

EXPLORING THE MODERATING ROLE OF TECHNOLOGICAL COMPETENCE AND ARTIFICIAL INTELLIGENCE IN GREEN HRM

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Abstract: This research investigates the relationship between Green Human Resource Management (HRM) practices and environmental performance in organizations in Qatar. The novelty of the study lies in introducing artificial intelligence and technological competence as moderators in realizing the benefits of implementing Green HRM. Data was collected from 357 respondents from large manufacturing/service organizations in Qatar through questionnaire-based survey and analysed using structural equation modelling technique to test the hypothesized relationships among the variables. The findings of the study establish the significant role of Green HRM practices in fostering environmentally sustainable practices within organizations, with technological competence and artificial intelligence moderating the relationships. It was concluded that implementing Green HRM practices enhances the organization's environmental performance, reputation, and adherence to regulatory and industry standards. This research identifies the need for customized Green HRM strategies tailored to Qatar's specific environmental challenges and cultural context.

Key words: Green HRM, Technological Competence, Artificial Intelligence, Qatar

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Introduction

Green HRM system comprises Green job analysis and job descriptions, selection and recruiting, training, empowerment, performance evaluation, rewards, and participation

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in the decision-making process (Yan and Hu, 2022). Green Human Resource Management has emerged as a pivotal business approach to actively promote environmentally sustainable workplace practices (Renwick et al., 2013). Green HRM practices can lead to resource conservation and mitigate the adverse impact of economic development and human activities on the natural ecosystem and environment (Tanveer et al., 2024). The existing body of literature on the relationship between Green HRM and Green Organizational Performance primarily focuses on developed countries, particularly Europe (Guan et al., 2023) and Australia (Dumont et al., 2017). Implementing Green HRM holds significance in emerging economies due to its potential to generate a competitive edge (Agrawal and Bansal, 2022). The impetus for conducting this study stems from the broader subject of human resource management and the growing focus on sustainability within the Middle East (Patuelli et al., 2022). Further, a significant void exists in the existing body of literature for advancing the implementation of Green HRM practices (Ogiemwonyi et al., 2023). Though many studies have emerged that discuss the impact of Green HRM on environmental performance, no study has considered the impact of artificial intelligence in achieving the positive impacts of Green GRM. Further, the role of technological competence in Green HRM remains unexplored. Considering these as significant gaps, the present study contributes to the literature by introducing artificial intelligence and technological competence as moderators in realizing the benefits of Green HRM practices.

Literature Review and Hypotheses Development

Green HRM is defined as a system that designs and implements human resource management practices to underscore the impact of a firm's activities on the natural environment (Haldorai et al., 2022). Green HRM enables organizations and employees to work together to achieve the goal of sustainable development by incorporating "green" into management practices (Cao et al., 2023) and can bring stronger green competitiveness to organizations (Kim et al., 2023). According to Faezah et al. (2024), previous research has underscored the connection between an organisation's HRM practices and the effectiveness of its environmental management efforts. Their study suggests that green satisfaction plays an important role in influencing the relationship between Green HRM and employee ecological behaviour. Further, employees' awareness and commitment to environmental protection and preservation increase the firm adopting the Green HRM activities (Farrukh et al., 2022). In recent years, the studies on Green HRM have shown an upward trend, as found by Hariharasudan and Kot (2024) in their bibliometric study on Green HRM, suggesting emerging areas in the area of Green HRM. An exhaustive review of the literature on Green HRM, workplace behaviour in general, and pro-environmental behaviour in particular, led to the development of the final model, as shown in Figure 1.

Perceived Green Organisational Support

Perceived Organizational Support (POS) refers to an employee's perception of the organization's valuation of their overall contributions made on behalf of the organization for their well-being (Eisenberger et al., 2020). According to Lamm et al. (2015), the POS towards the environment indicates employees' perceptions regarding how much their organization values their efforts toward sustainability. Nevertheless, Lamm et al. (2015) fail to take in the additional aspect of Eisenberger et al.'s (1986) definition, which pertains to the organization's display of consideration toward the well-being of its employees. Drawing upon the studies conducted by Eisenberger et al. (1986) and Lamm et al. (2015), 'green' POS was proposed as the distinct set of employee beliefs about the extent to which the organization appreciates their efforts exhibiting a genuine commitment to environmental values (Shanock et al., 2019). Thus, based on the above discussion, the following hypotheses were framed:

- *H1: Green Recruitment and Selection significantly and positively influence Perceived Green Organisational Support*
- *H2: Green Training significantly and positively influences Perceived Green Organisational Support*
- *H3: Green Rewards significantly and positively influence perceived Green Organisational Support*

Moderating role of technological competence

Technological capability includes company's proficiency in acquiring, utilizing, and generating new knowledge related to technologies (Zhang, 2020). Technological capability is divided into external aspects (identifying and acquiring external technological resources and opportunities) and internal aspects (mastering technologies and implementing them in product innovation based on the obtained technological resources) (Danneels, 2007). Consequently, the workforce will exhibit awareness regarding the environmental norms in a technology-mediated environment, influencing Perceived Green Organisational Support (PGOS). Thus, based on the above discussion, the following hypotheses were determined:

- *H4: Technological Competence will significantly moderate the relationship between Green HRM practices (Recruitment and Selection, Reward, Training) and Perceived Green Organisational Support.*
- *H4a: Technological Competence significantly moderates the relationship between Green Recruitment and Selection and Perceived Green Organisational Support*
- *H4b: Technological Competence significantly moderates the relationship between Green Rewards and Perceived Green Organisational Support*
- *H4c: Technological Competence significantly moderates the relationship between Green Training and Perceived Green Organisational Support*

Organisational Citizenship Behaviours Towards the Environment (OCBE)

OCBE refers to the voluntary actions undertaken by employees to save the natural environment (Khan et al., 2021). The treatment received from supervisors has been found to influence employees' Organizational Citizenship Behaviour (OCB) and OCBE (Pham et al., 2019).

Green Creativity

Green creativity refers to generating innovative and practical green products, services, processes, and activities (Tuan, 2020). This phenomenon is revered due to its potential to stimulate sustainable development, contribute to green innovation, and, hence, assist organizations in enhancing their corporate image (Ogbeibu et al., 2021). When confronted with external pressure to address environmental issues, organizations that possess a robust green organizational identity and PGOS may develop novel and valuable ideas resulting in an increase in green creativity (Engelbrecht and Samuel, 2019). Thus, based on the above discussion, the following hypotheses were formulated:

- *H5: Perceived Green Organisational Support significantly and positively influences Green Creativity*
- *H6: Perceived Green Organisational Support significantly and positively influences Organisational Citizenship Behaviour for the Environment*

Moderating role of AI usage

AI-based tools assist managers in assessing employee performance, recommending any required improvements, and taking corrective actions for an employee based on expert opinion, such as training and talent enhancement (Masood et al., 2023). Also, AI Usage can amplify employee Green creativity, increasing the environmental performance of Green HRM-based organisations (Ogbeibu et al., 2024). Therefore, based on the above discussion, the following hypothesis is postulated:

- *H7: Usage of AI significantly moderates the relationship between Green creativity and environmental performance*

Environmental performance

Dubey et al. (2015) advised that organizational production processes and resource utilization should be aligned with legislative environmental standards to reduce environmental impact. Different companies are implementing environmentally friendly projects to gain a competitive advantage (Pham et al., 2020). Thus, based on the above discussion, the following hypotheses were proposed:

- *H8: Green Creativity significantly and positively influences Environmental Performance*
- *H9: Organisational Citizenship Behaviour for the Environment significantly and positively influences Environmental Performance*
- *H10: Perceived Green Organisational Support significantly and positively influences Environmental Performance*

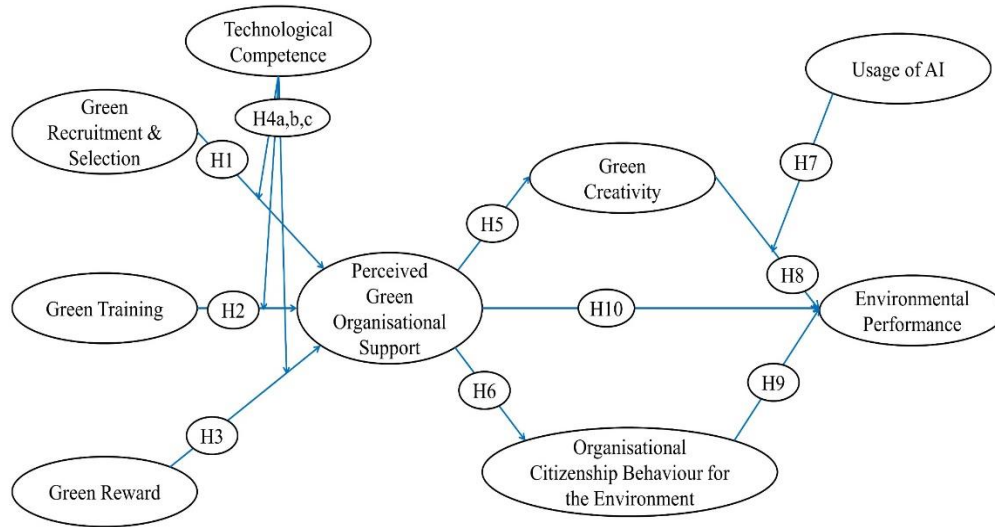


Figure 1: Proposed Framework

Research Methodology and Data

A principal component analysis was performed to extract the components, and the varimax technique was used to rotate the factors. Following an assessment of the Exploratory Factor Analysis (EFA) and the reliability of the measuring scale, only 38 items across 9 variables remained from the initial scale of 45. A total of 7 items were deleted due to low factor loadings, while one construct was removed due to cross factor loadings. This final version of the questionnaire was used to conduct a pilot study. The Cronbach Alpha Reliability test was carried out using SPSS. The dependability of the instrument was shown by the instrument’s aggregate alpha value, which was 0.81. Later, the resulting finalized items were included in the final research instrument.

The present research is exploratory cum descriptive, illustrating cross-sectional research design. Using a structured questionnaire with closed-ended questions, data was gathered from respondents from Qatar organizations from June 2023 – November 2023. The survey instrument had two parts. Part A dealt with questions related to the variables of the study, while Part B had questions on demographics. Variables “Green recruitment and Selection”, “Green Training”, “Green Reward”, and “Perceived Organizational Support” were measured using three questions each, while “Green Creativity” had six questions, Organizational Citizenship Behavior for the Environment” had five questions, “Environmental Performance” eight questions, “Technological Competence” three questions and “AI Usage” four questions. The researcher-controlled sampling

techniques were deployed to select suitable respondents for data collection. 1000 questionnaires were distributed among the institutions, and only 515 of them were returned, yielding a response rate of around 51.5 percent. Only 357 survey responses were deemed suitable for data analysis. Specific tools like normality check, Levene's test and multi-collinearity test have been employed to test whether the collected data complies with the multivariate data assumptions.

Research Results

The data obtained for this study consisted of 250 male respondents and 107 female respondents. The participants were employees of organizations in large manufacturing/service organizations in Qatar with at least three years of working experience, while some had more than ten years of experience. The present study comprised three exogenous factors (Green Reward, Green Training, and Green Recruitment and Selection), four endogenous factors (Perceived Green Organisational Support, Organisational Citizenship Behaviour for the Environment, Green Creativity and Environmental Performance), and two moderating variables (Technological Competence and Artificial Intelligence Usage). The data was collected from 250 male and 107 female respondents. Confirmatory Factor Analysis (CFA) was used to explore the factorial validity of the measurement model. The Maximum Likelihood Technique was applied to estimate population parameters. The Chi-square value was determined to be 280.676 with 168 degrees of freedom (df) and a significance level (p) of less than 0.005. The proposed model was analysed using Structural Equation Modelling technique to test the hypothesized relationships among the variables. In line with the measurement model, it was observed that all fit indices of the Structural Model were deemed satisfactory. The GFI value exceeded the recommended threshold of 0.9, and the RMSEA value of 0.045 also fell within an acceptable range. The AGFI value was determined to be below 0.9, yet it was deemed acceptable based on past research (Hadjistavropoulos et al., 1999). The path estimates were evaluated using Maximum Likelihood Estimation (MLE). The path estimations are shown in Table 1.

Table 1. Path Estimates

Hypotheses	Relationship	CR	p-value	Result
H1	GRS → POS	2.219	0.026	Supported
H2	GRT → POS	4.558	0.000	Supported
H3	GR → POS	0.868	0.385	Not supported
H5	POS → GC	4.173	0.000	Supported
H6	POS → OCBE	8.664	0.000	Supported
H8	GC → EP	8.020	0.000	Supported
H9	OCBE → EP	3.847	0.000	Supported
H10	POS → EP	2.205	0.027	Supported

Moderation analysis of Technological Competence (TC) was conducted to examine the relationship between Green HRM practices and PGOS and the moderating role of AI Usage (AIU) between Green Creativity (GC) and Environmental Performance (EP). Interaction variable's values were evaluated to study the moderating role of TC and AIU. The effect of the interaction variable was ascertained, and the moderation effect using AMOS v23 independently verified the structural model. The results of the moderation analysis are exhibited in Table 2.

Table 2. Moderation Analysis Result

Hypotheses	Relationship	CR	p-value	Result
H4a	GRS-TC-POS	<1.96	<0.05	Supported
H4b	GR-TC-POS	>1.96	>0.05	Not Supported
H4c	GT-TC-POS	>1.96	>0.05	Not Supported
H7	GC-AIU-EP	<1.96	<0.05	Supported

An independent sample T-test was also employed to study the significant differences between male and female employees' vis-a-vis study variables of Green HRM. Table 3 presents a summary of the results of hypothesis testing.

**Table 3. Summary of Results of Hypotheses Testing
(directional, moderation and demographics)**

Code	Hypothesis	Results
Directional Hypotheses		
H1	<i>Green Recruitment and Selection</i> significantly and positively influence <i>Perceived Green Organisational Support</i>	Supported
H2	<i>Green Training</i> significantly and positively influences <i>Perceived Green Organisational Support</i>	Supported
H3	<i>Green Rewards</i> significantly and positively influence <i>Perceived Green Organisational Support</i>	Not Supported
H5	<i>Perceived Green Organisational Support</i> significantly and positively influences <i>Green Creativity</i>	Supported
H6	<i>Perceived Green Organisational Support</i> significantly and positively influences <i>Organisational Citizenship Behaviour for the Environment</i>	Supported
H8	<i>Green Creativity</i> significantly and positively influences <i>Environmental Performance</i>	Supported
H9	<i>Organisational Citizenship Behaviour for the Environment</i> significantly and positively influences <i>Environmental Performance</i>	Supported
H10	<i>Perceived Green Organisational Support</i> significantly and positively influences <i>Environmental Performance</i>	Supported
Moderation Analyses Hypotheses		
H4a	<i>Technological Competence</i> significantly moderates the relationship between <i>Green Recruitment and Selection</i> and <i>Perceived Green Organisational Support</i>	Supported
H4b	<i>Technological Competence</i> significantly moderates the relationship between <i>Green Rewards</i> and <i>Perceived Green Organisational Support</i>	Not supported
H4c	<i>Technological Competence</i> significantly moderates the relationship between <i>Green Training</i> and <i>Perceived Green Organisational Support</i>	Not supported
H7	<i>Usage of AI</i> significantly moderates the relationship between <i>Green Creativity</i> and <i>Environmental Performance</i>	Supported
Demographics Based Hypotheses (Gender)		

H11	No significant difference exists between male and female managers following <i>Green HRM practices (Reward, Training, and Recruitment and Selection)</i>	Not supported
H12	No significant difference exists between male and female managers in shaping <i>perceived Green Organisational Support towards employees</i>	Not supported
H13	No significant difference exists between male and female managers with respect to the enhancement of the <i>Environmental Performance of the organisation</i>	Not supported
H14	No significant difference exists between male and female managers with respect to <i>Green Creativity</i>	Supported
H15	No significant difference exists between male and female managers with respect to <i>Organisational Citizenship Behaviour for the Environment</i>	Not supported

Discussion

Based on robust empirical evidence, Green Recruitment and Selection Practices are posited to exert a substantial and affirmative influence on PGOS. Jamil et al. (2023) have asserted that adopting environmentally conscious recruitment and selection procedures can communicate an organisation's commitment to sustainability, fostering a perception among employees that environmental concerns are integral to the organisational culture. The hypothesis suggesting a significant and positive impact of Green Training on PGOS is grounded in the well-established link between training programs and organisational support for environmentally sustainable practices (Xie et al., 2020). Training programs impart environmental knowledge and promote a sense of organisational commitment to sustainability, leading employees to perceive a supportive organisational stance toward green objectives (Williams et al., 2012). According to Hameed et al. (2019), when employees perceive strong organisational support for green initiatives, they are more likely to engage in discretionary efforts beyond their formal roles, including creative efforts. The organisational context, characterised by perceived endorsement of environmentally responsible behaviours, is conducive to stimulating an environment that cultivates Green Creativity (Mittal and Dhar, 2016).

Qiu (2012) suggests that a supportive organisational climate, particularly regarding environmental initiatives, can significantly influence employee behaviours, inducing creativity to solve environmental issues. Dai et al. (2018) assert that employees' perceptions of organisational support for green initiatives create a favourable context for demonstrating such behaviours. As reflected in high levels of PGOS, a supportive organisational environment will likely nurture a sense of shared purpose, which motivates employees to engage in OCBE (Zhao and Zhou, 2021). The role of creativity in developing innovative solutions to environmental challenges is supported. It

highlights that creative initiatives focused on environmental concerns can lead to improved overall Environmental Performance (Abualigah et al., 2023).

It was emphasised that OCBE also represents discretionary, pro-environmental behaviours employees exhibit beyond their formal job requirements and contribute to the organisation's overall environmental sustainability (Renwick et al., 2013). Concrete evidence supporting the positive association between OCBE and Environmental Performance was presented, which suggested that organisations benefit from employees' voluntary efforts in activities that promote sustainability (Ojo et al., 2022). Patwary et al. (2023) stress the crucial role of organisational support in promoting environmentally responsible employee behaviors. The synthesis of the evidence by Khalil et al. (2022) underscores this relationship, illustrating that organisations with high perceived support for green practices exhibit superior environmental performance.

Research by Ogbeibu et al. (2021) further supports the notion that technology, including AI, is pivotal in driving innovation within Green HRM. Integrating AI tools can augment the efficiency and effectiveness of green initiatives, enabling organisations to translate creative solutions into tangible environmental outcomes (Ma and Ye, 2022). Moreover, Li et al. (2019) emphasise that using advanced technologies, including AI, can lead to breakthroughs in environmental performance by enabling organisations to develop and implement sophisticated sustainability strategies. When harnessed in tandem with AI capabilities, Green Creativity has the potential to unlock novel and technologically sophisticated approaches to environmental challenges (Nguyen et al., 2022). As organisations increasingly adopt AI in their HR functions, including talent management and training (Shayegan et al., 2023), extending the examination of AI's role to its impact on the relationship between Green Creativity and Environmental Performance, it provides a nuanced understanding of the intersection between technology and environmental sustainability (Pan and Nishant, 2023).

Drawing from the literature on technology in HRM, particularly HR analytics (Cavanagh et al., 2023), the present study shows that technological competence plays a pivotal role in moderating the relationship between Green Recruitment and Selection and PGOS. Organisations utilising technology for environmentally conscious hiring processes will likely enhance employees' perceptions of organisational commitment to green initiatives (Kodua et al., 2022). The literature emphasises the transformative impact of technology on various HR functions, highlighting the potential of Technological Competence to be a significant moderator in the relationship between Green Recruitment efforts and the ensuing perception of organisational commitment to sustainability (Ku, 2014).

While previous researchers, within the broader domain of organisational behaviour, have explored gender differences in leadership styles (Yim et al., 2018), this study focused on the more specific realm of Green Organisational Support. The results align with extensive arguments for gender-inclusive practices in organisational settings (Di Vaio et

al., 2023). Although gender-neutral tendencies in HRM practices are evident in certain contexts (Ajgaonkar, 2022), the present research underlines the need to consider the specificities of environmental support.

Managerial implications

HR practitioners in Qatar should customize Green Recruitment and Selection and Green Training Initiatives to align with cultural values and expectations. Organizations can leverage AI to streamline Green Recruitment and Selection processes, deliver targeted Green Training, and foster Green Creativity, thereby improving Environmental Performance in a technologically progressive environment. HR managers in Qatar should focus on fostering Perceived Green Organizational Support to boost employee engagement in environmental initiatives. Practical HR strategies should encourage employees in Qatar to engage in Organizational Citizenship Behaviour for the Environment (OCBE) beyond their formal roles. Implementing ethical guidelines for AI usage in Green HRM practices in Qatar should be considered as it would ensure responsible and sustainable use of AI technologies.

Conclusion

This study investigates the relationship between Green HRM practices, technological competence, artificial intelligence, and environmental performance in Qatari organizations. A conceptual model was proposed, and data was collected through questionnaire-based survey and analyzed using structural equation modelling technique to test the hypothesized relationships among the variables. The hypotheses development and testing outcomes led to the development of the 'Model linking Green HRM to sustaining business environmental performance'. The findings of the study establish the significant role of Green HRM practices in fostering environmentally sustainable practices within organizations, with technological competence and artificial intelligence moderating the relationships. It was concluded that implementing Green HRM practices enhances the organization's environmental performance, reputation, and adherence to regulatory and industry standards.

To build a competitive advantage, a company's human resources must exhibit unique characteristics that set them apart from other organizations. An environmentally conscious culture should be cultivated by adopting Green HRM practices and a corporate environmental plan. When evaluating candidates, the abilities and competencies relevant to the setting should be considered. The policies implemented by Green HRM can enhance operational efficiency, lower production expenses, foster employee involvement, and consequently assist organizations in minimizing their employees' carbon footprints through practices such as electronic document management, teleconferencing, virtual interviews, recycling, telecommuting, online training, and optimizing office spaces.

This study identifies the need for customised Green HRM strategies tailored to Qatar's specific environmental challenges and cultural context. This research extends the theoretical framework to incorporate technological innovation within a unique cultural setting by exploring AI usage in Qatar's Green HRM context. Further, the present research suggests that HR practitioners in Qatar should tailor Green Recruitment and Selection and Green Training initiatives to align with the cultural values and expectations prevalent in the country. This study advocates for fostering Perceived Green Organizational Support, promoting Green Creativity, incorporating employee feedback, and promoting OCB for the environment within Qatar's diverse workforce to increase Green HRM outcomes. In the future, comparative studies across different cultural contexts within the Gulf region could be conducted to understand how Green HRM practices interact with cultural nuances. Future research could also extend the model by incorporating additional variables that may influence the relationship between Green HRM and Environmental Performance. Factors such as leadership styles, organisational culture, and external environmental regulations could be studied to comprehensively understand the complex dynamics.

References

- Abualigah, A., Koburtay, T., Bourini, I., Badar, K. and Gerged, A. M., (2023). Towards sustainable development in the hospitality sector: Does green human resource management stimulate green creativity? A moderated mediation model. *Business Strategy and the Environment*, 32(6), 3217–3232.
- Agrawal, N., Bansal, R., (2022). Green HRM: a medium of social responsibility and sustainable development. *International Journal of Innovation and Sustainable Development*, 16(2), 172.
- Ajgaonkar, M., (2022). The “d’you” story: gearing the startup during the pandemic. *Emerald Emerging Markets Case Studies*, 12(2), 1–25.
- Cao, Y., Yan, B., Yefan Ten, Y., (2023). Making bad things less bad? Impact of green human resource management on counterproductive work behaviors of grassroots employees: Evidence from the hospitality industry. *Journal of Cleaner Production*, 397, 136610.
- Cavanagh, J., Pariona-Cabrera, P. and Halvorsen, B., (2023). In what ways are analytics and artificial intelligence transforming the healthcare sector? *Asia Pacific Journal of Human Resources*, 61(4), 785–793.
- Danneels, E., (2007). The process of technological competence leveraging. *Strategic Management Journal*, 28(5), 511–533.
- Di Vaio, A., Hassan, R. and Palladino, R., (2023). Blockchain technology and gender equality: A systematic literature review. *International Journal of Information Management*, 68, 102517.
- Dubey, R., Gunasekaran, A., Papadopoulos, T. and Childe, S. J., (2015). Green supply chain management enablers: Mixed methods research. *Sustainable Production and Consumption*,

- 4, 72–88.
- Dumont, J., Shen, J. and Deng, X., (2017). Effects of Green HRM Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values. *Human Resource Management*, 56(4), 613–627.
- Eisenberger, R., Huntington, R., Hutchison, S. and Sowa, D., (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507.
- Eisenberger, R., Rhoades Shanock, L. and Wen, X., (2020). Perceived Organizational Support: Why Caring About Employees Counts. *Annual Review of Organizational Psychology and Organizational Behavior*, 7(1), 101–124.
- Engelbrecht, A., Samuel, O. M., (2019). The effect of transformational leadership on intention to quit through perceived organisational support, organisational justice and trust. *South African Journal of Economic and Management Sciences*, 22(1).
- Evans, R. D., (2017). Digital native or digital immigrant? Using intraorganizational resources to develop technological competence among older employees. *Development and Learning in Organizations*, 31(2), 8–9.
- Faezah, J. N., Yusliza, M. Y., Ramayah, T., Jabbour, C. J. C. and Kot, S., (2024). Green human resource management and employee ecological behaviour: Testing green culture and green satisfaction as parallel mediators in Malaysian higher education. *Corporate Social Responsibility and Environmental Management*.
- Farrukh, M., Ansari, N., Raza, A., Wu, Y. and Wang, H., (2022). Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, 179, 121643.
- Guan, X., Ahmad, N., Sial, M. S., Cherian, J. and Han, H., (2023). CSR and organizational performance: The role of pro-environmental behavior and personal values. *Corporate Social Responsibility and Environmental Management*, 30(2), 677–694.
- Hadjistavropoulos, H. D., Frombach, I. K. and Asmundson, G. J. G., (1999). Exploratory and confirmatory factor analytic investigations of the Illness Attitudes Scale in a nonclinical sample. *Behaviour Research and Therapy*, 37(7), 671–684.
- Haldorai, K., Kim, W. G. and Garcia, R. L. F., (2022). Top management green commitment and green intellectual capital as enablers of hotel environmental performance: the mediating role of green human resource management. *Tourism Management*, 88, 104431
- Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z. and Khan, S. U., (2019). Corporate social responsibility and employee pro-environmental behaviors. *South Asian Journal of Business Studies*, 8(3), 246–265.
- Hariharasudan, A., Kot, S., (2024). Research Trends in Green Human Resource Management: A Comprehensive Review of Bibliometric Data In *Green Human Resource Management: A View from Global South Countries*, (pp. 329-346), Springer.
- Islam, J. U., Nazir, O. and Rahman, Z., (2023). Sustainably engaging employees in food wastage reduction: A conscious capitalism perspective. *Journal of Cleaner Production*, 389(August 2022), 136091.
- Jamil, S., Zaman, S. I., Kayikci, Y. and Khan, S. A., (2023). The Role of Green Recruitment on Organizational Sustainability Performance: A Study within the Context of Green Human

- Resource Management. *Sustainability*, 15(21), 15567.
- Khan, N. U., Irshad, A. R., Ahmad Saufi, R. and Ahmed, A., (2021). Antecedents of organizational citizenship behavior towards the environment in manufacturing organizations: using a structural equation modeling approach. *Business Process Management Journal*, 27(4), 1054–1087.
- Khalil, N., Che Abdullah, S. N., Haron, S. N. and Hamid, M. Y., (2022). A review of green practices and initiatives from stakeholder's perspectives towards sustainable hotel operations and performance impact. *Journal of Facilities Management*.
- Kim, B., Yu, H., Huang, Y. and Lee, S., (2023). Impact of customer incivility on restaurant employee stress spread and turnover: COVID-19 vaccination mandate. *International Journal of Hospitality Management*, 113, 103522
- Kodua, L. T., Xiao, Y., Adjei, N. O., Asante, D., Ofosu, B. O. and Amankona, D., (2022). Barriers to green human resources management (GHRM) implementation in developing countries. Evidence from Ghana. *Journal of Cleaner Production*, 340, 130671.
- Kusi, M., Zhao, F. and Rasoanirina, M. P., (2021). Evidence for Mediating Role of Affective Commitment on Green Human Resource Management and Organisational Citizenship Behaviour. *Asian Academy of Management Journal*, 26(1), 113–141.
- Lamm, E., Tosti-Kharas, J. and King, C. E., (2015). Empowering Employee Sustainability: Perceived Organizational Support Toward the Environment. *Journal of Business Ethics*, 128(1), 207–220.
- Li, J., Bonn, M. A. and Ye, B. H., (2019). Hotel employee's artificial intelligence and robotics awareness and its impact on turnover intention: The moderating roles of perceived organizational support and competitive psychological climate. *Tourism Management*, 73, 172–181.
- Ma, C., Ye, J., (2022). Linking artificial intelligence to service sabotage. *The Service Industries Journal*, 42(13–14), 1054–1074.
- Masood, F., Khan, N. R. and Masood, E., (2023). Artificial intelligence and green human resource management: Navigating the challenges. In *Exploring the Intersection of AI and Human Resources Management* (pp. 140–165). IGI Global.
- Mittal, S., Dhar, R. L., (2016). Effect of green transformational leadership on green creativity: A study of tourist hotels. *Tourism Management*, 57, 118–127.
- Nguyen, D. P., Phan, L. T., Ho, H. X. and Le, A. N. H., (2022). Human resource management practices in higher education: a literature review using co-word analysis. *International Journal of Management in Education*, 16(1), 40.
- Ogbeibu, S., Emelifeonwu, J., Pereira, V., Oseghale, R., Gaskin, J., Sivarajah, U. and Gunasekaran, A., (2024). Demystifying the roles of organisational smart technology, artificial intelligence, robotics and algorithms capability: A strategy for green human resource management and environmental sustainability. *Business Strategy and the Environment*, 33(2), 369–388.
- Ogbeibu, S., Jabbour, C. J. C., Gaskin, J., Senadjki, A. and Hughes, M., (2021). Leveraging STARA competencies and green creativity to boost green organisational innovative evidence: A praxis for sustainable development. *Business Strategy and the Environment*, 30(5), 2421–2440.

- Ogiemwonyi, O., Alam, M. N. and Alotaibi, H. S., (2023). Connecting green practices to pro-environmental behavior through green human capital in the hospitality sector. *Business Strategy and Development*, 6(4), 1053–1071.
- Ojo, A. O., Tan, C. N.-L. and Alias, M., (2022). Linking Green HRM practices to environmental performance through pro-environment behaviour in the information technology sector. *Social Responsibility Journal*, 18(1), 1–18.
- Pan, S. L., Nishant, R., (2023). Artificial intelligence for digital sustainability: An insight into domain-specific research and future directions. *International Journal of Information Management*, 72, 102668.
- Patuelli, A., Carungu, J. and Lattanzi, N., (2022). Drivers and nuances of sustainable development goals: Transcending corporate social responsibility in family firms. *Journal of Cleaner Production*, 373, 133723.
- Patwary, A. K., Mohd Yusof, M. F., Bah Simpong, D., Ab Ghaffar, S. F. and Rahman, M. K., (2023). Examining proactive pro-environmental behaviour through green inclusive leadership and green human resource management: an empirical investigation among Malaysian hotel employees. *Journal of Hospitality and Tourism Insights*, 6(5), 2012–2029.
- Paulet, R., Holland, P. and Morgan, D., (2021). A meta-review of 10 years of green human resource management: is Green HRM headed towards a roadblock or a revitalisation? *Asia Pacific Journal of Human Resources*, 59(2), 159–183.
- Pham, N. T., Tučková, Z. and Chiappetta Jabbour, C. J., (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. *Tourism Management*, 72, 386–399.
- Pham, N. T., Vo Thanh, T., Tučková, Z. and Thuy, V. T. N., (2020). The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis. *International Journal of Hospitality Management*, 88, 102392.
- Piercy, N. F., Cravens, D. W., Lane, N. and Vorhies, D. W., (2006). Driving organizational citizenship behaviors and salesperson in-role behavior performance: The role of management control and perceived organizational support. *Journal of the Academy of Marketing Science*, 34(2), 244–262.
- Qiu, T., (2012). Managing boundary-spanning marketing activities for supply-chain efficiency. *Journal of Marketing Management*, 28(9–10), 1114–1131.
- Renwick, D. W. S., Redman, T., and Maguire, S., (2013). Green Human Resource Management: A Review and Research Agenda. *International Journal of Management Reviews*, 15(1), 1–14.
- Shanock, L. R., Eisenberger, R., Heggestad, E. D., Malone, G., Clark, L., Dunn, A. M., Kirkland, J. and Woznyj, H., (2019). Treating employees well: The value of organizational support theory in human resource management. *The Psychologist-Manager Journal*, 22(3–4), 168–191.
- Shayegan, S., Bazrkar, A. and Yadegari, R., (2023). Realization of Sustainable Organizational Performance Using New Technologies and Green Human Resource Management Practices. *Foresight and STI Governance*, 17(2), 95–105.
- Tuan, L. T., (2020). Environmentally-specific servant leadership and green creativity among tourism employees: dual mediation paths. *Journal of Sustainable Tourism*, 28(1), 86–109.

- Tanveer, M. I., Yusliza, M. Y. and Fawehinmi, O., (2024). Green HRM and hospitality industry: challenges and barriers in adopting environmentally friendly practices. *Journal of Hospitality and Tourism Insights*, 7(1), 121–141.
- Williams, H. M., Rayner, J. and Allinson, C. W., (2012). New public management and organisational commitment in the public sector: testing a mediation model. *The International Journal of Human Resource Management*, 23(13), 2615–2629.
- Xie, X., Zhu, Q. and Qi, G., (2020). How can green training promote employee career growth? *Journal of Cleaner Production*, 259, 120818.
- Yan, J., Hu, W., (2022). Environmentally specific transformational leadership and green product development performance: the role of a green HRM system. *International Journal of Manpower*, 43(3), 639–659.
- Yim, F., Cheung, C. and Baum, T., (2018). Gender and Emotion in Tourism: Do Men and Women Tour Leaders Differ in Their Performance of Emotional Labor? *Journal of China Tourism Research*, 14(4), 405–427.
- Zhang, F., (2020). EMNC technological competence creation: key mechanisms and innovative performance. *International Journal of Emerging Markets*, 16(8), 1840–1865.
- Zhao, H., Zhou, Q., (2021). Socially responsible human resource management and hotel employee organizational citizenship behavior for the environment: A social cognitive perspective. *International Journal of Hospitality Management*, 95, 102749.

BADANIE MODERUJĄCEJ ROLI KOMPETENCJI TECHNOLOGICZNYCH I SZTUCZNEJ INTELIGENCJI W ZIELONYM HRM

Streszczenie: Niniejsze badanie bada związek między praktykami Zielonego Zarządzania Zasobami Ludzkimi (HRM) a wynikami środowiskowymi w organizacjach w Katarze. Nowość badania polega na wprowadzeniu sztucznej inteligencji i kompetencji technologicznych jako moderatorów w realizacji korzyści z wdrożenia Zielonego HRM. Dane zebrano od 357 respondentów z dużych organizacji produkcyjnych/usługowych w Katarze za pomocą ankiety i przeanalizowano przy użyciu techniki modelowania równań strukturalnych w celu przetestowania hipotetycznych zależności między zmiennymi. Wyniki badania potwierdzają znaczącą rolę praktyk Zielonego HRM w promowaniu zrównoważonych środowiskowo praktyk w organizacjach, przy czym kompetencje technologiczne i sztuczna inteligencja moderują te zależności. Stwierdzono, że wdrażanie praktyk Zielonego HRM poprawia wyniki środowiskowe organizacji, reputację i przestrzeganie norm regulacyjnych i branżowych. Niniejsze badanie identyfikuje potrzebę dostosowanych strategii Zielonego HRM dostosowanych do specyficznych wyzwań środowiskowych i kontekstu kulturowego Kataru.

Słowa kluczowe: Zielone HRM, Kompetencje technologiczne, Sztuczna inteligencja, Katar