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a two-decade bibliometric and systematic review**

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Transforming human resource practices through AI-driven HRIS: a two-decade bibliometric and systematic review

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Abstract: This study explores the integration of artificial intelligence (AI) into human resource information systems (HRIS) and its transformative impact on both strategic and operational aspects of human resource management. Employing a bibliometric and systematic literature review, the research analysed 319 peer-reviewed articles published between 2002 and 2025, sourced from the Scopus database. VOSviewer and Biblioshiny facilitated co-authorship analysis, keyword mapping, thematic evolution, and cluster-based network visualisation. The findings reveal a significant surge in AI-HRIS research post-2022, largely driven by advancements in generative AI and predictive analytics. India emerged as a central hub in global collaborations, especially with Gulf and Southeast Asian nations. Thematic mapping shows a shift from traditional HR automation to more advanced areas such as algorithmic decision-making, ethical AI, and employee sentiment analysis. As one of the first integrated reviews in this domain, the study offers valuable insights for scholars, HR professionals, and developers navigating AI-driven HR transformation.

Keywords: artificial intelligence; AI; HR practices; quality jobs; human resource information systems; HRIS; bibliometric analysis; thematic evolution.

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1 Introduction

The rapid advancement of artificial intelligence (AI) has profoundly reshaped academic ecosystems, enabling new forms of knowledge production, collaboration, and dissemination. Traditional co-creation, which emphasises joint knowledge generation between academics, students, and stakeholders, is increasingly mediated by AI-driven tools that enhance efficiency, personalisation, and scalability. Recent studies highlight how AI is redefining co-creation processes in higher education, from intelligent tutoring and adaptive learning environments to AI-assisted research and collaborative networks (Akgun, 2021). Beyond pedagogy, AI technologies have accelerated academic research collaboration by facilitating large-scale data analysis, literature mapping, and interdisciplinary exchange (Lee and Trimi, 2021). This transformation raises critical questions about how academic stakeholders co-create knowledge in increasingly AI-augmented environments. The integration of AI into academic co-creation processes brings both opportunities and challenges. On the one hand, AI expands access to scholarly resources, fosters global collaboration, and supports evidence-based decision-making in education and research management (Wang et al., 2024). Human

resource management (HRM) practices are evolving through the integration of advanced technologies, software solutions, and AI, while green management practices increasingly replace traditional workplace mindsets and environments (Dawra et al., 2024). It raises concerns regarding academic integrity, ethical use of generative AI, and the potential marginalisation of human creativity in knowledge co-production. The broader discourse on ethical AI implementation in the workplace provides valuable insights for HR professionals, policymakers, and AI developers in Indian universities to create a more humane, inclusive, and equitable work environment (Thakur et al., 2025). A systematic review and network analysis provide a timely approach to map these evolving dynamics, revealing not only emerging trends in AI-mediated co-creation but also critical gaps in understanding its impact on academic practices. By synthesising interdisciplinary insights, this study contributes to advancing scholarly debates on the future of academic collaboration in the era of AI.

Traditionally, HR focused on functions such as payroll, recruitment, and compliance, but in the contemporary digital age, HR practices increasingly emphasise collaboration, innovation, and organisational learning (Lengnick-Hall et al., 2011). This shift is largely driven by the recognition that human capital represents not only a resource but also a dynamic source of collective intelligence and competitive advantage. Collaboration has emerged as a cornerstone of modern HR, enabling cross-functional teamwork, employee engagement, and knowledge sharing. A study conducted by John and Pramila (2025) broadens our understanding of the dynamic relationship between AI and HRM by exploring the integration of AI algorithms (Yadav et al., 2024) in HR analytics and their potential impact on modern HR practices. Advances in digital platforms and HR technologies have accelerated this trend, fostering networks where employees co-create solutions and exchange insights across geographies and disciplines (Bondarouk and Brewster, 2016). As organisations transition toward knowledge ecosystems, HR practices are no longer confined to managing individual talent but extend to cultivating shared capacities, organisational learning, and adaptive resilience (Sparrow and Makram, 2015; Yadav et al., 2025). This reconceptualisation positions HR as a strategic partner in developing ecosystems where collaboration, innovation, and knowledge integration are continuously nurtured to sustain long-term organisational growth.

The integration of AI into human resource information systems (HRIS) is revolutionising how organisations manage people and processes (Yadav et al., 2024). Virtual interviews, onboarding automation, goal setting and tracking, adaptive learning, and retention prediction all have a positive and statistically significant influence on AI-enabled HR analytics practices in the service sector. Traditional HRIS platforms primarily served as repositories for employee data and administrative functions, but AI-enhanced HRIS now enable predictive analytics, automation, and personalised decision-making. By leveraging machine learning algorithms, organisations can forecast workforce needs, predict turnover, and identify high-potential employees, thereby aligning human capital strategies with business objectives (Meijerink et al., 2021). AI-driven HRIS also improve recruitment efficiency through automated resume screening, candidate-job matching, and chatbot-based applicant engagement. In performance management, AI tools provide real-time feedback, detect skill gaps, and recommend tailored training programs, promoting continuous employee development (Bondarouk and Brewster, 2016). AI-driven HRIS framework facilitating employee-HR interaction to enhance workforce well-being, organisational safety, and operational efficiency (Singh et al., 2025). During the COVID-19 pandemic, organisational resilience

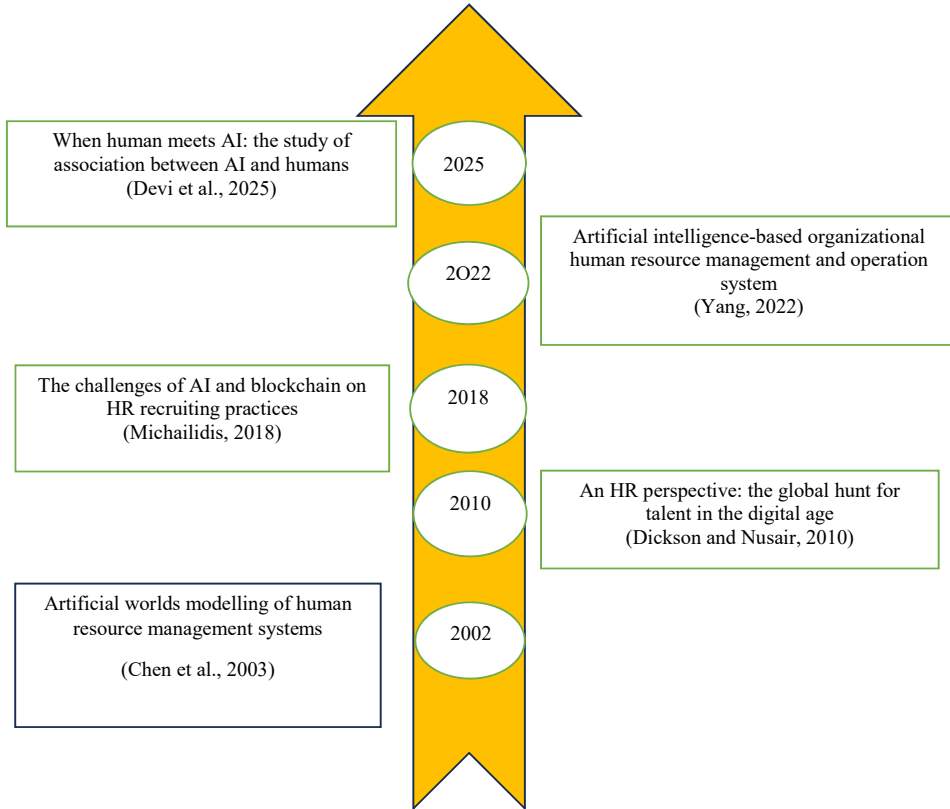
and sustainability were facilitated through the provision of adequate IT infrastructure, effective task characteristics, and the promotion of employees' psychological well-being (Yamin and Kiziloglu, 2025). Furthermore, sentiment analysis and natural language processing embedded in HRIS help monitor employee engagement, workplace satisfaction, and well-being (Marler and Boudreau, 2016). However, the adoption of AI in HRIS raises concerns regarding data privacy, algorithmic transparency, and ethical use of employee information. Biased algorithms may perpetuate workplace inequalities if not carefully designed and monitored (Davenport et al., 2019). AI-driven HR practices emphasising interactivity, intelligence, personalisation, accuracy, automation, and real-time experiences significantly enhance employees' recruitment adoption intentions (Dalain and Yamin, 2025). Despite these challenges, AI-enabled HRIS represent a strategic game-changer for modern HR practices, transforming HR from an administrative function into a proactive, data-driven partner in organisational growth.

Bibliometric and network analysis have become powerful methodological tools to map the intellectual landscape and research evolution of HR practices within AI contexts. By analysing citation patterns, co-authorship networks, and keyword co-occurrences, bibliometric studies provide a systematic overview of how scholarship in HR and AI has developed over time (Donthu et al., 2021; Kumar et al., 2023). Network analysis further reveals the structural relationships among authors, institutions, and thematic clusters, thereby uncovering emerging trends and knowledge gaps. For example, bibliometric reviews have shown that AI-driven HR research has expanded from recruitment automation and performance management toward broader themes such as predictive workforce analytics, algorithmic fairness, and ethical HR decision-making (Palos-Sanchez et al., 2022). The integration of AI into HR practices has redefined the scope of HR scholarship, shifting emphasis from operational efficiency to strategic contributions within organisational ecosystems. Bibliometric mapping highlights the interdisciplinary nature of this evolution, drawing from fields such as computer science, organisational behaviour, and management studies (Marler and Parry, 2015). Network visualisations also reveal influential clusters around topics like algorithmic bias, HR analytics adoption, and employee experience in AI-mediated workplace. Importantly, such analyses not only track historical developments but also forecast future trajectories, offering valuable insights for academics and practitioners alike. By employing bibliometric and network analysis, researchers can systematically chart how AI is transforming HR practices, identify underexplored areas, and guide evidence-based strategies for integrating intelligent systems into HRM (Kumar et al., 2023, 2025b).

This study aims to fill a gap in understanding how AI reshapes academic HR Practices by conducting a systematic review and network analysis. By analysing publication patterns, collaboration structures, and thematic trends, the paper seeks to uncover how HR Practices has transformed in an AI-enhanced HRIS. Special attention will be paid to epistemological shifts, power structures, and ethical considerations surrounding machine-human collaboration. As we transition into this new academic epoch, it becomes increasingly important to understand not just creates knowledge, but how, with whom, and under what conditions-a question that lies at the heart of both HR Practices and AI in HRIS. The main objective of this research is to enhance the breadth and depth of current academic work by examining human resource practices associated with AI over recent years. Figure 1 illustrates how studies on HR practices have progressed from their beginnings in 2002 up to 2025. Throughout this period, the field has undergone notable development, highlighting the increasing acknowledgment of HR

practices as a vital factor in sustaining competitive advantage. The evolution of AI in HRM spans from early modelling concepts (Úbeda-García et al., 2025) to addressing global digital talent challenges (Dickson and Nusair, 2010), AI-blockchain recruitment issues (Alkhalaf et al., 2025), AI-based HR systems (Yang, 2022), and finally human-AI interaction studies (Devi et al., 2025), highlighting a shift toward human-centered integration.

Figure 1 Evolution of human practices research (see online version for colours)



The present study endeavours to address the answers to the following objectives:

- RO1 To examine the yearly progression and growth pattern of scholarly publications focusing on human resource practices within the context of AI.
- RO2 To identify the leading authors contributing to research HR Practices in the era of AI?
- RO3 To analyse and interpret the extent of international collaboration in research article publications.
- RO4 To examine the documents that are the most cited in HR Practices in the era of AI?

- RO5 To analyse and identify the most commonly utilised keywords by researchers in studies focusing on HR practices within the context of AI.
- RO6 To explore the potential future research trends within the field of HR Practices in the era of AI?

To achieve the stated objectives, this study conducted an extensive review of existing literature complemented by a bibliometric analysis. The central goal is to overcome the shortcomings identified in earlier research and contribute meaningfully to the expanding discourse on human resource practices in the age of AI. The research process began with a detailed examination of scholarly publications to extract key insights, followed by a systematic analysis of the data obtained. A rigorous scientific assessment traced the evolution of HR Practices research spanning from 2002 to 2025, employing several analytical indicators such as annual publication and citation trends, leading countries in publication output, author productivity levels, most frequently cited studies, prevailing and emerging thematic areas, and patterns of global research collaboration. Data for this study were sourced from the Scopus database, focusing on the determinants of decision-making in academic co-creation. Ultimately, this investigation seeks to enhance understanding of the underlying motivations and limitations influencing decision-making antecedents, thereby offering strategic guidance for fostering academic co-creation within the AI-driven context. Compared to prior studies, this work provides a more holistic perspective, reducing the likelihood of overlooking significant contributions within the field. Furthermore, the temporal scope of existing literature has shown notable diversity, varying with the thematic focus and purpose of each study.

2 Theoretical framework

The adoption of AI into HRIS represents a profound transformation in the way organisations manage, analyse, and optimise their human capital. While HRIS have historically been designed to automate administrative functions such as payroll, record-keeping, and compliance, AI integration has extended their role into domains of strategic decision-making, predictive analytics, and personalised employee management (Stone et al., 2015). The findings of the study conducted by Sweiss and Yamin, (2024) indicate that AI-enabled HRIS factors significantly enhanced employee task satisfaction, while task satisfaction and leader trustworthiness positively influenced employees' creative willingness. This transformation can be explained through an integration of sociotechnical systems theory, the resource-based view (RBV), and the technology acceptance model (TAM).

From a sociotechnical perspective, AI-enabled HRIS are not merely technological tools but socio-digital infrastructures that reconfigure HR practices by shaping human interaction, decision-making, and organisational design (Marler and Parry, 2015). The findings of paper Jiang et al. (2025) presents an AI-integrated HR risk management approach using Leavitt's Diamond model to identify, assess, and mitigate GenAI-related risks. Machine learning algorithms and natural language processing capabilities embedded in HRIS automate repetitive tasks such as candidate screening and employee query handling, while also enabling HR professionals to engage in higher-order activities such as predictive workforce planning and sentiment analysis (Meijerink et al., 2015). The findings of a study conducted by Mohammad Saif et al. (2026) revealed that

sustainability, cultural, financial, and performance-related factors constitute the principal categories of challenges that must be effectively navigated to enhance the benefits of HRIS in contemporary organisational settings. This dual nature-automation and augmentation-reshapes HR roles, workflows, and professional competencies. The RBV positions AI-driven HRIS as sources of sustainable competitive advantage because they enable organisations to leverage unique data-driven insights about their workforce (Chowhan, 2016; Kumar et al., 2025a). AI systems provide predictive insights into employee performance, turnover risks, and career progression, allowing HR to align human capital strategies with broader organisational goals. Accuracy, computing power and capacity, and personalisation significantly enhance time-saving and cost reduction, whereas automation and real-time experience demonstrate no significant influence (Nawaz et al., 2024). Unlike traditional HRIS, which primarily stored and processed data, AI-enhanced systems transform data into actionable knowledge, reinforcing HR's role as a strategic business partner (Herman et al., 2024; Ramachandaran et al., 2024). The study conducted by Amalanathan and Anouncia, (2017) found that AI-driven analysis of employees' emotional expressions on digital platforms can support personalised HR strategies, engagement, and talent management decisions. By enabling talent optimisation, AI-HRIS enhance organisational agility and innovation capabilities.

The TAM explains how HR professionals' attitudes toward AI adoption influence implementation success. Perceived usefulness, ease of use, and trust in algorithmic systems are critical determinants of adoption (Venkatesh and Davis, 2000). Systematic reviews highlight that resistance often emerges from concerns about fairness, transparency, and ethical accountability (Leicht-Deobald et al., 2019). For example, while AI can accelerate recruitment decisions, algorithmic biases risk undermining diversity and inclusion efforts if not properly governed (Cappelli et al., 2018). The AI-enabled HRIS demonstrated enhanced scalability, reducing employee rating response times to 7.4s and 4.8s using distributed nodes (Wu and Lai, 2024). The four dimensions of technology readiness-optimism, innovativeness, insecurity, and discomfort-significantly influence AI-enabled HRIS perceived usefulness and ease of use (Shahreki et al., 2023). Thus, acceptance depends not only on functionality but also on perceived ethical integrity. Bibliometric analyses of the AI-HRIS literature reveal three dominant research clusters. First, transactional automation, which emphasises efficiency gains in payroll, attendance tracking, and recruitment screening (Bondarouk and Brewster, 2016). Second, strategic analytics, which focuses on predictive and prescriptive insights for succession planning, performance management, and workforce development (Strohmeier and Piazza, 2015). Third, ethical and governance challenges, which explore fairness, privacy, accountability, and the changing competencies required of HR professionals in AI-mediated environments (Leicht-Deobald et al., 2019). The study conducted by Corum and Ulas (2025) illustrates how a company transforms and develops its own external digital platform over time.

Synthesising these perspectives, the theoretical framework demonstrates that AI adoption transforms HR practices through HRIS by shifting HR's identity from an administrative support function to a strategic, evidence-based partner in organisational performance. However, this transformation is contingent on sociotechnical alignment, organisational capability-building, and professional acceptance, alongside careful governance to mitigate ethical risks. Ultimately, AI-enabled HRIS create opportunities

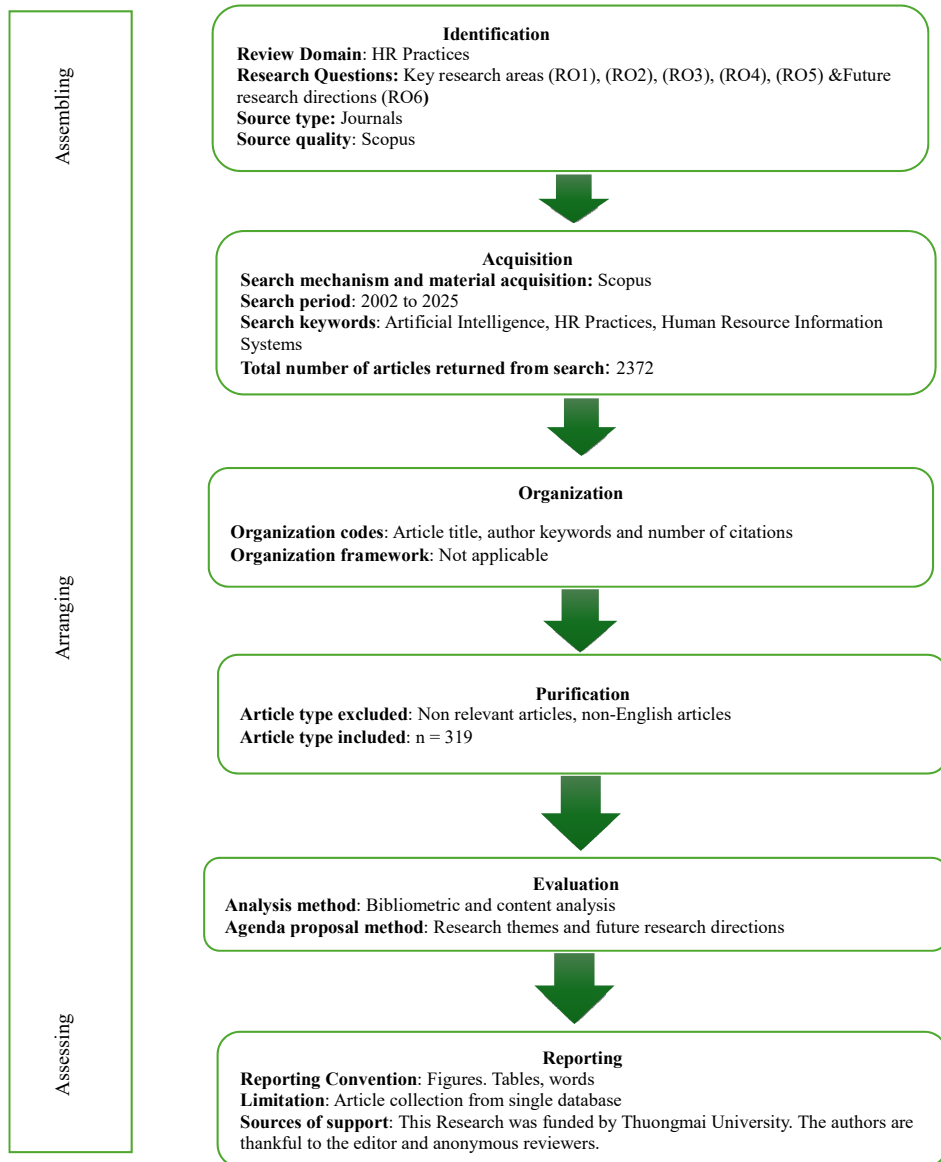
for strategic value creation while simultaneously raising challenges around transparency, trust, and professional adaptation.

3 Research methodology

3.1 Bibliometric analysis: a method for acquiring and interpreting scholarly data

To fulfil the objectives of this research, data collection was conducted using the Scopus database, which is widely recognised for its comprehensive coverage and methodological rigor in bibliometric and systematic review studies. Among the various bibliographic databases available, Scopus was chosen due to its broad interdisciplinary scope, robust citation tracking, and its established reliability in academic literature analyses. This selection supports the goal of conducting a thorough and representative review of the academic landscape concerning HR Practices and AI through HRIS. The study adopted a systematic literature review approach to examine the evolving role of AI in HR practices through HRIS. This approach was considered appropriate as it facilitates the identification, evaluation, and synthesis of existing scholarly contributions within a structured and transparent research framework. Furthermore, the methodology supports the identification of major research trends, thematic developments, and emerging areas within the field. The data extraction process was carried out by applying a structured query using the TITLE-ABS-KEY (((‘Artificial intelligence’ OR ‘AI’ OR ‘Machine Learning’ OR ‘ML’) AND (‘HR Practice*’ OR ‘HRM system’ OR ‘HRIS’))) field, which searches for the specified terms within the title, abstract, and keywords of indexed documents. This method ensures the inclusion of highly relevant literature while minimising irrelevant results.

The time frame selected for the search spanned from 2002 to 2025, encompassing 24 years of scholarly output to allow for both historical insight and contemporary relevance. This extensive period enabled the identification of research trends, key contributors, and the evolution of conceptual linkages between HR Practices and AI through HRIS. The review process follows the (SPAR-4-SLR) framework proposed by Paul et al. (2021), as illustrated (in Figure 2). The study followed a structured review methodology. In the identification phase, relevant domains such as HR processes and AI-based HRIS were defined, with Scopus selected as the primary database. During acquisition, search strings combining keywords related to AI, HR processes, and HRIS retrieved 2,370 articles. In the organisation phase, articles were screened by title, author keywords, and citation counts. The qualification stage excluded non-relevant, duplicate, and non-English studies, resulting in 319 articles for analysis. In the final evaluation phase, both bibliometric and content analyses were carried out, which facilitated the identification of key themes and potential avenues for future research. Regarding the reporting process, standard academic conventions were followed through the inclusion of figures, tables, and descriptive text, while the study’s limitations were addressed in the concluding section of the article.

Figure 2 Research methodology SPAR-4-SLR (see online version for colours)

3.2 Analytical tools used

The dataset was compiled through the analyse search results (ASR) feature available in Scopus. Subsequently, authors' keywords analysis and the formation of scientific maps representing keyword co-occurrence were conducted using the Bibliometrix package integrated with R-Studio. Furthermore, the bibliographic coupling analysis was

conducted utilising the VOS viewer program. Authors' keywords analysis is a rigorous process that enables the identification, description, and visual representation of the interrelationships among keywords within a distinct scientific field (Martínez-Comesaña et al., 2023). Density represents the extent of internal cohesion or robustness within a network of keywords or thematic clusters. In contrast, centrality measures the level of interaction or connectivity between distinct networks. Therefore, the quadrant characterised by both high density and high centrality signifies the core or 'motor themes' – dominant research areas that contribute most significantly to scholarly output and citation impact within the field. On the other hand, within the quadrant distinguished by a combination of low density and low centrality, one can notice the emergence of new themes or the diminishing prominence of current ones. The quadrant in the upper left section, denoting a high density and low centrality convergence, corresponds to themes that demonstrate substantial internal growth but remain segregated and detached from other networks. The bibliographic coupling methodology operates on the underlying assumption that two publications that share references also share similar content. By employing this particular approach, it becomes possible to visually depict recent contributions that have not yet exerted substantial influence, thereby offering a representation of the most current scientific output in the relevant field (Bretas and Alon, 2021). As per the scholarly work of Donthu et al. (2021), applying bibliographic coupling as a strategic approach allows for identifying current topics that demonstrate promising progress, thereby providing researchers with potential avenues for future exploration. The analysis entails the utilisation of sphere dimensions as a means to signify the comparative quantity of connections to other articles. Furthermore, the arrangement of the spheres and the width of the connections are utilised to represent the level of resemblance among articles, as decided by the number of common references (Andersen, 2021).

4 Data analysis

The evaluation of scientific article production was based on multiple indicators, including the total number of publications, average citations per document, annual average citations, authors' keywords, frequency of author participation, the ratio of single- to multi-authored works, the number of papers credited to each author, and the collaboration index. Between 2002 and 2025, a total of 319 papers were published, reflecting an annual growth rate of 21.67% in scientific output. On average, each publication received 6.605 citations. As presented in Table 1, 49 papers were single-authored, whereas a considerable majority of approximately 15.05 papers per author were the result of collaborative efforts involving multiple contributors across countries. Author collaboration was measured through two indicators-the mean number of co-authors per document and the collaboration index-which was determined to be 3.08. These figures highlight the strong presence of teamwork and the increasing trend toward multi-authored research within the domain of academic co-creation in the context of AI. Furthermore, the analysis identified a total of 1,481 general keywords and 793 author-specific keywords, encompassing a wide spectrum of terms that represent the factors influencing AI-driven transformation of HR practices through HRIS.

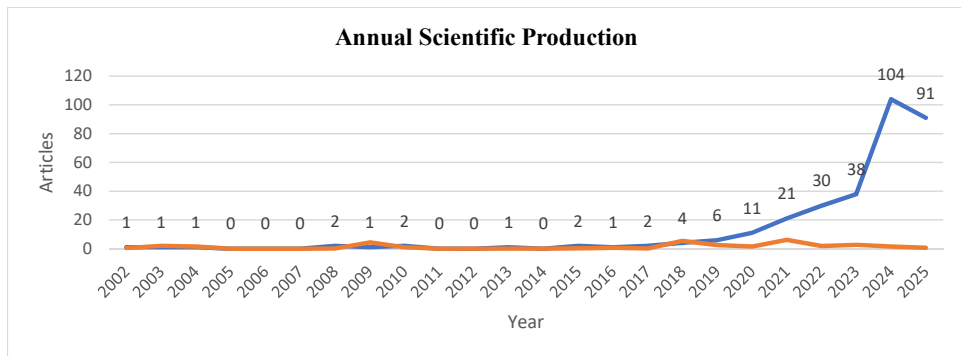
Table 1 Scientific Production of Articles from 2002 to 2025

<i>Description</i>	<i>Results</i>
<i>Main information about data</i>	
Time-span	2002:2025
Sources (journals, books, etc.)	251
Total number of documents	319
Annual growth rate of publications %	21.67
Document average age	2.12
Average citations per document	6.605
References	11,495
<i>Document contents</i>	
Keywords plus (ID)	1,481
Author's keywords (DE)	793
<i>Authors</i>	
Authors	907
Authors of single-authored docs	49
<i>Authors collaboration</i>	
Single-authored docs	54
Co-Authors per doc	3.08
International co-authorships %	15.05

Source: Authors development

4.1 Annual scientific production

To answer the RO 1, Figure 3 shows an increasing pattern in scholarly article production from 2002 to 2025 annually. The annual scientific production shows a gradual evolution over time, with initial publications appearing sporadically between 2002 and 2025, typically limited to one or two articles per year. From 2015 onward, research activity began to accelerate, with notable increases observed in 2018 (4 articles) and 2019 (6 articles). A sharp growth trajectory is evident from 2020 onwards, with publications rising from 11 in 2020 to 21 in 2021, followed by 30 in 2022 and 38 in 2023. The most significant surge occurred in 2024 with 104 publications, demonstrating a remarkable expansion in scholarly output, likely driven by heightened academic and industry interest in the field. Although 2025 data (91 articles) suggest a slight dip, the overall trend indicates a strong and sustained increase in research productivity, particularly in the last five years, highlighting the growing importance and relevance of this research area. Together, these trends signal a maturing field whose output is both larger and more widely discussed than ever before.

Figure 3 Annual scientific production (see online version for colours)

Source: Authors' development.

Table 2 Most prolific authors in the HR practices in the era of AI

Author	Affiliation	TP/DRP	H-Index	Scopus ID
Ruchika Sharma	Delhi School of Business, New Delhi, India	15/5	4	57203762789
Adil Benabou	Université Sultan Moulay Slimane Beni Mellal, Morocco	9/4	1	59301992100
Vikas Garg	Symbiosis International (Deemed University)	71/4	10	57203662184
Preeti Sharma	Chandigarh University Mohali, India	6/4	2	59969805100
Aditya Singh	Christ University, Bengaluru, India	4/4	1	59090687600
Satya Subrahmanyam	Holy Spirit University of Kaslik (USEK), Jounieh, Lebanon	65/4	7	57968066200
Fatima Touhami	Université Sultan Moulay Slimane, Beni Mellal, Morocco	25/4	11	59064696300
Jishan Zhang	Anhui Sanlian , Hefei, China	33/4	4	57210915662
Yeling Jiang	Purdue University, West Lafayette, United States	10/3	8	57222164024
Matra Madanchian	University Canada West , Vancouver, Canada	76/3	14	57194525430

4.2 Most prolific authors in the HR practices in the era of AI

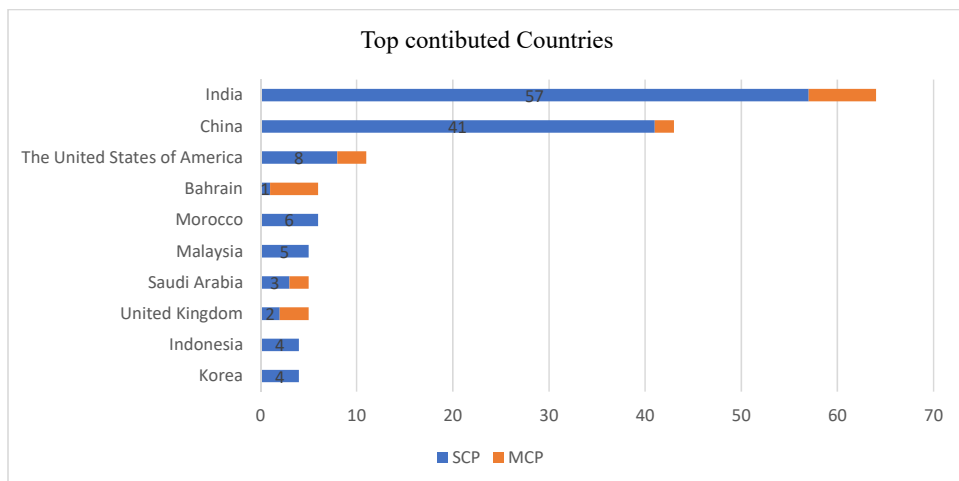
Table 2 provides a thorough summary of the most active authors in the field of 'HR practices in the era of AI'. Among the ten scholars reviewed, the bibliometric analysis of leading authors in the domain of AI applications in human resource practices reveals a diverse yet emerging scholarly contribution. Ruchika Sharma leads AI-HR research with impactful global contributions. Adil Benabou from Université Sultan Moulay Slimane, Morocco, has contributed nine publications with an H-index of 1. Vikas Garg of Symbiosis International (Deemed University), India, leads with seven publications and an H-index of 10, reflecting both productivity and influence. Preeti Sharma from

Chandigarh University, India, and Aditya Singh from Christ University, Bengaluru, have six and four publications respectively, indicating growing scholarly engagement from India in this domain. From Lebanon, Satya Subrahmanyam of Holy Spirit University of Kaslik has produced six publications with an H-index of 7, evidencing significant impact. Fatima Tochouami from Université Sultan Moulay Slimane, Morocco, has contributed two publications with an H-index of 11, underscoring high-quality, widely cited research. Jushan Zhang (Anhui Sanlian, China) with 33 publications, Yeling Jiang (Purdue University, USA) with 10 publications, and Matra Madanchian (University Canada West, Canada) with 76 publications highlight the international scope of research. These findings demonstrate diverse institutional engagement, reinforcing the global and collaborative nature of academic knowledge creation.

4.3 International collaboration of authors

To answer RO 3, the information presented in Figure 4, the distribution of corresponding authors by country highlights the global contribution to HR practices research, with notable regional variations in SCP and MCP. India, China, and the USA emerge as leading contributors, with a dominant share of SCP, reflecting strong domestic research capacity and self-sufficiency in HR scholarship. In contrast, countries such as Morocco, Bahrain, and Indonesia demonstrate a higher proportion of MCP, underscoring the collaborative and cross-border nature of their research endeavours. The UK and Korea also display a balanced mix of domestic and international collaborations, indicating a dual emphasis on independent as well as cooperative research outputs. These patterns suggest that while emerging economies are increasingly investing in building indigenous research output, international collaboration continues to play a pivotal role in advancing HR practices research, enhancing both the visibility and impact of published work.

Figure 4 SCP/MCP ratio for publishing articles of HR practices (see online version for colours)



Source: Authors' development

4.4 *Most global cited documents in HR practices*

Table 3 represent the compilation of the first top 10 research publications that have received the highest number of citations in the area of HR Practices. The bibliometric analysis of the most globally cited documents in HR practices. The most globally cited documents in HR practices reveal a strong emphasis on the integration of AI, digital platforms, and advanced analytics into HRM. Votto et al. (2021) conducted a systematic review of tactical human resource information systems (T-HRIS), highlighting how digital systems support decision-making processes, while Majumder and Mondal, (2021) reviewed HR chatbots, noting their real-time value in HR service delivery but also pointing out challenges such as cost and limited responsiveness. Alzubaidi et al. (2023) expanded this discussion by stressing the importance of trustworthy AI, proposing nine pillars such as fairness, explainability, and accountability to ensure safe and ethical adoption of AI in HRM. Together, these studies underscore the dual role of AI as both an enabler of efficiency and a source of new organisational challenges. Applied and experimental research offers evidence of AI's practical contributions to HRM. Gallala et al. (2022) demonstrated how Industry 4.0 technologies, including digital twins, IoT, and collaborative robots, enhance human-robot interactions, even with non-technical users. Jain et al. (2021) introduced a predictive model (ECPR) using multi-attribute decision-making and machine learning to address employee churn, while Abdelwanis et al. (2026) and Li et al. (2023) showed that AI adoption in the healthcare sector of the UAE improves HR efficiency, decision-making, and overall performance. These findings illustrate how sector-specific adoption of AI enables HR to become a strategic partner in organisational competitiveness. Quantitative studies further emphasise the role of predictive analytics in HRM. Wei and Jin (2021) used neural networks and machine learning to show that job satisfaction, organisational satisfaction, promotion opportunities, and pay are the strongest predictors of turnover intention in the US federal workforce. In the same way, Chang et al. (2023) identified high-risk subgroups of employees most likely to leave, highlighting the predictive power of comprehensive HR practices in retention strategies. Such evidence supports the notion that AI and machine learning provide valuable foresight for proactive HR interventions. Beyond efficiency and predictive capabilities, some works highlight the future of work and ethical challenges. Jetha et al. (2021) warned that rapid technological, economic, and social transformations may exacerbate inequality and fragmentation among vulnerable workers, raising concerns about inclusivity. This aligns with calls for responsible AI adoption, ensuring that technological advancements in HRM are balanced with ethical safeguards. The most cited global documents reveal three converging trends in HR practices: the digital integration of HR systems and AI tools, the use of predictive analytics to strengthen decision-making, and the recognition of ethical and social challenges associated with technological adoption. These studies collectively suggest that HRM is evolving into a technology-augmented yet human-centred discipline, where efficiency and innovation must be harmonised with fairness, trust, and employee well-being.

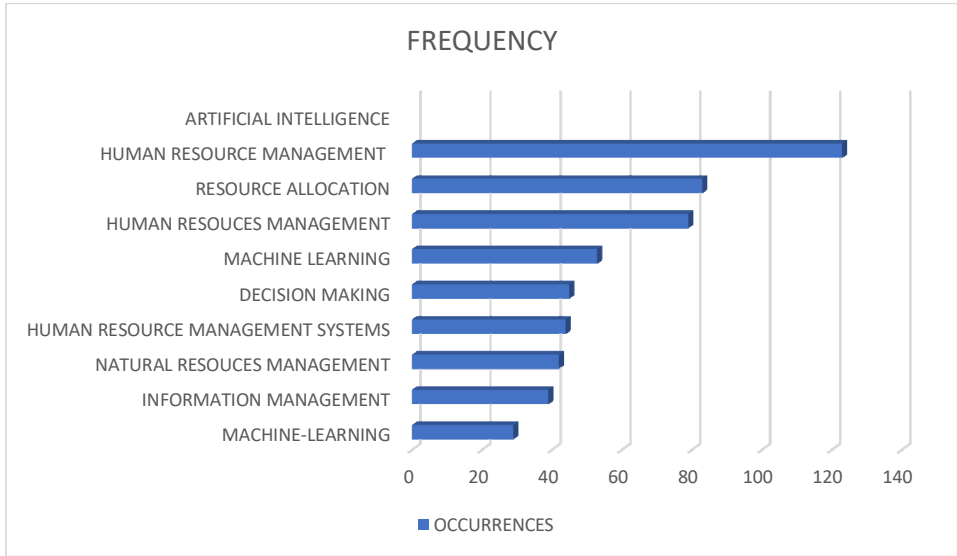
Table 3 Most global cited documents in HR practices

<i>Authors</i>	<i>Title</i>	<i>Source</i>	<i>H-index</i>	<i>TC</i>	<i>Type of research</i>	<i>Findings</i>
Votto et al. (2021)	'Artificial intelligence in tactical human resource management: a systematic literature review'	<i>International Journal of Information Management Data Insights</i>	48	187	Literature review	This paper examines the tactical HRIS (T-HRIS) components highlighted in the literature and analyses how each of these components is represented.
Majumder and Mondal (2021)	'Are chatbots really useful for human resource management?'	<i>International Journal of Speech Technology</i>	43	79	Literature review	This study reviews the role of HR chatbots (HR-bots), showcasing their real-time value while acknowledging practical challenges including costs, business complexity, and limited responsiveness.
Gallala et al. (2022)	'Digital twin for human-robot interactions by means of Industry 4.0 enabling technologies'	<i>Sensors</i>	273	77	Applied/experimental research	'This study demonstrates that a digital twin approach, supported by Industry 4.0 technologies such as mixed reality, IoT, collaborative robots, and AI, enables efficient human-robot interactions. A use case with Microsoft HoloLens 2 and a KUKA IIWA robot showed effectiveness even with non-programmer operators.'
Li et al. (2023)	'How does artificial intelligence impact human resources performance: evidence from a healthcare institution in the United Arab Emirates'	<i>Journal of Innovation & Knowledge</i>	70	70	Qualitative research	The study finds that AI adoption in HRM improves efficiency, decision-making, and organisational performance in the healthcare sector of the UAE.
Jain et al. (2021)	'A novel scheme for employee churn problem using multi-attribute decision making approach and machine learning'	<i>Journal of Intelligent Information Systems</i>	68	52	Applied research	The study introduces ECPR, a scheme combining multi-attribute decision making (entropy weights + TOPSIS) with CatBoost ML to predict employee churn.
Alzubaidi et al. (2023)	'Towards risk-free trustworthy artificial intelligence: significance and requirements'	<i>International Journal of Intelligent Systems</i>	117	49	Literature review	The study highlights that trustworthy AI requires nine pillars-like fairness, explainability, accountability, and privacy-to ensure safety and reliability.
Jetha et al. (2021)	'Fragmentation in the future of work: a horizon scan examining the impact of the changing nature of work on workers experiencing vulnerability'	<i>American Journal of Industrial Medicine</i>	120	37	Qualitative research	The study finds that rapid technological, economic, and social changes in the future of work may increase risks of fragmentation and inequality.
Wei and Jin (2021)	'Human resource management model based on three-layer BP neural network and machine learning'	<i>Journal of Intelligent & Fuzzy Systems</i>	89	32	Quantitative research	The study found that job satisfaction is the strongest predictor of turnover intention in the U.S. federal workforce, followed by organisational satisfaction, promotion opportunities, and pay. Using machine learning, the authors identified six high-risk subgroups, showing that tailored HR practices can reduce turnover risks.
Kang et al. (2020)	'Predictors of turnover intention in U.S. federal government workforce: machine learning evidence that perceived comprehensive HR practices predict turnover intention'	<i>Public Personnel Management</i>	57	32	Quantitative research	This study seeks to identify key predictors of turnover intention and to profile subgroups of U.S. federal employees most at risk of intending to leave.'
Singh and Shaurya (2021)	'Impact of artificial intelligence on HR practices in the UAE'	<i>Humanities and Social Sciences Communications</i>	64	30	Mixed method	This study seeks to examine how implementing artificial intelligence (AI) in the healthcare sector influences human resource (HR) practices and enhances overall organisational performance.

4.5 Most trending authors' keywords for the HR practices

The bibliometric analysis of the most trending keywords in the domain of HR practices reveals significant research attention towards the integration of emerging technologies and management concepts. As illustrated in Figure 5, 'AI' and 'HRM' emerge as the most frequently occurring keywords, indicating the growing emphasis on digital transformation within HR functions. Other prominent keywords such as 'resource allocation', 'human resources management', and 'machine learning' highlight the critical role of data-driven decision-making and intelligent systems in optimising workforce efficiency. Additionally, terms like 'decision making', 'resource management systems', and 'information management' underscore the strategic orientation of HR research towards enhancing organisational effectiveness. The inclusion of 'natural resources management' and 'machine-learning' further demonstrates the interdisciplinary nature of HR studies, linking technology with sustainable management practices. Overall, the keyword analysis underscores a clear trend towards the convergence of AI, machine learning, and resource management as central themes shaping the future of HR practices.

Figure 5 Most trending keywords in the domain of HR practices (see online version for colours)



Source: Authors' development

4.6 Thematic map analysis

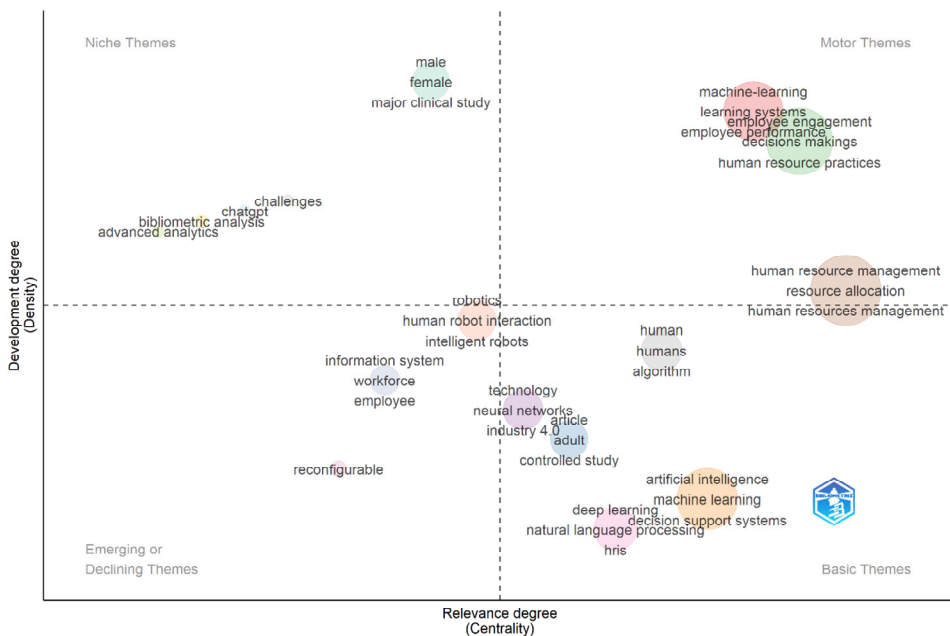
The strategic diagram presented in the Figure 6 highlights the thematic evolution of research within the domain of AI and HRM. The diagram is divided into four quadrants—motor themes, niche themes, emerging or declining themes, and basic themes—based on development degree (density) and relevance degree (centrality).

The upper-right quadrant (motor themes) consists of topics that are simultaneously well-developed and highly relevant to the field. These themes play a pivotal role in structuring and advancing the knowledge domain, as they represent core areas of research

with strong internal cohesion and significant external connectivity. In the present study, motor themes include machine learning, learning systems, employee engagement, employee performance, and human resource practices, indicating that these topics are central drivers in the integration of AI and HRM.

The upper-left quadrant (niche themes) contains topics that are internally well-developed but exhibit limited connections with the broader research structure. Such themes often represent specialised, context-specific, or highly technical areas of inquiry that, while advanced in themselves, are peripheral to the mainstream discourse. Examples from the map include major clinical study, male, female, bibliometric analysis, advanced analytics, and challenges. These themes enrich the field by offering depth and methodological sophistication, but they remain somewhat isolated from the dominant research trends.

Figure 6 Thematic analysis (see online version for colours)



Source: Authors' development

The lower-left quadrant (emerging or declining themes) consists of topics that are both underdeveloped and weakly connected to the overall research framework. These themes may represent emerging areas of inquiry with the potential to evolve into more prominent topics, or alternatively, they may reflect declining areas losing relevance over time. In the current map, reconfigurable systems, workforce, employee, robotics, human-robot interaction, intelligent robots, information systems, and neural networks fall into this category. Their ambiguous positioning necessitates cautious interpretation, as they could either become critical research frontiers or gradually fade in importance depending on future scholarly engagement.

The lower-right quadrant (basic themes) encompasses topics that are central to the domain but underdeveloped in terms of density. These themes form the intellectual

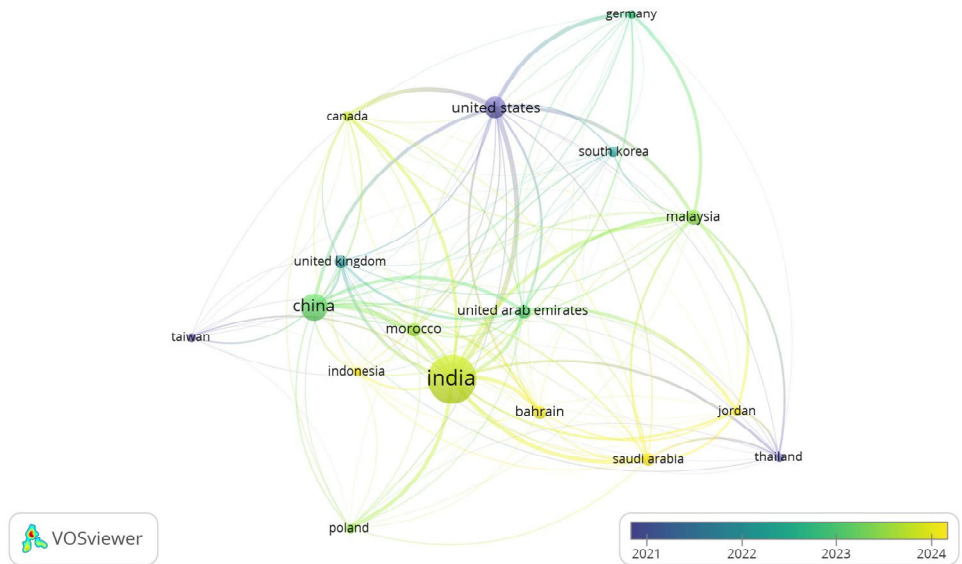
foundations of the field, supporting the overall research structure, yet they require further refinement and scholarly attention to achieve maturity. In this map, AI, deep learning, decision support systems, natural language processing, HRIS, and controlled studies appear as basic themes. Their centrality underscores their foundational importance, and their relative underdevelopment highlights significant opportunities for future research.

This mapping provides a comprehensive understanding of how scholarly focus is distributed, highlighting both mature and evolving areas, and offering insights into future directions for academic inquiry in the integration of AI with HRM practices.

4.7 Countries coupling for the publication in the domain of HR practices

Figure 7 depicts the international collaboration network among countries contributing to the literature on AI in human resource (HR) practices during the period 2021 to 2024. The visualisation, created using VOSviewer, is based on bibliometric data from Scopus and reflects co-authorship patterns across national boundaries. Each node represents a country, with the size of the node corresponding to the volume of publications affiliated with that country. The connecting lines (edges) indicate co-authorship links, where the thickness of the line represents the strength of collaboration. The colour gradient applied to each country reflects the average year of publication, ranging from dark blue (2021) to bright yellow (2024), highlighting the temporal evolution of research activity.

Figure 7 Country collaboration network in AI-driven HR practices research (see online version for colours)



Source: Authors' development

India emerges as the most dominant and central country in this network, with the largest node and the highest number of connections, indicating its leading role in publishing and collaborating in AI-related HR research. India maintains particularly strong and recent partnerships (yellow-toned lines) with countries in the Middle East and Asia, including the United Arab Emirates, Saudi Arabia, Bahrain, Jordan, Malaysia, and Thailand. This

pattern underscores India's role as a regional hub driving research growth and cooperation in the Global South. The USA, China, and the UK also demonstrate significant participation in collaborative research, although their dominant contributions are associated with earlier years (2021–2022), as indicated by blue-green hues. Countries like Germany, Canada, and South Korea appear moderately connected, with steady co-authorship ties across both Western and Asian collaborators.

The network also reveals emerging players such as Poland, Morocco, and Indonesia, reflecting a broader democratisation of research participation beyond traditional Western academic powerhouses. The collaborative links across India-GCC-Southeast Asia represent a new axis of scholarly exchange that is gaining prominence in recent years. This co-authorship analysis not only highlights the geographical distribution of research productivity but also provides insight into the dynamics of global scholarly collaboration, with India at the epicenter of contemporary discourse in AI-integrated HR practices.

4.8 Intellectual structure in the field of the HR practices

Tables 4 and 5 present an overview of the cluster interconnections and the most commonly occurring keywords within each group. The core theme of every cluster is identified using three indicators: the total occurrences of the keywords (TO), the number of their connections with other keywords (DE), and their relative significance within the cluster (EC). These network measures assist in interpreting the conceptual meaning of each cluster. Specifically, Table 4 details the network metrics for the most frequent keywords, while Table 5 illustrates the interrelationships among clusters. The five clusters highlight how HRM is evolving through digitalisation, AI, machine learning, and HRIS. Together, they show a shift from traditional practices toward data-driven, technology-enabled, and sustainable HR strategies. This transformation positions HR as a proactive, strategic partner, enabling organisations to enhance performance, adaptability, and long-term competitiveness.

4.8.1 Cluster 1: HRM

Cluster 1 comprises 18.41% of the total keywords, with 23.18% of all network links associated with the terms within this cluster. The dominant keyword in this group is 'HRM', which appears in 55 publications and maintains connections with 159 distinct keywords. This cluster is centred around core HR functions and their impact on employee and organisational outcomes. It includes keywords like HRM, HR practices, recruitment, and talent acquisition. The high co-occurrence (TO) and co-citation (DE) values for these terms indicate they are frequently discussed together in research. The presence of employee engagement in this cluster is particularly significant. A substantial body of research supports the direct link between effective HR practices and employee engagement. According to a study by Alfes et al. (2012), HR practices, such as providing opportunities for development and recognition, are key drivers of employee engagement and can lead to improved employee behaviour and reduced turnover intentions. Similarly, research by Alam et al. (2024) emphasises that HR practices have a significant relationship with employee engagement, which in turn leads to higher firm productivity and better financial performance. These findings suggest that the traditional HR functions in this cluster are not merely administrative tasks but are foundational to creating a positive and productive work environment.

Table 4 Intellectual structure

<i>Cluster # 1</i>				<i>Cluster # 2</i>				<i>Cluster # 3</i>			
<i>Keyword</i>	<i>TO</i>	<i>DE</i>	<i>EC</i>	<i>Keyword</i>	<i>TO</i>	<i>DE</i>	<i>EC</i>	<i>Keyword</i>	<i>TO</i>	<i>DE</i>	<i>EC</i>
Human resource management	55	159	0.34	Machine learning	33	115	0.24	Artificial intelligence	81	233	0.45
HR practices	13	39	0.10	HR analytics	10	46	0.08	Human resources	10	39	0.09
Artificial intelligence (AI)	13	42	0.07	Talent management	9	35	0.10	Predictive analytics	8	34	0.12
Employee engagement	13	44	0.13	Organisational performance	5	18	0.07	Deep learning	7	29	0.09
Recruitment	12	49	0.15	Employee turnover	3	14	0.05	Employee performance	7	31	0.09
Talent acquisition	10	49	0.15					Internet of things	5	19	0.04
Human resource management (HRM)	8	25	0.04					Human resource management system	5	16	0.04
HRM	8	24	0.06					Human resource information systems	4	15	0.05
Employee satisfaction	6	23	0.08					Green human resource management	4	13	0.05
Natural language processing	5	23	0.11					Human resource management systems	3	9	0.05
<i>Cluster # 4</i>				<i>Cluster # 5</i>							
<i>Keyword</i>	<i>TO</i>	<i>DE</i>	<i>EC</i>	<i>Keyword</i>	<i>TO</i>	<i>DE</i>	<i>EC</i>				
AI	12	64	0.12	HRIS	7	25	0.064				
Digitalisation	4	18	0.03	Information systems	4	16	0.070				
Industry 4.0	4	18	0.06	Technology	4	19	0.086				

Table 5 Transition matrix

<i>FROM/TO</i>	<i>Cluster #1</i>	<i>Cluster #2</i>	<i>Cluster #3</i>	<i>Cluster #4</i>	<i>Cluster #5</i>	<i>%K</i>	<i>%DE</i>
Cluster #1	50.80%	8.05%	0.30%	0.20%	22.84%	18.41%	23.18%
Cluster #2	19.51%	44.39%	0.73%	0.00%	15.85%	7.19%	9.61%
Cluster #3	33.33%	33.33%	33.33%	0.00%	0.00%	0.38%	0.21%
Cluster #4	11.76%	0.00%	0.00%	58.82%	0.00%	0.63%	0.48%
Cluster #5	26.24%	7.51%	0.00%	5.00%	53.06%	18.03%	20.79%

4.8.2 Cluster 2: Machine learning and HR analytics

Cluster 2 represents 7.19% of the total keywords, while 9.61% of all network connections are linked to the terms within this cluster. The dominant keyword in this group is 'machine learning', which appears in 33 publications and is associated with 115 distinct keywords. This cluster represents the data-driven side of HRM, focusing on how analytics, algorithms, and predictive models improve HR decision-making. The keywords machine learning, HR analytics, and talent management indicate a strong emphasis on using data to optimise workforce strategies. The presence of employee turnover and organisational performance highlights the central problems that this cluster addresses retaining talent and improving business outcomes. Machine learning and predictive analytics enable HR managers to forecast recruitment needs, identify high-potential candidates, and predict attrition trends (Marler and Boudreau, 2016). Studies demonstrate that these advanced analytics tools transform HR from a reactive to a proactive function. Instead of responding to problems after they occur, organisations can design targeted interventions to prevent turnover, boost employee performance, and align talent management with strategic goals (Cappelli et al., 2018). In this way, cluster 2 highlights the integration of technology and data into HR practices, signalling a shift toward evidence-based and future-focused HRM.

4.8.3 Cluster 3: AI in human resources

Cluster 3 comprises 0.38% of the total keywords, with 0.21% of all network links associated with the terms within this cluster. The dominant keyword here is 'AI', which occurs in 81 publications and is linked to 233 distinct keywords. This cluster represents the emerging role of advanced technologies in AI, deep learning, predictive analytics, and IoT in HRM. It reflects a research direction that focuses on technological integration for decision-making, efficiency, and sustainability in HR. The co-occurrence of AI with human resources and predictive analytics highlights how scholars are exploring AI's potential to model, anticipate, and optimise workforce outcomes. Techniques such as deep learning and predictive modelling are being applied to employee performance analysis, attrition prediction, and recruitment optimisation (Magni et al., 2020). The presence of internet of things (IoT) and green HRM indicates that this cluster also expands beyond traditional HR functions, emphasising how smart technologies and sustainability goals intersect with HRM practices (Shamim et al., 2016). Research in this area shows that AI-driven HRM systems can enhance employee engagement and productivity by automating repetitive tasks, offering data-driven insights, and enabling real-time decision support (Cappelli et al., 2018). At the same time, HRIS and HRM systems appear in the cluster, showing how digital platforms are evolving into intelligent HR ecosystems (Cameron et al., 2024). Importantly, this cluster highlights the shift toward technology-augmented HRM, where innovation not only improves efficiency but also helps organisations align with Industry 4.0 and sustainability imperatives.

4.8.4 Cluster 4: AI and the digital reinvention of HRM

Cluster 4 comprises 0.63% of the total keywords, with 0.48% of all network links associated with the terms within this group. The most prominent keyword in this cluster is 'AI', which appears in 12 publications and maintains connections with 64 distinct keywords. This cluster reflects the convergence of AI, digital transformation, and

Industry 4.0 concepts within the context of HRM. Keywords such as digitalisation and Industry 4.0 highlight how technological transformation is reshaping HR functions, while AI acts as the core driver enabling automation, predictive modelling, and adaptive systems. The co-occurrence of AI and digitalisation emphasises a growing scholarly interest in the digital transformation of HRM, where intelligent systems are leveraged to enhance strategic decision-making and streamline processes. Industry 4.0, characterised by cyber-physical systems and smart technologies, further situates HR as a critical enabler of workforce adaptation and capability development in highly automated environments (Shamim et al., 2016). Research shows that AI applications in HR extend beyond analytics, influencing tasks such as recruitment automation, natural language-based candidate screening, and employee experience personalisation (Meijerink et al., 2015). At the same time, digitalisation trends highlight a broader shift in organisational design, where HR professionals must balance technological adoption with ethical, human-centric considerations (Strohmeier and Parry, 2014). This cluster thus represents the fusion of digital transformation and intelligent systems in HRM, reflecting how organisations are aligning with Industry 4.0 imperatives to stay competitive in rapidly evolving markets.

4.8.5 Cluster 5: HR information systems and digital platforms

Cluster 5 contains of the 18.03% keywords, and 20.79% of all the links in the network are connected to the keywords in this cluster. The most frequent keyword here is 'AI', which appears in seven articles and is connected to 25 unique keywords. This cluster represents the technological backbone of HRM, focusing on the digital platforms and information systems that support data storage, process automation, and HR service delivery. Keywords such as information systems and technology indicate that this cluster emphasises the infrastructure side of HR digitalisation rather than advanced analytics. HRIS serves as a foundation for storing employee data, supporting payroll, recruitment, and performance management processes, and enabling strategic HR functions through reliable data access (Lina, 2019). Research shows that the evolution of HRIS has moved from administrative support toward strategic enablers of HRM, providing decision-makers with the information needed to align human capital practices with organisational goals (Strohmeier and Parry, 2014). Recent studies further suggest that integrating HRIS with other enterprise systems and digital platforms enhances organisational efficiency, transparency, and user experience (Marler and Fisher, 2013). This cluster thus reflects the role of HRIS as the foundation of digital HRM-providing the data infrastructure necessary for organisations to leverage emerging technologies such as AI, predictive analytics, and machine learning discussed in other clusters. Without robust HRIS, digital HR transformation cannot fully succeed.

The transition matrix in Table 5 highlights the interaction dynamics among the five thematic clusters identified through co-word analysis in the AI-HR research landscape. Cluster #1 exhibits the highest level of internal cohesion, with 50.80% of its content remaining within the cluster, indicating a strong thematic identity. It also shares substantial connections with cluster #5 (22.84%) and cluster #2 (8.05%), suggesting overlapping or multidisciplinary areas within the broader research field. Similarly, cluster #2 maintains a notable degree of internal consistency (44.39%) and demonstrates moderate linkage with both cluster #1 (19.51%) and cluster #5 (15.85%), positioning it as a possible thematic bridge across dominant research domains. In contrast, cluster #3

displays a uniform distribution across clusters #1, #2, and #3 (33.33% each), which may point to emerging or cross-cutting themes with low conceptual stability, as supported by its minimal share of keywords (%K = 0.38%) and descriptors (%DE = 0.21%). Cluster #4 appears relatively isolated, with 58.82% internal retention and negligible interactions with other clusters, indicating a niche or highly specialised research focus. Meanwhile, Cluster #5, which accounts for 18.03% of the total keywords, shows considerable internal cohesion (53.06%) and a meaningful link to cluster #1 (26.24%), further reinforcing the centrality of these two clusters in the intellectual structure of the domain. Collectively, the matrix reveals that clusters #1 and #5 represent the dominant and interconnected thematic cores, while cluster #4 remains specialised and cluster #3 functions as a transitional or evolving area of research. These patterns underscore the stratified and dynamic nature of thematic development in AI-driven HR practices.

4.9 Potential for future research trends

Future research on AI-enabled HRIS must move beyond descriptive mapping to more rigorous evaluations that address effectiveness, fairness, and governance. One important direction lies in examining the integration of generative AI, which is increasingly used for tasks such as drafting job descriptions, creating learning content, and enhancing recruitment communication; while early evidence highlights productivity gains, future studies should investigate long-term impacts on decision quality, fairness, and accountability (Brynjolfsson et al., 2023; Gazi et al., 2024). Another promising trend is research on algorithmic management and its implications for employee experience, autonomy, and organisational legitimacy, requiring fine-grained analyses of how governance mechanisms such as transparency and appeal processes shape fairness perceptions (Meijerink et al., 2015). The need for explainable and trustworthy AI is also critical, as HR decisions are sensitive and legally consequential; thus, future studies should assess which explanation methods – such as counterfactuals or feature attributions – best enhance trust, contestability, and decision quality (Langer et al., 2021). Moreover, given rising concerns over privacy and compliance, privacy-preserving approaches such as federated learning and differential privacy deserve empirical testing in HR settings to balance predictive accuracy with ethical safeguards (Kairouz et al., 2019). Methodologically, scholars should prioritise causal designs, including field experiments and quasi-experimental studies, to measure the real organisational outcomes of AI adoption (Raisch and Krakowski, 2020). Additionally, understanding human-AI teaming remains underexplored; research should investigate how interface design and decision framing influence managers' reliance on algorithmic recommendations (Jarrahi, 2018). Finally, as regulatory frameworks like the EU AI Act begin to take effect, comparative studies are needed to explore how organisations operationalise compliance requirements into HRIS development and auditing processes. Collectively, these avenues highlight that the future of AI in HRIS research will depend on interdisciplinary approaches that integrate technical innovation with ethical, legal, and organisational considerations.

5 Conclusions

The findings of this bibliometric and systematic review highlight the significant transformation that AI is bringing to HRIS and, by extension, to the wider field of HRM. The adoption of AI is not merely a technological enhancement, but a paradigm shift that redefines the ways organisations recruit, evaluate, and manage their workforce. Our analysis confirms that AI-driven HRIS has moved beyond pilot studies and conceptual discussions to become a central driver of strategic HR practices. This observation resonates with prior scholarship emphasising that AI can augment recruitment processes by enhancing candidate screening, improving job-person fit, and reducing time-to-hire through automation and predictive modelling (Upadhyay and Khandelwal, 2018). Furthermore, AI-enabled HR analytics provide decision-makers with data-driven insights that foster evidence-based HRM practices, as argued by Marler and Boudreau (2016). The review highlights pressing challenges that require scholarly and practical attention. While AI tools promise objectivity and efficiency, concerns about fairness, algorithmic bias, and the lack of transparency in decision-making persist. Meijerink et al. (2015) caution that AI adoption in HR may reproduce existing inequalities if ethical frameworks are not embedded in HRIS design. Similarly, Jarrahi (2018) underscores that AI cannot fully replace human judgment in sensitive HR functions, stressing the need for collaboration between humans and algorithms. This duality reflects a central tension: while AI enhances operational efficiency, it also raises ethical, legal, and organisational dilemmas that must be carefully navigated.

The bibliometric trends identified in this study reinforce the growing scholarly interest in AI-HRIS integration, particularly post-2022, coinciding with the rise of generative AI and advanced digital analytics. Emerging themes such as personalised employee performance systems, algorithmic decision-making, and robotics point toward a future where HRIS becomes increasingly adaptive and employee-centric. Such transformations align with the broader discourse on digital HRM, which envisions HR as a proactive, analytics-driven function that supports strategic workforce planning (S et al., 2024). However, the uneven geographical distribution of research, with India, China, and the USA leading, suggests that regional and cultural factors in AI adoption remain underexplored. Comparative studies could reveal how regulatory regimes, organisational cultures, and workforce expectations shape adoption patterns globally. The findings suggest several avenues for future inquiry. Scholars and practitioners must investigate how generative AI can be responsibly integrated into HRIS for tasks such as automated job description generation, candidate assessment, and performance feedback. Additionally, more empirical studies are required to understand the long-term implications of hyper-personalised HR systems on employee trust, engagement, and privacy. Another critical research frontier lies in exploring the role of HR professionals in an AI-augmented workplace, particularly how they transition from administrative support roles to strategic business partners. In line with Do et al. (2025), this transformation underscores the need for HR professionals to develop digital competencies and ethical awareness to ensure responsible adoption. In conclusion, AI-enabled HRIS represents a powerful lever for reshaping HR practices, offering organisations opportunities to improve efficiency, foster data-driven decision-making, and deliver personalised employee experiences. However, realising this potential requires balancing innovation with responsibility, ensuring that AI adoption upholds principles of fairness, transparency, and inclusivity. As the field evolves, future research must continue to

interrogate the socio-technical dynamics of AI in HR, ensuring that the technology serves not only organisational efficiency but also human well-being. The present study contributes to this discourse by offering a comprehensive bibliometric and systematic review, thereby providing a foundation for advancing both scholarly understanding and practical innovation in the field of AI and HRIS.

6 Discussion

The results of this study prove that the role of AI is becoming more and more strategic in HRIS and is increasingly transforming the HR process in the modern world. The findings of the bibliometric and systematic review show a significant rise in research attention following 2022, highlighting a growing interest in the adoption of AI-powered HRIS systems to enhance operational efficiency, strategic decision-making, employee engagement, and workforce analytics in organisations. The study also reveals that the use of AI in HRIS has evolved from mundane administrative automation to more sophisticated capabilities like predictive analytics, intelligent hiring, performance tracking, sentiment analysis, and talent forecasting. The evolution of AI in HRIS is moving beyond its traditional role as an administrative tool and towards becoming a strategic business intelligence tool. Ethical AI, algorithmic fairness, transparency, and data privacy are also noted as evolving themes, signifying that these areas will be increasingly important in HR settings in terms of responsible AI governance.

The other major insight is the extent of international research partnerships among emerging economies, such as India and the nations of the Gulf region, signifying the global spread of AI-driven HR technologies. The marriage of AI and HRIS can help organisations stay agile in dynamic market environments and make well-informed decisions, from an *IJBIS* point of view. In summary, the study seeks to fill the body of literature on business information systems with a thorough understanding of how AI powered HRIS influences strategic HRM, organisational intelligence and digital workforce transformation.

7 Policy implications

7.1 Theoretical implications

The adoption of AI through HRIS necessitates robust policy frameworks that ensure fairness, transparency, and accountability in HR decision-making. Regulators and organisations must develop guidelines for explainability, data privacy, and bias mitigation, particularly in sensitive areas such as recruitment, performance appraisal, and compensation. Compliance with emerging regulations, such as the EU AI Act and data protection laws, should be embedded into HRIS design to balance innovation with worker rights. Clear policies on governance, employee consent, and auditability will be essential to build trust and foster responsible AI integration in HR practices.

7.2 *Managerial implications*

AI-enabled HRIS has the potential to reshape workforce management, but without clear policies, it risks reinforcing bias and eroding employee trust. Policymakers should mandate standards for algorithmic accountability, ethical data use, and regular audits of AI-driven HR processes. Organisations, in turn, must align internal HR policies with regulatory frameworks, ensuring employee rights to transparency, appeal, and data protection. Such policies not only safeguard fairness but also create an enabling environment for sustainable and responsible AI adoption in HR practices.

8 **Limitations and future research direction**

Future research can expand this study by incorporating multiple databases such as Web of Science, Google Scholar, and IEEE Xplore to achieve broader coverage of AI-HRIS literature and reduce database-specific bias. Additionally, empirical and longitudinal studies are needed to examine the real-world effectiveness, organisational impact, and ethical implications of AI-driven HRIS implementations across different industries and regions. Also, research should prioritise the ethical and responsible deployment of AI within HRIS, particularly addressing concerns related to bias, fairness, transparency, and explainability in algorithmic decision-making processes. As AI increasingly enables hyper-personalised employee experiences-from adaptive learning and development platforms to individualised performance management-scholars must also examine the associated privacy risks and long-term impacts on engagement and well-being. Comparative studies across diverse socio-economic and cultural contexts are necessary to understand regional variations in AI-HRIS adoption, especially beyond dominant contributors such as India, China, and the USA. Additionally, the integration of generative AI and advanced analytics into HRIS-such as for automated job design, virtual interviewing, and predictive talent modelling-warrants empirical investigation to evaluate their influence on HR efficiency, trust, and outcomes. Finally, the transformation of HR roles in light of AI adoption calls for focused inquiry into human-AI collaboration, change management, and the reskilling of HR professionals to align organisational capabilities with evolving technological landscapes.

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