

THE ROLE OF GREEN HUMAN RESOURCE MANAGEMEN IN DIGITAL-BASED ORGANIZATION : A SYSTEMATIC REVIEW FROM 2019 – 2023

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Abstract

The implementation of Green Human Resource Management (GHRM) practices reflects the awareness of organization and responsibility towards the environment. The aim of this paper is to analyze the relationship between GHRM and digital-based organizations. This research relies on systematic review techniques to analyze scientific production in this field. A total of 33 GHRM articles were extracted using three main levels of analysis. This study reveals that: (i) GHRM management practices can be summarized into four main categories (employees, marketing systems and organizational social responsibility, leadership and management, and organizational behavior and culture); (ii) the importance of GHRM management does not only include environmental objectives; and (iii) there are significant barriers that must be considered when implementing GHRM practices in digital-based organizations.

Keywords: Green Human Resource Management; Green organization; Green digital; Green technology; SLR;

A. Introduction

The evolution of the level of environmental awareness and efforts towards sustainability have reached new heights ¹. Academics and industry practitioners over the last few decades have paid attention to the idea of being environmentally friendly ². In academic circles, research continues to expand from the usual deliberations regarding environmentally friendly business to “green” functional areas within an organization that include environmentally friendly purchasing ³, green supply chain management ⁴, green finance ⁵, green management ⁶, green information technologies ⁷, and green human resource management ⁸.

¹ Shaha Faisal, “Green Human Resource Management—A Synthesis,” *Sustainability* 15, no. 3 (January 2023): 2259, <https://doi.org/10.3390/su15032259>.

² Jing Yi Yong et al., “Nexus between Green Intellectual Capital and Green Human Resource Management,” *Journal of Cleaner Production* 215 (2019): 364–74, <https://doi.org/10.1016/j.jclepro.2018.12.306>.

³ Arsalan Najmi et al., “The Influence of Greening the Suppliers on Environmental and Economic Performance,” *International Journal of Business Performance and Supply Chain Modelling* 11, no. 1 (2020): 69–90, <https://doi.org/10.1504/IJBPSM.2020.108888>.

⁴ Ming Lang Tseng et al., “A Literature Review on Green Supply Chain Management: Trends and Future Challenges,” *Resources, Conservation and Recycling* 141, no. June 2018 (2019): 145–62, <https://doi.org/10.1016/j.resconrec.2018.10.009>.

Green Human Resource Management (GHRM) is considered one of the most important indicators of the implementation of environmentally friendly trends by an organization. It is an important part of the overall greening process, as it affects all parts of the organization, such as supply chain, production, strategy, values, culture, employee behavior, etc.⁹. GHRM is also one of the main directions adopted by digital-based organizations to mitigate the negative impacts on the environment that they may have, because GHRM facilitates the implementation of environmentally friendly policies and strategies through its various practices that influence the overall environmental performance of the organization¹⁰¹¹. GHRM has multidimensional results, including green job design, green recruitment and selection, green training and development, green performance management, green compensation management, green health and safety, and green labor relations¹². And GHRM has a significant positive impact on organizational commitment, and provides recommendations for policy makers, managers and top management to develop human resource policies to bring a green culture to the workplace.¹³, also GHRM improves service quality¹⁴ and consumer satisfaction¹⁵.

The relationship between GHRM and the era of digitalization in organizations has a positive impact on the way organizations view, manage and

⁵ Muhammad Saeed Meo and Mohd Zaini Abd Karim, "The Role of Green Finance in Reducing CO2 Emissions: An Empirical Analysis," *Borsa Istanbul Review* 22, no. 1 (2022): 169–78, <https://doi.org/10.1016/j.bir.2021.03.002>.

⁶ Rida Shibli et al., "Mediating Role of Entrepreneurial Marketing Between Green Marketing and Green Management in Predicting Sustainable Performance in Malaysia's Organic Agriculture Sector," *AgBioForum* 23, no. 2 (2021): 37–49.

⁷ Wenjing Li et al., "Unlocking Employees' Green Creativity: The Effects of Green Transformational Leadership, Green Intrinsic, and Extrinsic Motivation," *Journal of Cleaner Production* 255 (2020): 120229, <https://doi.org/10.1016/j.jclepro.2020.120229>.

⁸ Sharifa K. Mousa and Mohammed Othman, "The Impact of Green Human Resource Management Practices on Sustainable Performance in Healthcare Organisations: A Conceptual Framework," *Journal of Cleaner Production* 243 (2020), <https://doi.org/10.1016/j.jclepro.2019.118595>.

⁹ Huirong Xie and Teck Chai Lau, "Evidence-Based Green Human Resource Management: A Systematic Literature Review," *Sustainability (Switzerland)* 15, no. 14 (2023), <https://doi.org/10.3390/su151410941>.

¹⁰ (Renwick et al., 2013;

¹¹ Alreahi et al., 2023)

¹² Muzammel Shah, "Green Human Resource Management: Development of a Valid Measurement Scale," *Business Strategy and the Environment* 28, no. 5 (2019): 771–85, <https://doi.org/10.1002/bse.2279>.

¹³ Muhammad Shoaib et al., "The Role of GHRM Practices towards Organizational Commitment: A Mediation Analysis of Green Human Capital," *Cogent Business and Management* 8, no. 1 (2021), <https://doi.org/10.1080/23311975.2020.1870798>.

¹⁴ Asep Saifudin et al., "Hospital Digitalization in the Era of Industry 4.0 Based on Ghrm and Service Quality," *International Journal of Data and Network Science* 5, no. 2 (2021): 107–14, <https://doi.org/10.5267/j.ijdns.2021.2.004>.

¹⁵ Muhammad Farrukh Moin et al., "Green HRM and Psychological Safety: How Transformational Leadership Drives Follower's Job Satisfaction," *Current Issues in Tourism* 24, no. 16 (2021): 2269–77, <https://doi.org/10.1080/13683500.2020.1829569>.

support their human resources ¹⁶. Digital Technology and GHRM are multidimensional structures that originate from an organization's innovative capabilities and are realized through the successful integration of digital infrastructure, digital architecture, and personal capabilities and creativity ¹⁷. So that digital skills can mediate GHRM, green supply chain management, green lifestyle and their impact on business sustainability ¹⁸.

(GHRM) in digital-based organizations makes a substantial contribution to our understanding of how sustainability principles can be effectively integrated in human resource management in a digital context, including (1) Being able to highlight recruitment and selection practices employees focused on sustainability values, providing deep insight into how digital organizations can attract individuals who are committed to social and environmental responsibility. (2) Able to explore the impact of green technology-oriented training and skills development on increasing employee capabilities in the context of digital-based organizations, and (3) Able to explore the impact of work flexibility policies and the adoption of virtual conference technology on employee productivity and satisfaction by minimizing environmental impacts through reduced travel and energy consumption.

B. Research Methods

In this systematic review, we started with data collection using the PRISMA model. The PRISMA model is considered one of the most effective ways to collect data to create a coherent review of the scientific literature ¹⁹. We then conducted analysis at multiple levels to present a comprehensive systematic literature review and refined the findings by presenting visualizations, including bibliographic forms and images ²⁰.

C. Results and Discussion

Figure 1 shows the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) diagram for the data collection process ²¹. It starts with data extraction from Scopus, WoS, PubMed, and Google Scholar and ends with the final data set after several filtering and refinement steps. A total of 33 documents were analyzed in this research.

¹⁶ Veronika Belousova et al., "Coping with Greenhouse Gas Emissions: Insights from Digital Business Services," *Energies* 15, no. 8 (April 2022): 2745, <https://doi.org/10.3390/en15082745>.

¹⁷ (Ma et al., 2023)

¹⁸ (Setyaningrum & Muafi, 2023)

¹⁹ Alreahi et al., "Green Human Resources Management in the Hotel Industry: A Systematic Review."

²⁰ Moaaz Kabil et al., "Blue Economy and Coastal Tourism: A Comprehensive Visualization Bibliometric Analysis," *Sustainability (Switzerland)* 13, no. 7 (2021), <https://doi.org/10.3390/su13073650>.

²¹ Rahaf Alayan, Brian Rotich, and Zoltán Lakner, "A Comprehensive Framework for Forest Restoration after Forest Fires in Theory and Practice: A Systematic Review," *Forests* 13, no. 9 (2022): 1–19, <https://doi.org/10.3390/f13091354>.

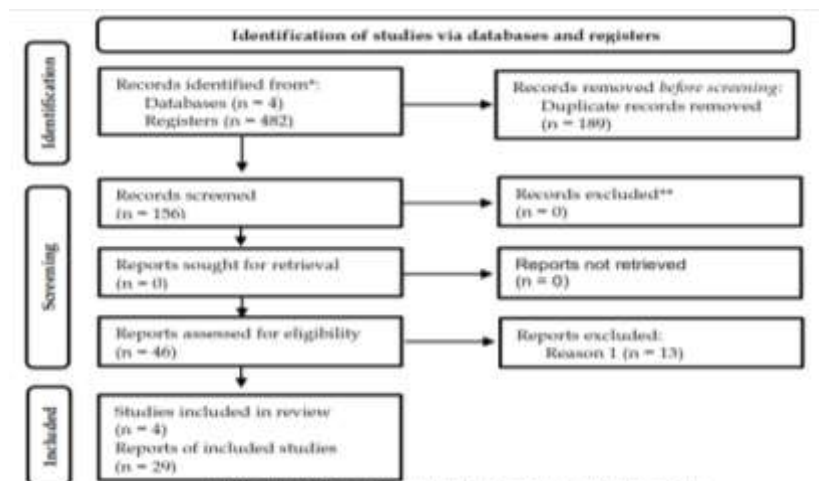


Figure 1. PRISMA diagram for the literature selection process.

* Web of science (n = 26), Scopus (n = 200), PubMed (n = 57), Google Scholar (n = 199).

** (n = 482) records were excluded by a human.

The Basic Information Analysis Level

The basic information analysis level introduces general information about the selected record, such as annual scientific production, source analysis, article type analysis, and subject area analysis.

Scientific Production Analysis

The number of academic publications over the past five years shows how GHRM practices in digital-based organizations have developed and attracted attention over time. This reflects the importance of GHRM in digital-based organizations (see Figure 2). Based on Figure 2, the general trend of GHRM practices in digital-based organizations has increased in the last four years. The number of publications (NP) discussing the use of GHRM in digital-based organizations increased significantly from 2021 (NP = 6) to 2022 (NP = 8). In addition, the number of publications (NP) reached its peak in 2023, with 14 articles published.

Source Analysis

In general, a total of selected articles were published in 23 different journals/sources, reflecting the linkage of this scientific trend with various fields and specialties, which are presented in Table 3, we can see that only one journal published more than five articles: Sustainability, with 6 article. The remaining journals only published between two and two articles each.

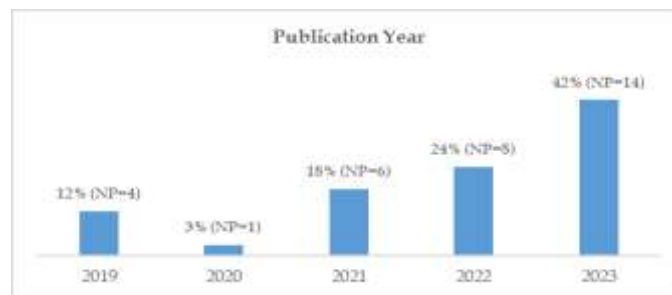


Figure 2. Evolution of the number of publications related to the use of GHRM in digital-based organizations.

Note: the numbers represented in this bar chart are based on selected articles (33 articles), not all records were extracted.

Table 3. Journals that publish GHRM in digital-based organizations

Source/Journal	NP
Think India Journal	1
Sustainability	6
Research Policy	2
PalArch's Journal of Archaeology of Egypt/Egyptology	1
Journal of Systems Science and Information	1
Journal of Open Innovation: Technology, Market, and Complexity	2
Journal of Management Development	1
Journal of Innovation & Knowledge	1
Journal of Industrial Engineering and Management	1
Journal of Cleaner Production	1
Journal of Business Strategy Finance and Management	1
Journal of Asian Development Studies	1
International Journal of Sustainable Development and Planning	1
International Journal of Social Science & Entrepreneurship	1
International Journal of Mechanical Engineering	1
International Journal of Economics and Business Issues	1
International Journal of Data and Network Science	2
International Conference on Economics, Business, Entrepreneurship, and Finance (ICEBEF)	1
IIUC Business Review	1
Frontiers in Psychology	1
Energies	1
Corporate Social Responsibility and Environmental Management	1

Record-Type Analys

Based on Figure 3, almost all of the articles collected are original articles that focus on case studies (N = 28), while there are only four articles that focus on theoretical aspects of GHRM's relationship with digital-based organizations. This reflects the importance of conceptualizing GHRM practices with respect to the spatial location of the various case studies in published articles (e.g., city, village, region, country, etc.). In addition, the fact that 90% of the articles published on GHRM and the hospitality industry are original articles, reflects the importance of

our research as review articles with the aim of covering the lack of theoretical literature in this field of academic pursuits.

Field-of-Study Analysis

Figure 4 shows that the literature on GHRM in digital-based organizations is related to various fields of science (Nawangsari & Sutawidjaya, 2019). For example, GHRM in digital-based organizations has been discussed not only from the point of view of management and administration but also in relation to various fields, such as marketing development, economics, business, innovation, environmental science, psychology and public administration. These findings highlight different academic perspectives on how GHRM contributes to digitally based organizations, providing a glimpse into the future direction of scientific research in this area.



Figure 3. Published articles based on article types

The Basic Content Analysis Level

The results of the basic content analysis present more detailed information about the selected articles, such as the level of analysis of the research sample, country analysis, and keyword analysis.

Study Sample Level/Type Analysis

The aim of this analysis is to answer the following question: what main groups within digital-based organizations are the focus of the GHRM literature? The findings prove that GHRM practices in digital-based organizations are related to all parties in the organization. As many as 17% of articles discuss GHRM in various digital-based organizational sectors (i.e. Employee, Manager, Owner, HRM). The largest proportion of articles discussed the relationship GHRM with the employess of organization, with 34% of articles published in this academic area, followed by HRM, Manager, Owner, respectively at 21%, 17%, and 10% of articles published. Figure 4 illustrates the percentage of scientific literature that focuses on various groups in digital-based organizations with respect to GHRM.

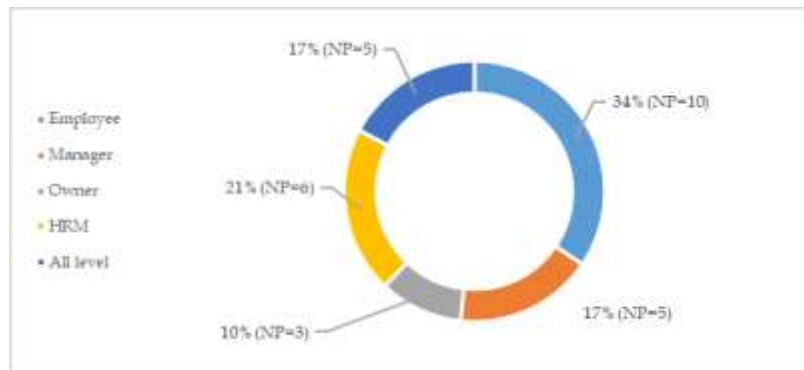


Figure 4. Published articles based on study sample level/type.

Country Case Study Analysis

This analysis is focused on investigating the location (Kabil et al., 2022) of various case studies used in the published literature on GHRM in digital-based organizations. This is a very important analysis technique, especially for future researchers in this scientific field, because they can explore what has been done and how they can use previous findings and apply them in different cities, regions, countries or areas. An interesting outcome of this analysis is that the list of top case studies does not include any European countries, except Spain. Additionally, Asian countries are at the forefront, with case studies on the subject of GHRM in digital-based organizations in locations such as Indonesia (7%), Malaysia (7%), India (10%), China (10%), Pakistan (14%), and Bangladesh (17%). Figure 6 presents the distribution of articles published about GHRM in digital-based organizations based on the location of the various case studies.

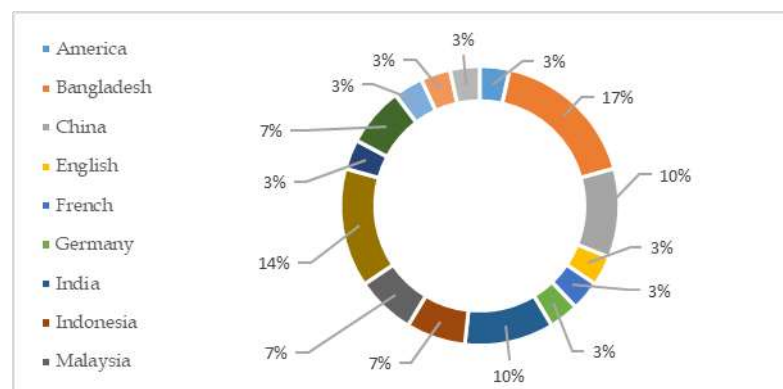


Figure 5. Published articles by case study country.

Keywords Analysis

Keyword analysis is considered the backbone of any literature review study, especially systematic reviews and meta-analyses²². Various visualization techniques can be used for keyword analysis, such as keyword frequency, word

²² Kabil et al., "Blue Economy and Coastal Tourism: A Comprehensive Visualization Bibliometric Analysis."

clouds, and centrality and density (keyword thematic maps). In this study, we present one such visualization technique, namely word clouds.

Figure 6 presents a word cloud map illustrating the most frequently collected keywords in the literature discussing GHRM in digital-based organizations; larger keywords appear most frequently and vice versa. The keywords most frequently visited are GHRM, digital transformation, green innovation, sustainability, digital skills, employee green behavior, green manufacturing, sustainable development goals, and environmental sustainability. All of these words are directly related to GHRMp in digital-based organizations and their impact, for example words that reflect the importance/impact of implementing GHRM in digital-based organizations, such as digital transformation, green innovation, sustainability, digital skills, employee green behavior, green manufacture, sustainable development goals, and environmental sustainability.

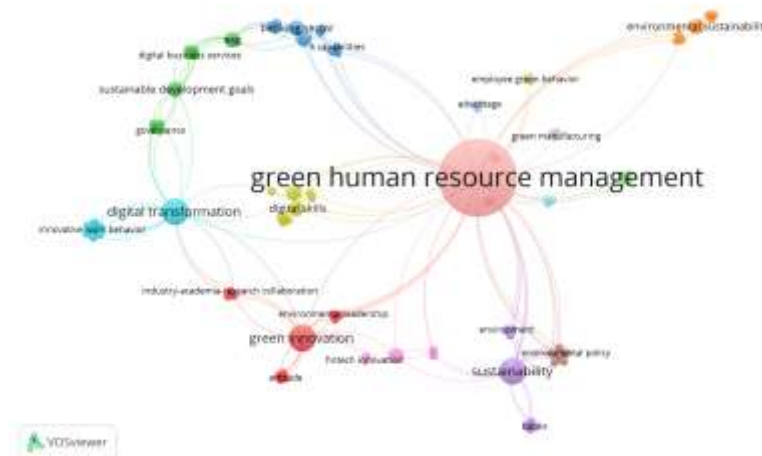


Figure 6. Keyword cloud.

The Deep Content Analysis Level

The in-depth content analysis level focuses on categorizing the relationship between GHRMP and digital-based organizations into four main categories (employees, marketing systems, organizational leadership, and organizational behavior).

These levels and units of analysis are considered the core findings of this research, as they identify the relationship between Green Human Resource Management practices (GHRMp) and digital-based organizations from a collection of published scientific articles. Based on in-depth content analysis of the literature, including text mining, the relationship between GHRMp and digital-based organizations can be classified into four main themes, as follows: Relationship between GHRMp and employees (creativity, motivation, environmentally friendly behavior, performance, etc.); The relationship between GHRMp and marketing systems (MS) and corporate social responsibility (CSR); The relationship between GHRMp and organizational leadership and management (LM); The relationship between GHRMp and organizational behavior and culture (OBC).

Table 4 shows an analysis of 33 articles collected regarding the relationship between GHRM and four subsectors of digital-based organizations, namely employees (E), marketing systems (MS) and corporate social responsibility (CSR), leadership and management (LM) and behavior and organizational culture (OBC).

Table 4. Relationship between GHRM and digital-based organizations in the collected literature.

Author & Year	LM*	OBC*	E*	MS&CSR*	GHRMp**
²³	x	√	√	√	GHRMp
²⁴	x	√	√	x	GHRMp
²⁵	√	√	x	x	GCE
²⁶	√	√	√	√	GHRMp
²⁷	x	√	√	√	GHRMp
²⁸	x	√	√	√	GHRMp
²⁹	x	√	√	√	GHRMp
³⁰	√	√	√	√	GHRMp
³¹	x	√	√	√	GHRMp
³²	√	√	√	√	GHRMp
³³	√	x	√	√	GHRMp
³⁴	√	√	√	X	GHRMp
³⁵	√	x	x	X	GI

²³ K L Janmitha and Anasuya Rai, "Green Work-Life Balance and Green HRM in 21 St Century : An Emerging Pe Rpective .," *Think India Journal*, no. 14 (2019): 1506–19.

²⁴ Richa Chaudhary, "Green Human Resource Management and Job Pursuit Intention: Examining the Underlying Processes," *Corporate Social Responsibility and Environmental Management* 26, no. 4 (July 2019): 929–37, <https://doi.org/10.1002/csr.1732>.

²⁵ Chetan Sharma, Sumit Sakhuja, and Shivinder Nijjer, "Recent Trends of Green Human Resource Management: Text Mining and Network Analysis," *Environmental Science and Pollution Research* 29, no. 56 (2022): 84916–35, <https://doi.org/10.1007/s11356-022-21471-9>.

²⁶ Sharma, Sakhuja, and Nijjer.

²⁷ (Greeshma & Reddy, 2022)

²⁸ Xiangyu Zhu and Yang Yang, "Big Data Analytics for Improving Financial Performance and Sustainability," *Journal of Systems Science and Information* 9, no. 2 (May 2021): 175–91, <https://doi.org/10.21078/JSSI-2021-175-17>.

²⁹ Jing Yi Yong et al., "Exploratory Cases on the Interplay between Green Human Resource Management and Advanced Green Manufacturing in Light of the Ability-Motivation-Opportunity Theory," *Journal of Management Development* 39, no. 1 (2020): 31–49, <https://doi.org/10.1108/JMD-12-2018-0355>.

³⁰ (Ma et al., 2023)

³¹ (Setyaningrum & Muafi, 2023)

³² (Hameed et al., 2022)

³³ Antonius Setyadi et al., "Examining the Effect of Green Logistics and Green Human Resource Management on Sustainable Development Organizations: The Mediating Role of Sustainable Production," *Sustainability (Switzerland)* 15, no. 13 (2023), <https://doi.org/10.3390/su151310667>.

³⁴ Yujing Zhang et al., "How Green Human Resource Management Can Promote Green Employee Behavior in China: A Technology Acceptance Model Perspective," *Sustainability* 11, no. 19 (September 2019): 5408, <https://doi.org/10.3390/su11195408>.

36	√	√	√	X	GHRMp
37	√	√	√	X	GHRMp
38	√	√	√	√	GHRMp
39	√	√	√	√	GHRMp
40	x	√	x	√	ESG
41	√	√	√	√	GD, GT
42	√	√	√	x	GHRMp
43	√	√	√	√	GJ
44	√	√	√	√	GI, GTL
45	√	√	√	x	GHRMp
46	x	x	x	√	GHG
47	√	√	√	x	GITEM
48	√	√	√	√	GHRMp

³⁵ Daquan Gao, Songsong Li, and Chang Guo, “Top Management Team Career Experience Heterogeneity, Digital Transformation, and the Corporate Green Innovation: A Moderated Mediation Analysis,” *Frontiers in Psychology* 14, no. October (2023): 1–18, <https://doi.org/10.3389/fpsyg.2023.1276812>.

³⁶ Asep Saifudin et al., “Hospital Digitalization in the Era of Industry 4.0 Based on GHRM and Service Quality,” *International Journal of Data and Network Science* 5, no. 2 (2021): 107–14, <https://doi.org/10.5267/j.ijdns.2021.2.004>.

³⁷ Nishath Anjum et al., “An Insight into Green HRM Practices for Sustainable Workplace in the Banking Sector of Bangladesh: The Role of Electronic HRM,” *Journal of Business Strategy Finance and Management* 04, no. 01 (2022): 66–80, <https://doi.org/10.12944/jbsfm.04.01.06>.

³⁸ Imran Ahmad Shakir and Tariq Iqbal Khan, “Green Human Resource Management Practices: A Study on The Banking Sector of Pakistan,” *International Journal of Economics and Business Issues* 2, no. 2 (2023): 22–32, <https://doi.org/10.59092/ijebi.vol2.iss2.33>.

³⁹ Samreen Fazal and Muhammad Shaiq, “Green Human Resource Management Practices in Banking Sector of Pakistan: An Exploratory Study,” *International Journal of Social Science & Entrepreneurship* 3, no. 2 (2023): 251–74, <https://doi.org/10.58661/ijssse.v3i2.147>.

⁴⁰ Celia Rangel-Pérez, Manuel Fernández, and Belén López, “Study on the Strategic Influence of Corporate Social Responsibility in the World’s Most Digitised Banks,” *Journal of Open Innovation: Technology, Market, and Complexity* 9, no. 1 (2023): 100029, <https://doi.org/10.1016/j.joitmc.2023.100029>.

⁴¹ (Santoalha et al., 2021)

⁴² (Nawang Sari & Sutawidjaya, 2019)

⁴³ Esther González Arnedo, Jesús Alberto Valero-Matas, and Antonio Sánchez-Bayón, “Spanish Tourist Sector Sustainability: Recovery Plan, Green Jobs and Wellbeing Opportunity,” *Sustainability (Switzerland)* 13, no. 20 (2021): 1–17, <https://doi.org/10.3390/su132011447>.

⁴⁴ Huawei Tian et al., “Does Fintech Innovation and Green Transformational Leadership Improve Green Innovation and Corporate Environmental Performance? A Hybrid SEM–ANN Approach,” *Journal of Innovation and Knowledge* 8, no. 3 (2023), <https://doi.org/10.1016/j.jik.2023.100396>.

⁴⁵ Abu Nayeem Mohammad Hasan, “Revisiting the Impact of Green Human Resource Management Practices on the Sustainable Environmental Performance: An Emerging Economy Perspective,” *IIUC Business Review* 7 (2022): 123–46, <https://doi.org/10.3329/iiucbr.v8i1.62178>.

⁴⁶ Belousova et al., “Coping with Greenhouse Gas Emissions: Insights from Digital Business Services.”

⁴⁷ Muafi, Joko Sulistio, and Muchamad Sugarindra, “The Effect of Green IT Empowerment and Online Training on Technology Innovation Performance: The Moderating Role of Green Life Style,” *International Journal of Sustainable Development and Planning* 17, no. 5 (August 2022): 1499–1509, <https://doi.org/10.18280/ijstdp.170514>.

⁴⁸ Faisal, “Green Human Resource Management—A Synthesis.”

49	x	√	√	x	GHRMp
50	√	√	√	x	GHRMp
51	√	√	√	√	GHRMp
52	x	√	x	√	GHRMp
53	√	√	√	√	GRS, GPC, GTID
54	√	x	√	√	GHRMp
55	x	√	√	√	GI

*E: Employees; *MS: Marketing systems; *CSR: Corporate Social Responsibility; *LM: Leadership and Management; *OBC: Organizational Behavior and Culture; **GHRMp: Green Human Resource Management; **GCE: green customer engagement; **GI: green Innovation; **ESG: Environmental, Social & Governance; **GD: Green Diversification; **GT: green technologies; **GJ: Green Jobs; **GTL: green transformational leadership; **GHG: Greenhouse Gas; **GIT: Green IT empowerment; **GRS: Green Recruitment and Selection; **GPC: Green Performance and Compensation; **GTID: Green Training, Involvement, development;

Based on the results of a systematic literature review regarding GHRM practices in digital-based organizations, GRHM practices have an impact on the following four sub-sectors of digital-based organizations:

Theme 1: GHRM Practices and Employees

Green Human Resource Management (GHRM) is a human resource management approach that focuses on environmentally oriented practices in an

⁴⁹ Enamul Islam, Valiappan Raju, and Abul Kalam Azad, "Factors Influencing Managers' Proclivity for Using Green Human Resource Management Practices To Achieve," *PalArch's Journal of Archaeology of Egypt/Egyptology* 18, no. 7 (2021): 532–49.

⁵⁰ Sirous Bahmani, Panteha Farmanesh, and Amir Hossein Khademolomoom, "Effects of Green Human Resource Management on Innovation Performance through Green Innovation: Evidence from Northern Cyprus on Small Island Universities," *Sustainability (Switzerland)* 15, no. 5 (2023), <https://doi.org/10.3390/su15054158>.

⁵¹ Saqib Yaqoob Malik et al., "Corporate Social Responsibility, Green Human Resources Management, and Sustainable Performance: Is Organizational Citizenship Behavior towards Environment the Missing Link?," *Sustainability (Switzerland)* 13, no. 3 (2021): 1–24, <https://doi.org/10.3390/su13031044>.

⁵² Agus Purwanto et al., "Investigating the Role Digital Transformation and Human Resource Management on the Performance of the Universities," *International Journal of Data and Network Science* 7, no. 4 (2023): 2013–28, <https://doi.org/10.5267/j.ijdns.2023.6.011>.

⁵³ Samuel Ogbeibu et al., "Technological Turbulence and Greening of Team Creativity, Product Innovation, and Human Resource Management: Implications for Sustainability," *Journal of Cleaner Production* 244 (January 2020): 118703, <https://doi.org/10.1016/j.jclepro.2019.118703>.

⁵⁴ Caishuang Hu, Miya Liang, and Xiaoyi Wang, "Achieving Green Tourism through Environmental Perspectives of Green Digital Technologies, Green Innovation, and Green HR Practices," *Environmental Science and Pollution Research* 30, no. 29 (May 2023): 73321–34, <https://doi.org/10.1007/s11356-023-27254-0>.

⁵⁵ Mohammad Rashed Hasan Polas et al., "Rural Entrepreneurs Behaviors towards Green Innovation: Empirical Evidence from Bangladesh," *Journal of Open Innovation: Technology, Market, and Complexity* 9, no. 1 (2023): 100020, <https://doi.org/10.1016/j.joitmc.2023.100020>.

organizational context ⁵⁶. The relationship between GHRM practices and employees in digital-based organizations involves implementing strategies that support sustainability and environmental awareness amidst the development of digital technology ⁵⁷. GHRM practices may include hiring policies that prioritize environmentally conscious individuals, training to increase ecological literacy, and incentives that encourage pro-environmental behavior ⁵⁸.

Implementation of GHRM practices can increase employee motivation and engagement, as environmental awareness is often linked to employee values ⁵⁹. In the era of digitalization, where information and communication technology plays a key role ⁶⁰. Digitalization has diverse implications across various functions and locations in the business model, affecting the overall business environment and the dynamics of inter-functional coordination ⁶¹. So that the integration of GHRM with digital innovation can create an environmentally friendly company culture (e.g. green recruitment and selection, green training and development, and green reward and compensation) mediated by digitalization ⁶².

Theme 2: GHRM Practices, Marketing Systems and Corporate Social Responsibility

The integration of GHRM Practices with Marketing Systems (MS) is strategic because it creates a consistent sustainability narrative throughout the company's value chain ⁶³. Through digital platforms, organizations can leverage technology to communicate sustainable practices to consumers in a transparent and engaging way ⁶⁴. The application of analytics and big data technology in Marketing Systems can help understand consumer preferences regarding sustainability, providing opportunities for organizations to develop more effective and relevant marketing campaigns ⁶⁵.

Meanwhile, CSR is a strategic foundation that supports the integration of GHRM Practices and MS ⁶⁶ dan ⁶⁷. Digital-based organizations can expand their sustainability impact through CSR initiatives connected to GHRM Practices, such as local community development programs or environmentally relevant projects

⁵⁶ Janmitha and Rai, "Green Work-Life Balance and Green HRM in 21 St Century : An Emerging Perspective."

⁵⁷ Fazal and Muhammad Shaiq, "Green Human Resource Management Practices in Banking Sector of Pakistan: An Exploratory Study."

⁵⁸ (Hameed et al., 2022)

⁵⁹ Yong et al., "Exploratory Cases on the Interplay between Green Human Resource Management and Advanced Green Manufacturing in Light of the Ability-Motivation-Opportunity Theory."

⁶⁰ (Santoalha et al., 2021)

⁶¹ (Ma et al., 2023)

⁶² (Hameed et al., 2022)

⁶³ Gao, Li, and Guo, "Top Management Team Career Experience Heterogeneity, Digital Transformation, and the Corporate Green Innovation: A Moderated Mediation Analysis."

⁶⁴ Belousova et al., "Coping with Greenhouse Gas Emissions: Insights from Digital Business Services."

⁶⁵ (Zhu & Yang, 2021)

⁶⁶ Rangel-Pérez, Fernández, and López, "Study on the Strategic Influence of Corporate Social Responsibility in the World's Most Digitised Banks."

⁶⁷ (Zhu & Yang, 2021)

⁶⁸. By incorporating CSR into MS, organizations can build a corporate image that is not only responsive to sustainability but also builds customer engagement and loyalty ⁶⁹.

Theme 3: GHRM Practictes of Leadership and Management

Integration of GHRM Practices with Leadership and Management (LM) occurs through systematic steps. First, leaders need to understand and advocate the importance of GHRM Practices in achieving the organization's sustainable goals ⁷⁰. By providing full support to sustainability initiatives, leaders create a solid foundation for the implementation of GHRM Practices ⁷¹. Second, leaders and managers need to acquire skills and in-depth knowledge of GHRM concepts and practices ⁷². With good understanding, leaders can provide clear direction and support ongoing competency development among employees ⁷³. Effective leadership in the context of GHRM Practices includes the ability to inspire and motivate employees towards sustainability goals ⁷⁴; ⁷⁵. Furthermore, the integration of GHRM Practices and LM can be strengthened through the adoption of digital technology. Utilizing digital platforms to convey information, monitor sustainability performance, and coordinate sustainable initiatives can maximize the implementation of GHRM Practices throughout the organization (Wehrle et al., 2020; Alsuraihi et al., 2020; Lee, Azmi, Hanaysha, Alzoubi & Alshurideh, 2022; ⁷⁶.

Theme 4: GHRM Practices of Organizational Behavior and Culture

First, GHRM Practices influence Organizational Behavior by leading to changes in employee behavior ⁷⁷. Recruitment and selection practices that focus on sustainable values ensure that individuals joining the organization have an awareness of and commitment to sustainability (Jackson et al., 2011; ⁷⁸. Thus, individual behavior in digital-based organizations becomes more aligned with sustainability principles, creating synergy between organizational goals and individual values. Second, GHRM Practices contribute to the formation of a sustainable organizational culture ⁷⁹. Through training and development focused

⁶⁸ (Hameed et al., 2022)

⁶⁹ (Malik et al., 2021)

⁷⁰ Zuhair Abbas et al., "How Does Green HRM Influence Environmental and Social Sustainability in Hotels?," *Problems and Perspectives in Management* null (2023): null, [https://doi.org/10.21511/ppm.21\(1\).2023.22](https://doi.org/10.21511/ppm.21(1).2023.22).

⁷¹ Fazal and Muhammad Shaiq, "Green Human Resource Management Practices in Banking Sector of Pakistan: An Exploratory Study."

⁷² Mangenda Tshiaba Sidney et al., "Continuous Effects of Green Transformational Leadership and Green Employee Creativity: A Moderating and Mediating Prospective," *Frontiers in Psychology* 13 (2022), <https://doi.org/10.3389/fpsyg.2022.840019>.

⁷³ Fang Lee Cooke, Randall Schuler, and Arup Varma, "Human Resource Management Research and Practice in Asia: Past, Present and Future," *Human Resource Management Review* 30, no. 4 (2020): 100778, <https://doi.org/10.1016/j.hrmr.2020.100778>.

⁷⁴ (Aboramadan et al., 2021)

⁷⁵ Asfahani, 2023)

⁷⁶ Setyaningrum & Muafi, 2023)

⁷⁷ (Hameed et al., 2022)

⁷⁸ Zhu & Yang, 2021)

⁷⁹ (Mohammad Hasan, 2022)

on ecological literacy and green practices, organizations create environments where sustainability is valued and internalized as an integral part of the culture (Renwick et al., 2013; ⁸⁰. This sustainable culture is the basis for proactive Organizational Behavior in achieving sustainability goals (Harris and Crane, 2002; ⁸¹.

The integration of GHRM Practices with Organizational Behavior and Culture in a digital context is strengthened by technology ⁸². Digital platforms enable the dissemination of sustainable values more efficiently, facilitate better collaboration and accelerate the adaptation of behavior to sustainable practices (Marler & Boudreau, 2017; ⁸³.

Barriers to Applying GHRM Practices in the Digital Industry

First, regulatory uncertainty is the main obstacle in implementing GHRM Practices in the digital industry. In an ever-changing and rapidly evolving context, digital companies often face the challenge of adapting HRM policies and practices to an unestablished regulatory framework and a lack of clear guidance regarding sustainability (Jackson et al., 2011; ⁸⁴. Second, technological barriers are a significant issue. Even though the digital industry makes intensive use of technology ⁸⁵, however, adoption of technology to implement GHRM Practices is often hampered by a lack of systems and platforms specifically designed to facilitate human resource management with a focus on sustainability (Marler & Boudreau, 2017; ⁸⁶. Third, there is a lack of knowledge about green manufacturing, environmentally friendly organizational culture factors, and the absence of a special department for environmental management ⁸⁷; ⁸⁸, as well as a lack of understanding among employees regarding digital systems and automation, as well as barriers to redefining their roles ⁸⁹. Additionally, cultural resistance and lack of employee awareness of sustainability practices can be a barrier. Transforming an organization's culture to include sustainability values requires commitment and understanding from all levels of employees, and a lack of awareness regarding sustainability can hinder the implementation of GHRM Practices ⁹⁰. Another obstacle involves a lack of commitment and support from the top of the company. If leaders do not clearly support sustainability initiatives and do not include them as an integral part of business strategy, the implementation of GHRM Practices may not be implemented effectively (Renwick et al., 2013; ⁹¹.

⁸⁰ Saifudin, Aima, et al., 2021)

⁸¹ Mohammad Hasan, 2022)

⁸² Ahmad Shakir and Iqbal Khan, "Green Human Resource Management Practices: A Study on The Banking Sector of Pakistan."

⁸³ Sitaniapessy et al., 2021)

⁸⁴ (Setyadi et al., 2023)

⁸⁵ (Zhang et al., 2019)

⁸⁶ Sitaniapessy et al., 2021)

⁸⁷ (Marimin et al., 2014

⁸⁸ Setyadi et al., 2023)

⁸⁹ (Ma et al., 2023)

⁹⁰ (Greeshma & Reddy, 2022)

⁹¹ S. K. Singh et al., 2019)

To overcome these obstacles, joint efforts are needed from management, employees and the government to develop supportive policies, increase awareness and create an environment that encourages the implementation of GHRM Practices in the digital industry. One of them recommends several solutions like creating awareness, ensuring organizational support, developing technical skills, effective monitoring, giving ⁹².

By understanding the need for Environmentally Friendly Initiatives, companies must be persistent in overcoming these obstacles because this new function will not only benefit the company and its employees but also society and the environment as a whole ⁹³. As the concept of "Green" including "GHRM" is of concern to many researchers, academics and business organizations who are looking for new solutions to reduce the impact of global warming and create a sustainable environment ⁹⁴

D. Conclusion

In the context of digital-based organizations, the implementation of Green Human Resource Management (GHRM) Practices plays a crucial role in establishing a sustainable foundation. The relationship between GHRM Practices and Employees is an important foundation, where continuous recruitment and training creates employees who are not only productive but also committed to sustainable values. The integration of GHRM Practices with Marketing Systems and Corporate Social Responsibility (CSR) helps organizations become entities that are not only responsive to sustainability but also communicative and collaborative in a dynamic digital market. GHRM Practices of Leadership and Management are the key in directing sustainable change and changes in organizational behavior and culture. In addition, the application of GHRM Practices in Organizational Behavior and Culture creates a work environment that is adaptive and responsive to the demands of sustainability in the digital era. However, challenges exist in the form of Barriers to Applying GHRM Practices in the Digital Industry, including regulatory uncertainty, technological barriers, cultural resistance, and minimal employee awareness and knowledge of green organizations. To achieve maximum sustainability in digital-based organizations, integrated efforts are needed to overcome these obstacles and ensure that GHRM Practices become the main pillar in realizing sustainable transformation in the digital era.

⁹² Anjum et al., "An Insight into Green HRM Practices for Sustainable Workplace in the Banking Sector of Bangladesh: The Role of Electronic HRM."

⁹³ (Greeshma & Reddy, 2022)

⁹⁴ Ahmad Shakir and Iqbal Khan, "Green Human Resource Management Practices: A Study on The Banking Sector of Pakistan."

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