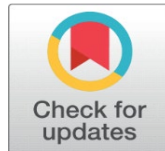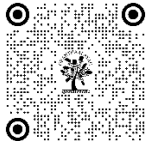# IDENTIFYING THE INTELLECTUAL FRAMEWORK OF GREEN HRM: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

This study offers a comprehensive bibliometric analysis of the literature on Green Human Resource Management (GHRM) from 2013 to 2023. The Scopus database is used as the main source for extracting data. The study includes article titles, abstracts, keywords, authors, affiliations, publication dates, and citation counts. It utilizes descriptive statistics, trend analysis, and citation metrics to reveal important findings. The findings demonstrate a significant rise in GHRM research throughout the previous decade, with journal papers being the prevailing mode of publishing. The journal Sustainability, based in Switzerland, has the top position as the most significant publication in the subject. It is closely followed by the International Journal of Manpower and the Journal of Cleaner Production. The report further highlights prominent researchers and collaborative networks, emphasizing the significance of cooperation in advancing GHRM research. Significant developments in leadership, innovation, environmental performance, and employee behaviour are observed as key topics. This study not only documents the development of GHRM but also emphasizes important articles and proposes potential areas for further research.

Keywords: Green HRM, Sustainable HRM, Bibliometric Analysis, Network Analysis, Trends Analysis

1. INTRODUCTION

The worldwide trend towards sustainable development has resulted in an increasing focus on incorporating environmentally sensitive practices into several areas of business operations (Albino et al., 2009; Kolk, 2016). Green Human Resource Management (Green HRM) has become an important subject of study and practice that connects sustainability and human resource management (Jabbour & de Sousa Jabbour, 2016; Zaid et al., 2018). Green HRM is the use of HR practices that support environmentally sustainable results in organizations (Dimitrov, 2021; Hameed et al., 2020). The main objective is to ensure that human resource policies and processes are in line with the organization's environmental goals, therefore

supporting the overall sustainability strategy (Chams & García-Blandón, 2019). The rising interest in Green HRM stems from the growing acknowledgment that organizations need to actively address environmental concerns, and that HRM can play a pivotal role in driving these efforts (Roscoe et al., 2019).

The notion of Green HRM is a recent development that has gained traction as organizations and academia acknowledge the necessity for implementing more sustainable practices. The field expands upon previous talks regarding corporate social responsibility (CSR) and environmental management. However, it sets itself apart by especially emphasizing the role of HRM in attaining environmental sustainability (Stahl et al., 2020). Historically, HRM has been perceived as a function centered on overseeing individuals to attain corporate objectives. However, Green HRM broadens this position to encompass the management of individuals in a manner that also advances environmental sustainability (Ahmad, 2015). This encompasses a variety of methods, including environmentally conscious recruiting and selection procedures, as well as environmentally focused training and development initiatives. These measures are implemented with the aim of cultivating a corporate culture that prioritizes environmental responsibility inside firms (Mehrajunnisa et al., 2022).

The emergence of Green HRM may be comprehended in the wider framework of the sustainability movement, which garnered momentum in the latter part of the 20th century. Governments, corporations, and civil society are increasingly focused on environmental issues such as climate change, resource depletion, and pollution. As a reaction, numerous firms have started using sustainable business methods to reduce their ecological footprint. At first, these endeavors mostly concentrated on domains such as logistics optimization, waste minimization, and energy conservation. Nevertheless, with the progression of the sustainability movement, there has been an increasing acknowledgment that human resources play a vital role in the effectiveness of any sustainable approach (Mert, 2022; Obeidat et al., 2020).

Green HRM is founded on the concept that employees play a crucial role in influencing the environmental performance of enterprises (Sobaih et al., 2020). Organizations can ensure personnel engagement and commitment to sustainability projects by connecting HR policies with environmental goals (Mishra, 2017). Green recruitment techniques can effectively attract environmentally concerned personnel, while green training programs can equip staff with the necessary knowledge and skills to execute sustainable practices (Saeed et al., 2019). Green performance management systems can incentivize employees for their contributions to environmental goals, therefore strengthening the organization's commitment to sustainability (Daily & Huang, 2001). Green HRM fosters a culture of environmental responsibility throughout the organization by implementing these practices.

The significance of Green HRM goes beyond individual firms and contributes to the larger objective of sustainable development. By embracing sustainable practices, firms actively contribute to global endeavours aimed at tackling environmental concerns. Green HRM, via cultivating a staff that is dedicated to sustainability, can have a crucial impact in assisting firms in fulfilling their environmental obligations (Jyoti, 2019). In addition, Green HRM can improve organizational performance by minimizing expenses related to waste and energy consumption, enhancing corporate image, and attracting environmentally aware customers and staff (Al-Minhas et al., 2020). Green HRM not only promotes environmental sustainability but also enhances the long-term viability of the organization (Bombiak & Marciniuk-Kluska, 2018). Due to the increasing

significance of Green HRM, there has been a matching surge in academic study focused on this subject. Scholars have investigated different facets of Green HRM, such as the HR strategies that encourage sustainability, the influence of Green HRM on organizational effectiveness, and the difficulties linked to implementing Green HRM practices. Nevertheless, like in any nascent discipline, it is imperative to conduct a thorough examination of the current body of literature in order to ascertain significant patterns, prominent works, and potential avenues for further investigation.

Bibliometric analysis is a useful method for comprehending the progression of Green HRM as an area of research. Bibliometric analysis can uncover the most influential research, the primary contributors to the topic, and the collaborative networks that have influenced its evolution by studying publishing patterns, citations, and collaborations (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021). An analysis of this nature holds significant significance for a nascent topic such as Green HRM, as it can effectively pinpoint deficiencies in existing scholarly works and provide direction for forthcoming research endeavours. The aim of this bibliometric analysis is to offer a thorough and all-encompassing summary of the progress and advancement of research on Green HRM. This study seeks to examine the current body of literature on Green HRM in order to identify the prominent patterns, notable publications, and collaborative networks that have had a significant impact on the development of this discipline. By doing this, it aims to enhance comprehension of the development of Green HRM and emphasize potential areas for future research that can further progress the discipline.

2. RESEARCH METHODOLOGY

Data from the Scopus database will be used to perform a bibliometric analysis of research on Green Human Resource Management (GHRM) from 2013 to 2023. Publications using the phrases "green HRM," "green human resource management," "GHRM," or "sustainable HRM" in the title, abstract, or keywords will be the focus of the search. The era and subject categories, which include business (BUSI), sociology (SOCI), economics (ECON), and the arts (ARTS), will be used to filter publications. There will be a variety of document categories included, including reviews, articles, books, conference papers, and book chapters. Information on publication titles, abstracts, keywords, authors, affiliations, publication dates, and citation counts will all need to be gathered in order to do data extraction. To summarize publication trends and distribution by document type and subject area, descriptive statistics will be used in the analysis. Trend analysis will monitor shifts in the volume of publications and area of study over time. Leading researchers, their body of publications, and networks of collaboration will be determined by author analysis. The impact of citations to the journals that publish the most on GHRM will be investigated using journal analysis. Citation analysis will identify key works and clarify linkages between citations. Using co-occurrence analysis, significant study subjects and new trends will be found by looking into keyword patterns. VOS viewer and Bibliometric are two tools that will help with network analysis and visualization; Excel will be used for data processing. The results will be provided in a comprehensive report that includes talks on the development and significance of GHRM research, along with important insights and visualizations. Restrictions encompass the extent of coverage provided by the Scopus database and the possible.

3. FINDINGS AND CONCLUSIONS
3.1. ANALYSIS OF A PUBLISHED DOCUMENTS

The Scopus pie graphic illustrates in the figure 1 shows the distribution of different document categories in a dataset consisting of 734 published documents. The data indicates a significant inclination towards journal articles, which are the most prominent type of content in the collection, accounting for 80.8% of the total with 593 items. These findings suggest that journal articles serve as the predominant method of scholarly communication within this discipline. Book chapters also make a substantial impact, accounting for 10.9% of the total with 80 papers, emphasizing their significance in spreading knowledge. Reviews and conference papers, although less common, make up 4.5% (33 documents) and 3.0% (22 documents) of the total, respectively, highlighting their importance in providing complete summaries and introducing fresh research discoveries. Books, on the other hand, have a minimal representation of 0.8%, with only 6 items. This indicates that full-length books are not a common type of publication in this dataset. In general, the distribution pattern aligns with the established norms and publication procedures in the academic or scientific field, with a strong focus on articles and book chapters as the preferred means of scholarly communication.
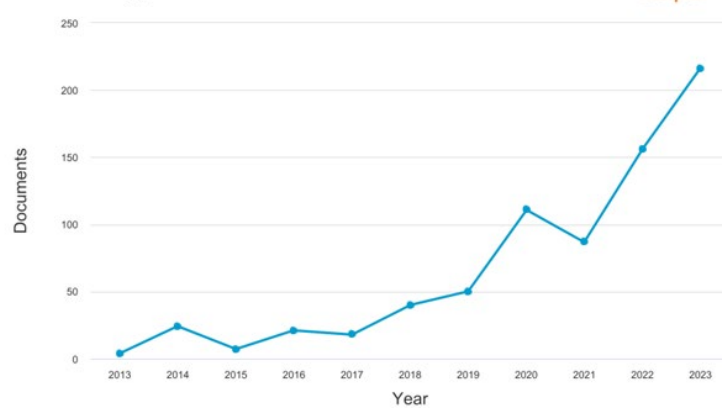
Figure 1
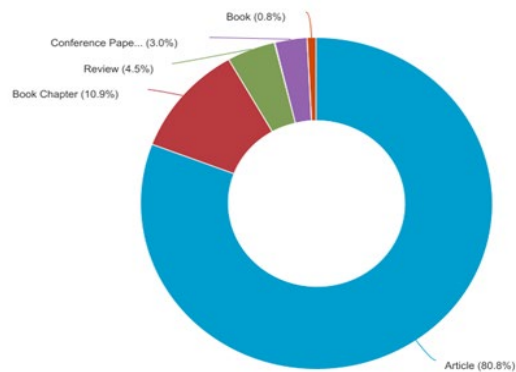
Figure 1 Type of Documents
Source Author Compilation

The line graph in figure 2 depicts the yearly count of published documents from 2013 to 2023, demonstrating a noticeable and consistent increase in research production over this timeframe. From 2013 to 2018, the number of documents stayed largely constant, with few variations, suggesting a steady publication rate. Starting from 2018, there has been a discernible rise in the quantity of documents, indicating a growing interest or expansion in the field of research. The most notable shift takes place from 2021 to 2023, with a substantial increase in the number of publications, reaching its highest point in 2023. This rapid increase is presumably a result of a significant rise in study activity, potentially influenced by emerging patterns, greater financial support, or heightened worldwide attention towards the topic. In general, the data shows a consistent increase in research output, with a significant surge in recent years, suggesting a dynamic and fast-growing area of study.

Figure 2

Figure 2 Trend profile for GHRM-Sustainable HRM
Source Author Compilation

Table 1

Table 1 Top 10 Mostly Cited Papers			
Title	**Year**	**Cited by**	**Document type**
Green Human Resource Management: A Review and Research Agenda	2013	1144	Article
Green innovation and environmental performance: The role of green transformational leadership and green human resource management	2020	1009	Article
Effects of Green HRM Practices on Employee Workplace Green Behaviour: The Role of Psychological Green Climate and Employee Green Values	2017	730	Article
The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance	2019	624	Article
The Impact of Human Resource Management on Environmental Performance: An Employee-Level Study	2014	590	Article
Promoting employee's proenvironmental behavior through green human resource management practices	2019	503	Article
Beyond strategic human resource management: Is sustainable human resource management the next approach?	2014	495	Article
Green Human Resource Management and Green Supply Chain Management: Linking two emerging agendas	2016	492	Article
Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development	2019	480	Article
Green human resource management practices: scale development and validity	2018	477	Article

The table 1 displays a compilation of ten scientific works that specifically examine Green Human Resource Management (Green HRM) and its influence on different organizational and environmental results. The publications cover the time period from 2013 to 2020, suggesting that there has been consistent study interest in this subject during these years. The paper titled "Green Human Resource Management: A Review and Research Agenda" (2013) is the most frequently referenced, with 1,144 citations. This high number of citations underscores its fundamental contribution in influencing the discussion on Green HRM. The 2020

article titled "Green Innovation and Environmental Performance: The Role of Green Transformational Leadership and Green Human Resource Management" has received 1,009 citations, highlighting its importance in establishing a connection between leadership, innovation, and environmental performance.

Additionally, numerous other articles have made significant contributions to the discipline, with citation counts varying between 477 and 730. The 2017 paper titled "Effects of Green HRM Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values" has received 730 citations. It highlights the significant impact of psychological and value-based elements on employee behavior in relation to sustainability. The articles published in 2019, specifically "The Effect of Green Human Resource Management on Hotel Employees' Eco-Friendly Behavior and Environmental Performance" (624 citations) and "Promoting Employee's Pro-environmental Behavior through Green Human Resource Management Practices" (503 citations), demonstrate the increasing interest in implementing Green HRM practices in particular sectors, such as hospitality, to improve environmental performance.

The table demonstrates the growing and substantial scholarly focus on Green HRM, with studies investigating many aspects such as leadership, innovation, organizational culture, and employee behaviour. The objective is to enhance environmental sustainability inside firms.

Figure 3
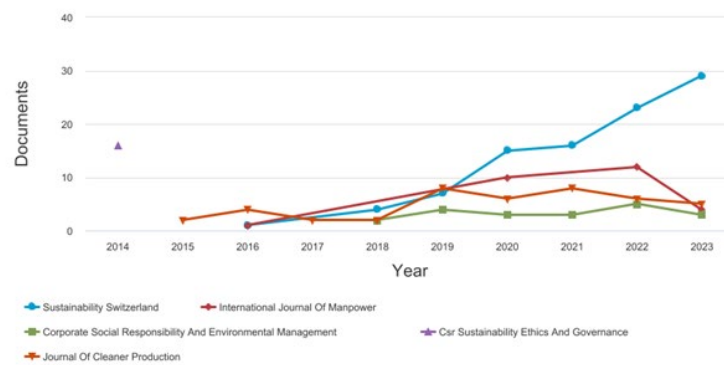
Figure 3 Topmost Journal Source Titles For GHRM-Sustainable HRM
Source Author Compilation

The line graph illustrates in the figure 3 the annual publication count per source from 2014 to 2023 across five journals: Sustainability Switzerland, International Journal of Manpower, Corporate Social Responsibility and Environmental Management, Journal of Cleaner Production, and CSR Sustainability Ethics and Governance.

Sustainability Switzerland has experienced the most notable expansion among the journals, especially starting from 2019. The number of publications has seen a substantial rise, reaching a peak of around 40 papers in 2023. This tendency suggests that Sustainability Switzerland has emerged as a prominent platform for research in this field. Conversely, the other journals exhibit a very restrained and consistent rise in the number of publications. The International Journal of Manpower and Journal of Cleaner Production have consistently produced a steady output with a modest upward trajectory over the years, indicating their stable and enduring positions in the field. Corporate Social Responsibility and Environmental Management have a consistent albeit slightly less prominent pattern of growth.

Curiously, the field of CSR Sustainability Ethics and Governance experienced a notable increase in popularity in 2015 but did not continue to exhibit substantial growth in the following years. This suggests that there may have been a concentrated surge of interest or a particular thematic relevance during that precise moment.

In general, the graph demonstrates the growing amount of research being conducted in the areas of sustainability and corporate social responsibility. It also shows that Sustainability Switzerland has been a prominent place for publishing in these topics in recent times. The continual contributions of the other publications exemplify their enduring significance in the discussion around human resource management, sustainability, and corporate responsibility.

Figure 4
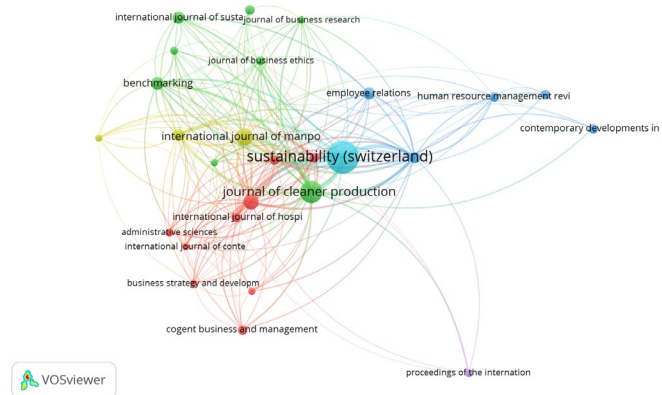
Figure 4 Analysing Source Titles on Green HRM – Sustainable HRM Through a Network Map

The VOS viewer visualization in figure 4 illustrates a network of academic publications that are interconnected by co-citation connections in the field of sustainability and human resource management. The nodes' size reflects the prominence or impact of each publication in this network, with Sustainability (Switzerland) and publication of Cleaner Production being the most central and influential, as demonstrated by their bigger size. These periodicals have extensive interconnections with many other journals, indicating their substantial contribution to the scholarly discussion on sustainability, corporate ethics, and human resource management.

The network also identifies the clusters of journals that often reference one another, indicating theme or disciplinary associations. For example, the journals Journal of Business Ethics, Benchmarking, and International Journal of Sustainable Development & World Ecology are interconnected, indicating a common emphasis on ethical and benchmarking methods in the field of sustainability research. Additional significant associations can be observed with the International Journal of Manpower and the Journal of Business Research, suggesting a mutual interest between human resource management and wider business research, spanning multiple disciplines.

In general, the map demonstrates the intricate and interrelated nature of academic publication in the domains of sustainability and human resource management. It highlights certain journals that play a crucial role in connecting different subfields and promoting interdisciplinary research.
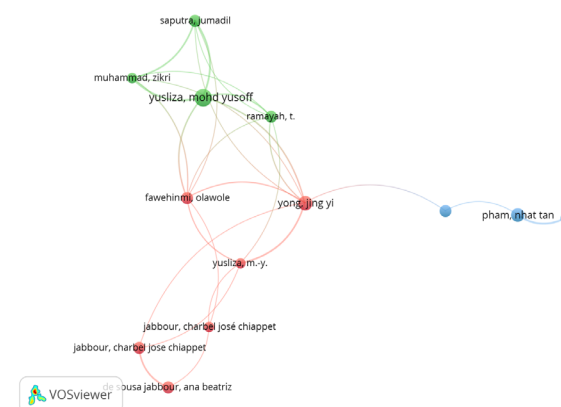
Figure 5
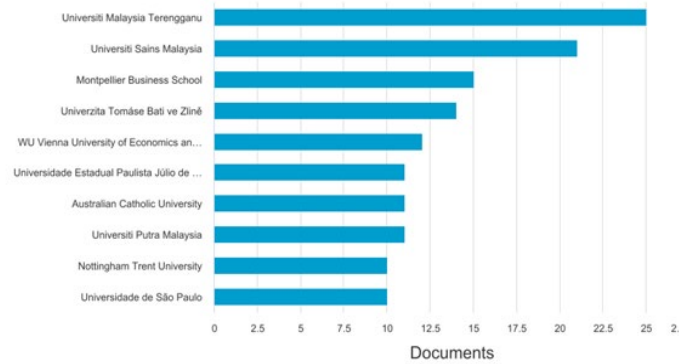
Figure 5 Top Most Affiliated Institutions
Source Author Compilation

The bar chart in figure 5 depicts the quantity of publications produced by different academic institutions, with a specific emphasis on a maximum of 15 affiliations. Universiti Malaysia Terengganu is at the top of the ranking in terms of the highest number of published documents, which shows its substantial contribution to research output in the specified scope. Universiti Sains Malaysia is a significant contributor in this subject, showcasing the strong research presence of Malaysian universities.

Montpellier Business School and Univerzita Tomáše Bati ve Zlíně are noteworthy examples of European institutions that contribute significant research outputs. WU Vienna University of Economics and Business, Universidade Estadual Paulista Júlio de Mesquita Filho, and Australian Catholic University, among others, consistently produce a significant number of papers, demonstrating a wide distribution of research contributions across different geographical locations.The distribution of research contributions indicates that research activities are prevalent across many continents, with a distinct focus on Malaysia, Europe, and Australia. The figure illustrates the worldwide scope of academic research and the crucial contributions that these institutions make in developing knowledge in their own domains.

Figure 6

Figure 6 Network Visualisation for Co-Authorship Among Co-Authors

The VOS viewer network visualization in figure 6 depicts collaborative relationships among authors or entities. The green cluster, centred around "yusliza, mohd yusoff," highlights frequent collaborations with "muhammad, zikri," "ramayah, t.," and "saputra, jumadil." On the other hand, the red cluster revolves around "yong, jing yi" and shows close collaborations with "fawehinmi, olawole," "yusliza, m.-y.," and "jabbour, charbel josé chiappet," indicating a strong interconnected network within this group. The blue cluster, which includes "pham, nhat tan," is relatively isolated, with weaker connections to the rest of the network, primarily linked to the red cluster. In summary, the visualization reveals three main collaborative groups, with the red and green clusters being larger and more interconnected, while the blue cluster has fewer connections to the rest of the network.

Figure 7

Figure 7 Co-Occurrence Network of Keywords

The VOS viewer map depicts the associations among different phrases associated with Green Human Resource Management (GHRM). The major concept, GHRM, is encompassed by clusters that symbolize important aspects like environmental sustainability, social responsibility, organizational performance, and research techniques. The prominence of terms such as "green economy," "stakeholder theory," and "business performance" suggests their importance in the subject. The text emphasizes emerging concepts such as "green transformational leaders" and "green behavior." This graphic depiction offers a thorough and inclusive summary of the fundamental ideas, connections, and possible future paths within the field of Global Human Resource Management (GHRM).

4. CONCLUSIONS

The study of Green Human Resource Management (Green HRM) literature demonstrates a vibrant and developing area that is attracting growing scholarly attention. The co-citation network visualization emphasizes the importance of prominent publications such as Sustainability Switzerland and the Journal of Cleaner Production in shaping the discussion on sustainability and HRM. This demonstrates their substantial impact in promoting multidisciplinary research. The co-authorship network map exhibits robust collaborative clusters, notably centred around notable academics, suggesting that collaboration plays a crucial role in this field. In addition, the co-occurrence network of keywords highlights frequent

themes such as leadership, innovation, and environmental performance, which are important topics in the discussion of Green HRM. The Scopus analysis verifies that journal articles are the predominant form of intellectual communication, while book chapters, reviews, and conference papers also make significant contributions. There has been an increasing amount of research output, especially since 2021, indicating that Green HRM is becoming a more important subject of study. This may be due to the increased global focus on sustainability. The involvement of institutions from many locations, notably Malaysia and Europe, underscores the worldwide scope of this research. In summary, the results indicate that Green HRM is becoming increasingly crucial in advancing environmental sustainability and corporate responsibility. This is supported by substantial contributions from both well-established and rising academic institutions.

CONFLICT OF INTERESTS

None.

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