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Sustainable green human resource management practices from the perspective of employees and managers using artificial intelligence and a green accounting approach

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Abstract

The present study aimed to identify and explain the factors affecting the implementation of sustainable green human resource management practices from the perspective of employees and managers, using artificial intelligence and a green accounting approach. This applicable and qualitative study was designed with a grounded theory approach using MAXQDA software. Data were collected through semi-structured interviews with 15 human resource managers, information technology experts, faculty members, and employees with experience interacting with artificial intelligence systems. Data analysis was conducted in three stages of open, axial, and selective coding. The findings showed that causal factors such as green leadership and manager support, innovation culture and technology acceptance, and the use of artificial intelligence in management processes play a key role in the success of implementing sustainable practices. Also, contextual factors such as organizational resources, technological infrastructure, specialized training, and the use of green accounting indicators provide the necessary context for effective interaction with artificial intelligence systems and the implementation of green processes. Effective strategies include applicable training, process transparency, employee participation in decision-making, and environmental performance monitoring based on green accounting data. The resulting outcomes also include increased productivity, improved efficiency, improved focus on key tasks, and improved environmental performance of the organization. Finally, this research provides a theoretical-practical framework that organizations can use to effectively and efficiently implement sustainable green human resource management practices by integrating artificial intelligence and green accounting.

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Extended Abstract

Introduction

In recent decades, attention to environmental sustainability and social responsibilities of organizations has increased significantly. Organizations cannot maintain their position in the competitive market by focusing only on economic profitability; rather, they should also pay attention to environmental, social, and economic issues to both increase productivity and reduce negative impacts on the environment (Ghaemi et al., 2023).

One area that plays an important role in achieving organizational sustainability goals is green human resource management. This area includes a set of practices and policies that are designed to improve employee environmental behaviors, reduce the environmental impacts of organizational activities, and create a sustainable culture in the workplace (Singh et al., 2020).

Sustainable green human resource management practices are an emerging area in human resource and management studies that, given organizational complexities, require in-depth analysis and qualitative approaches (Alirezaei et al., 2022). These practices include recruiting and selecting employees with environmental attitudes, training and developing green skills, motivating and evaluating performance based on environmental criteria, and creating a sustainable organizational culture (Soleimani et al., 2022).

With the increasing growth of artificial intelligence technologies, including chatbots, virtual assistants, and predictive analytics, the application of this technology in human resource management has become an undeniable reality (Tschang & Almirall, 2021). Artificial intelligence enables the automation of repetitive tasks, analyzes vast data, and facilitates complex decision-making, but at the same time raises concerns such as fear of job replacement, reduced human control, and cultural resistance (Huang & Rust, 2021).

In the meantime, green accounting has gained particular importance as a complementary approach. Green accounting allows organizations to quantitatively assess and monitor the environmental impacts of human resource activities and processes and make strategic decisions based on real data and financial-environmental metrics. The integration of green human resource management, artificial intelligence, and green accounting provides an unprecedented opportunity to improve organizational performance and achieve sustainability goals (Akbari et al., 2023; Jalalniya et al., 2024).

The perspectives of employees and managers, as the main sources of internal information in the organization, can provide a practical and applicable look at the effectiveness of green practices, the capabilities of artificial intelligence, and the role of green accounting in improving performance. The use of qualitative methods, especially the GRADE approach, in this research allows for the extraction of a theory that is consistent with organizational realities and is based on empirical data and direct perspectives of stakeholders. Therefore, the present study answers this fundamental question: What are the sustainable practices of green human resource management from the perspective of employees and managers using artificial intelligence and a green accounting approach?

Theoretical Framework

Technological Infrastructure, Productivity, and Green Accounting in Green Human Resource Practices

Technological infrastructure includes hardware and software equipment, access to smart systems, and digital tools that enable the effective use of new technologies such as artificial intelligence (Wang et al., 2025). Research shows that the existence of appropriate infrastructure is a prerequisite for the successful implementation of sustainable green human

resource management practices and has a direct impact on organizational productivity (Yu et al., 2020).

In organizations with complete and up-to-date technological infrastructure, employees can perform daily tasks and green human resource processes faster and more accurately, errors are reduced, and more time is left to focus on creative and developmental activities (Choung et al., 2022). Without proper infrastructure, even with high employee motivation and readiness, productivity in green practices cannot be fully realized (Xu et al., 2021).

On the other hand, green accounting, by providing quantitative tools and environmental indicators, enables monitoring and evaluation of the performance of green human resources and organizational processes. Efficient technological infrastructure also paves the way for the implementation of green accounting systems and provides accurate and timely data for the organization's strategic decisions (Rostamzadeh Ganji et al., 2025). In this way, technological infrastructure not only increases the productivity of green activities, but also enables the alignment of the organization's productivity and environmental sustainability goals by integrating environmental and financial data in green accounting (dowlatabadi, 2025).

Siddique et al. (2025) conducted a study on “A Bibliometric Study on Sustainable Human Resource Management (1982-2023)”, the research method is library research; a total of 765 publications (between 1982 and 2023) selected from the Scopus database, which were carefully reviewed to obtain insightful results. The study through thematic mapping shows that sustainable human resource management is still an emerging and contemporary concept. Furthermore, the themes of sustainable human resource management are underdeveloped and need conceptual clarity.

Shin et al. (2025) conducted a study on “Artificial Intelligence in Human Resource Management: A Trigger for Organizational Dehumanization and Negative Employee Reactions”; the findings showed that the involvement of AI in HR operations leads to increased organizational dehumanization, thereby provoking negative employee reactions.

Research Method

The present study was applicable in terms of purpose and qualitative in nature with an exploratory approach, and its aim was to identify and explain the factors affecting the implementation of sustainable green human resource management practices using artificial intelligence. The theoretical framework of the research was formed based on the theories of technology acceptance and green human resource management, and to discover the underlying theory, the data-based theory approach with the systematic model of Strauss and Corbin (1998) was used.

Data were collected through semi-structured interviews with 15 human resource managers, information technology experts, faculty members, and employees who had experience interacting with artificial intelligence systems in the workplace. Participants were selected through purposive sampling and by observing the principle of theoretical saturation so that the data were comprehensive and analyzable.

The data were analyzed in three stages of open, axial, and selective coding, leading to the extraction of the main components of the paradigmatic model, including causal factors, background conditions, intervening conditions, strategies, and consequences. The findings showed that causal factors including green leadership, managerial support, innovation culture and technology acceptance, and practical use of artificial intelligence play a pivotal role in implementing green practices.

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Research findings

Research findings showed that the use of digital technologies, especially artificial intelligence, leads to a significant transformation in green human resource management practices and improves employee outcomes. Green leadership, innovative organizational culture, and managerial support as causal factors play a key role in the acceptance and effectiveness of these technologies. Also, technological infrastructure, specialized training, and the use of green accounting indicators as contextual factors provide the basis for the successful implementation of sustainable practices. Ultimately, the implementation of these practices leads to increased organizational productivity, improved employee performance, and improved environmental performance of the organization.

Discussion and Conclusion

The present study aimed to explain how digital technologies, especially artificial intelligence, have affected the evolution of human resource management practices and their consequences on employee outcomes, focusing on the green human resource management and green accounting approaches. By adopting a qualitative approach and utilizing data-driven theory, an attempt was made to analyze the phenomenon under study not only from the perspective of predefined variables, but also based on the experience and perceptions of managers and employees in the real context of organizations.

Green leadership and managers' support for environmental, innovation, and technology goals, as key factors, provide the basis for the acceptance and application of smart technologies. The findings show that when managers actively support green practices and artificial intelligence systems, employees are more motivated to participate and implement these processes, which is in line with the studies of Sidra et al. (2022) and Singh et al. (2020).

The culture of innovation and technology adoption in the organization, as the second causal factor, plays an important role in facilitating the implementation of green practices. Findings show that organizations that emphasize learning, technology adoption, and open interaction with new ideas implement green human resource processes with greater accuracy and speed (Fazalali & Moazzami, 2022). This indicates that organizational culture can have a significant reinforcing effect on employee interaction with AI and the adoption of green practices.

The practical use of AI has clear advantages: improving decision-making, increasing speed and accuracy, and reducing human errors. Its integration with green accounting allows for continuous monitoring of performance and the achievement of productivity and sustainability goals at the same time (Akbari et al., 2023; Jalalniya & Hamedi, 2024). This emphasizes that technology is not only a facilitating tool, but also helps to achieve environmental goals and organizational productivity.

Contextual factors including organizational culture, available resources, and training play a reinforcing role. A supportive organizational culture and adequate resources, including technology infrastructure and skilled human resources, enable the effective use of AI (Yu et al., 2020; Rostamzadeh Ganji & Jayervandi, 2025). Training and empowering employees increases their skills and confidence, enabling better implementation of green practices. This finding is consistent with studies by Chen & Wen (2021) and Choung et al. (2022), which show that training and transparency play a critical role in technology adoption.

Systems complexity and environmental pressure were identified as intervening factors. Technological complexity can slow down the adoption and use of AI, and organizational or competitive environmental pressure also affects the implementation of practices (Wang et al., 2025; Xu et al., 2021).

Ultimately, the outcomes of successfully implementing sustainable green HR practices using AI include increased productivity, reduced errors, improved employee focus on important tasks, and positive environmental impacts. The intelligent use of technology and attention to human factors not only improves organizational performance, but also aligns with the achievement of sustainable development goals (Sadeghi, 2024; Shin et al., 2025).