Dr. R Jayalakshmi
Associate Professor, Sri Sairam
Institute of Management, Sri
Sairam Engineering College,
Chennai, Tamil Nadu, India

Yugendran S
Scholar, Sri Sairam Institute of
Management, Sri Sairam
Engineering College, Chennai,
Tamil Nadu, India

An interdisciplinary review of AI and HRM: Challenges and future directions

R Jayalakshmi and Yugendran S

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Abstract
Human resource management's (HRM) future might be influenced by artificial intelligence (AI). A splintered body of knowledge has resulted from the contributions of scholars from several disciplines to the discipline of AI in HRM, but relatively little cross-fertilization has occurred. In response, we done an interdisciplinary, systematic review of 184 papers so as to present a thorough summary. We divided previous research into four disciplines: computing, engineering and operations, management and economics, and others. The results show that research foci and methodologies changed if investigations were conducted in different disciplines. While research from the technical disciplines tends to focus on how AI was developed for particular HRM activities, research from different disciplines tended to focused on the impacts of AI.

Keywords: A review of artificial intelligence (AI) the theory method human resource governance

Introduction
According to Huang and Rust, the use of artificial intelligence (AI) represents one of the new technologies that is having the most effect on the labor market. The use of artificial intelligence (AI) has a chance to have negative effects, including the loss of over forty percent of all occupations (Berg, Buffie, & Zanna) and a rise in social exclusion (e.g., Levy). It may, however, also have advantages, such as improving or supplementing jobs rather than displacing existing (e.g., Autor). When evaluated collectively, it is reasonable to conclude that artificial intelligence (AI) will largely influence human resource management (HRM) in the future, and that using AI in HRM has enormous possibilities (Malik certainly, the Budhwar, Pa Tel, & Srikanth; Malik, De Silva, Budhwar, which, & Srikanth).

Because of its multidisciplinary character, AI-HRM is a topic that transcends HRM; that is, while the creation of Ia-based HR instruments depends on advancements in technological domains, the application of such AI tools and the results of AI implementations depend on social scientific understanding. Researchers from a range on areas have added to our knowledge of AI and HRM. For instance, to address HRM issues, computer science (CS) researchers built AI algorithms (e.g., Anandarajan). Labor market effects of AI were discussed by economists (e.g., Berg *et al*., 2018). The employing of AI during hiring did not demotivate job seekers, based on psychologists (The van Esch, Black, & Ferolie), though it could boost employee Brougham and Haar discuss turnover. Health care workers did not know how to use AI, according to medical experts (e.g., Abdulla & Fakieh). Although there is a lot of research on AI-HRM concerns spanning an array of disciplines, each discipline tackled the topic in distinct ways and paid little attention to integrating expertise from multiple fields. It is disappointing because broad knowledge and cooperation are especially crucial for the efficient implementation of AI (Fountaine, McCarthy, & Saleh) and for the development of talent in the age of artificial intelligence (Pejic-Bach, Bertoncel, Meɬsko, & Krsti´c). By eliminating ambiguities and avoiding "reinventing the wheel," a comprehensive multidisciplinary review might assist close this gap by combining the rather dispersed knowledge and encouraging discipline cross-fertilization.

Review of literature
1. Dr Bhadrappa Haralayy, (2024)
By providing an in-depth investigation of the effects of blockchain technology and artificial

Corresponding Author:
Dr. R Jayalakshmi
Associate Professor, Sri Sairam
Institute of Management, Sri
Sairam Engineering College,
Chennai, Tamil Nadu, India

intelligence on the digital HRM transition, this study seeks to explain the crucial role that management performs in guiding this transformative process. This study aims to identify important trends, difficulties, and options related to the integration of AI and Blockchain within HRM frameworks via an interdisciplinary lens to extract insights from current scholarship, empirical research, and case studies.

2. S. Pramila, (2024)

This study focuses at how integrating AI technologies into human resources processes might help advance environmental sustainability by examining the synergies among AI tools and Greens HRM practices. The perception of the management of human resources (HRM) is changing dramatically. With the advent of technology, particularly the integration of data analytics and artificial intelligence (AI) into HR processes, traditional methods are changing. Dianna L. Stone, (2023).

Further, there are numerous examples of how machine learning that is not supervised often leads to critical errors in decision making. For example, a self-driving car killed a pedestrian in Tempe, AZ when it did not recognize a human escorting a bicycle across a highway. Likewise, Amazon developed a selection system that was based on past hiring practices, and it rejected all women who applied for a job. It also eliminated any applicant that indicated he/she went to a women's college or belonged to women's groups. Thus, one major ethical issue associated with the use of AI in HRM is that these systems do not detect non-tangible characteristics. The article offers strategies that companies might use to overcome these ethical problems.

3. Yu Zhou, (2022)

Using straightforward and straightforward processes, the authors were able to critically assess synthesize, and profile previous research on the subjects they covered owing to the systematic literature review. The end result the mainstay of this study were the authors' use of AI algorithmic properties (opacity, comprehensiveness, and instantaneity) to elucidate the limitations of AI-enabled HRM. The authors differentiated between comprehensive analysis and extensive gathering of data as two aspects of AI algorithmic comprehensiveness, according to a patchwork of literature. In addition, instantaneity has been defined by the authors as instantaneous participation and instantaneous intervention.

4. Hafinas Halid, (2023)

The objective of this book chapter is to give an overview of how intelligent technology is utilized in digital HRM practices. It also wants to provide perspective on the adoption of AI-based software in HR management, as well as the digital world's gains and challenges connected to AI in HRM.

Objective of the study

- "An Multidisciplinary Review of Artificial Intelligence and HRM: Issues and Upcoming Directions" is a research the piece that dives deeply into the dynamic the junction of AI and HRM.
- Its primary objective is to delve deeply into the multifaceted relationship between these two domains, elucidating the challenges encountered in integrating AI technologies into HRM practices while charting out potential future directions.
- To achieve this objective, the paper initiates with a meticulous survey of existing interdisciplinary literature, spanning across fields such as computer science, psychology, management, and ethics.
- This literature review serves as the foundation for understanding the current landscape of research, methodologies employed, and key findings pertaining to AI's role in HRM.
- These challenges encompass a wide array of considerations, ranging from technical hurdles such as data privacy and security concerns to more nuanced issues like algorithmic bias, fairness, transparency, and accountability.
- In parallel, the paper embarks on an exploration of the transformative impact that AI technologies wield on various HRM practices.

Research methodology
Primary sources
Data that requires one's own efforts to gather and is not readily available is regarded as primary sources. The main cause of data is the substitute resource that was used to collect the data. Via a structured questionnaire, the primary data are obtained.

Secondary sources
Data was collected from secondary sources, which are extra important sources. These can be accessed easily data sources where minimal effort is required to gather the information because it has already been gathered and partially processed by professional researchers and experts in the field. Research papers from journals and the internet are the foundations of secondary data.

Statistical Tools
When two or more data series are compared, an particular kind of analysis known as percentage analysis is employed. The descriptive relationship provides the foundation for percentage. It contrasts the similar anything. Thinking that the percentage slows back meaning comparison by reducing everything to a basis. The percentage of those responding from the overall number of respondents is calculated using this method.

Number of respondents percentages
= X 50 total number of samples chi-square analysis

In order to figure out the significance of the distinction between experimental and theoretical values based on a theory or hypothesis, Karl Pearson created a method called statistical analysis in 1900. If the null hypothesis is true, the sampling distribution of the test statistic is a chi-squared distribution; if this is asymptotically true, the sampling distribution (if the null the theory is true) can be made to roughly a chi-squared distribution as closely as desired through increasing the sample size. This type of test is referred to as a chi-squared test, $X2$ test, or chi-square test.

Correlation
The idea of correlations is one way to investigate the connection between two variables. In statistical analysis, the study of the two factors occurs where a change in one variable's value leads in a shift in the value of another

variable. Whether both of them are positively or negatively connected can be evaluated using the help of them.

Chi-square test

Static	Value
Chi-square	0.045
Degrees of freedom	1
p-value	0.833

Interpretation
The p-value of 0.833 obtained from the Chi-square test is significantly more than the usual significance level of 0.05. This finding implies that respondents' use of AI-powered tools and their knowledge with AI ideas in HR administration do not statistically significantly correlate. Stated differently, respondents' use of AI tools for HR activities in this sample does not seem to be correlated with their expertise with AI.

Cramér's V Correlation Test

Static	Value
Cramér's V	0.021

Interpretation
Cramér's V value of 0.021 indicates a very weak association between familiarity with AI concepts and the usage of AI-powered tools in HR. This suggests that there is little to no meaningful correlation between these variables based on the data provided.

Findings
The attempt to forecast the evolutionary path predict causal configurations and the limits of our study in the AI-HRM literature provide opportunities for additional study. First, we only included reputable journals and files, such as WoS, in our review. Our findings were more authentic and verified thanks to this method, but it also runs the risk of missing out on important, novel, and frequently unusual information and results that could be published in specialized or non-English journals. Second, by abstracting themes, we discovered numerous thematic perspectives might be utilized to comprehend the same phenomena. For instance, staff opposition to the adoption of any certain AI technology may be sparked by the top management's bias. This can be seen via an understanding of particular technology background, human and organizational motives, and outcomes that are not ideal.

The separation of both of them outcomes and the causal configurations we selected using QCA assist in partly ease this issue. Though we accept the fundamental problem, we caution future researchers who could opt for to use our designs without ensuring that causality is controlled for. Third, as was already said, we discovered situations when the truth table comprised simultaneously occurring unfavorably notions. At time of the current study, this had been a side issue, but it seems it is an outcome of new circumstances.

Suggestions
1. Integrating AI with Human Judgment
AI should be utilized in HR processes to support human judgment, not to replace it. In order to assess and confirm AI-generated insights, HR professionals should receive instruction in how to work use AI tools.

2. Ensuring Data Quality and Diversity
High-quality, diverse data sets are essential for training unbiased AI models. Continuous monitoring and updating of data sets are necessary to maintain the accuracy and fairness of AI systems.

3. Ethical Frameworks and Guidelines
Develop and implement ethical frameworks to guide the use of AI in HR. These should include principles of transparency, accountability, and fairness, ensuring AI tools do not perpetuate biases or violate privacy.

Conclusion
The integration of AI into HRM presents significant opportunities for enhancing efficiency, objectivity, and personalization in HR practices. However, it also poses challenges related to ethics, privacy, and bias. By adopting a balanced approach that combines AI technology with human insight, adhering to ethical guidelines, and fostering transparency, organizations can leverage AI to create more effective and equitable HR practices.

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