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Unveiling Trends and Insights: A Bibliometric Analysis of AI in Human Resource Management

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ABSTRACT

Purpose: This paper aims to provide an in-depth bibliometric analysis of the application of Artificial Intelligence (AI) in Human Resource Management (HRM), focusing on identifying emerging trends, core themes, and potential future research directions in the field.

Design/Methodology/Approach: The study analyzes a large corpus of academic publications sourced from the Web of Science database. It identifies the most influential works, authors, journals, and collaborative networks, mapping the intellectual structure and evolution of AI in HRM.

Findings: The analysis reveals a significant increase in research interest in AI-driven HRM practices in recent years, underscoring the growing recognition of AI's role in enhancing HRM. Additionally, the study highlights the geographical distribution of research and the interdisciplinary nature of AI in HRM.

Originality/Value: This bibliometric analysis offers valuable insights into the current landscape and future prospects of AI in HRM, providing researchers, practitioners, and policymakers with a comprehensive understanding of key developments and future research priorities.

Paper Type: Review of Literature

KEYWORDS: Artificial Intelligence | Human Resource Management | Bibliometric Analysis | HR digitisation | HR Analytics, Predictive Analytics

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Introduction

The rapid evolution of technology has permeated every facet of modern organizational operations, with Human Resource Management (HRM) being no exception. AI is a significant technical development that can fully transform HRM processes (Vrontis et al., 2023). It encompasses a broad spectrum of technologies, such as machine learning and natural language processing, robotics, and advanced algorithms, specifically developed to replicate human intellect and carry out activities that has conventionally relied on human involvement (Perez et al., 2018). Within the realm of Human Resource Management (HRM), artificial intelligence (AI) technologies are progressively being used to optimize and improve several operations like talent acquisition, employee engagement, performance management, and workforce planning (Bashynska et al., 2023).

A key aspect of AI in HRM is its capacity to efficiently and precisely handle large volumes of data (Lengnick-Hall et al., 2018), thus enabling HR professionals to make data-driven decisions. For instance, AI-powered recruitment processes can evaluate a large number of resumes in significantly less time compared to human recruiters, identifying the best candidates based on predefined criteria (Nayak et al., 2024). Likewise, performance management systems driven by artificial intelligence can consistently track employee performance, offering immediate feedback and tailored development strategies (Nyathani (2023). These capabilities not only enhance efficiency but also reduce biases and improve the overall effectiveness of HR practices (Chowdhury et al., 2023).

The integration of AI in HRM is motivated by the imperative for organisations to sustain competitiveness in a progressively dynamic and intricate commercial landscape. The utilization of artificial intelligence (AI) enables organizations to augment their agility, promote employee satisfaction, and attain improved congruence between their human capital plans and corporate objectives (Bashynska et al., 2023). Nevertheless, the incorporation of AI into HRM is not devoid of obstacles. It is imperative to address crucial issues such as data protection, ethical considerations, and the requirement for a competent staff to run AI systems (Dwivedi et al., 2021).

Despite the growing interest and investment in AI for HRM, the academic and practical understanding of its impact remains fragmented. The literature on AI in HRM is extensive, but it is dispersed across various disciplines and lacks a cohesive framework that captures the holistic picture of how AI is transforming HRM practices. This fragmentation makes it challenging for researchers, practitioners, and policymakers to identify key trends, influential studies, and future research directions.

The primary problem this study addresses is the need for a comprehensive exploration of the existing body of research on AI in HRM. While there are numerous individual studies on specific applications of AI in HRM, there is a lack of bibliometric analyses that systematically evaluate the research landscape. Bibliometric analysis, which involves the quantitative assessment of academic literature, can give valuable understanding into the advancement of the discipline, the relationships between different research themes, and the evolution of key concepts over time (Donthu et al., 2021).

This paper intends to address this gap by doing a bibliometric analysis of artificial intelligence in human resource management. By examining a large corpus of academic publications, this research seeks to map the intellectual structure of the field, identify influential works and authors, and uncover emerging trends and future research opportunities.

The primary objective of this bibliometric analysis is to spot the most influential publications, authors, and journals in the field of AI in HRM. This goal is achieved through a detailed citation analysis that highlights key contributions that have significantly shaped the field. By pinpointing these seminal works, the study provides a reference point for future research, guiding new scholars and practitioners towards foundational and impactful literature. Understanding which publications and authors have garnered the most attention allows for a deeper appreciation of the intellectual milestones and paradigm shifts that have occurred in AI-HRM research.

Another critical objective is to uncover the main themes and research trends within AI in HRM. By employing keyword analysis and co-citation analysis, this study identifies the dominant topics and explores the relationships between different research areas. This comprehensive overview offers valuable insights into the current focus areas and emerging themes in the field (Osareh, 1996). It helps in understanding how the research landscape has evolved over time and highlights the interconnectedness of various subfields. Identifying these trends not only elucidates the current state of AI-HRM research but also provides a roadmap for future investigations, ensuring that upcoming studies build on existing knowledge and address pertinent issues.

Examining the geographical distribution of research contributions forms another significant objective of this study. This analysis reveals which regions and countries are leading the charge in AI-HRM research, shedding light on global collaboration patterns. Understanding the geographic origins of influential research can highlight regional strengths and expertise, offering insights into how different cultural and organizational contexts influence AI-HRM research and application. This geographical perspective also helps

in identifying potential for international collaborations and comparative studies, fostering a more global and inclusive approach to AI-HRM research.

Exploring the interdisciplinary nature of AI in HRM is another key objective. By analyzing co-authorship and citation networks, the study aims to reveal the extent to which AI-HRM research intersects with other disciplines. It is crucial because AI applications in HRM often draw on insights from computer science, psychology, management, and other fields. Understanding these intersections can promote cross-disciplinary collaborations and innovation, leading to more holistic and robust AI-HRM solutions. Identifying interdisciplinary connections also helps in broadening the scope of research and integrating diverse perspectives, thereby enriching the overall body of knowledge.

Lastly, providing recommendations for future research is an essential objective of this bibliometric analysis. Based on the findings, The objective of this study is to pinpoint deficiencies in the existing literature and propose novel avenues for research. These recommendations are crucial for advancing the field, addressing unresolved questions, and exploring under-researched areas. The study seeks to steer future research efforts, ensuring that both academic and practical insights into AI in HRM continue to advance and develop. The recommendations aim to foster innovation, encourage rigorous investigation, and ultimately enhance the effectiveness and efficiency of HRM practices through the application of AI.

By addressing these goals, this bibliometric analysis aims to provide a thorough overview of the current environment of artificial intelligence in human resource management, delivering significant insights for researchers, practitioners, and policymakers.

Literature Review

AI in HRM has acquired significant attention in recent years. AI technologies are being increasingly utilized to enhance various HR functions. The deployment of AI in HRM is mainly motivated by its capacity to efficiently and accurately handle large volumes of data. This capability allows for data-driven decision-making and enhances the overall efficiency and effectiveness of HR operations (RadonjiŇ et al., 2022).

One prominent application of AI in HRM is in recruitment and talent acquisition. The rapid analysis of vast quantities of resumes and applications by AI-driven systems enables the identification of the most suitable applicants according to particular criteria (Gupta & Ata, 2024). These tools utilize natural language processing to parse resumes and match candidate profiles with job descriptions, thereby decreasing the time and effort involved in the initial screening process. Studies have shown that AI can significantly reduce biases in hiring by focusing on objective criteria and eliminating human prejudices (Houser, 2019).

AI is also being used to optimise staff involvement and retention (Mer & Srivastava, 2023). AI-powered platforms can evaluate employee feedback performance data, and other metrics to identify patterns and predict potential issues such as employee dissatisfaction or turnover. By providing instantaneous analysis and specifically tailored suggestions, AI helps HR managers to proactively address employee concerns and build a more friendly and engaging work environment (Tambe et al., 2019).

AI applications in performance management include tools that continuously monitor employee performance and provide real-time feedback (Varma et al., 2023). These tools can track key performance indicators, analyze productivity patterns, and offer personalized development plans (Davenport & Ronaki, 2018). Research indicates that AI-driven performance management systems can contribute to more accurate and objective evaluations, encouraging a culture of continual improvement and growth.

In workforce planning, AI is used to forecast future workforce needs based on past data and current trends. AI algorithms can analyze factors such as employee turnover rates, market conditions, and business growth projections to forecast staffing requirements (Joseph et al., 2024). This enables organizations to make more informed decisions regarding hiring, training, and resource allocation.

Despite these advancements, the adoption of AI in HRM is not without difficulties. Issues related to security of data, ethical considerations, and the need for trained staff to manage AI systems are significant concerns (Rouvroy, 2008). Moreover, the rapid pace of technological change requires continuous adaptation and learning on the part of HR professionals.

Bibliometric Analysis in Research

Bibliometric analysis is a quantitative tool used to analyze academic literature and provide insights into research trends, influential works, and collaborative networks (Donthu et al., 2021). By examining citation patterns, co-authorship networks, and keyword occurrences, it helps to chart the intellectual organizational framework of a research area and detect developing topics and significant publications. This methodology is particularly valuable in rapidly evolving fields like AI in HRM, where understanding the development and trajectory of research can guide future studies and inform practice.

One of the primary tools used in bibliometric analysis is VOSviewer, a software program designed for constructing

and visualizing bibliometric networks (Van & Walkman, 2010). VOSviewer can create maps based on network data, such as citation networks, co-citation networks, and co-authorship networks (McAllister et al., 2022). These maps help to visualize the relationships between different entities (e.g., authors, publications, keywords) and identify clusters of related research.

Bibliometric analysis serves several key purposes in understanding research trends. It helps to identify the most influential publications and authors in a field, providing a reference point for new researchers and highlighting seminal works, and uncovers the main themes and research trends by analyzing keyword occurrences and co-citations, offering a comprehensive overview of the research landscape (Ellegaard (2018). It also reveals collaboration patterns by examining co-authorship networks, highlighting the extent of interdisciplinary research and potential areas for collaboration. Lastly, bibliometric analysis can identify gaps in the literature and suggest directions for future research, ensuring that new studies build on existing knowledge and address unresolved issues (Donthu, 2021).

Methodology of Bibliometric Analysis using VOSviewer:

Conducting a bibliometric analysis with VOSviewer involves a systematic and structured approach to ensure the accuracy and comprehensiveness of the findings (Kuzior & Sira, 2022). The procedure begins with data collection, which entails acquiring relevant publications from academic sources such as Web of Science. These databases are selected for their extensive coverage of scholarly articles, ensuring a comprehensive dataset. The search strategy is carefully designed to include a wide range of keywords related to AI in HRM to capture all relevant literature. The resulting dataset includes information on publications, authors, citations, and keywords, providing a rich source of data for analysis. Thereafter, network construction using VOSviewer is done wherein VOSviewer is employed to create various bibliometric networks, including citation networks, co-citation networks, and co-authorship networks.

The constructed networks are then visualized and analyzed using VOSviewer's advanced mapping capabilities. VOSviewer generates detailed maps where nodes represent entities such as authors, publications, or keywords, and edges represent their relationships, such as citations or co-authorships. The software uses colour coding and spatial distribution to highlight clusters of related nodes, making it easy to identify prominent research themes and collaboration patterns (Arruda et al., 2022). The density of connections within these maps indicates the strength of relationships, with tightly connected clusters representing areas of concentrated research activity. This visualization process transforms complex bibliometric data into intuitive and interpretable maps, providing clear understanding of the organisation and evolution of the domain.

The visualized maps and extracted data are analyzed to derive significant findings regarding the research domain. This involves identifying leading authors, influential publications, and prominent research themes. The analysis of citation networks helps pinpoint seminal works that have significantly impacted the field (Wong, 2018). Co-citation networks reveal the intellectual structure and key clusters within the research domain, highlighting areas of intense scholarly activity. Co-authorship networks provide insights into collaboration patterns, indicating the extent of interdisciplinary research and potential areas for future partnerships. Through this interpretation, the bibliometric analysis offers a elaborated understanding of the development and dynamics of AI in HRM research.

The methodology of conducting a bibliometric analysis using VOSviewer involves a meticulous process of data collection, network construction, visualization, and analysis. Each stage is critical for guaranteeing the correctness and dependability of the analysis, ultimately providing valuable understanding into the trends, influential works, and collaborative networks within the field of AI in HRM. This structured approach allows researchers to map the intellectual landscape, identify gaps, and recommend options for future research, ultimately enhancing the understanding and implementation of AI in HRM.

Methodology

Data Collection

The first step in conducting a bibliometric analysis involves gathering relevant data from reputable academic databases. For the study, Web of Science (WoS) is selected as the data source due to its wide coverage of high-quality scholarly publications across numerous areas. Web of Science is renowned for its extensive indexing of peer-reviewed journals, conference proceedings, and other academic sources (Singh et al., 2021), making it an ideal resource for capturing a broad range of publications related to the concerns of the junction of Artificial Intelligence (AI) and Human Resource Management (HRM).

The data collection process begins with a well-defined search strategy to ensure the inclusion of all pertinent literature. The search query used in Web of Science is designed to capture a wide array of publications on the topic. The query is formulated using the following keywords:

((TS=("Artificial Intelligence" AND "Human Resource Management")) OR TS=("AI in HR")) OR TS=("HR digitization") OR TS=("HR Analytics")

In this query, "TS" stands for "Topic Search," which ensures that the search encompasses titles, abstracts, and keywords within the selected publications. By combining these keywords with Boolean operators (OR), the query aims to retrieve a comprehensive dataset that covers various aspects of AI applications in HRM. The keywords chosen reflect key areas of interest within the field, including the general application of AI in HRM, specific instances of AI in HR practices, and broader concepts such as HR digitization and HR analytics. To capture the developments and trends of AI in HRM, the analysis is comprehensive including publications from the past decade (2004-2024). This timeframe ensures that the research reflects overall and contemporary issues in the field. A total of 228 research articles have been resulted and analysed.

In bibliometric analysis, various metrics and indicators are essential for evaluating the significance and impact of scholarly publications, authors, and journals (Donthu et al., 2021). These metrics shed light on research trends, influential works, and collaborative networks within a field. For analyzing AI in Human Resource Management (HRM) using VOSviewer, several key metrics are employed.

Citation counts are fundamental in measuring a publication's influence by reflecting the number of times it is cited by other works, indicating its impact on the field. High citation counts often denote significant contributions that shape the development of AI in HRM. Cluster analysis groups related entities into clusters based on connections, visualized in VOSviewer as distinct groups of closely related nodes. This analysis identifies key research themes, influential subfields, and emerging trends within AI in HRM.

These metrics and indicators collectively provide a holistic view of the bibliometric assessment of AI in HRM. By analysing co-authorship, keywords, citation counts, bibliographic coupling and co-citation, researchers can acquire useful insights into the influence, connectivity, and structure of academic research on the topic. This analysis helps to identify key contributions, emerging trends, and potential areas for future investigation, ultimately advancing the understanding of AI applications in HRM.

Results and Analysis

Categories

Table 1 Top five categories of Web of Science for published papers (total count 228)

S. No	Field (WOS Category)	Record Count	Percentage
1	Management	135	59.211
2	Business	49	21.491
3	Industrial Relations labour	42	18.421
4	Psychology Applied	36	15.789
5	Computer Science information systems	11	4.825

The table presents a categorization of published papers in the Web of Science database related to AI in HRM, based on a total count of 228 papers. The "Management" category leads with 135 papers, accounting for 59.211% of the total, indicating that the majority of research in AI and HRM is concentrated in this field. This distribution underscores that AI in HRM is predominantly explored within management and business contexts, with notable contributions from industrial relations, psychology, and computer science fields.

Citation Report Analysis as per Web of Science

The citation report analysis for AI in HRM research over the period from 2004 to 2024 reveals a total of 229 publications. These works have been cited by 2,784 articles, including self-citations, and by 2,635 articles excluding self-citations, demonstrating the research's broad impact and recognition within the academic community. The average citation per item stands at 20.87, indicating a substantial influence of each publication in the field. Additionally, the h-index of 40 reflects a significant number of highly cited papers, illustrating the robustness and enduring relevance of the research in AI and HRM.

Citation Graphs:

Combined (Publications +Citations)

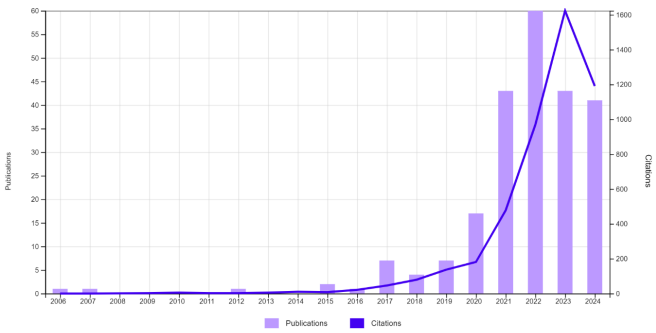

Figure 1: Trend showing publication and citations of papers from 2002-2024

The trend graph illustrates the publication and citation trajectory of papers on AI in HRM from 2002 to 2024. Initially, the number of publications remained low, with minimal citations until around 2016. A noticeable increase in both publications and citations began in 2017, marking the growing academic interest and recognition of the field. The trend shows a sharp rise, particularly from 2020 onwards,

with the peak in 2022, where both publications and citations reached their highest levels. Although there is a slight decline in 2024, the overall trend demonstrates a significant upward trajectory, reflecting the burgeoning influence and expansion of research on AI in HRM over the last two decades.

Analysis using VOSviewer

Co-authorship Analysis

Co-authorship and authors

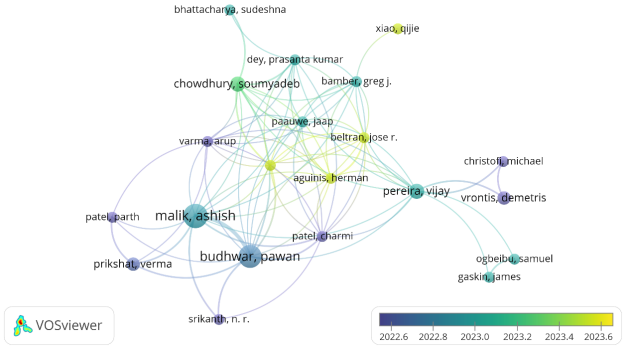

Figure 2 VOS viewer visualisation of co-authorship and authors

The minimum threshold for inclusion is set to two documents, and 67 authors meet this criterion. Authors like Ashish Malik, Pawan Budhwar, and Vijay Pereira are central figures in the network, indicated by larger nodes and numerous connections, suggesting they are highly collaborative and influential in this research area.

Co-authorship and organisation

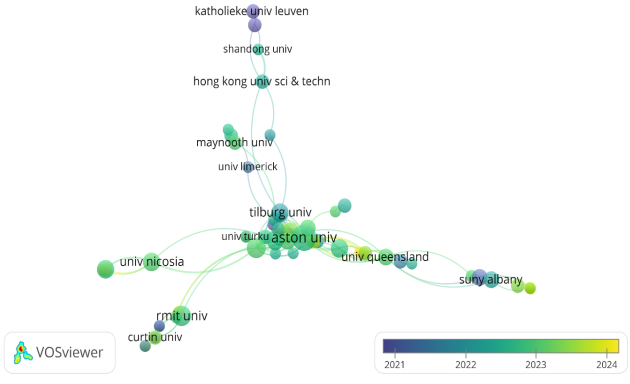

Figure 3: VOSviewer visualisation of co-authorship and organisations

Each node corresponds to an institution, with the size of the node denoting the quantity of the papers produced. The minimum threshold for inclusion is set at two documents, and 94 organizations meet this criterion. Prominent institutions such as Aston University, Tilburg University, and the University of Queensland are central in the network, as evidenced by their larger nodes and numerous connections. The visualization highlights key collaborative hubs and the most active institutions in AI and HRM research.

Co-authorship and countries

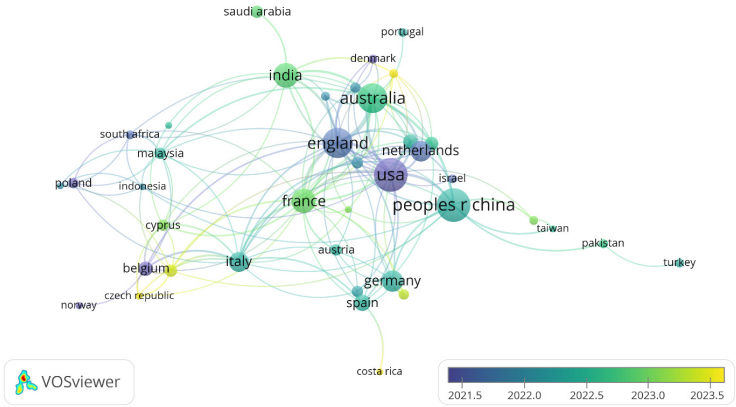

Figure 4: VOSviewer visualisation of co-authorship and countries

The inclusion is set at a minimum of two documents, with 44 countries meeting this criterion. The key countries such as the USA, China, and England are central in the network, as indicated by their larger nodes and extensive connections, demonstrating their prominent role in AI and HRM research. The major contributing countries and the global nature of research collaboration in AI and HRM in highlighted in the visualisation.

Keyword Analysis

Co-occurrence and all keyword

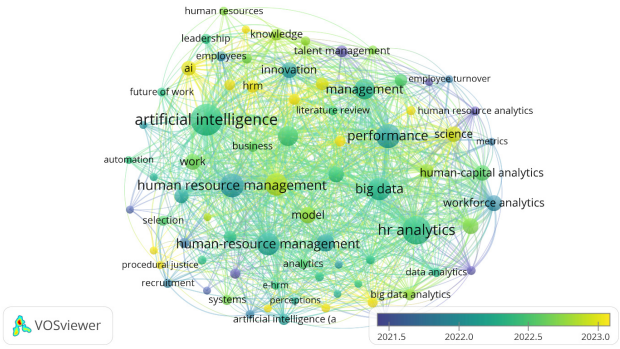

Figure 5: VOSviewer visualisation of co-occurrence and all keywords

Keywords with at least five occurrences are included, with 76 meeting the criteria. Central keywords such as "artificial intelligence," "human resource management," "performance," "HR analytics," and "big data" are prominently featured, reflecting their significance and interconnectedness in the

research landscape. It shows the evolving trends and focus areas within this field through keywords.

Citation Analysis

Citation and Documents

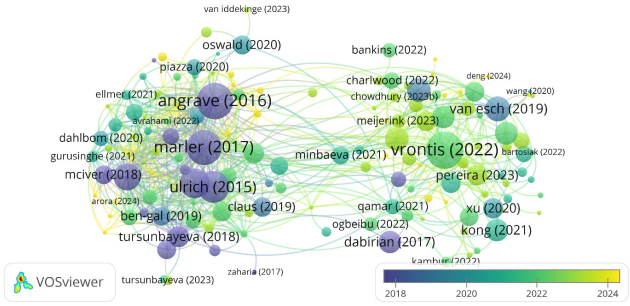

Figure 3.1: VOSviewer visualisation of citations and documents.

It includes documents with at least one citation, with 185 meeting the threshold. Prominent documents by authors such as Angrave (2016), Marler (2017), and Ulrich (2015) are central, reflecting their significant impact on subsequent research. The connecting lines represent citation relationships, showing how these works are interlinked. These key contributors and the developers of knowledge in AI and HRM, illustrating both foundational and emerging research trends are depicted.

Citation and Sources

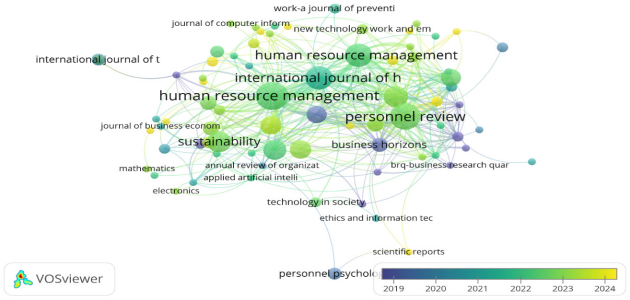

Figure 6: VOSviewer visualisation of citations and sources.

The key journals like "Human Resource Management," "International Journal of Human Resource Management," and "Personnel Review" are prominent, reflecting their substantial contributions to AI and HRM literature. It underscores the interdisciplinary nature of AI in HRM, with sources from sustainability, business, and technology journals also playing significant roles. It highlights where influential research is being published, guiding researchers to key journals for cutting-edge studies and helping identify emerging trends and established knowledge hubs within the AI and HRM research landscape.

Citation and Authors

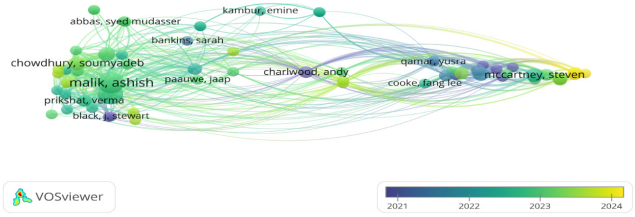

Figure 7: VOSviewer visualisation of citations and authors.

The graph shows the relationship between different authors based on the number of citations and documents they have produced, with a minimum of two documents required to be included in the network. The nodes represent individual authors, with their size likely indicating the number of documents or citations associated with them. The colours and connections between nodes illustrate clusters of authors who frequently co-author papers together, or who are closely related in terms of citations. The clustering and connections provide insight into the collaboration patterns and citation impact within the academic community.

Citations and organisation

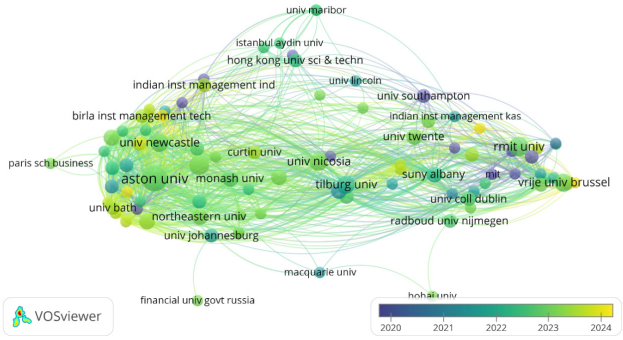

Figure 8: VOSviewer visualisation of citations and organisations

The minimum threshold for inclusion in this visualization is two documents per organization, and 94 organizations meet this criterion. The clustering patterns reveal insights into academic collaboration networks and the influence of different institutions in the research community.

Citations and countries

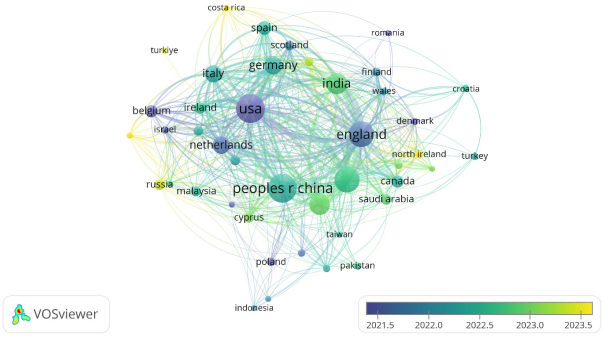

Figure 9: VOSviewer visualisation of citations and countries

It shows a network of countries based on citations and collaborative research. Each node represents a country, with the size of the node likely indicating the number of documents or citations associated with that country. The minimum threshold for inclusion is set at two documents, and 44 countries meet this criterion. Countries like USA, England, People's Republic of China are highly prominent. The visualization provides insights into global research collaboration, highlighting the countries that are central to these networks, such as the USA, England, and China, which are depicted with larger nodes and multiple connections.

4. Bibliographic Coupling Analysis

Bibliographic coupling and documents

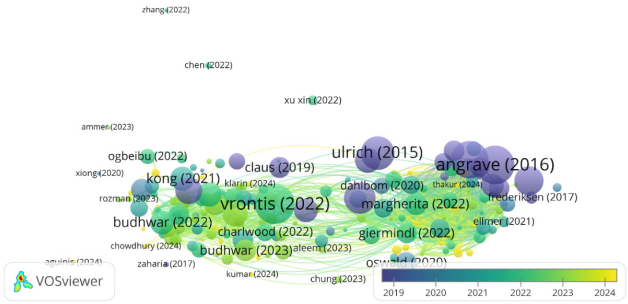

Figure 10: VOSviewer visualisation of Bibliographic coupling and documents

The visualization shows bibliographic coupling, focusing on documents with a minimum of two citations. A total of 185 documents meet this criteria. Bibliographic coupling occurs when two documents cite one or more common references, indicating a similarity in research focus or topic. Each node represents a document, with its size reflecting the number of citations it has received. The connections between nodes illustrate the degree of bibliographic coupling between different documents. The visualization helps to identify key research trends and influential papers within a particular academic field.

Bibliographic coupling and sources

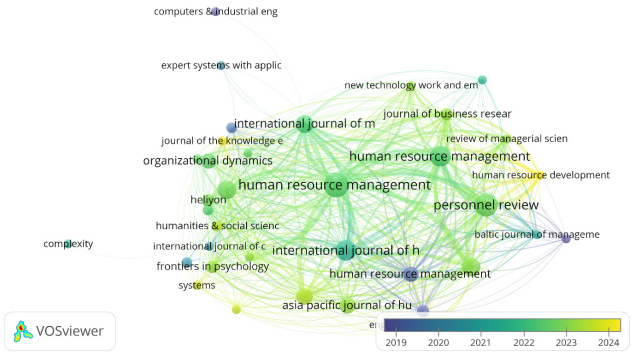

Figure 11: VOSviewer visualisation of Bibliographic coupling and sources

The visualization is of bibliographic coupling among sources, with a focus on journals or sources that have published a minimum of two documents, and 36 sources meet this threshold. Bibliographic coupling in this context refers to the phenomenon where different sources (e.g., journals) cite common references, indicating a relationship in the research themes they cover. Each node represents a source, with its size corresponding to the number of documents published that meet the citation criteria. The connections between nodes indicate the extent of bibliographic coupling between sources, with stronger connections representing a higher degree of shared references. The colours and clusters show groups of sources that are closely related in terms of their cited literature. It helps identify clusters of journals that contribute to similar research areas.

Bibliographic coupling and authors

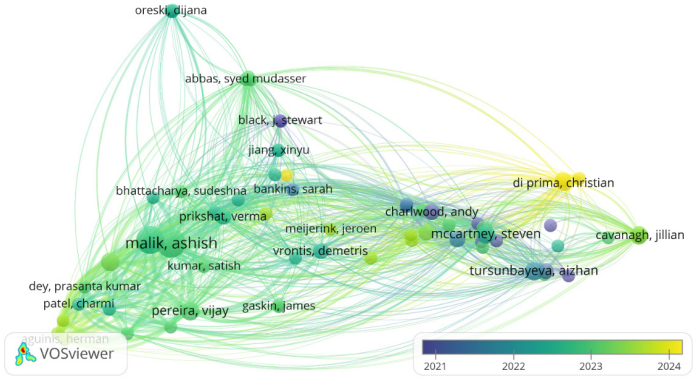

Figure 12 : VOSviewer visualisation of Bibliographic coupling and authors

It displays relationships between authors based on shared references in their publications. Each node represents an author, with the size representing the number of documents they have authored. The lines (edges) between nodes show the strength of the bibliographic coupling, with thicker lines indicating stronger connections. The threshold for inclusion is a minimum of two documents per author, resulting in 67 authors meeting this criterion. Prominent authors like Ashish Malik and Vijay Pereira are central, suggesting significant interconnectedness in their research.

Bibliographic coupling and organisations

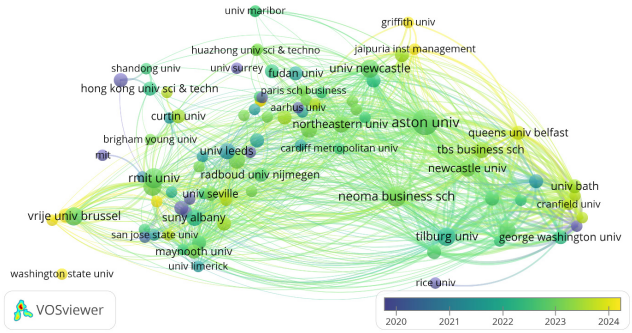

Figure 13: VOSviewer visualisation of Bibliographic coupling and organisations.

Each node reflects an organization, with its size reflecting the number of documents the organization has produced. The edges between nodes indicate the strength of bibliographic coupling, with thicker lines representing stronger connections. The threshold for inclusion in this network is a minimum of two documents per organization, resulting in 94 organizations meeting this criterion. Prominent nodes like Aston University and Neoma Business School suggest significant collaborative and interconnected research activities. It helps in understanding the landscape of institutional collaborations based on shared references in their scholarly works.

Bibliographic coupling and countries

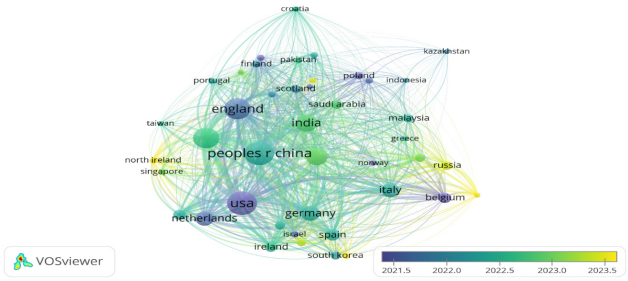

Figure 14: VOSviewer visualisation of Bibliographic coupling and countries.

Each node represents a country, and the size indicates the number of documents produced. The edges between nodes represent the strength of bibliographic coupling, with thicker lines indicating stronger connections. The threshold for inclusion in this network is a minimum of two documents per country, resulting in 44 countries meeting this criterion. Larger nodes like People's Republic of China, USA, and England suggest these countries have a significant number of publications and strong interconnectedness in research. This visualization highlights the global landscape of research collaboration based on shared references across different countries.

Co-citation Analysis

Co-citation and cited references

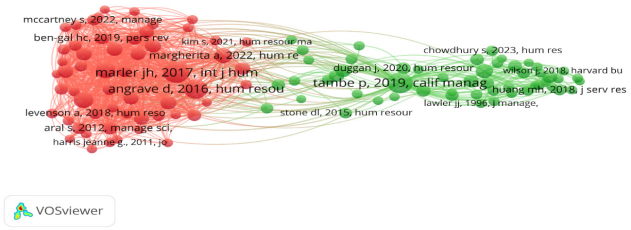

Figure 15: VOSviewer visualisation of co-citation and cited references

Each node corresponds to a cited reference, with its size reflecting the citation count, and nodes are grouped into color-coded clusters based on co-citation patterns. The red cluster focuses on foundational works and significant contributions in AI-HRM integration. The green cluster represents more recent studies and specialized areas within the field. Links between nodes show co-citation links, reflecting how often two references are cited together, indicating their conceptual closeness. The threshold of 10 citations ensures that only highly influential works are included, highlighting the key literature in this research domain.

Co-citation and cited sources

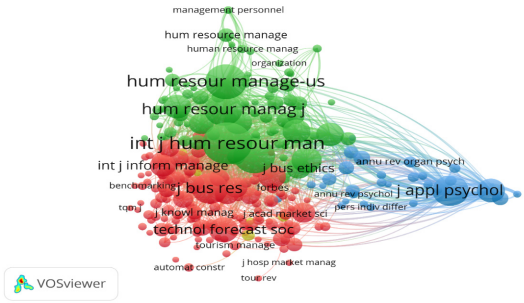

Figure 16: VOSviewer visualisation of co-citation and cited sources

Each node signifies a source, with its size showing the number of citations, and the sources are organized into color-coded clusters based on their co-citation patterns. The green cluster likely includes journals and publications focused on human resource management and its various subfields. The red cluster might encompass sources related to broader business research and technology forecasting. The blue cluster appears to represent sources in applied psychology and organizational behaviour. The connections between nodes show how often sources are cited together, indicating their thematic relatedness. The threshold of 10 citations ensures the map includes only highly influential sources, highlighting key publications in this research area.

Co-citation and cited authors

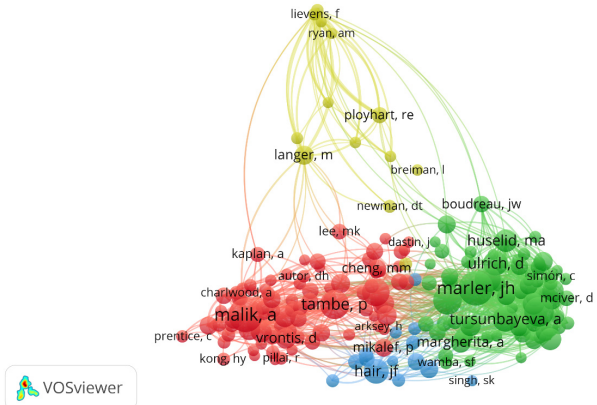

Figure 17 : VOSviewer visualisation of co-citation and cited authors

A node represents an author, with its size indicating the number of citations they have received. The green cluster likely represents key figures in human resource management, with authors like Marler JH and Ulrich D. The red cluster might encompass researchers focusing on AI applications in HRM, including authors like Tambe P and Malik A. The yellow cluster could represent authors specializing in psychology and organizational behaviour, such as Ployhart RE and Lievens F. Links between nodes show co-citation frequencies, indicating the conceptual connections between these authors' works. The threshold of 10 citations ensures the map highlights influential researchers in the field.

Discussion and conclusion

This study provides a comprehensive bibliometric analysis of the research landscape in AI in HRM from 2004 to 2024. By examining publication trends, citation patterns, co-authorship networks, and bibliographic coupling, we gain valuable insights into the development, influential contributors, and collaborative networks within this burgeoning field (Ferreira, 2018).

Analysing publication and citation patterns shows a significant rise in both the quantity of publications and citations throughout the last twenty years. The upward trend reflects the increasing recognition of AI's potential to revolutionize HRM practices and the need for continuous exploration of this intersection.

The categorization of publications according to the Web of Science (WOS) reveals that the field is highly interdisciplinary. The distribution demonstrates that AI in HRM is not confined to a single domain but spans various fields, integrating insights from management science, business studies, labour relations, applied psychology, and information systems. This interdisciplinary nature enriches the research, providing diverse perspectives and methodologies to tackle complex HRM challenges using AI.

Co-authorship network analysis using VOSviewer highlights significant collaboration among researchers, with 67 authors meeting the threshold of having at least two documents. Central figures such as Ashish Malik, Pawan Budhwar, and Vijay Pereira emerge as influential contributors, indicated by larger nodes and numerous connections in the network. This suggests their pivotal role in advancing research through extensive collaborations. At the organizational level, 94 institutions meet the threshold, with Aston University, Tilburg University, and the University of Queensland being particularly prominent. These institutions serve as key hubs of research activity, fostering collaboration and contributing significantly to the literature on AI in HRM.

The analysis also extends to co-authorship networks at the country level, with 44 countries meeting the threshold. The USA, China, and England are central in the network, demonstrating their leadership in AI and HRM research. This worldwide partnership is vital for the development of a global understanding of how AI may be effectively integrated into HRM practices, allowing for the exchange of ideas and best practices across different contexts and cultures.

Keyword co-occurrence analysis identifies 76 keywords with at least five occurrences, highlighting the central themes and interconnectedness within the research landscape. Keywords such as "artificial intelligence," "human resource management," "performance," "HR analytics," and "big data" are prominently featured. This underscores the diverse applications of AI in HRM, ranging from performance management to workforce analytics. The prominence of these keywords indicates the core areas of interest and ongoing research, reflecting the evolving nature of AI technologies and their integration into HRM practices.

Citation network analysis further identifies key influential works and contributors within the field. Prominent documents by authors like Angrave (2016), Marler (2017), and Ulrich (2015) are central in the network, reflecting their significant impact on subsequent research. At the organizational level, institutions like Aston University and Neoma Business School are influential, indicating their substantial contributions to the development of the field. The citation network at the country level reinforces the central role of the USA, England, and China in driving research in AI in HRM.

Bibliographic coupling analysis provides insights into the interconnectedness of research based on shared references. This analysis includes documents, sources, authors, organizations, and countries, highlighting key research trends and influential papers. For example, key journals such as "Human Resource Management" and "International Journal of Human Resource Management" are central in the source network, reflecting their substantial contributions to the literature. Similarly, prominent authors and organizations are identified, providing a roadmap for researchers to follow and build upon.

The findings of this study have several implications for research and practice. The growing body of research and increasing collaboration indicate a strong foundation for further exploration and innovation in AI in HRM. Researchers can build on the identified trends and influential works to advance the field, focusing on emerging areas such as HR analytics and big data. Practitioners can leverage the insights from this research to implement AI-driven solutions in HRM, enhancing efficiency, decision-making, and overall organizational performance.

Despite its contributions, this study has limitations. The analysis is based on data from the Web of Science only, which may not capture all relevant publications, particularly those

indexed in other databases such as Scopus, Science Direct and Google Scholar. Additionally, the use of VOSviewer for visualization, while effective, may have limitations in accurately representing complex networks and temporal dynamics (Yu et al., 2020).

Future study could investigate a more comprehensive dataset, integrating papers from other sources to provide a more holistic view of the topic. Additional investigation could examine the precise influence of several artificial intelligence technologies on diverse human resource management activities, including recruiting and selection, training and development, and performance management. Longitudinal studies could provide deeper insights into the evolution of AI applications in HRM over time, identifying trends and shifts in research focus. Additionally, examining the role of industry collaboration and practical implementations of AI in HRM can bridge the gap between academic research and real-world applications, driving innovation and improving HRM practices globally.

This bibliometric analysis sheds light on the significant trends, influential contributors, and collaborative networks in AI in HRM research. The findings underscore the interdisciplinary and collaborative nature of the field, providing a foundation for future research and practical applications. By mapping the development of AI in HRM over the past two decades, this study highlights key areas of interest, emerging trends, and the potential for further innovation and growth in this dynamic research domain.

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Annexure 16.2.9

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Reviewers Memorandum

Reviewer's Comment 1: This manuscript demonstrates in-depth bibliometric analysis on application of artificial intelligence in human resource management. It covers data ranges from 2004 to 2024. This bibliometric analysis was done on 228 papers extracted from the web of science database. It offers valuable insights on trends, development, collaborative networks, and influential contributions in the domain of application of artificial intelligence in the human resource management domain.

Reviewer's Comment 2: This paper provides bibliometric analysis on application of artificial intelligence in human resource management. Also, clearly stating the process of searching and extracting data from the web of science database and criteria for inclusion and exclusion of the papers, which enhance the transparency of the findings and enhance the replicability of the study. In conclusion, the manuscript performs a good job and throws light on the area where future research in the domain of application of artificial intelligence in human resource management is required. However, the manuscript could have merge scpus database with Web of science to have more comprehensive analysis which provid scope for future research.

Reviewer's Comment 3: This manuscript includes a total of 228 academic papers for conducting bibliometric analysis. still research methodology and review of literature sections may have been stronger. In the research methodology section more keywords could have been used, which would lead to inclusion of more papers. However, the manuscript had done a good job, conducted bibliometric analysis using VOSviewer, which provides insights into the current domain and future prospects of application of AI in HRM, providing researchers, policymakers, and practitioners with a comprehensive understanding of trends and key developments and future research perspectives in the domain.

Citation

Stutty Srivastava
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i10-Index: 964

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Conflict of Interest: Author of a Paper had no conflict neither financially nor academically.

Editorial Excerpt

The article has 5% of plagiarism which is the accepted percentage as per the norms and standards of the journal for publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Stutty), and accordingly, all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to the theme "**Unveiling Trends and Insights: A Bibliometric Analysis of AI in Human Resource Management**" both subject-wise and research-wise. This manuscript provides a well-structured and in-depth bibliometric analysis on AI in HRM, capturing key trends in the domain over the past two decades. Still the manuscript could have included other databases also to make the study more comprehensive. Also use of other relevant keywords could enhance the scope of inclusion of more papers in the domain. After comprehensive reviews and the editorial board's remarks, the manuscript has been categorized and decided to publish under the "**Review of Literature**" category..

Acknowledgement

The acknowledgment section is an essential part of all academic research papers. It provides appropriate recognition to all contributors for their hard work and effort taken while writing a paper. The data presented and analyzed in this paper by (Stutty) were collected first handily and wherever it has been taken the proper acknowledgment and endorsement depicts. The authors are highly indebted to others who facilitated accomplishing the research. Last but not least, endorse all reviewers and editors of GJEIS in publishing in the present issue.

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