

# Sustainable human resource management: a mixed-method analysis of the research field focusing on the visegrad countries

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## Abstract

**Purpose** – I aimed to analyze and synthesize the literature on sustainable HRM and its sub-concepts, such as green HRM and socially responsible HRM, with the focus on research conducted in the Visegrad Group (V4) countries. I posed the following research questions: (1) What are the main characteristics of sustainable HRM research in the worldwide literature? (2) What are the main characteristics of research conducted in the V4 countries? (3) Which future research directions are promising gaps to be filled by research conducted in V4 countries?

**Design/methodology/approach** – For the purpose of this study, I applied bibliometric analysis, scientific network analysis and in-depth content analysis.

**Findings** – The results of the analyses of articles indexed in the Scopus database revealed that there is a growing trend in research on sustainable HRM. However, scarce research comes from the V4; scholars have conducted such studies only in Slovakia and Poland. There are five thematic clusters in the main sample, though the concept of green HRM has been explored the most. Although the keyword network analysis showed that the V4 articles focus mostly on sustainable HRM, the in-depth content analysis provided evidence that the V4 sample represented all concepts.

**Originality/value** – This is the first study to analyze the achievements of scientists from the V4 in this research field. It applies methodological rigor and a mixed-method approach. Moreover, it presents directions of research that go beyond the recommendations presented in the analyzed articles.

**Keywords** Sustainable HRM, Socially responsible HRM, Green HRM, Sustainable development, Sustainability

**Paper type** Literature review

## Introduction

As [Mensah \(2019\)](#) states, sustainable development (SD) has become a ubiquitous development paradigm, attracted wider attention than other development concepts, and seems poised to remain the pervasive development paradigm for a long time. In 1987, Brundtland highlighted the importance of sustainable development in his report, defining its objective. Sustainable development aims to meet the resource needs of current and future generations without impacting the environment. The activities of the Brundtland Commission contributed to the 1992 Earth Summit convening in Rio de Janeiro. During this summit, participants developed the “Action Program – Agenda 21,” which shows how to develop and implement SD programs at the local level. Governments of most countries of the

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world adopted the rules presented in this document (DESA, 1992). The primary goal of SD was to protect the natural environment, though Elkington (2004) introduced the concept of the triple bottom line (TBL), in which SD is based on three pillars: environmental, social, and economic. We see these pillars reflected in 17 sustainable development goals (SDGs) which the United Nations published in the Agenda 2030 for Sustainable Development (United Nations, 2016). For over 20 years, SD has become not only a political issue, but also an element of current business practices. Because SD is based on the concept of stakeholders (Labuschagne, Brent, & van Erck, 2005), business has to consider the expectations of its stakeholders, not only to survive but to develop. These expectations are in line with the SDGs.

It is well known that employees are very important stakeholders (Piwowar-Sulej, Malik, Shobande, Singh, & Dagar, 2023). Moreover, the effective implementation of different corporate initiatives requires employee engagement. This led to the concept of sustainable human resource management (HRM) defined as the “adoption of HRM strategies and practices that enable the achievement of financial, social and ecological goals, with an impact inside and outside of the organization and over a long-term time horizon while controlling for unintended side effects and negative feedback” (Ehnert, Parsa, Roper, Wagner, & Muller-Camen, 2016, p. 90).

Consequently, we may also call the broader concept of sustainable HRM “triple bottom line HRM.” However, within the broader sustainable HRM concept, sub-concepts such as green HRM, socially responsible HRM, and common good HRM exist. Green HRM (Ren, Tang, & Jackson, 2018) focuses on the achievement of corporate environmental goals through appropriate HRM policies and practices. Socially responsible HRM (López-Fernández, Romero-Fernández, & Aust, 2018) matches HRM with the concept of employee-oriented corporate social responsibility, which secures decent working conditions. In turn, common good HRM (Aust, Matthews, & Muller-Camen, 2019) is the employee- and environment-oriented HRM.

Researchers contribute to the development of science also through analysis and synthesis of previous studies (Snyder, 2019). Therefore, I aimed to present a mixed-method analysis of publications on sustainable HRM, including the above-mentioned sub-concepts of green HRM, socially responsible HRM, and common good HRM, with a focus on research conducted in the Visegrad Group (V4) countries: Poland, Czechia, Slovakia, and Hungary (Polish Ministry of Foreign Affairs, 2023). Poland has relatively low scores (ranked 34th) with respect to social policies. For example, school reforms in the country reduced equity in access and prompted an exodus of teachers from the educational system. Moreover, Poland ranks near the bottom internationally (37th) in environmental policy. Poland is known as Europe’s “coal heartland” (with coal accounting for 72.4% of total electricity generation in 2021) and has a significant number of old coal-fired power plants that need replacement (US International Trade Administration, 2022). Czechia scores higher in social policies (22nd) compared to Poland, though the country is relatively poorly ranked (30th) in the area of environmental policy and has been slow to increase energy efficiency or launch an energy transition. Slovakia ranks similarly to Poland (31st) with regard to social policies. The country needs a comprehensive education reform. However, it ranks in the middle (22nd) for environmental policies. It is one of the most energy-intensive industrial sectors in the European Union. Finally, Hungary’s social policies place it near the bottom of the ranking (38th). The problem is little governmental support for women who combine careers with childcare. Hungary also has lower-middle scores (29th) in the area of environmental policies. The issues are fragmented institutions and a lack of government commitment to eco-friendly initiatives (Bertelsmann Stiftung, 2022). At the same time, a priority area of cooperation in the V4 is strengthening energy security. Furthermore, during the summit “Planet Budapest 2021,” representatives of V4 countries prepared common responses to sustainable development challenges facing Central Europe, including the harmonization of goals, standards, and methodologies to increase circular practices (IISD, 2021). Furthermore, the overall standard of

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corporate sustainability disclosures in the V4 region was lower than in other European countries (Kwiatkowski, Vejvodová, & Gregor, 2020). Therefore, it is worth synthesizing the academic knowledge on sustainable HRM and its sub-concepts, not only to develop science (Snyder, 2019) but also to provide practitioners with relevant knowledge.

The research questions formulated for this study are as follows:

*RQ1.* What are the main characteristics of HRM research in the worldwide literature?

*RQ2.* What are the main characteristics of research conducted in the V4 countries?

*RQ3.* Which future directions of research are promising gaps to be filled by research conducted in V4 countries?

While there are literature reviews on sustainable HRM, they vary in methodology or lack presentation of their methodology, as seen in the example of Mazur (2017). For example, in their systematic literature review, Macke and Genari (2019) focused on sustainable leadership, whereas Mukherji and Bhatnagar (2022) covered only green HRM in their narrative review. In turn, Murillo-Ramos, Huertas-Valdivia, and García-Muñia (2023) presented only a bibliometric analysis of the sustainability-oriented HRM research field. To answer *RQ1* and *RQ2*, I utilized bibliometric and scientific network analysis based on data exported from Scopus. Moreover, I used in-depth manual text analysis to synthesize findings from research conducted in the V4 (*RQ2*) as well as to collect directions for future research (*RQ3*). Although sustainable HRM practices in Asia have been reviewed (Debroux, 2014), none of the previous studies characterized findings for Central Europe.

This study enhances our understanding because it covers all the sub-concepts of sustainable HRM mentioned earlier, combines research findings from the V4 countries with global literature, advocates for a methodical approach to literature reviews, offers new insights, and suggests future research directions on sustainable HRM in the V4 countries.

This article is organized as follows. Following the Introduction, the second section will present the methodology used for the literature review. The third section will describe the bibliometric characteristics and scientific network analysis related to the publications on sustainable HRM and its sub-concepts (both worldwide and related to the V4 countries). In the fourth section, I will discuss the results of the in-depth text analysis of research articles from the V4 countries. The last section will contain conclusions, implications, and the study's limitations.

## Methodology

This research project focused on articles indexed in the Scopus database. I selected the Scopus database over the Web of Science, because it covers journals that specialize in management science better (Mongeon & Paul-Hus, 2016). Moreover, I used an electronic database instead of Google Search because it allows for data extraction in a form accepted by VosViewer. I used VosViewer (version 1.6.15) to analyze the scientific networks according to the recommendation presented by van Eck and Waltman (2010). This procedure can also help to show the visibility (internationalization) level of findings obtained in V4 countries.

First, I applied the following search strategy on June 3, 2023: TITLE-ABS-KEY (“sustainable human resource management” OR “common good human resource management” OR “socially responsible human resource management” OR “triple bottom line human resource management” OR “green human resource management”) AND (EXCLUDE (PUBYEAR, 2023)) AND (LIMIT-TO (PUBSTAGE, “final”)) AND (LIMIT-TO (DOCTYPE, “ar”)) AND (LIMIT-TO (SUBJAREA, “BUSI”) OR LIMIT-TO (SUBJAREA, “SOCP”)). It resulted in 444 documents. I limited the publications to those published before 2023 to ensure the replicability of the results, which is one of the major requirements of high-quality literature reviews (Snyder, 2019).

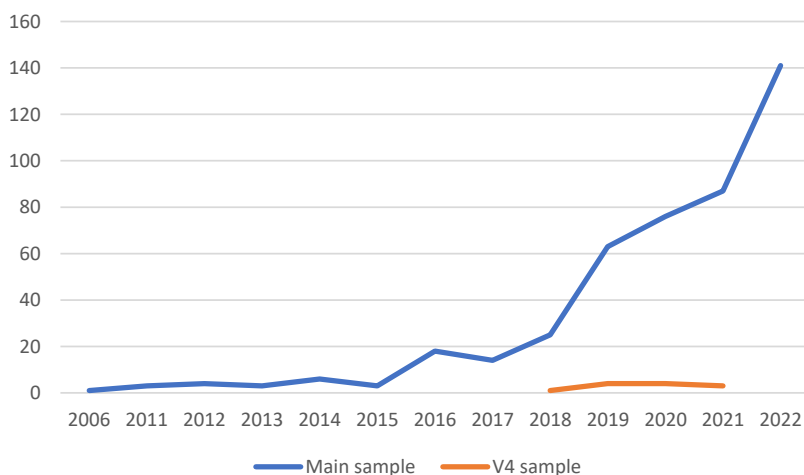
I focused on articles and academic areas such as business and management and social science to ensure that all important data (abstract, citations, keywords, etc.) would be included and all publications would be related to the HRM domain. Noteworthy, the abbreviation “HRM” can also mean high-resolution melt. Next, I limited the results to documents meeting the search criteria (“Poland” or “Polish” or “Czech Republic” or “Czech” or “Slovakia” OR “Slovak” or “Hungary” or “Hungarian”) in the title, abstract, or keywords. This resulted in a sample of 14 related publications from the V4 countries.

### Bibliometric characteristics of the documents and results of scientific network analysis

Previous studies require measurement to advance theory (Strauss & Smith, 2009). Thus, to answer RQ1 and RQ2, I presented the main characteristics of HRM research, considering both the worldwide literature and research conducted in V4 countries. As far as quantitative data is concerned, we may observe the growing interest in sustainable HRM issues (especially since 2017). A record-breaking year seemed to be 2022 with 141 articles being published. The initial article concentrating on a V4 nation came out in 2018, and interest in the topic has remained steady. (See Figure 1).

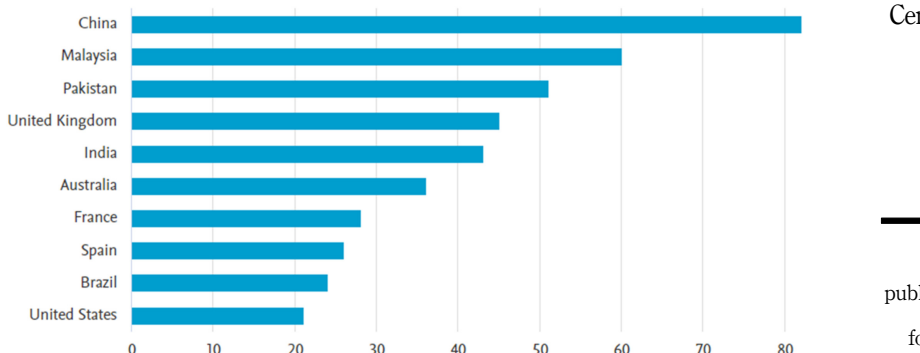
Regarding the countries of publication, the majority of articles came from China (Figure 2). The UK was in the second place and Malaysia – in the third. The V4 countries were absent from the list of top 10 countries.

Table 1 presents the most productive journals. The first discovery was that several journals listed below did not exclusively cover HRM topics. The second discovery was that the most productive journals were not necessarily the most cited ones. The total number of citations in the sample was 19,215 (as of June 3, 2023) and the journal *Sustainability* received only 9.61% of those citations. *Journal of Cleaner Production* was ranked first in the percentage of citations in the sample, as it received 20.48% of all citations. Its score in the number of citations per article was also relatively high. *International Journal of Management Reviews* (832) had the highest number of citations per article although having published only one article on the subject.



**Figure 1.**  
Number of publications from 2006 to 2022 found in Scopus

Source(s): Author’s own work



Source(s): Scopus analytics

**Figure 2.**  
Number of publications published from 2006 to 2022 found in Scopus, by country/territory

| Journal   | Number of articles | Percent of articles in the sample | Number of citations | Percent of citations in the sample | Number of citations per article |
|---|--------------------|-----------------------------------|---------------------|------------------------------------|---------------------------------|
| <i>Sustainability (Switzerland)</i>                                 | 86                 | 19.37%                            | 1847                | 9.61%                              | 21.48                           |
| <i>Journal of Cleaner Production</i>                                | 37                 | 8.33%                             | 3936                | 20.48%                             | 106.38                          |
| <i>International Journal of Manpower</i>                            | 22                 | 4.95%                             | 620                 | 3.23%                              | 28.18                           |
| <i>Corporate Social Responsibility and Environmental Management</i> | 19                 | 4.28%                             | 948                 | 4.93%                              | 49.89                           |
| <i>International Journal of Human Resource Management</i>           | 9                  | 2.03%                             | 1445                | 7.52%                              | 160.56                          |
| <i>Journal of Business Ethics</i>                                   | 9                  | 2.03%                             | 966                 | 5.03%                              | 107.33                          |

**Table 1.**  
Most productive journals in the main sample

Source(s): Author's own work

During the study period, authors from V4 countries published their work in *Sustainability* (7 articles), *Journal of Cleaner Production* (3 articles), *Entrepreneurship and Sustainability Issues* (2 articles), *Social Science* (1 article), and *Acta Logistica* (1 article).

As mentioned, I used VosViewer to identify and visualize the co-authorship networks and the keyword networks. In total, there were 1,309 authors of the articles. The minimum number of articles per author was set at 5 and I used VosViewer to calculate the data in [Table 2](#).

My first finding from the co-authorship network analysis was that the most productive authors usually cooperated with many different researchers. For example, C.J.C. Jabbour, who was in the first place, wrote his 24 articles in cooperation with 42 authors in total. Second, more publications did not always mean more citations. Noteworthy, the V4 authors are quite frequently cited – although they publish fewer articles than the most productive authors (as compared to Ho, for example).

The method based on keyword networks helped me to visually analyze scientific directions in a particular scientific domain (Radhakrishnan, Erbis, Isaacs, & Kamarthi, 2017). In the main sample of documents, the minimum number of occurrences of a keyword was set as 7. Out of the 1,881 keywords, 91 met the threshold. [Figure 3](#) presents them.





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The fourth cluster (16 items) consists of articles that examine HRM practices (the set of practices or individual practices, e.g., training). Articles included in the fifth cluster applied the stakeholder theory in relation to green HRM and socially responsible HRM. The next finding related to the size of keywords presented in [Figure 3](#). Green HRM and environmental issues prevail in the main research sample.

Regarding V4 research, the minimum occurrence of a keyword was set at 4 because no results were obtained at higher thresholds. Out of the 79 keywords, four met the threshold and configured one cluster. This cluster consisted of three items (sustainability, sustainable development, and sustainable HRM) which reflect the interest in sustainable HRM (the names of other sub-concepts of sustainable HRM were not mentioned).

## Findings from in-depth studies of research conducted in the V4 countries

### *State of the art*

The first finding from the in-depth study of articles that present research conducted in the V4 countries is that three articles are devoted to the problem of sustainable HRM, 3 to green HRM, and 7 to socially responsible HRM.

Since Slovak authors prevailed in the V4 sample (in total, nine authors), below, I will elaborate on their contributions to developing the subsequent concepts. In their research, [Strenitzerová and Achimský \(2019\)](#) focused on the implementation of socially responsible HRM in the Slovak postal sector, which is a very labor-intensive sector. In particular, they examined the social outcome of HRM practices in the form of employee satisfaction and loyalty. They proposed a new way of measuring employee satisfaction that covers both quantitative and qualitative elements. Based on the data obtained from 1,775 employees, Strenitzerová and Achimský stated that employee satisfaction was at an average level. The factors that contributed negatively to this level were the remuneration system and the lack of employer's interest in the employees' opinions. Moreover, the situation in the region's labor market also impacts employees' satisfaction and loyalty. Strenitzerová and Achimský also found that employment contracts of indefinite duration increased employees' loyalty toward their employer.

[Babel'ová, Stareček, Cagaňová, Fero, and Čambál \(2019\)](#) examined outplacement programs treated as a socially responsible HRM practice. They assessed how helpful these programs were to laid-off employees and studied the connections between the emotions of current and former employees. They found that the redundancies were unpleasant mainly for the remaining staff. Therefore, outplacement programs should focus not only on those who are dismissed, but also on the remaining employees and managers. Moreover, the authors compared the dismissed employees' emotions according to their generation but revealed that no one generation was significantly disadvantaged over others.

In another study, [Babel'ová et al. \(2019\)](#) examined the perceptions of employees in terms of companies' ability to attract new employees, the relationships between employees, and the companies' ability to retain important employees. They found that the ability to attract new production employees is perceived as much worse than in the case of administrative employees. Relationships between employees significantly impact their work behavior and their willingness to continue employment at a particular company. Younger people evaluate these relationships as more positive than older ones.

[Vraňaková, Gyurák Babel'ová, and Chlpeková \(2021\)](#) focused on age management as a socially responsible HRM practice. They indicated four distinct generational groups within companies, each varying in values, motivators, work attitudes, and behaviors. They stressed the importance of assessing and addressing the needs and preferences of employees across different generations. They found a dependence between generational groups and the importance of the age management pillars. For example, lifelong learning was very important

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for Baby Boomers, whereas for Gen Z it was life satisfaction. However, they revealed that Generation X and Generation Y had almost the same preferences. Importantly, the oldest generation required the opportunity to transfer their knowledge and experience to younger employees.

Stareček, Gyurák Babelšová, Makyšová, and Cagaňová (2021) also focused on generational differences between Slovak employees. They examined how employees from various generations view the importance of work performance in determining salaries for different job positions. They provided evidence that there was no difference between the generations in their assessment of the impact of job performance on salary. Moreover, employees in various positions also perceived job performance as equally important. All the above-cited authors examined socially responsible HRM, although they called it sustainable HRM.

Polish authors (in total, 6 authors) constituted the second largest group in the V4 sample. The most cited V4 author was Bombiak (2019), who presented several environmental practices that can be employed in green HRM in relation to HR functions: work design, candidate selection, developing work discipline and motivation, and developing eco-oriented skills and “green” working conditions. Moreover, Bombiak presented the results of the survey conducted on a random population of 300 companies, used to determine the perceived impact of 28 subsequent practices on the companies’ environmental performance. The study found that respondents viewed green HRM practices as moderately impacting organizational environmental sustainability. The most significant impact was linked to work design and motivating employees to act in environmentally friendly ways. The respondents rarely assessed candidate selection procedures as contributing to organizational environmental performance.

In another study, Bombiak (2020) systematized knowledge about sustainable HRM and determined the scope of its implementation in Polish companies. She analyzed the implementation of 34 social-oriented HRM practices and 28 environmentally friendly HRM practices. In her empirical research, she applied a survey method. It covered a representative sample of 300 companies. She provided evidence that sustainable HRM is implemented in a fragmented way. The most common practices were facilitating new employee adaptation and complying with occupational health and safety regulations, whereas the most neglected area was partnering solely with ethical business partners. Regarding environmentally friendly HRM practices, Bombiak found that about 80% of companies promoted environmentally friendly attitudes among employees. However, they very rarely considered pro-environmental attitudes when selecting job candidates.

Bombiak and Marciniuk-Kluska (2018) focused on young companies in their quantitative research on the application of green HRM in Poland. This study covered a representative sample of 150 companies. It revealed that the perception of a given HRM practice’s effectiveness in shaping environmental sustainability related to the frequency with which it is used. Therefore, Bombiak and Marciniuk-Kluska recommended increasing the awareness of the impact of green HRM practices on a company’s environmental performance.

Moreover, Bombiak and Marciniuk-Kluska (2019) examined the activity of young Polish companies in the area of socially responsible HRM. Similarly to the above-mentioned studies, they also determined how respondents perceive the effectiveness of these practices in the sustainable performance of their companies. Their survey, conducted among 150 companies, revealed that social-oriented HRM practices were quite frequently adopted in companies. The results were similar to those of Bombiak and Marciniuk-Kluska (2018) regarding the association between the effectiveness level of an HRM practice and the extent to which it is implemented. The greatest number of companies used compliance with occupational health and safety regulations as one of 35 socially responsible HRM practices, while preparing reports on social responsibility in HRM was implemented least frequently.



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[Mazur and Walczyna \(2020\)](#) verified the role of HR departments in companies' transition toward sustainability. In particular, they explored the psychological, sociological, and environmental aspects of HR activities. They used a survey method when collecting data from employees working in companies from the Podlaskie Voivodeship. They revealed that the highest performance of HR activities related mainly to the psychological and social areas of sustainable HRM.

[Piowar-Sulej \(2021\)](#) focused on HR development as one of the key principles of sustainable HRM. She combined the principles of sustainable HRM by [Stankevičiute and Savanevičiene \(2018\)](#) with the concept of Industry 4.0 and developed a list of principles of sustainable HR development. She also compared the theory with practice based on secondary and primary data. Her empirical research covered industrial engineers because they are responsible for implementing the idea of cleaner production and Industry 4.0. She found that industrial companies in Poland do not develop the potential of their engineers in the long term, and focus on the current needs instead. They also rarely use employee participation in training-related decisions or develop eco-oriented skills. The other neglected aspect of HR development is cooperation with external educational institutions.

[Piowar-Sulej \(2022\)](#) elaborated on and measured the internal consistency of green HR development (covering HR appraisal, training, and HR flow), and the consistency between green HR development and a company's environmental strategy. She emphasized that consistency makes the message concerning requirements towards employees coherent, being the foundation for leading their activities in the appropriate direction. She also addressed the seldom-explored topic of intraorganizational green careers, incorporating them into green HR development practices. Empirical research involving 299 manufacturing companies revealed that the most notable connection existed between green HR development and a proactive environmental strategy. However, there are significant differences in the extent to which individual HR development practices are vertically consistent and a lack of horizontal consistency of HR development.

The last study in the Polish sample by [Piowar-Sulej and Bąk-Grabowska \(2020\)](#) is also devoted to socially responsible HRM. It focused on unstable forms of employment and found that Poland has the highest usage of unstable forms of employment in the European Union. Based on secondary data (e.g., CSR reports or reports by Eurostat and the OECD), the authors revealed that unstable forms of employment negatively impact employees' health, especially mental health. They found statistically significant relationships between the expectation rate of possible job loss and the number of non-standard contracts in a country, as well as the rate of reporting exposure to risk factors that affect mental health and the level of precarious employment. They also noted that the guidelines for enterprises reporting the use of non-standard forms of employment were inconsistent. Companies voluntarily and in different forms convey information about their use of unstable forms of employment. They do not report it if their employees can decide about the employment form.

#### *Future research directions mentioned in the articles under analysis*

[Bombiak \(2020\)](#) stated in general that the field of sustainable HRM requires further research with a focus on identifying good practices. [Mazur and Walczyna \(2020\)](#) referred to the limitations of their study and recommended covering various groups of employees and industries to obtain a more comprehensive view on a national scale. They emphasized that the methodology they used is geographically universal and can therefore serve in research in other countries. They also called for regular research in particular regions.

[Piowar-Sulej \(2021\)](#) proposed the further conceptualization of sustainable HR development and empirical research that could holistically assess the application of all principles of sustainable HR development in companies. Further research may go beyond the

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industrial sector and compare data from different sectors and countries. The author also suggested exploring how the principles of sustainable HR development are used for industrial trainers, who are considered knowledge workers. It is also valuable to define sustainable competencies, create tools to measure them, and study which training most enhances these competencies.

In the area of green HRM, [Bombiak \(2019\)](#) indicated the need to examine the impact of green HRM activities on a company's financial performance. [Piwowar-Sulej \(2022\)](#) who focused on green HR development and environmental strategies in large manufacturing companies, recommended exploring differences between companies of different sizes, manufacturing industries, and different sectors, as well as going beyond Poland. She also recommended conducting longitudinal studies on the evolution of both variables under study and using other classifications of environmental strategies and other types of consistency related to HRM.

Finally, within socially responsible HRM, [Stareček et al. \(2021\)](#) recommended examining the factors that influence the priorities of HRM, including the implementation of Industry 4.0 and the issue of the pandemic. [Babel'ová et al. \(2019\)](#) suggested future research to consider the interrelationship between generational diversity, knowledge sharing, and performance management. Meanwhile, [Vraňaková et al. \(2021\)](#) proposed linking generational factors with other variables such as economic or social status when determining the attitudes of employees. [Bombiak and Marciniuk-Kluska \(2019\)](#) recommended identifying and analyzing factors that impact the implementation of socially responsible HRM in Polish companies. In turn, [Piwowar-Sulej and Bąk-Grabowska \(2020\)](#) emphasized the importance of diagnosing the relationships between using non-standard forms of employment and the status of employees' health, considering the specific conditions in a given country. There is a need for a research tool to standardize reporting on the use of non-stable employment forms and employees' health status, enabling comparisons between organizations and countries.

## Discussion

### *Main findings and their theoretical contributions*

To answer [RQ1](#), it is worth pointing out that the general research sample consisted of 444 articles published in journals indexed in Scopus and assigned to business/management or social science. Two years ago, [Piwowar-Sulej \(2021\)](#) identified only 203 articles in total on sustainable HRM, green HRM, and socially responsible HRM when applying a similar search strategy in Scopus. In turn, [Santana and Lopez-Cabrales \(2019\)](#) collected only 85 articles on these concepts indexed in the Web of Science database. The current analysis shows that the interest in sustainable HRM as a research field is growing. As [Murillo-Ramos et al. \(2023\)](#) argued, researchers' increasing interest in sustainable HRM stems from changes in market and socio-political business contexts, along with a growing desire to explore the connections between HRM and sustainability, especially how HRM practices can promote proactive sustainable behavior among employees.

There are five thematic clusters in this research field: (1) green HRM and manufacturing firms, (2) sustainable HRM, leadership, and motivation, (3) employee-related outcomes of green, socially responsible, and sustainable HRM, (4) HRM practices, (5) and stakeholder theory in relation to green HRM and socially responsible HRM. The combination of HRM with environmental issues prevails in the main research sample. This supports previous findings that green HRM is the most developed sub-concept of sustainable HRM ([Santana & Lopez-Cabrales, 2019](#); [Anlesinya & Susomrith, 2020](#)). [Murillo-Ramos et al. \(2023\)](#) called "environmental management which is closely related to green HRM" a transversal topic between three periods of research on HRM in the context of sustainability (2001–2013, 2014–2017, and 2018–2021).

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As [Stephan \(2008\)](#) notes, the USA has lost its dominance in the sciences. This is also visible in sustainable HRM research. The USA occupies the last place in the top 10 list. Most studies from the general research sample come from China. This finding is similar to that of [Piwowar-Sulej and Iqbal \(2023\)](#) in their literature review on the linkage between leadership styles and organizational sustainability, as well as to the results of a bibliometric analysis of sustainable HRM research conducted by [Murillo-Ramos et al. \(2023\)](#). The most productive journal was *Sustainability* by MDPI, while the most productive and cited author was C.J.C. Jabbour. These findings demonstrate that studies on sustainable HRM are published in journals that are not necessarily associated with HRM research.

Regarding [RQ2](#), there is a scarcity of research on the V4 countries. I identified only 13 articles indexed in Scopus. The V4 authors were from Slovakia and Poland. The two most productive V4 authors mainly published their articles in *Sustainability*. Although the keyword network analysis showed that V4 publications focus mostly on sustainable HRM, the in-depth content analysis provided evidence that all concepts were represented in the V4 sample. Most of the research conducted in Slovakia examined generational differences in the perception of different HRM practices. In turn, Polish authors explored the scope of implementation of sustainability-oriented HRM practices and their effectiveness in companies (in general, in manufacturing companies, and young companies). One study from Poland assessed the consistency (vertical and horizontal) of HR practices, while another assessed the impact of non-permanent employment on workers' health.

Literature reviews allow the researchers to formulate statements regarding our existing knowledge and gaps in understanding phenomena. They also guide the identification of areas requiring new research to address unanswered questions ([Newman & Gough, 2020](#)). The articles in this review presented directions for further research, which constitute the answer to [RQ3](#). The authors mainly recommended including additional variables, conducting similar studies in different industries, and going beyond the examined countries. They also recognized the need to operationalize sustainable competencies, analyze the consistency of other types of HRM, use longitudinal studies, and create high-quality standards to report non-standard forms of employment.

Furthermore, bibliometric and in-depth analyses can aid in shaping further research directions, adding another contribution of this study to the research field. Firstly, it is worth encouraging authors from Czechia and Hungary to conduct research in the area of sustainable HRM. Collaborating with more advanced researchers from other countries could help increase the understanding of antecedents and outcomes of sustainable HRM in these neglected regions. Moreover, future authors are advised to test the various research models outlined in reputable journals within the V4 conditions. The analysis shows that the majority of articles come from China. Since there are huge cultural differences between the V4 countries and China ([Hofstede Insights, 2021](#)), we may suppose that the results of similar research will differ. However, testing of the models requires the application of more sophisticated statistical methods (such as PLS-SEM) that the authors of the analyzed V4 articles did not use. Second, it would be worth extending the models presented by foreign authors by V4-specific factors, such as the extremely high use of non-standard forms of employment in Poland ([Piwowar-Sulej & Bąk-Grabowska, 2024](#)). An emerging topic that also requires researchers' attention is the creation of green jobs ([Sulich & Sołoducho-Pelc, 2022](#)). Thus, research into the impact of sustainable HRM on the creation of these jobs is needed. There is also space for publishing research conducted in the V4 countries in higher-quality journals presented in [Table 2](#).

#### *Practical implications*

[Lis \(2020\)](#) asserted that the primary value of a literature review is largely theoretical. Conversely, [Templier and Paré \(2015\)](#) highlighted that systematic literature reviews, like the

current study, can function as valuable comprehensive summaries of a subject for practitioners, yielding practical implications. This study can help HRM managers understand the intellectual structure of sustainable HRM and find evidence to guide their decisions (Newman & Gough, 2020). Professionals such as HRM managers or business trainers can utilize the bibliometric data presented in this study to select journals as sources of broader knowledge on sustainable HRM and its effects. Furthermore, the study provides names of foreign and V4 researchers specializing in this area, who may serve as business consultants.

Practitioners in this field may go beyond serving as “knowledge users” to also actively enhance the advancement of the research domain by collaborating with researchers and employing experimental methodologies not previously utilized in the studies presented herein. Reviews significantly influence both research and educational policies (Newman & Gough, 2020). The findings of the present study suggest research topics that are worth financing and open new avenues in HRM education for sustainability.

### Conclusions

I aimed to fill a gap in literature reviews by analyzing articles on sustainable HRM and its sub-concepts, with the focus on research conducted in the V4 countries. I applied bibliometric analysis with keyword network analysis and in-depth content analysis.

The study extends previous literature reviews on sustainable HRM by updating results related to the general field of sustainable HRM and providing characteristics of contributions made by V4 authors. This demonstrates what has been achieved in the V4 countries, enhancing the uniqueness of future studies on sustainable HRM in the V4 region. This article also presents detailed directions for further research, both identified in the articles from the V4 sample and indicated by the author of this review based on a broader analysis of the research field. Finally, it provides implications for HRM managers and useful educational material that can become part of courses on HRM and sustainability in the V4 countries.

Although this study applied methodological rigor and three types of analysis, it has some limitations. Firstly, in the search strategy, I focused on a complex set of activities associated with a given HRM concept (sustainable HRM, green HRM, or socially responsible HRM). However, there are other articles in which only one HRM practice was examined (e.g., HR training in the context of a company’s sustainable performance). Therefore, future – extended – studies may also cover articles devoted to specific sustainable/green/socially responsible HRM practices. Furthermore, this study provides data up to the end of 2022. As the research field evolves, new articles may be published, altering the structure of both general and V4 research samples. Hence, literature reviews should be periodically conducted to offer science and practice with updated knowledge synthesis.

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