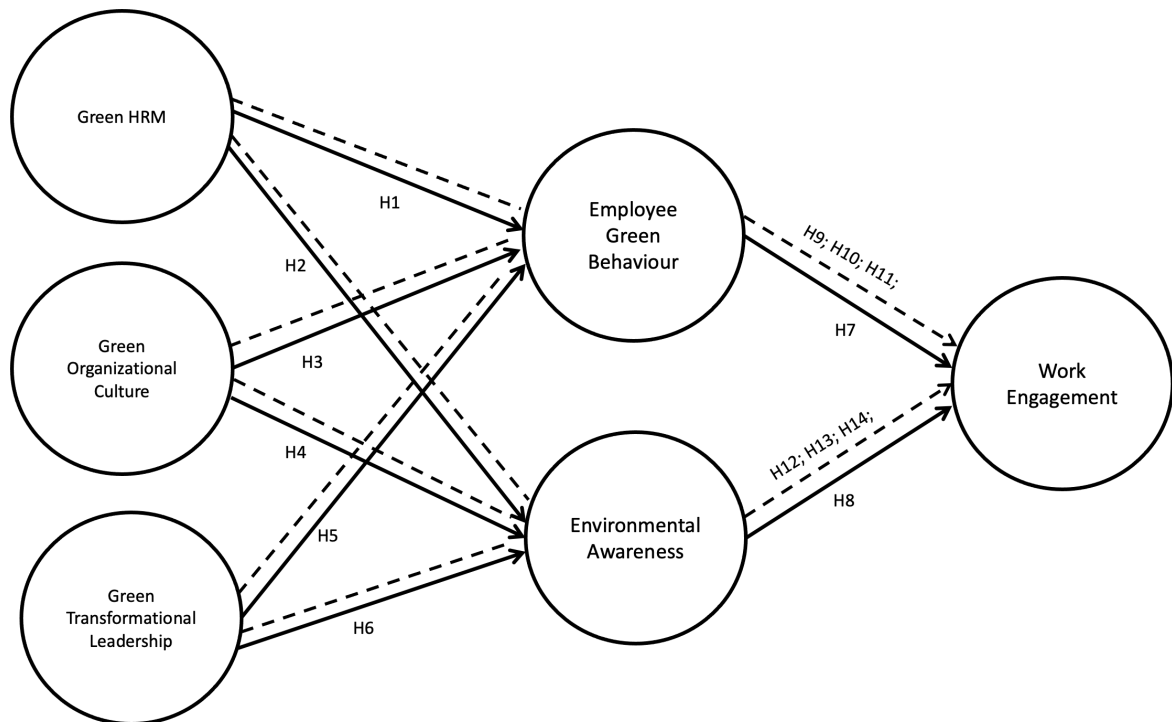


Figure 1. Research Framework

Accordingly, the proposed research framework suggests that Green HRM, Green Organizational Culture, and Green Transformational Leadership influence Employee Green Behaviour and Environmental Awareness, which in turn enhance Work Engagement among millennial employees working in Indonesian digital startups. Based on the theoretical arguments and previous empirical findings, the following hypotheses are formulated:

Hypothesis 1 (H1): Green Human Resource Management has a positive and significant influence on Employee Green Behaviour among millennial employees in Indonesian digital startups.

Hypothesis 2 (H2): Green Human Resource Management has a positive and significant influence on Environmental Awareness among millennial employees in Indonesian digital startups.

Hypothesis 3 (H3): Green Organizational Culture has a positive and significant influence on Employee Green Behaviour among millennial employees in Indonesian digital startups.

Hypothesis 4 (H4): Green Organizational Culture has a positive and significant influence on Environmental Awareness among millennial employees in Indonesian digital startups.

Hypothesis 5 (H5): Green Transformational Leadership has a positive and significant influence on Employee Green Behaviour among millennial employees in Indonesian digital startups.

Hypothesis 6 (H6): Green Transformational Leadership has a positive and significant influence on Environmental Awareness among millennial employees in Indonesian digital startups.

Hypothesis 7 (H7): Employee Green Behaviour has a positive and significant influence on Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 8 (H8): Environmental Awareness has a positive and significant influence on Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 9 (H9): Employee Green Behaviour significantly mediates the relationship between Green Human Resource Management and Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 10 (H10): Employee Green Behaviour significantly mediates the relationship between Green Organizational Culture and Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 11 (H11): Employee Green Behaviour significantly mediates the relationship between Green Transformational Leadership and Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 12 (H12): Environmental Awareness significantly mediates the relationship between Green Human Resource Management and Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 13 (H13): Environmental Awareness significantly mediates the relationship between Green Organizational Culture and Work Engagement among millennial employees in Indonesian digital startups.

Hypothesis 14 (H14): Environmental Awareness significantly mediates the relationship between Green Transformational Leadership and Work Engagement among millennial employees in Indonesian digital startups.

METHOD

This study employed a quantitative approach using a cross-sectional survey design to examine the effects of Green Human Resource Management (Green HRM), Green Organizational Culture, and Green Transformational Leadership on Work Engagement through the mediating roles of Employee Green Behaviour and Environmental Awareness. The population consisted of millennial employees working in digital startup companies in Indonesia. Since the exact population size was unknown, the population was considered infinite. A total of 200 respondents were selected using purposive sampling based on the following criteria: (1) employed in Indonesian digital startups, (2) belonging to the millennial generation (born between 1981 and 1996), and (3) having worked in their current organization for at least six months. Data were collected through an online questionnaire distributed via Google Forms using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1. Summary of Variable Indicators

Variable	Indicators
Green Human Resource Management (GHRM)	Green Recruitment and Selection, Green Training and Development, Green Performance Management, Green Rewards and Compensation, Employee Involvement in Environmental Initiatives
Green Organizational Culture (GOC)	Environmental Values, Environmental Norms, Shared Commitment to Sustainability, Organizational Support for Green Practices, Green Organizational Climate
Green Transformational Leadership (GTL)	Green Idealized Influence, Green Inspirational Motivation, Green Intellectual Stimulation, Green Individualized Consideration

Employee Green Behaviour (EGB)	Conserving Resources, Recycling and Waste Reduction, Environmental Initiative, Encouraging Colleagues to Engage in Green Behaviour, Participation in Environmental Activities
Environmental Awareness (EA)	Awareness of Environmental Issues, Concern for Environmental Protection, Sense of Responsibility toward the Environment, Understanding Environmental Consequences of Individual Actions
Work Engagement (WE)	Feeling Energetic while Working, Remaining Enthusiastic despite Work Challenges, Feeling Proud of One's Work

Table 1 summarizes the indicators used to operationalize each construct in this study. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. The analysis involved evaluating the measurement model through outer loadings, Average Variance Extracted (AVE), Composite Reliability, and Cronbach's Alpha, followed by structural model assessment using path coefficients, coefficient of determination (R^2), predictive relevance (Q^2), effect size (f^2), and bootstrapping procedures to test direct and indirect effects. The mediating roles of Employee Green Behaviour and Environmental Awareness were examined using the bootstrapping method.

RESULTS AND DISCUSSION

Respondent Profile

This study involved 200 millennial employees working in digital startup companies in Indonesia. As shown in Table 2, the respondents were relatively balanced in terms of gender, consisting of 108 males (54.00%) and 92 females (46.00%). Most respondents were aged 29–35 years (42.00%), indicating that the sample was dominated by individuals in the productive stage of the millennial generation. Regarding educational background, the majority of respondents held a bachelor's degree (56.00%), followed by a master's degree (22.00%). In terms of organizational tenure, most respondents had worked in their current startup for one to three years (45.00%), suggesting that they had sufficient experience to understand organizational practices related to leadership, culture, and human resource management. With respect to startup sectors, respondents were primarily employed in the financial technology (27.00%) and e-commerce (23.00%) industries. Most participants occupied staff-level positions (61.00%), while the remainder served as supervisors (24.00%) and managers (15.00%). Overall, the diversity of respondents across demographic and occupational characteristics provides an adequate representation of millennial employees in Indonesian digital startups.

Table 2. Respondent Profile

Characteristics	Category	Frequency	Percentage
Gender	Male	108	54.00%
	Female	92	46.00%
Age	29–35 years	84	42.00%
	36–40 years	63	31.50%
	41–45 years	53	26.50%
Education	Diploma (D3)	22	11.00%
	Bachelor's Degree (S1)	112	56.00%
	Master's Degree (S2)	44	22.00%
	Doctoral Degree (S3)	22	11.00%
Length of Employment	6 months–1 year	36	18.00%
	1–3 years	90	45.00%
	4–6 years	48	24.00%

Digital Startup Sector	More than 6 years	26	13.00%
	Fintech	54	27.00%
	E-commerce	46	23.00%
	Edutech	36	18.00%
	Healthtech	24	12.00%
	Other Digital Startups	40	20.00%
Job Position	Staff	122	61.00%
	Supervisor	48	24.00%
	Manager	30	15.00%

Source: Processed Data (2026)

Measurement Model Evaluation

The measurement model was evaluated to assess the reliability and convergent validity of the constructs. Following the PLS-SEM guidelines, indicator reliability was assessed using outer loadings, while construct reliability and convergent validity were evaluated using Cronbach's Alpha, rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE). The recommended threshold values were 0.70 for outer loadings and reliability measures, and 0.50 for AVE. As shown in Table 3, all constructs demonstrated satisfactory reliability. Cronbach's Alpha values ranged from 0.827 to 0.929, rho_A values ranged from 0.880 to 0.931, and Composite Reliability values ranged from 0.888 to 0.950, exceeding the recommended threshold of 0.70. Furthermore, AVE values ranged from 0.613 to 0.825, indicating adequate convergent validity.

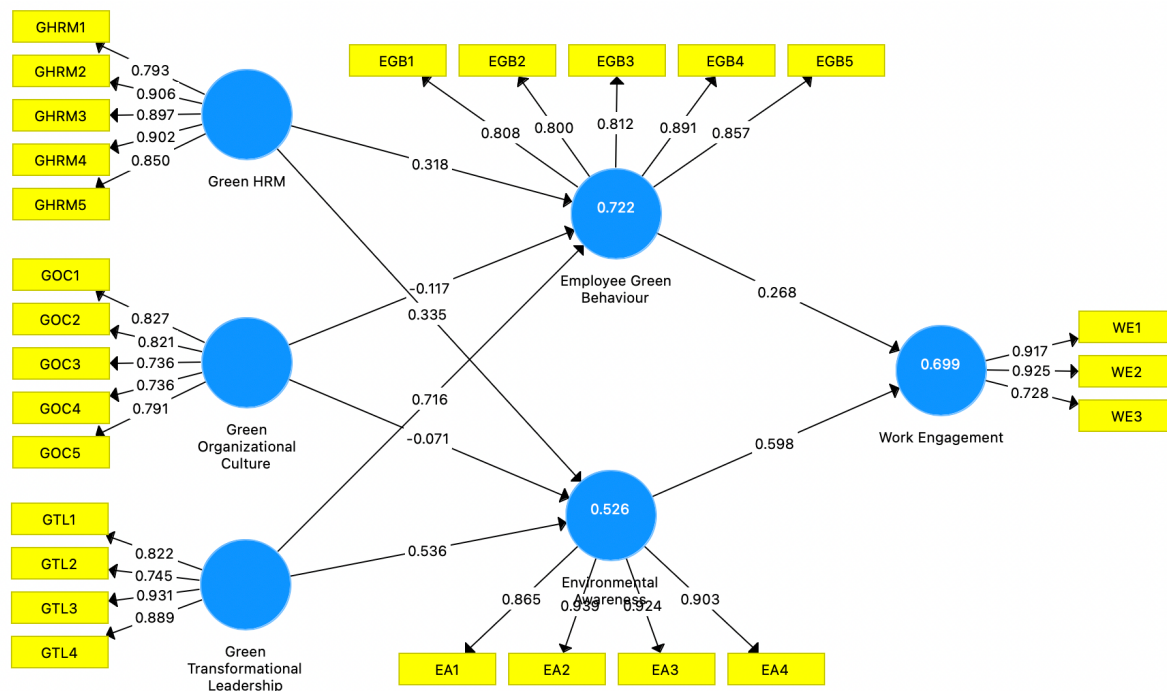


Figure 2. PLS-SEM Measurement and Structural Model Results

Table 3. Construct Reliability and Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Employee Green Behaviour	0.890	0.892	0.920	0.696
Environmental Awareness	0.929	0.931	0.950	0.825
Green HRM	0.920	0.928	0.940	0.758
Green Organizational Culture	0.848	0.880	0.888	0.613
Green Transformational Leadership	0.870	0.896	0.912	0.722
Work Engagement	0.827	0.891	0.895	0.742

Source: Processed Data (2026)

Convergent validity was further assessed using outer loadings. As presented in Table 4, all retained indicators exceeded the recommended threshold of 0.70, with loading values ranging from 0.728 to 0.939. Two indicators of the Work Engagement construct were removed during the purification process because their loading values were below 0.70. The remaining indicators adequately represented their respective constructs and improved the overall quality of the measurement model.

Table 4. Outer Loadings

Construct	Indicator	Loading
Employee Green Behaviour	EGB1	0.808
	EGB2	0.800
	EGB3	0.812
	EGB4	0.891
	EGB5	0.857
Environmental Awareness	EA1	0.865
	EA2	0.939
	EA3	0.924
	EA4	0.903
Green HRM	GHRM1	0.793
	GHRM2	0.906
	GHRM3	0.897
	GHRM4	0.902
	GHRM5	0.850
Green Organizational Culture	GOC1	0.827
	GOC2	0.821
	GOC3	0.736
	GOC4	0.736
	GOC5	0.791
Green Transformational Leadership	GTL1	0.822
	GTL2	0.745
	GTL3	0.931
	GTL4	0.889
Work Engagement	WE1	0.917
	WE2	0.925
	WE3	0.728

Source: Processed Data (2026)

Overall, the results confirm that the measurement model fulfilled the recommended criteria for reliability and convergent validity, supporting the adequacy of the research instrument for subsequent structural model evaluation.

Structural Model Evaluation

The structural model was evaluated using the coefficient of determination (R^2), predictive relevance (Q^2), and effect size (f^2). According to Hair et al. (2022), R^2 values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak explanatory power, respectively. As shown in Table 5, Employee Green Behaviour ($R^2 = 0.722$) and Work Engagement ($R^2 = 0.699$) demonstrated substantial explanatory power, while Environmental Awareness ($R^2 = 0.526$) showed moderate explanatory power.

Table 5. Coefficient of Determination (R^2)

Variable	R^2	R^2 Adjusted
Employee Green Behaviour	0.722	0.717
Environmental Awareness	0.526	0.519
Work Engagement	0.699	0.696

Source: Processed Data (2026)

Predictive relevance was assessed using the Stone-Geisser Q^2 statistic. All endogenous constructs exhibited Q^2 values greater than zero, indicating satisfactory predictive relevance of the model.

Table 6. Predictive Relevance (Q^2)

Variable	Q^2
Employee Green Behaviour	0.483
Environmental Awareness	0.419
Work Engagement	0.493

Source: Processed Data (2026)

Effect size (f^2) was used to assess the contribution of each exogenous construct to endogenous constructs. The results indicate that Green Transformational Leadership had the strongest effect on Employee Green Behaviour ($f^2 = 0.875$), while Environmental Awareness exerted a moderate effect on Work Engagement ($f^2 = 0.346$). Conversely, Green Organizational Culture demonstrated negligible effects on both Employee Green Behaviour and Environmental Awareness.

Table 7. Effect Size (f^2)

Relationship	f^2	Effect Size
Green HRM → Employee Green Behaviour	0.157	Medium
Green HRM → Environmental Awareness	0.102	Small
Green Organizational Culture → Employee Green Behaviour	0.016	Negligible
Green Organizational Culture → Environmental Awareness	0.003	Negligible
Green Transformational Leadership → Employee Green Behaviour	0.875	Large
Green Transformational Leadership → Environmental Awareness	0.288	Medium
Employee Green Behaviour → Work Engagement	0.070	Small
Environmental Awareness → Work Engagement	0.346	Medium

Source: Processed Data (2026)

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS. Following Hair et al. (2022), hypotheses were supported when the t-statistic exceeded 1.96 and the p-value was below 0.05.

Table 8. Direct Effects Testing

Hypothesis	Relationship	β	T-Statistic	P-Value	Result
H1	Green HRM → Employee Green Behaviour	0.318	3.491	0.001	Supported
H2	Green HRM → Environmental Awareness	0.335	2.600	0.010	Supported
H3	Green Organizational Culture → Employee Green Behaviour	0.117	1.100	0.272	Not Supported
H4	Green Organizational Culture → Environmental Awareness	0.071	0.415	0.678	Not Supported
H5	Green Transformational Leadership → Employee Green Behaviour	0.716	7.774	0.000	Supported
H6	Green Transformational Leadership → Environmental Awareness	0.536	3.766	0.000	Supported
H7	Employee Green Behaviour → Work Engagement	0.268	2.745	0.006	Supported
H8	Environmental Awareness → Work Engagement	0.598	7.408	0.000	Supported

Source: Processed Data (2026)

Table 9. Indirect Effects Testing

Hypothesis	Relationship	β	T-Statistic	P-Value	Result
H9	Green HRM → Employee Green Behaviour → Work Engagement	0.085	1.936	0.053	Not Supported
H10	Green Organizational Culture → Employee Green Behaviour → Work Engagement	0.031	0.946	0.345	Not Supported
H11	Green Transformational Leadership → Employee Green Behaviour → Work Engagement	0.192	2.735	0.006	Supported
H12	Green HRM → Environmental Awareness → Work Engagement	0.200	2.496	0.013	Supported
H13	Green Organizational Culture → Environmental Awareness → Work Engagement	0.043	0.416	0.678	Not Supported
H14	Green Transformational Leadership → Environmental Awareness → Work Engagement	0.320	3.430	0.001	Supported

Source: Processed Data (2026)

The results revealed that nine out of fourteen hypotheses were supported. Green HRM and Green Transformational Leadership significantly influenced Employee Green Behaviour

and Environmental Awareness, while Green Organizational Culture showed no significant effects on either mediator. Furthermore, Employee Green Behaviour and Environmental Awareness significantly enhanced Work Engagement. Regarding mediation effects, Employee Green Behaviour mediated the relationship between Green Transformational Leadership and Work Engagement, whereas Environmental Awareness mediated the effects of Green HRM and Green Transformational Leadership on Work Engagement.

Discussion

The findings indicate that Green HRM positively influences Employee Green Behaviour and Environmental Awareness among millennial employees in Indonesian digital startups. This suggests that green-oriented HR practices, such as environmental training and green performance management, can strengthen employees' environmentally responsible behaviours and awareness. These findings support Social Exchange Theory (Blau, 1964), which argues that employees reciprocate organizational support through positive attitudes and behaviours. The results are also consistent with previous studies emphasizing the importance of Green HRM in promoting sustainability-related employee outcomes (Gkikas & Salmon, 2026).

In contrast, Green Organizational Culture was not found to significantly influence Employee Green Behaviour or Environmental Awareness. One possible explanation is that digital startups tend to prioritize innovation, growth, and operational flexibility, resulting in green values being insufficiently embedded in employees' daily activities. Consequently, employees may perceive sustainability initiatives as symbolic rather than integral to organizational practices. This finding suggests that establishing a green culture alone may not be sufficient to shape employees' environmental attitudes and behaviours in startup environments.

The results further reveal that Green Transformational Leadership positively affects Employee Green Behaviour and Environmental Awareness, highlighting the important role of leaders in promoting sustainability within organizations. Leaders who communicate environmental values, act as role models, and inspire employees toward sustainability goals can effectively foster pro-environmental behaviours and awareness. Moreover, both Employee Green Behaviour and Environmental Awareness significantly enhance Work Engagement, indicating that employees who perceive their work as meaningful and aligned with sustainability values tend to demonstrate higher levels of engagement.

Regarding mediation effects, Employee Green Behaviour mediated only the relationship between Green Transformational Leadership and Work Engagement, whereas Environmental Awareness mediated the effects of Green HRM and Green Transformational Leadership on Work Engagement. However, no mediating effects were identified for Green Organizational Culture. Overall, these findings underscore the importance of leadership and sustainability-oriented HR practices in fostering an engaged and environmentally conscious workforce within Indonesian digital startups.

CONCLUSION

This study examined the effects of Green HRM, Green Organizational Culture, and Green Transformational Leadership on Work Engagement through the mediating roles of Employee Green Behaviour and Environmental Awareness among millennial employees in Indonesian digital startups. The findings reveal that Green HRM and Green Transformational Leadership significantly enhance Employee Green Behaviour and Environmental Awareness, whereas Green Organizational Culture does not significantly influence these mediating variables. Furthermore, Employee Green Behaviour and Environmental Awareness positively contribute to Work Engagement. Mediation analysis demonstrates that Employee Green Behaviour mediates the relationship between Green Transformational Leadership and Work Engagement,

while Environmental Awareness mediates the effects of Green HRM and Green Transformational Leadership on Work Engagement.

From a theoretical perspective, this study extends the application of Social Exchange Theory by demonstrating how green organizational practices foster employee engagement through behavioural and cognitive mechanisms. Practically, the findings suggest that digital startups should strengthen sustainability-oriented HR practices and develop leaders capable of promoting environmental values among employees. Future studies are encouraged to examine additional mediating or moderating variables and validate the proposed framework across different industries and generational groups.

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