Reconfiguring HR Roles for Sustainability Governance: A Bibliometric View of Strategic Role Transformation

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Article Info	ABSTRACT
	As organizations increasingly face pressure to align with sustainability goals and adapt to rapid digital transformation, the role of Human Resource Management (HRM) is undergoing a strategic redefinition. This study investigates the evolution of HR's contribution to sustainability governance through a comprehensive bibliometric analysis of scholarly literature indexed in the Scopus database from 2000 to 2025. Using VOSviewer for co-occurrence, temporal, and density mapping, the research identifies major thematic clusters including green HRM, digital transformation, employee engagement, and artificial intelligence. The study also maps institutional and international collaborations, revealing India as a central hub in sustainability-oriented HR research. Findings highlight the growing scholarly focus on integrating technology and sustainability into HR functions, positioning HR as a critical enabler of ethical decision-making and organizational transformation. This research offers theoretical contributions by structuring fragmented themes into coherent domains and provides practical implications for HR professionals, educators, and policymakers. Limitations include reliance on a single database and the exclusion of qualitative content analysis, suggesting directions for future mixed-method research.

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1. INTRODUCTION

In recent decades, the role of Human Resource Management (HRM) has undergone a profound transformation, from a support function focused on administration and compliance, to a strategic partner driving organizational competitiveness [1], [2]. This strategic turn in HR has been fueled by the growing complexity of global business operations, the rising importance of talent as a critical asset, and the increasing expectation for HR to contribute to long-term organizational success. As firms navigate volatility, uncertainty, complexity, and ambiguity (VUCA), HR is no longer confined to traditional boundaries of recruitment and payroll; instead, it has emerged as a key player in shaping organizational values, culture, and adaptability [3], [4].

Parallel to this evolution is the rise of sustainability governance as a central pillar of corporate strategy. The global push for

sustainable development manifested through frameworks like the United Nations Sustainable Development Goals (SDGs), ESG (Environmental, Social, and Governance) reporting standards, and increasing stakeholder pressure for ethical business conduct, has transformed how organizations define performance and responsibility [5], [6]. No longer is profitability the sole measure of success. Companies are expected to account for their environmental footprint, social impact, and governance structures. In this context, sustainability governance refers to the system of policies, processes, roles, and metrics by which organizations embed sustainability into their core operations and decision-making [7].

These two movements (the strategic transformation of HR and the institutionalization of sustainability governance) are now intersecting in meaningful ways. Scholars and practitioners increasingly argue that HR has a crucial role to play in enabling sustainability transitions [8]. HR can drive behavioral change, embed sustainability competencies into workforce development, create ethical leadership pipelines, and foster cultures of accountability. HR professionals are uniquely positioned to align employee engagement, talent development, and organizational change with sustainability principles. Consequently, HR's evolving roles are no longer just strategic, they are becoming sustainability-centric [9].

Yet, the contours of this new sustainability-oriented HR function are still emerging. The academic literature reveals a scattered landscape of concepts and practices [10], [11]. Terms like "Green HRM," "sustainable workforce," "HR for sustainability," and "HR's strategic role in ESG" appear frequently, but often without consensus or a unified framework. Moreover, the transformation of HR roles, from administrative to strategic, and now to sustainability governance enablers, has not been comprehensively mapped. This gap hinders both theoretical development and practical application, leaving organizations with limited guidance on how to reconfigure

their HR departments to effectively support sustainability governance.

As the Fourth Industrial Revolution unfolds, characterized by automation, digitalization, and AI, new challenges and opportunities emerge for HR. On one hand, digital transformation creates tools that allow for better sustainability tracking, remote work optimization, and employee wellbeing. On the other hand, it introduces risks of dehumanization, data privacy concerns, and workforce dislocation. Therefore, HR must not only support sustainability as an organizational objective but also ensure that technological shifts are managed ethically and inclusively. In this scenario, the demand for a redefined HR architecture that integrates strategic foresight, technological literacy, and sustainability imperatives has become more pressing than ever.

Despite increasing scholarly interest in the intersection of HR and sustainability governance, the existing body of knowledge remains fragmented, lacking a systematic understanding of how HR roles are evolving in this domain. The literature is rich in conceptual exploration but poor in longitudinal, structural, or relational insights. Without a clear bibliometric mapping of key themes, influential contributors, and emerging trends, the strategic reconfiguration of HR for sustainability governance risks being guided by intuition rather than evidence. This knowledge gap inhibits both academics seeking to advance theory and practitioners aiming to design future-ready HR systems aligned with sustainability goals. This study aims to systematically examine and visualize the transformation of HR roles in the context of sustainability governance through a bibliometric analysis.

2. METHODS

To achieve the objective of mapping the intellectual landscape on the transformation of HR roles in the context of sustainability governance, this study employed a bibliometric analysis approach. Bibliometric analysis is a quantitative method used to systematically examine large volumes

of academic literature, identify patterns, and visualize scholarly trends within a given field. It enables the identification of influential authors, frequently cited articles, collaboration networks, and thematic clusters. In this study, bibliometric methods were deemed appropriate not only to trace the development of HR's strategic and sustainability-oriented roles over time, but also to uncover hidden linkages and conceptual structures that may not be visible through conventional literature reviews.

The data for this analysis were retrieved from the Scopus database, one of the most comprehensive repositories of peer-reviewed literature across multiple disciplines. The search strategy involved a combination of keywords such as "human resource management," "HR strategic role," "sustainability governance," "Green HRM," and "sustainable HR practices." Boolean operators (AND, OR) and wildcard symbols were used to broaden the coverage while maintaining relevance. Only journal articles published in English between 2000 and 2025 were included to capture both foundational

works and the most recent developments. Conference proceedings, books, and non-peer-reviewed sources were excluded to maintain academic rigor. The final dataset, once cleaned for duplicates and irrelevant records, consisted of a corpus of 350 documents.

The analysis was conducted using **VOSviewer**, a bibliometric mapping software developed by Leiden University. VOSviewer was used to generate co-authorship networks, keyword co-occurrence maps, citation patterns, and temporal trend visualizations. The keyword co-occurrence map helped identify dominant themes and emerging subfields, while the temporal visualization offered insights into how scholarly focus has shifted over time—from traditional HR roles to more sustainability-embedded responsibilities. Furthermore, thematic clustering enabled the categorization of literature into strategic HR transformation, sustainability integration, capability development, and ESG-related governance roles.

3. RESULTS AND DISCUSSION
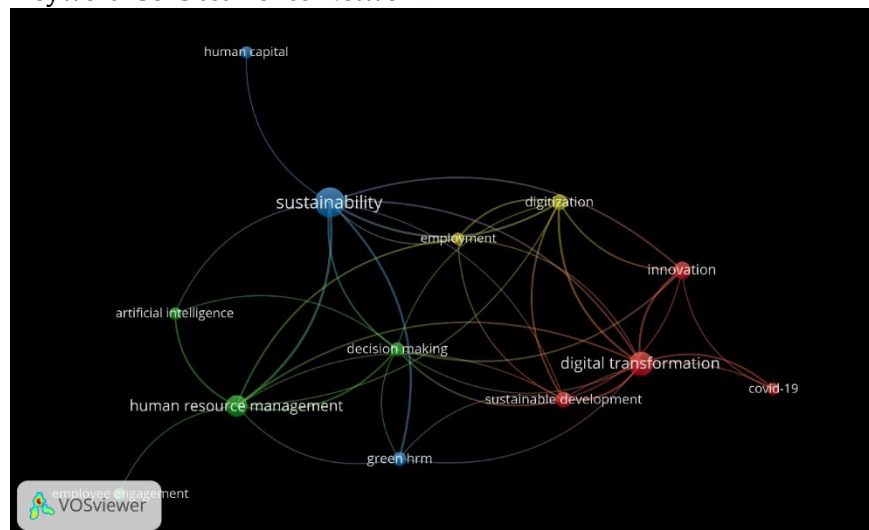
3.1 Keyword Co-Occurrence Network

Figure 1. Network Visualization
Source: Data Analysis Result, 2025

Figure 1 reveals four major thematic clusters in the literature. The blue cluster is anchored by the keyword "sustainability," indicating its centrality in current scholarly

discourse. This cluster includes terms like *human capital*, *green HRM*, and *decision making*, suggesting an academic focus on aligning human capital strategies with sustainability

outcomes. The green cluster, with "human resource management" as its core, connects deeply with *artificial intelligence*, *employee engagement*, and *decision making*, reflecting the evolving role of HR in integrating technology and behavioral science to support strategic transformation. These clusters highlight the foundational role of HR and sustainability in the literature.

The red cluster in the map is dominated by "digital transformation," which connects with keywords such as *innovation*, *digitization*, *COVID-19*, and *sustainable development*. This cluster underscores the disruptive influence of digital technologies on both organizational operations and sustainability practices. The presence of *COVID-19* as a significant node further emphasizes how the pandemic has accelerated digital adoption and reshaped HR responsibilities, particularly in terms of remote work, employee wellbeing, and agile workforce management. These connections suggest that HR's reconfiguration is increasingly driven by the need to manage digital transitions responsibly.

The yellow and orange nodes such as *employment*, *decision making*, and *digitization*

serve as bridges across clusters, indicating cross-cutting issues that link sustainability, HRM, and digital transformation. *Employment*, for instance, is linked to both sustainability and innovation, signaling ongoing discourse around green jobs, reskilling, and inclusive labor policies. The term *decision making* sits at the intersection of green HRM, digital tools, and strategic governance, highlighting HR's expanded role in shaping policies that impact long-term sustainability and ethical compliance. These bridging terms reflect a strategic integration across disciplines.

The presence of terms like artificial intelligence and green HRM signals emerging research frontiers. While not yet central nodes, their strong links to both HRM and sustainability suggest growing interest in exploring how intelligent systems can enhance workforce sustainability, predictive talent analytics, and climate-responsive HR policies. Furthermore, the relatively sparse connection between employee engagement and sustainability governance highlights an opportunity for deeper exploration of how employee behavior, motivation, and purpose-driven cultures intersect with ESG goals.
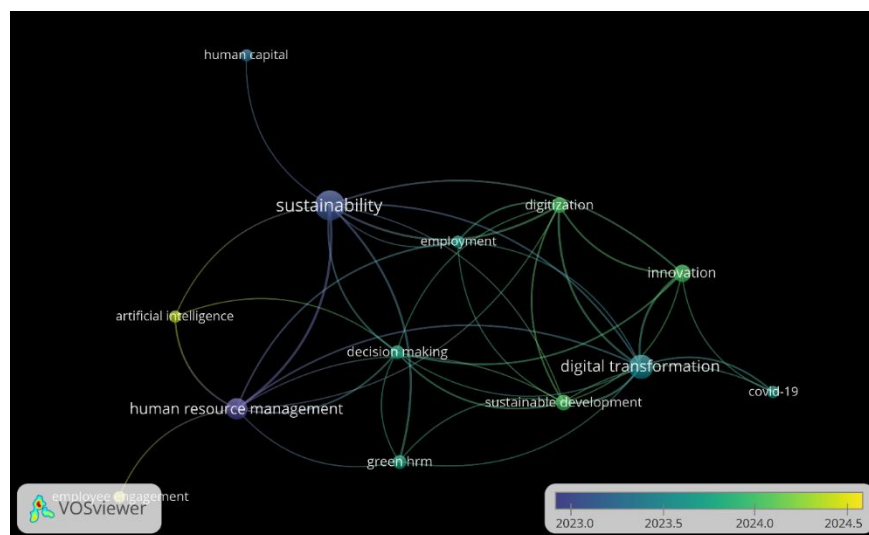

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2025

The overlay visualization indicates a clear evolution of scholarly focus from foundational concepts to more contemporary themes. Early discussions (represented by

dark blue tones) were dominated by keywords like "human resource management," "sustainability," and "human capital." These represent the traditional base

of literature that laid the theoretical groundwork for HR's role in organizational development and ethical responsibility. Topics such as "decision making" and "green HRM" also appear in blue-green hues, suggesting their emergence in the mid-phase of the research timeline, especially as sustainability began to gain traction as a governance concern. Moving towards more recent periods (green to yellow hues), there is a visible emergence of digital transformation and innovation-oriented themes. Keywords such as "artificial intelligence," "digitization," "innovation," and "digital transformation" appear in lighter colors, indicating increasing attention between 2023 and 2024. This trend reflects how the literature is increasingly engaging with the digital disruption of HR functions, including how technologies can support sustainable practices, decision automation, and workforce agility. The temporal placement of "employment" and "sustainable development" suggests that scholars are beginning to critically examine the implications of digital and sustainability transitions on labor markets and organizational capability building. The most recent keywords, particularly "artificial intelligence" and "employee engagement," appear in yellow, highlighting their rising relevance in current discourse (around 2024 and onward). These indicate a shift toward exploring how intelligent systems are reshaping HR's strategic contribution to sustainability governance, and how engagement strategies can be reconfigured to support ESG goals. The persistent presence of "COVID-19" also suggests lingering interest in how the pandemic has acted as a catalyst for digital and sustainable HR innovation.
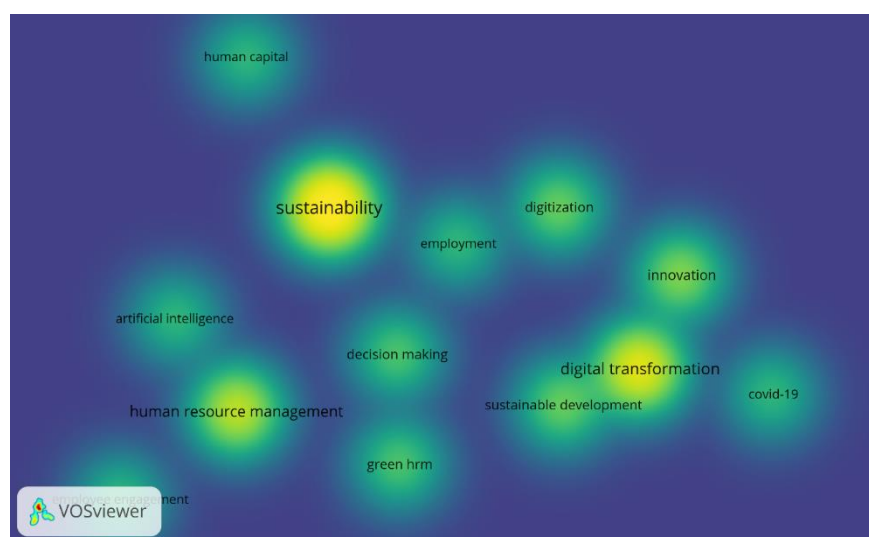

Figure 3. Density Visualization
Source: Data Analysis, 2025

The density visualization clearly highlights "sustainability," "digital transformation," and "human resource management" as the most intensively studied topics in the field, indicated by the bright yellow cores around these keywords. These areas serve as knowledge hotspots, reflecting their centrality and frequency in the bibliometric dataset. The intense focus on sustainability suggests its pivotal role in shaping HR discourse, while digital transformation is closely linked, underscoring the shift toward technologically driven human capital strategies. The prominence of HRM affirms its foundational relevance, especially in the context of aligning people practices with organizational transitions toward sustainability and innovation. In contrast, topics such as "green HRM," "artificial intelligence," "decision making," and "employment" appear in green zones, denoting moderate but growing scholarly interest. The relative dispersion of terms like innovation, COVID-19, and employee

engagement shows that while these are part of the research conversation, they have not yet reached the same level of saturation. This distribution indicates emerging opportunities for deeper exploration.
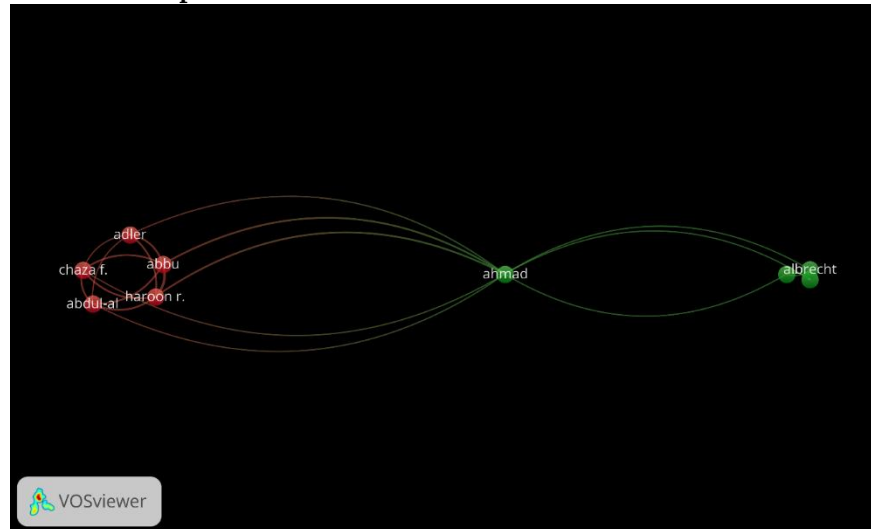
3.2 Co-Authorship Network

Figure 4. Author Collaboration Visualization
Source: Data Analysis, 2025

Figure 4 illustrates a distinct bridge structure centered around the author "ahmad," who serves as a key connector between two distinct scholarly clusters. On the left side (in red), the network includes authors such as adler, chaza f., abbu, and abdul-al haroon r., who appear to collaborate closely within a tight-knit group. On the right side (in green), ahmad connects to another cluster consisting of albrecht and colleagues, indicating cross-collaboration between possibly different research communities or regions. This configuration suggests that ahmad plays a pivotal role as an intellectual intermediary, facilitating knowledge exchange and co-authorship across otherwise separate academic networks.
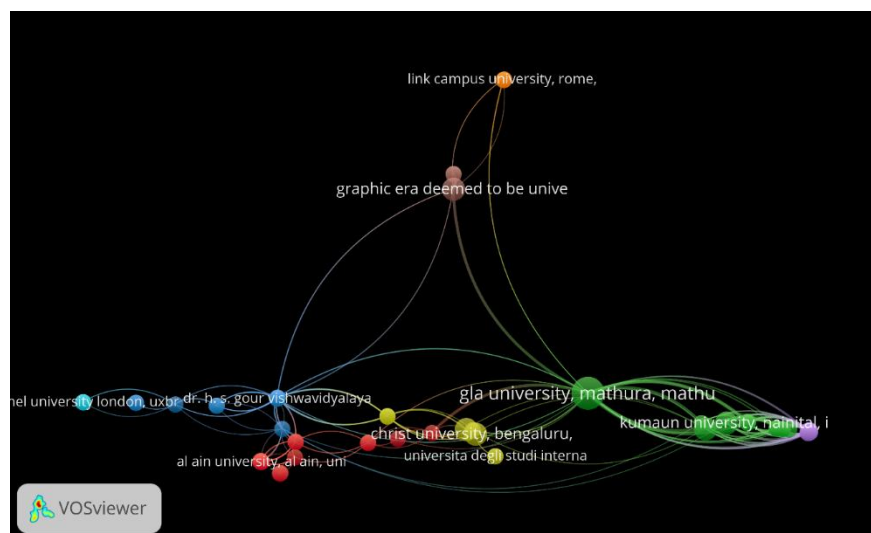

Figure 5. Affiliation Collaboration Visualization
Source: Data Analysis, 2025

Figure 5 reveals a diverse but interconnected ecosystem of universities contributing to the research domain. At the center of the network is GLA University, Mathura, which serves as a core hub, collaborating widely with other institutions such as Graphic Era Deemed to be University, Christ University, Bengaluru, and Kumaun University, Nainital. The map displays multiple clusters, each marked by distinct colors, suggesting the presence of regional or thematic research alliances. For instance, the red cluster, which includes Al Ain University and Dr. H.S. Gour Vishwavidyalaya, indicates a strong collaboration within South Asian and Middle Eastern academic spaces. Meanwhile, Link Campus University, Rome, is positioned at the top of the map with connections primarily to the central node, highlighting its role as an international collaborator rather than a cluster leader.
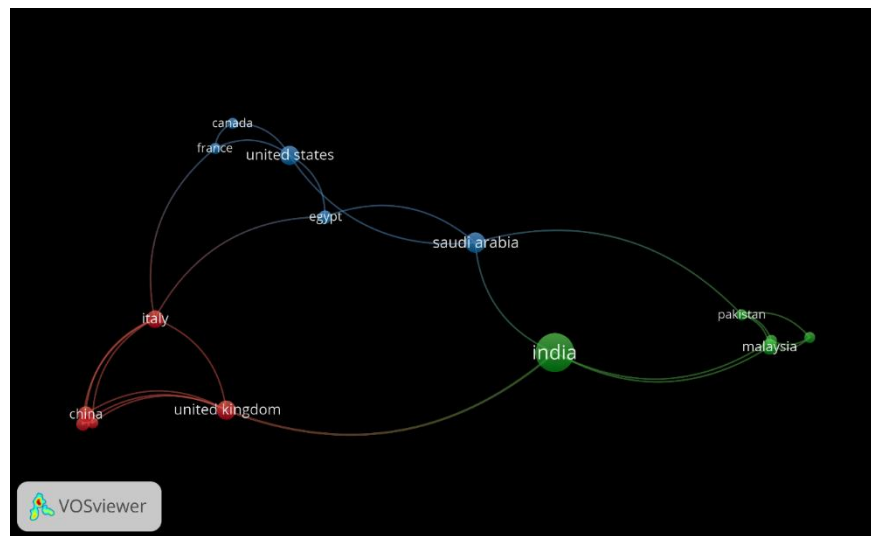

Figure 6. Country Collaboration Visualization
Source: Data Analysis, 2025

Figure 6 reveals India as the most prominent and central contributor in the field, indicated by its large node size and extensive linkages with both regional and global partners. India shows strong bilateral collaborations with Malaysia, Pakistan, Saudi Arabia, and even cross-continental ties with the United Kingdom and Italy. The blue cluster, comprising countries like United States, Canada, France, Egypt, and Saudi Arabia, highlights a North American and Middle Eastern axis of research cooperation. Meanwhile, the red cluster, formed by China, Italy, and the United Kingdom, reflects European-Asian scientific engagement. Notably, Saudi Arabia and Egypt act as bridging countries between Western and South Asian research communities.

3.3 Citation Analysis

Table 1. Top Cited Research

Citations	Authors and year	Title
268	[12]	Supply chain management in the era of circular economy: the moderating effect of big data
109	[13]	The consensus between Italian HR and sustainability managers on HR management for sustainability-driven change - towards a 'strong' HR management system
65	[14]	A Mixed-Methods Investigation of Instructional Coaching for Teachers of Diverse Learners

Citations	Authors and year	Title
33	[15]	The Effect of Electronic Human Resource Management Systems on Sustainable Competitive Advantages: The Roles of Sustainable Innovation and Organizational Agility
23	[16]	Talent Management Facilitates Net-Zero Transition Through Employee Green Behavior
19	[17]	The contribution of organizational learning and green human resource management practices to the circular economy: a relational analysis – Part I
13	[18]	How Sustainable Is Human Resource Management Really? An Argument for Radical Sustainability
12	[19]	Economic Sustainable Development through Digital Skills Acquisition: The Role of Human Resource Leadership
12	[20]	Sustainable preparation of graphene-like hybrid nanomaterials and their application for organic dyes removal

Source: Scopus, 2025

Practical Implication

This study offers clear practical implications for organizations, HR professionals, and policy-makers striving to align human capital strategies with sustainability governance frameworks. The findings reveal that themes such as digital transformation, green HRM, employee engagement, and decision making are no longer peripheral—they are central to the evolving role of HR. Practitioners must therefore reconfigure HR departments not only as administrative bodies but as strategic enablers of sustainability goals. For example, the increased density and temporal relevance of keywords like artificial intelligence and innovation highlight the need for HR to integrate technological tools into workforce planning, performance monitoring, and ethical decision-making. Furthermore, the country and institutional collaboration networks show that India, along with select institutions like GLA University and Christ University, are emerging as influential hubs in sustainability-driven HR discourse—offering potential models and case references for other nations and universities. Policymakers and educational institutions could use this insight to design training programs that equip future HR leaders with competencies in ESG, digital fluency, and sustainability leadership.

Theoretical Contribution

Theoretically, this study contributes to the ongoing discourse on the strategic transformation of HR by providing a structured bibliometric mapping of how HR's roles are evolving in response to global sustainability pressures and digital disruption. By synthesizing fragmented themes into clustered conceptual domains, this study offers a foundational framework for future researchers to build more integrated models of *HR-sustainability convergence*. The visual co-occurrence and density maps highlight not only dominant concepts but also emergent ones like *artificial intelligence* and *employee engagement*, thus providing theoretical directions for deeper examination of how HR's ethical and behavioral roles intersect with governance structures. Additionally, the co-authorship and country collaboration analyses expose intellectual bridges—like author "Ahmad" and countries like *India* and *Saudi Arabia*—which can serve as anchor points for meta-analyses or cross-cultural theory development. In doing so, this research advances the conceptual understanding of HR as a strategic actor in multi-level sustainability governance ecosystems.

Limitation

Despite its comprehensive bibliometric scope, this study is not without limitations. First, the analysis is limited to the Scopus database, which, while reputable and

extensive, may not fully capture relevant studies published in other indexes such as Web of Science, Google Scholar, or regional journals with high practical insights but lower global visibility. Second, bibliometric analysis focuses on quantitative patterns of publication and co-occurrence, and thus does not offer deep qualitative insight into the *content, context, or critical debates* within the articles themselves. This means that while trends are identified, the nuance of theoretical conflict or practical challenges may remain underexplored. Moreover, the visualization of author and institutional collaboration networks—although useful—may underrepresent informal or unpublished partnerships, and are sensitive to how affiliations are indexed. Lastly, given the rapidly evolving nature of sustainability and digital HR practices, some very recent but impactful contributions may not have accrued enough citations to appear prominently in the visualizations. Future research can address these limitations through mixed-method bibliometric reviews, integrating content analysis, expert interviews, or case study validation.

4. CONCLUSION

This bibliometric study sheds light on the dynamic evolution of Human Resource Management as a strategic function increasingly intertwined with sustainability governance and digital transformation. Through visual analysis of co-occurring keywords, institutional networks, and country collaborations, the research highlights key thematic domains such as green HRM, innovation, artificial intelligence, and sustainable development, as well as the growing influence of countries like India and institutions serving as research hubs. The findings underscore a paradigm shift in which HR is no longer confined to administrative roles but is emerging as a pivotal agent of organizational change, ethical governance, and digital adaptation. By mapping these intellectual trends and collaborative linkages, the study not only contributes to theoretical advancement but also offers practical insights for HR leaders, policymakers, and educators seeking to future-proof their organizations in an era defined by sustainability imperatives and technological disruption.

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