Impact of Artificial Intelligence on the Efficiency of Human Resource Management Practices: A Human-centered Approach

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ABSTRACT The current study aimed to improve Human Resource Management (HRM) through the introduction of novel technologies. Furthermore, this study primarily focused to scrutinize the scientific studies carried out in recent years regarding the application of Artificial Intelligence (AI) in HRM. In order to enhance theoretical as well as empirical knowledge, the study also examined the evolution of conceptual, social, and intellectual structures within the field of HRM. To achieve the intended objectives, a bibliometric analysis was conducted with the help of VOS viewer and Excel for those articles and reviews indexed in the Scopus database. The study emphasized the analysis of research work carried out during the time period (1999-2024) that investigated AI utilization for HRM. The initial investigation found 761 such documents among which 141 were shortlisted using the PRISMA methodology. It was determined that during the time period (2017-2023), there has been a consistent rise in annual publications with the most notable surge (110.7%) in 2022. The most dominant themes uncovered in the HRM using keyword analysis were information management, resource allocation, and resource management. The main application of AI in HRM revolves around the themes of recruitment, talent management and ethical considerations. With a growing interest in consolidating the existing knowledge, review articles attracted significant attention. Three were the notable contributors with the latter being cited the highest despite authoring fewer publications. The surge in publications in the year 2022 shows that the aftermath of COVID-19 pandemic resulted in increased adoption of AI for efficient HR management. "Human Resource Management Review" was the top journal in this theme, whereas the journal titled "International Journal of Human Resource Management" had the maximum citations. The study had certain limitations caused by potential biases resulting from selection criteria, methodological choices, and dependence on a single Scopus database with possible inaccuracies. To address these issues, future studies should investigate publication frequencies in electronic HRM to understand observed differences and the influence of AI in HRM practices and results. It is pertinent to mention that the Scopus data sheet had various inaccuracies, such as misclassifying review articles as regular articles, labelling regular articles as reviews, and errors in publication years. Researchers are advised to verify datasets with original documents and encourage Scopus to enhance data accuracy in order to uphold the credibility of research findings.

INDEX TERMS artificial intelligence adoption, bibliometric analysis, human resource management

I. INTRODUCTION

Human Resource Management (HRM) performs the most impactful functions within an organization. It is imperative for HRM to perform efficiently as well as effectively to achieve corporate success, especially when the business landscape in this modern era is highly competitive [1].

HRM is the backbone of every organization. This is because it plays the most important roles in the organization that other departments do not. HR has a significant role within an organization. It focuses greatly on talent acquisition and retention, employee development as well as employee relations management, which is a substantial contribution to organizational effectiveness and sustainability. Organizations with effective HR mechanisms are 1.4 times more likely to outperform their competitors. Additionally, they may also handle talent 2.5 times more efficiently. A high level of human centered engagement, nurtured by effective HR programs, is associated with a significant 23% rise in profitability. This emphasizes the importance of HR in creating a motivated and efficient workforce. These figures highlight the vital role of HR to boost organizational performance and promote a favorable work environment for long-term success [2]. Effective HRM uses many systems and tools to bring together the apt person with the required skills and attitude at the right place and time to achieve organizational objectives [3]. Staffing ironically takes too much time to make the right selection for the desired job. The trend to improve the human capital in the organizations is aiming for efficiency, effectiveness, and higher productivity, which could achieve the competitive advantage [4]. In this context, implementation of the Artificial Intelligence (AI)-based HRM within the human-centered organizations is essential for HRM along with the activities aimed to achieve the organization's objectives at optimum level. This area encompasses almost all the critical and impactful decisions taken by HR. However, this is not limited to the description of the necessary behaviors, the structure of human resources, monitoring, as well as evaluation of the productive decisions based on various business strategies in relation to the competitive business circumstances [5]. The applied contribution of this study was to highlight the significance of revamping the HRM functions from manual to automated. This leads towards improved performance of the HR department as well as financial and non-financial gains, for instance, improving employees' satisfaction, retention, and performance; and the theoretical contribution is exploring the areas to be studied.

A. STATEMENT OF THE PROBLEM

There remains a significant gap in understanding the effectiveness of AI application in HRM, despite its growing interest [6]. This gap highlights the need for detailed study to uncover trends, challenges, and opportunities in this emerging field. To meet this challenge, this comprehensive study explored the applicability of AI in HRM by employing the search terms ("Artificial Intelligence" OR "AI") AND ("Human Resource Management" OR "HRM") in the database of Scopus, covering the period from 1999 to April 22, 2024, to address these investigations. However, efficient HR practices are the digitalized/AI/best practices being used in the well-reputed organizations.

RQ1: The main ideas related to HRM, having its foundation in AI, predominantly in terms of the impact that has been made by integrating AI into HR practices (all keywords or author keywords).

RQ2: The AI practices based on the primary research articles, authors, and scientific journals in HR that precisely concentrate on the complex interplay of AI integration and efficient HR.

RQ3: How has the field of AI-based HRM developed in recent years, mainly relating to the impact of AI adoption on efficient HRM practices, and what trends are evolving in this field (i.e., specifically recruitment)?

RQ4: Current focus and vision of future research in the role of AI in HR, specifically regarding the transformative effects of AI adoption on efficient HR practices, and how this research can contribute to addressing organizational-specific concerns?

B. MOTIVATION AND GAP OF THE STUDY

The blend of AI with HRM portrays a transformative process that may enhance organizational effectiveness alongside creating fresh and attractive opportunities for talent management, instead of merely being passed on as a technological trend [7]. The process is evolving at an unimaginable pace, thereby increasing the workplace intricacies day by day. This calls for an effort to create a balanced workplace where the coexistence of human beings and AI is possible in a continuously synchronized environment to accomplish specific tasks [8]. AI is the key to HRM in today's competitive business environment [9]. So, it is the responsibility of the HR scholars to investigate the implementation of AI-solutions in various HR environments and to explain the aftereffects in order to provide the business world with useful insights in this domain [8].

The future considerably depends on AI applications, emphasizing the importance of acquiring updated knowledge of AI technologies to address HRM challenges [10]. Nevertheless, the respective area needs further broader exploration and additional holistic investigations for a precise understanding of AI deployment in HRM functions, especially recruitment processes [11].

II. LITERATURE REVIEW

In this digitalized era, the success of any organization increasingly relies on effective HRM [12]. Due to rapid and excess digitalization, HRM systems have AI portion more prevalent than ever since tactical HR Information Systems (HRIS) encompass the performance of specific organizational tasks through the use of technology to achieve desired goals [14]. Today's digital technologies are altogether poles apart from what we used to have in the form of conventional knowledge-based systems [11]. The function of organizations' HR is rapidly being altered by AI [15]. This technology can improve decision-making, automate tasks, and personalize employee experiences. Fairness should be at the center of the procedure during AI decision-making [11]. AI-based technologies are increasingly becoming significant due to its ability to promote mutual partnership of human beings and AI and to achieve targets effectively [11]. It is a valid assertion that with extensive potential for its utilization within HRM, AI integration significantly reshapes the future of HRM [16]. The question of AI-HRM belongs to HRM due to cross-disciplinarily [17]. The development of AI-integrated HR tools relies on advances in technical areas, whereas the application of AI tools and their implications depend on knowledge from the social sciences. Numerous scholars have contributed to AI-HRM knowledge from various fields, that is, scholars of Computer Science (CS) [18], economists [19], psychologists [20], [21], and Medical [22]. The future prospects of HR would include both man and technology, with one of the principle challenges being to maintain a

collaborative spirit between human beings and robots [11]. To maintain the future performance evaluations of employees, HRM staff must be careful in testing and managing AI-driven robot colleagues [23]. AI-based technologies ensure to provide reliable information and to alleviate personal biases for the development of a sound HRM system with certain best/efficient practices. However, this is not limited to talent acquisition and recruitment, performance management, employee training and development, employee engagement, diversity, as well as flexible work arrangements and technological integration. This form of AI leverages machine learning (ML) and algorithms to analyze massive chunks of data, uncovering hidden configurations and latest trends recognized by organizations [24].

A. RECRUITMENT AND SELECTION

To reduce the extent of human labor involvement and improve the decision-making processes, AI models use HRMS as the main source of data, and can be used for numerous HRM processes, for instance recruitment [13]. The amalgamation of AI with humanized policymaking is a reasonable, impartial, and balanced process [25]. This is because AI tends to be the most dominant technology that has altered the design and structure of the existing labor market [26]. While AI has reduced the data analysis bias, cost, and effort; on the other hand, it has also increased the quality of the recruitment and evaluation of candidates processes [13], [27], [28] and enhanced productivity [29], [30]. The question of whether AI mitigates or exacerbates bias remains an area for future research, as the extant literature presents conflicting evidence.

By employing data-driven techniques, the AI has the power to reform and modernize the recruitment processes by enhanced effectiveness and increased efficiency [13]. Chatbots are now the most popular to evaluate the existing AI solutions available in the market [31]. Moreover, AI lacks the depth of judgment and sensibility prevalent in human beings [32]. There is a growing need to recognize the human element in the form of its expertise to combine with AI so that there is fairness and transparency in recruitment processes [33]. However, legislation issues, particularly the General Data Protection Regulation (GDPRs) pose a huge hindrance towards the adoption of technology in HR processes, such as recruitment [11].

Although some of the studies focus upon the potential downsides of AI in recruitment, authors often highlight the technology without taking into account human-centered design [34]. Moreover, there are limited studies with regard to the broader ethical aspects of using AI in recruitment processes. For instance, there may be concerns about data protection and privacy as well as the employment of AI to inform decisions that seriously affect people's lives. Therefore, longitudinal studies should be conducted regarding AI's impact on employee retention in SMEs. This renders designing AI systems that are basic, human-friendly, and centered on all stakeholders' perspectives - for candidates, recruiters, and HRM professionals. A Systematic Literature Review (SLR) of 42,831 published papers from 2019 to 2020, only three papers in Computer Science concentrated their studies on the ethics and effectiveness of the recruitment tools developed indicating significant research gaps [17]. AI technologies, expert systems, data mining, big data analytics, Natural Language Processing (NLP), and

AI in HRM can be categorized in selection and onboarding, respectively [14].

B. EMPLOYEE CAREER PLANNING AND MANAGEMENT

Employee performance, training and development, and promotion are the main elements of employee career building. Career management is effective for long-term career development goals, and many researchers focus on linking career development to job satisfaction [35]. Developing a career plan for employees and ensuring their satisfaction not only enhances their performance at work but also increases the likelihood of staying with the organization [13]. In the context of employee monitoring, protection of employee privacy [36] is essential to comply with the appropriate documentation, for instance, GDPR in an ethical manner [13].

Substituting HR is more complex as compared to switching other forms of recourses. Organization poses a significant risk by parting the employees. This is because modern businesses can only operate effectively when they have the appropriate number of individuals possessing necessary skills to handle the growing complexity of tasks. Utilizing innovative AI tools and data science may greatly assist administrators in mitigating the risk of losing respected staff [13], [37], [38], [39]. Usage of AI leads towards improvements in the tactical techniques of staffing, employees' performance appraisal, satisfaction, training, and practice [40].

C. PERFORMANCE APPRAISAL AND COMPENSATION

AI has transformed the HRM systems in terms of employee performance appraisal and compensation. AI's capabilities have resulted in enhanced precision and efficiency in processes, such as performance evaluation and compensation management [9]. AI has the ability to analyze massive amounts of employee data without any bias which provides fair evaluations in terms of employees' performance management [41]. As compared to human interventions, employees perceive AI to be fairer, more impartial, and accurate in these processes [42]. Not only does AI assist managers in appraising performance more accurately but also contributes in establishing a more transparent and equitable compensation framework, accurately representing individual performance metrics [41]. Thus, AI transforms conventional HR processes through a data-driven approach to major HR functions offering efficient as well as effective solutions.

D. PERCEIVED FAIRNESS AND ETHICAL DIMENSIONS OF AI-BASED HRM

By implementing AI-based technologies and contemporary arguments, such as the data privacy significance and possibly misuse of social media suggested to evaluate ethics [43]-[45]. When data application, data processes, and independent evaluation take place by an AI-recruiting tool, this presents ethical dilemmas and raises awareness regarding the legal and social implications of possible actions and decisions of these systems. In addition to the above-mentioned advantages of AI-recruiting procedures, it also has negative aspects. These are often obscured; principally, there are a lot of data security issues, less than reliable test material or validity testing. New applicants applying for positions often do not know about the use of such systems. Scholars and practitioners in the management field have acknowledged that taking a stance while

selecting a strategy for any choice-making is important [46].

E. HUMAN-CENTERED PERSPECTIVE

Participatory AI design emphasizes the inclusion of a human perspective along with transparency in the AI development procedures to ensure impartiality and fairness. Ensuring such transparent practices is a recurring task which must be done on regular basis in environments that show openness and readiness to embrace just and objective HR practices [47]. Similarly, [48] has highlighted the importance of transparency in designing AI systems to avoid prejudicial outcomes. Examples of human - AI association demonstrate both successes and failures. [49] suggested that the potential for collaboration between human beings and AI can be explored through a participatory design which may improve trust and efficacy. Conversely, [50] provided certain instances where AI-based hiring technologies can unintentionally effect biases due to careless mismanagement. Recruitment algorithms are also prone to such biases as explained by [46], [51] along with the efforts to eliminate these biases through ethical HRM systems and participatory design, respectively. However, failures persist, as noted by [52], which lists a variety of AI systems arising from biased data collection, flawed algorithm design, and human misinterpretation.

III. METHODOLOGY

Bibliometric analysis is used to purposefully utilize these in knowledge creation. Hence, it is a scientific method to investigate scientific literature in a specific field. It is now widely used for assessing scientific studies due to its extensive benefits [53], [54]. Unifying the best available academic evidences with the judgements and experiences of practitioners in the true spirit of evidence-based practice is possible by using the methodology of systematic review. Bibliometric analysis can highlight trends within analysis of thematic areas and trace the enlargement of trends in the basic structure [55]. Thus, bibliometric analysis for this study was done using the general science mapping workflow methodology described by [56] and is presented in Figure 1.

Data was obtained from the Scopus database. Data collection was performed using bibliometric analysis over a period of almost 25 years, between 1999-22 April 2024. PRISMA methodology was performed to complete the systematic review of the literature, which details the steps of identification in database, the selection of records, and the filtering of suitable data by eligibility criteria. Interdisciplinary researchers were also omitted since they did not fulfil the scope of this study. However, errors were manually identified and corrected in the Scopus data by checking suspicious articles to ensure data reliability.

Table 1 shows that a total of 141 articles were identified associated with the application of AI in HRM. From 1999-2024 (22 April), parameters, that is, AI and HRM) were used as keywords in the database. Only articles and research reviews were considered for the analysis. To be included, a publication had to contain the specified keywords in its title, author-provided keywords, and abstract. Additional search filters were applied: the subject areas were limited to Business, Management and Accounting, and Social Sciences. Publications in Portuguese, German, Arabic, and Chinese were excluded; only English-language articles

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that had undergone editorial and/or peer-review processes were retained.
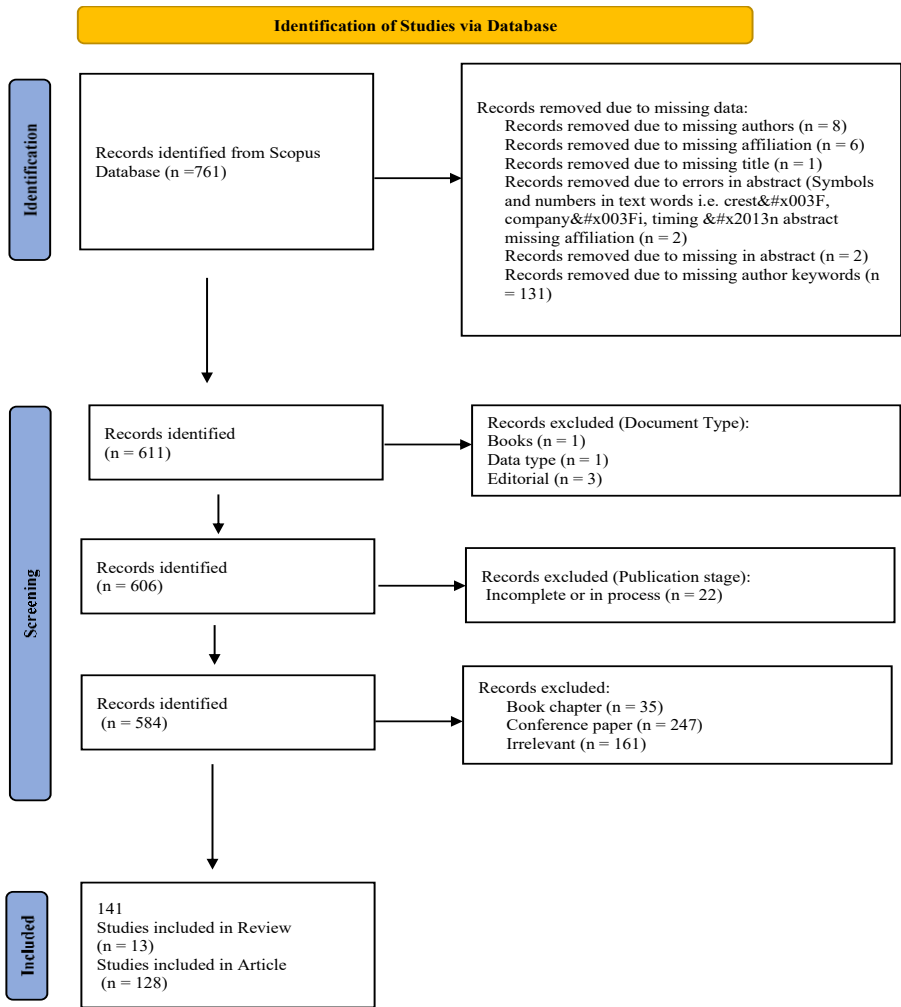
FIGURE 1. PRISMA flowchart

TABLE I
DATABASE SEARCH CRITERIA

Database	Search Criteria	Total
Scopus	TITLE-ABS-KEY ("Artificial Intelligence" OR "AI" AND "Human Resource Management" OR "HRM") AND PUBYEAR > 1999 AND PUBYEAR < 2025 AND (EXCLUDE (LANGUAGE, "Portuguese") OR EXCLUDE (LANGUAGE, "German") OR EXCLUDE (LANGUAGE, "Arabic") OR EXCLUDE (LANGUAGE, "Chinese"))	141

The elimination constraints were used to delimit the content of articles strictly. Only those articles were included in which AI use was mentioned in HRM or/and in the HRM functions, that is, recruitment and selection, training and development of an organization and explicit it in titles, author keywords or/and abstracts of the articles. It is worth mentioning here that those articles were not included in which researchers studied the adoption of AI in the whole organization. Interdisciplinary researches were not included to fulfill the research questions, goals, and objectives.

The data obtained was exported in the Comma Separated Values (CSV) format to maintain consistency. The final result of the records, 128 articles, and 13 review articles, was processed with VOS viewer and Microsoft Excel software. However, data analysis was done using VOS viewer software for bibliometric analysis and Microsoft Excel which provided a graphic visualization of data and statics for bibliometric analysis.

IV. DATA ANALYSIS AND DISCUSSION

The studies based on the bibliometric analysis boost comprehension and justification of the dynamics of activity and scientific output [57]. Burst detection was also applied to trace emerging themes, such as "ethical AI" or "AI recruitment bias".

A. ANNUAL SCIENTIFIC PRODUCTION
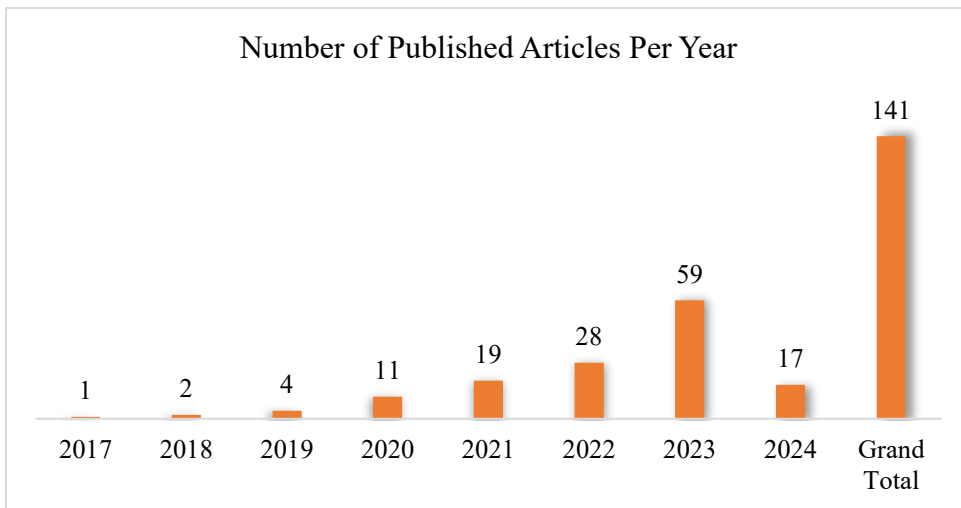
FIGURE 2. Articles published per year

Figure 2 represents that the total number of articles published annually from 2017-2023 was 141. Research interest in AI-driven human resource management began in 2017 and grew gradually in the following years. However, it saw a significant surge starting in 2022 [4], with publication output more than doubling in 2023—a remarkable increase of 110.7% compared to 2022. It is evident that there has been a consistent increase in the number of articles published each year, indicating a growing volume of research output. The most notable rise occurred between 2022 and 2023, with publications nearly doubling, suggesting a significant surge in research activity or

heightened interest in the subject matter during that timeframe. However, 17 articles were published up to April 22nd, 2024. The total number of 141 articles emphasizes the combined impact of scholarly contributions throughout this period. This information not only showcases a positive trend in research productivity but also provides a valuable resource for academics and researchers looking to understand the changing landscape of their field.

Moreover, it is also evident that study on chosen topic was not conducted from 1999 to the end of 2016.

Increasing the AI adoption in HRM-efficient practices as well as in scholarly articles positively influences the employees' experiences, highlights the ethical concerns, and the organizational culture.

B. CO-OCCURRENCE OF ALL KEYWORDS
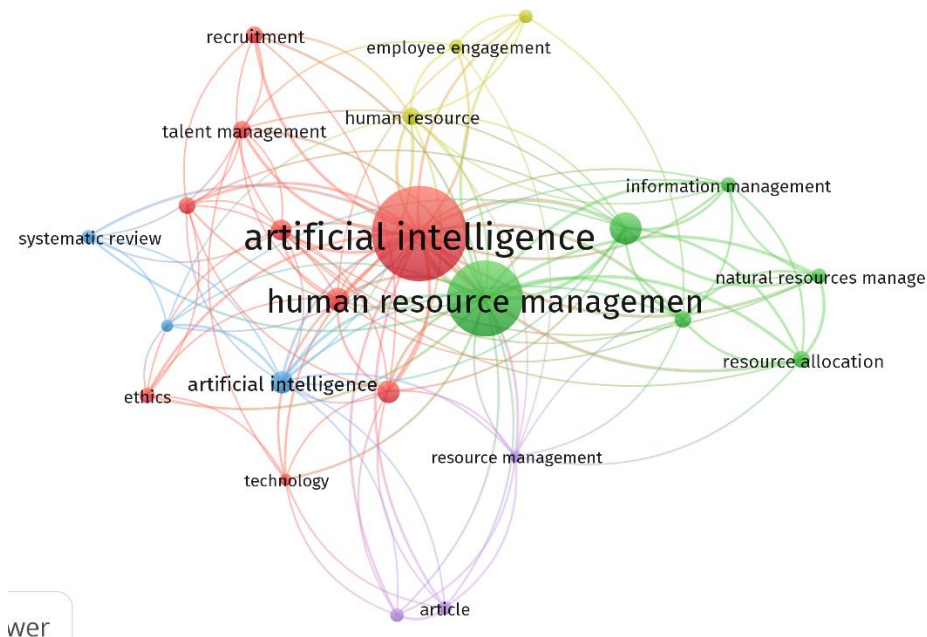
**FIGURE 3.** Most used all keywords

The network visualization seems to depict various interconnected concepts within the realm of HRM. At the center, lies "artificial intelligence" and "human resource management", indicating its central focus. AI-driven HR practices are clearly illustrated through two distinct thematic clusters. The Red cluster, centered on Artificial Intelligence, emphasizes the direct integration of AI into HR processes.

It comprises interconnected concepts such as talent management, recruitment, technology adoption, and ethical considerations, reflecting how AI is transforming core human resource functions. In contrast, the green cluster, labeled Human Resource Management, adopts a broader, strategic perspective. It highlights data-driven resource optimization and AI-enabled decision-

making, linking HR with domains like information technology, resource allocation, and more broadly natural resource management. This cluster also encompasses key HR activities including performance appraisal, talent acquisition, and training and development [4], underscoring AI's role in enhancing both operational efficiency and strategic planning within human resource management. Methodological and ethical considerations in AI-HRM research (Purple cluster) are shown by including terms, such as article, resource management. The color-coded clusters likely denote different subtopics or thematic areas within AI adoption in HRM, facilitating an understanding of the relationships between concepts and identifying research trends. Figure 3 represents the most used 24 keywords. However, this analysis offers insights into areas of focus and potential avenues for further investigation to explore the complexities and dynamics of HRM.

C. CO-OCCURRENCE OF AUTHOR KEYWORDS
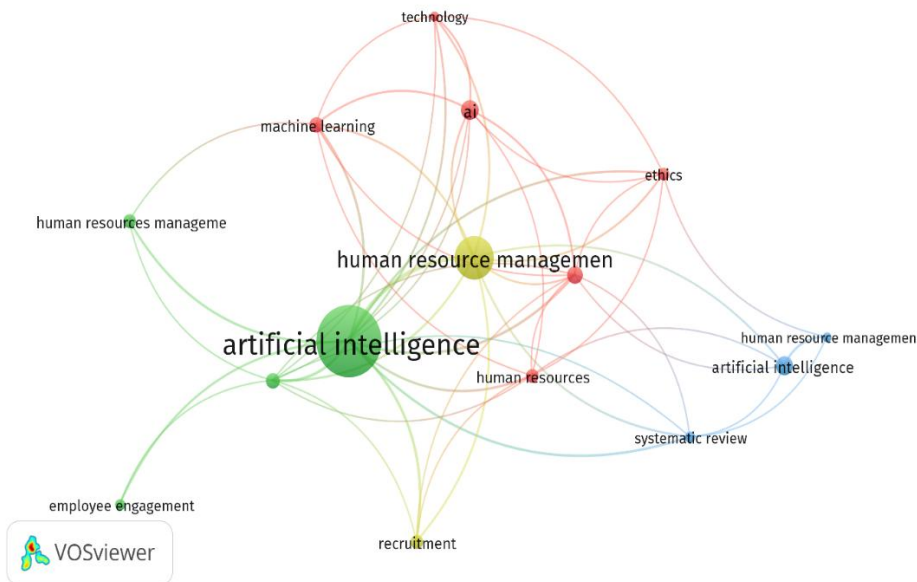
**FIGURE 4.** Author keywords

The visualization in Figure 4 represents the most frequently occurring insights into research themes in HRM suggested 15 keywords, of which of minimum five times appeared. The visualization of author-suggested keywords offers. Analyzing related studies, researchers find trends like AI, HRM, and ML etc. These insights aid scholars and practitioners to understand research trends and thematic clusters within HRM.

D. DISTRIBUTION OF DOCUMENTS

The visualization in Figure 5 shows the distribution of document types and their relative importance within the dataset. This showcases that articles comprise the majority, accounting for 91% of the total documents, while reviews make up the

remaining 9%. The dominance of articles is visually represented by the larger, darker section of the chart, indicating their prevalence as compared to reviews, which are represented by the smaller, lighter section.
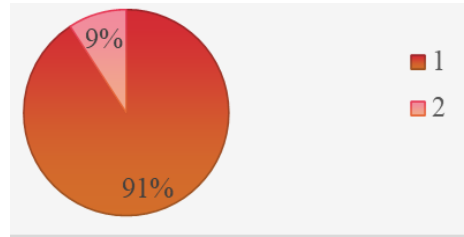
FIGURE 5. Distribution of documents

E. MOST CITED ARTICLES

TABLE II.

MOST CITED ARTICLES

Author(s) of the Document	No. of Citations	Title of the Document
[58]	286	"AI, robotics, advanced technologies, and HRM: a systematic review"
[59]	116	"Unlocking the value of AI in HRM through AI capability framework"
[60]	92	"Impact of AI on employees working in industry 4.0 led organizations"
[61]	87	"Influence of AI awareness on career competency and job burnout"
[62]	87	"The adoption of AI in employee recruitment: The influence of contextual factors"
[63]	84	"A systematic literature review on the impact of AI on workplace outcomes: A multi-process perspective"
[64]	80	"The robot revolution: Managerial and employment consequences for firms"
[65]	80	"Trends and opportunities of AI in HRM: Aspirations for public sector in Bahrain"

According to Table 2, which lists highly cited documents with at least 80 citations, references [58] and [59] have emerged as the most influential works among the studies surveyed. Notably, [58] leads with 286 citations—the highest in the table—while [59] follows with 116 citations. Their citation counts underscore the significant attention and scholarly recognition these papers have garnered.

Furthermore, it is noteworthy that [60] have 92 citations, [61], [62] both have 87, [63] have 84, [64], [65] both have 80 citations, indicating their significance and impact. This list showcases a combination of recent and slightly older studies, demonstrating that both new research and previously-established work hold influence and continue to be referenced by scholars.

F. AUTHOR-WISE RESEARCH OUTPUT AND CITATIONS

TABLE III
AUTHORS AND NO. OF DOCUMENTS AND CITATIONS

Rank	Author	Documents	Citations
1st	malik, ashish	6	207
2nd	budhwar, pawan	5	207
3rd	chowdhury, soumyadeb	3	190
4th	johnson, richard d.	3	59
5th	lukaszewski, kimberly m.	3	59
6th	nawaz, nishad	3	32
7th	pereira, vijay	3	434
8th	prikshat, verma	3	56
9th	rožman, maja	3	16
10th	stone, dianna l.	3	59
11th	tominc, polona	3	16

Data revealed in Table 3 shows that Ashish Malik and Pawan Budhwar have each authored 6 and 5 documents, respectively, and both have 207 citations. Ashish Malik and Pawan Budhwar stand out due to their high citation counts despite different numbers of authored documents. However, three other authors have three articles. Soumyadeb Chowdhury also has a significant 190 citations. Richard D. Johnson, Kimberly M. Lukaszewski, and Dianna L. Stone have authored three documents each, accumulating 59 citations each. Similarly, Prikshat Verma has authored three documents with 56 citations, while Nishad Nawaz has authored three documents with 32 citations. Maja Rožman and Polona Tominc have both authored three documents, receiving 16 citations each. Surprisingly, Vijay Pereira authored three documents but has the maximum citations, that is, 434 among all others. Co-authorship analysis revealed that most Indian authors collaborated within international hubs, particularly with researchers from the United Kingdom (UK).

G. MOST RELEVANT SOURCES/JOURNALS

The most appropriate database was utilized for the bibliometric analysis. The number of articles published on the use of AI in HRM by the most relevant scientific journals is shown in Table 4.

TABLE IV
MOST RELEVANT SCIENTIFIC SOURCES

Journals	Published Articles
Human Resource Management Review	8
Organizational Dynamics	5
International Journal of Manpower	5
International Journal of Human Resource Management	5
Technological Forecasting and Social Change	4
Journal having 2 Published Article	17
Journal having 1 Published Article	80
Grand Total	141

Table 4 presents an overview of the papers published by various journals, each contributing varying numbers of articles to the total count, as 8 articles were published by the "Human Resource Management Review". However, "Organizational Dynamics", "International Journal of Manpower", and "International Journal of Human Resource Management" published five articles each. Moreover, "Technological Forecasting and Social Change" published four articles, and 17 journals have each contributed two articles. Additionally, 80 journals have published a single article each.

H. MOST CITED SOURCES/JOURNALS

TABLE V

MOST CITED SOURCES

Journals	Citations
International Journal of Human Resource Management	459
Human Resource Management Review	387
International Journal of Manpower	204
Human Resource Management Journal	112
International Journal of Scientific and Technology Research	92
International Journal of Contemporary Hospitality Management	87
International Journal of Information Management Data Insights	81
Management Science	80
75 Journals have 1 to 74 Citations	1332
18 Journal have 0 Citations	0
Grand Total	2834

Table 5 sheds light on the impact and visibility of research by presenting a comprehensive overview of citation counts for various journals. Notably, the "International Journal of Human Resource Management" emerges as the most highly-cited journal with 459 citations, closely trailed by the "Human Resource Management Review" with 387 citations, "International Journal of Manpower" with 204 citations, and the "Human Resource Management Journal" with 112 citations. Additionally, specialized journals, such as the "International Journal of Scientific and Technology Research", "International Journal of Contemporary Hospitality Management", and "International Journal of Information Management Data Insights" also make considerable contributions to overall citations. Furthermore, 18 journals have received zero citations but 75 journals received citation counts ranging from 1 to 74.

I. PUBLICATIONS AND CITATIONS BY COUNTRIES
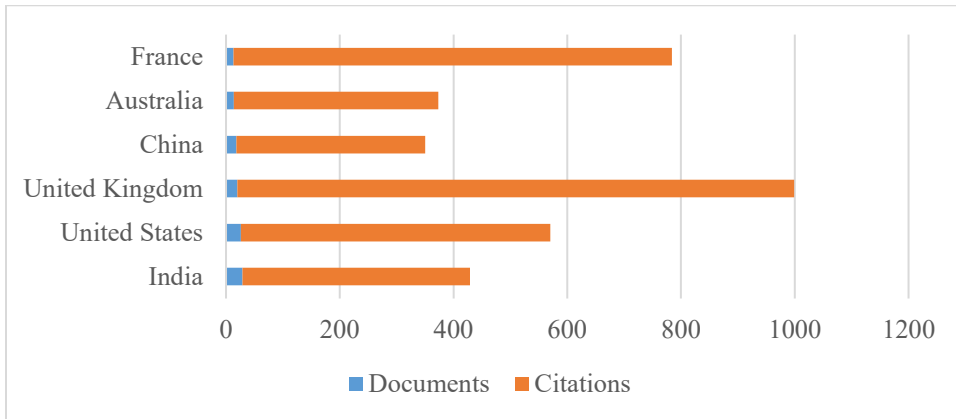
FIGURE 6. Most Article Producing Countries

Figure 6 reveals that India produced 29 articles with a total of 400 citations, the United States (US) produced 26 with 544 citations, the United Kingdom (UK) produced 20 with 979 citations, China is included in 18 with 332 citations, Australia is featured in 14 with 359 citations, and France produced 13 with 771 citations. This figure indicates disparities in the number of articles generated and their influence, with the United Kingdom showing notably high citation rates compared to its article quantity.

V. CONCLUSION

Regular growth was observed in the number of articles published per year from 2017-2023**.** However, due to the influential work of [4], a substantial surge in this trend began in 2022. It is pertinent to mention here that the remarkable rise in publications during 2022 corresponds to the increased digital transformation on a global level post COVID-19 pandemic. Organizations and businesses shifted from the rigid office routine towards a more flexible hybrid working approach which required the use of innovative AI tools to monitor HR performance and workforce planning. Such real-world shift inspired academia to investigate and explore both the efficiency and ethical implications of AI in HRM which was reflected in the rise of related research outputs during that period. Next year, that is, 2023 was also remarkable, reaching 110.7% compared to 2022. HRM predominantly focuses on information management, natural resource management, resource allocation, and overall resource management, as per all keywords and analysis. Research on AI in HRM mainly revolves around recruitment, talent management, and ethical considerations. Authors' keywords uncovered common themes among the 141 articles. Terms, such as AI, HRM, ML, talent management, and recruitment emerged frequently, highlighting their importance in the discourse. Review articles also attracted significant attention, indicating a strong interest in synthesizing existing knowledge despite the prevalence of scholarly articles. Among the prolific authors, Ashish Malik and Pawan Budhwar are notable with six and five authored documents, respectively, each accumulating a significant citation count of 207. Surprisingly, Vijay Pereira, despite

only authoring three documents, has the highest citation count of 434. Regarding publication outlets, the **"Human Resource Management Review"** is the top source of eight published articles, while "International Journal of Human Resource Management" had the highest citation count of 459. India produced the highest number of articles (29), while the United States had the highest citation count. Both review and the article emphasized the increasing usage of AI in HR systems as well as call for additional investigation in the domains that are essential to comprehend its bearing on HR practices and outcomes [66]. Findings reflect the core principle of resource-based view, leveraging unique resources for competitive advantage.

A. STUDY LIMITATIONS

The current study has certain limitations, as other studies have. This research lays the foundation for several possible prospective research areas. First, only the Scopus database was considered for the bibliographical information due to availability of data; further studies can use a bunch of databases to counter this constraint. However, including other databases might influence the results. Secondly, bibliometric analyses typically do not primarily focus on theoretical frameworks and hypotheses [67].

B. FUTURE RESEARCH DIRECTIONS

This bibliometric study aimed to highlight future directions regarding the implementation of AI in HRM in organizations that scholars, management of the organizations, and business professionals should take into account. Firstly, it is critical to explore how AI adoption affects short and long-term HRM outcomes. HRM must take into account modern technology to safeguard employee

well-being [68]-[70]. Upon examining the data sheet obtained from the Scopus database, it became evident that numerous inaccuracies were present. Notably, five review articles were misclassified as regular articles, and one article was mistakenly labeled as review. Moreover, disparity in the years of publishing was also identified. Hence, it is advised that researchers meticulously cross-check the dataset with each original document. The study also suggested to urge Scopus to enhance the accuracy of their data, as these discrepancies could compromise the credibility of the research findings and potentially result in erroneous conclusions. This review can be open to different venues for practitioners as well as academics, such as why countries like India, the United States, and the United Kingdom are conducting most of the AI adoption in HRM-related studies.

CONFLICT OF INTEREST

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

DATA AVAILABILITY STATEMENT

The dataset used (downloaded through Scopus) is available from the corresponding author upon reasonable request.

FUNDING DETAILS

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