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Factors influencing artificial intelligence adoption in human resource management: a meta-synthesis and systematic review of multidimensional considerations

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Abstract

Purpose – This research aims to identify and prioritize factors influencing the adoption of artificial intelligence (AI) in human resource management, providing a comprehensive understanding to assist organizations in successful implementation.

Design/methodology/approach – This applied research uses a qualitative meta-synthesis approach, systematically analyzing studies published between 2015 and 2023 to synthesize findings from both qualitative and quantitative studies.

Findings – AI adoption in human resource management is influenced by five main themes: (1) organizational and strategic factors, (2) technological and operational factors, (3) human-centric factors, (4) challenges and opportunities and (5) environmental and economic factors. These encompass aspects such as organizational strategies, technical infrastructure, improved decision-making, ethical issues and social impacts.

Originality/value – This study reveals AI adoption in human resource management as a complex, multidimensional process. Organizations must prepare technically, organizationally and in terms of human resources. The findings highlight the importance of ethical and legal considerations as well as psychological and attitudinal factors. These insights can guide organizations in adopting a comprehensive approach to AI integration in human resource management.

Keywords Artificial intelligence, Human resource management, Technology adoption, Meta-synthesis, Organizational readiness, AI integration

Paper type Research paper

Introduction

In today's digital era, artificial intelligence (AI) is revolutionizing business processes, with human resource management (HRM) experiencing significant transformation through AI's innovative solutions (Bhardwaj *et al.*, 2020). AI's evolution, from its industrial origins to contemporary applications, has progressed through the third industrial revolution's computational advances to today's sophisticated machine learning applications, fundamentally reshaping organizational practices (Yawalkar, 2019). Defined as an "ideal intelligent machine" capable of environmental adaptation and goal optimization (Sanyaolu and Atsaboghena, 2022), AI has emerged as a cornerstone of Industry 4.0 alongside IoT, big data and cloud technology (Jatobá *et al.*, 2023; Barboza, 2019).

In HRM, AI applications span recruitment, performance management and talent development through machine learning algorithms, natural language processing, and predictive analytics (Rasheed *et al.*, 2024). With 38% of organizations currently utilizing AI and 62% planning adoption (Bhardwaj *et al.*, 2020), the technology has streamlined

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administrative processes and enhanced operational efficiency (Hossin *et al*., 2021). However, implementation challenges persist, particularly in developing countries, including financial constraints, employee resistance, job displacement concerns and training requirements (Arslan *et al*., 2022; Hossin *et al*., 2021) and data security issues (Jain, 2018).

The human–AI interaction presents additional complexities across various sectors (Arslan *et al*., 2022), encompassing technology anxiety, trust issues and performance evaluation challenges in hybrid teams (Kaur and Gandolfi, 2023). Successful implementation requires addressing data protection, algorithmic bias (Sabil *et al*., 2023) and regional-specific challenges such as infrastructure limitations and skill gaps (Chilunjika *et al*., 2022). While AI offers significant benefits in information processing and decision-making (Alsaif and Sabih Aksoy, 2023; Hossin *et al*., 2021), understanding adoption factors remains crucial. This study therefore addresses two key questions: (1) What factors influence AI adoption in HRM? (2) How are these factors prioritized in terms of their impact on AI adoption?

Literature review

HRM has evolved from its industrial revolution origins into a critical driver of sustainable competitive advantage, with pioneering theorists establishing core concepts of selective recruitment and employee training, while the resource-based view emphasizes human capital's strategic value (Kadam *et al*., 2022; Anwar and Abdullah, 2021). In response to technological advancement and globalization, modern HRM has embraced digital tools and data analytics to enhance employee engagement and continuous learning (del Val Núñez *et al*., 2024), while strategic alignment with organizational goals strengthens resilience in volatile environments (Groenewald *et al*., 2024). The integration of AI has further transformed practices through personalized experiences and predictive analytics, enabling innovation and productivity in multicultural environments while necessitating careful consideration of privacy and inclusivity (Holland *et al*., 2022; Groenewald *et al*., 2024; Anwar and Abdullah, 2021).

AI, defined as the simulation of human intelligence, represents a transformative interdisciplinary technology emerging from computer science, cybernetics and mathematical logic to solve complex problems traditionally requiring human cognition (Xu *et al*., 2021; Liu *et al*., 2018; Bankins *et al*., 2024). The field's evolution since the 1950s, marked by Turing's foundational question and McCarthy's term coinage at the 1956 Dartmouth Conference (Zhang and Lu, 2021; Benbya *et al*., 2020), progressed through stages of cognitive perception, intelligence and decision-making capabilities (Xu *et al*., 2021). Key milestones include the 1943 artificial neuron model, 1980s neural networks and expert systems, and the 2006 breakthrough in deep neural networks (Zhang and Lu, 2021). In contemporary organizations, AI has evolved from passive tools to active agents, functioning as a disruptive technology that enhances processes through machine learning and data analysis, transforming workforce dynamics and organizational decision-making (Benbya *et al*., 2020; Xu *et al*., 2021; Makarius *et al*., 2020; Robert *et al*., 2020).

AI's integration into HRM has revolutionized organizational practices by merging multidisciplinary elements of mathematics, management, computer science and linguistics to enable complex data analysis and pattern recognition in key processes, from applicant ranking to hiring efficiency (Kshetri, 2021; Vasantham, 2021; Qiu and Zhao, 2018). This technology empowers human resource (HR) professionals to focus on strategic initiatives while leveraging AI-driven analytics for decision-making and employee assessment, ultimately creating dynamic work environments guided by real-time data and personalized experiences (Singh *et al*., 2023; Kaushal *et al*., 2023; Chukwuka and Dibie, 2024). However, successful implementation necessitates addressing workforce displacement, upskilling needs and ethical considerations to maintain equilibrium between technological innovation and human-centric approaches (Singh *et al*., 2023).

AI has transformed HRM through the automation of routine tasks, including resume scanning and candidate evaluation, enhancing efficiency while minimizing human bias in decision-making (Vasantham, 2021; Qiu and Zhao, 2018; Vrontis *et al*., 2023). However, despite these transformative benefits, organizations face substantial implementation challenges. Most critically, job displacement emerges as a primary concern, with

projections indicating automation could eliminate up to 50% of existing positions in the coming decades (Abdeldayem and Aldulaimi, 2020). Furthermore, employee resistance and technology anxiety create additional obstacles, necessitating organizations to develop collaborative environments where AI serves as an enabling tool rather than a threat (Suseno *et al*., 2021). In this context, the integration of AI systems and humanoid service robots requires strategic workforce role transitions (Vrontis *et al*., 2023). Consequently, successful implementation hinges on achieving equilibrium between technological advancement and workforce preparedness through targeted initiatives addressing skill gaps, cultural transformation and organizational alignment (Suseno *et al*., 2021; Vasantham, 2021).

Research methodology

This study employs a distinctive meta-synthesis approach to analyze AI adoption factors in HRM, systematically integrating both qualitative and quantitative findings to generate comprehensive insights (Nye *et al*., 2017). The methodology's strength lies in its interpretive and dialectical approach, enabling "third-order" interpretations through three key mechanisms: first, reciprocal translation across diverse studies; second, thematic synthesis of emerging patterns and third, analytical refinement of theoretical constructs (Nye *et al*., 2016). This rigorous process reveals the underlying mechanisms while emphasizing analytical transferability over mere generalizability, effectively bridging the paradigmatic divide between research and practice. The research systematically implements Sandelowski and Barroso's (2007) comprehensive six-step framework, progressing from systematic search and evaluation through synthesis and interpretation, ensuring methodological rigor while maintaining interpretive depth (Lachal *et al*., 2015).

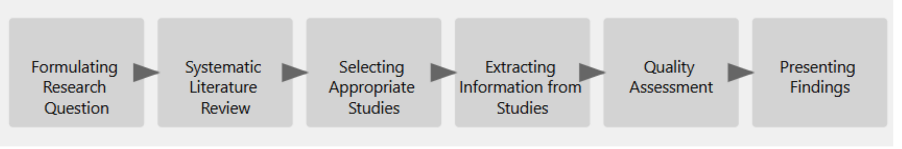

Figure 1. The stages of implementing the meta-synthesis method. **Source(s):** Sandelowski and Barroso (2007)

Stage one: formulating research questions

The meta-synthesis implementation follows distinct stages as shown in Figure 1. The research question formulation, as the first step, considers key parameters including methodology, study population, time frame and subject matter. The foundational questions outlined in Table 1 guide the research direction and establish the study's framework.

Table 1. Research parameters

Key questions	Responses in this research
What	Identifying the core research topic marks the initial step in the meta-synthesis approach. In this study, this phase was initiated through the following research questions: 1. What factors influence AI adoption in HRM? 2. How are these factors prioritized in terms of their impact on AI adoption?
Who	In this research, reputable international scientific databases and various search engines have been examined
When	The timeframe during which documents and evidence were searched and reviewed was from 2015 to 2023 CE
How	This research employs "thematic analysis" for collecting and analyzing studies, an advanced method for secondary data analysis. Through specific criteria, relevant and high-quality studies are identified and selected

Source(s): Authors' own work

Stage two: systematic review of studies
In the second step, a comprehensive systematic review was conducted using keywords related to AI and HRM. The search covered the Science, Google Scholar, Scopus, Emerald and Springer databases, selected for their extensive coverage, credibility, search capabilities and access to current research in management, technology and human sciences. Keywords included "Artificial Intelligence," "Human Resources Management," "Adoption" and "Acceptance."

Stage three: searching and selecting appropriate texts
After completing the search for articles intended for meta-synthesis, as seen in Table 2, the following process was undertaken to select articles. Initially, all articles related to the topic, totaling 87, were downloaded from databases. Subsequently, a thorough and purposeful five-stage refinement process was conducted.

Table 2. Article selection criteria

Factors	Acceptance criteria	Rejection criteria
Type of study	- Articles published in peer-reviewed journals with proven scientific credibility - High-quality conference papers (subject to peer review and relevance)	- Personal opinions and non-scientific articles - Content from personal websites and informal reports - Articles lacking peer review or academic rigor
Subject	- Studies focusing specifically on factors influencing the adoption of AI - Articles addressing AI adoption within organizations, especially in HRM	- Articles unrelated to AI adoption - Studies that mention AI superficially or lack clear focus on adoption processes
General scope	- Articles addressing AI applications within HRM - Both theoretical and applied studies on the impact of AI in HR processes	- Articles focused on other fields such as engineering, medicine or non-HRM topics - Studies not aligning with the HRM domain
Research method	- Studies employing qualitative methods (e.g. case studies and interviews) - Studies using quantitative methods (e.g. surveys and statistical analyses) - Articles applying mixed-methods research approaches	- Non-methodical studies with no clear research methodology - Descriptive or opinion-based articles lacking empirical or analytical data
Study period	- Articles published within the period 2015–2023 CE - Studies reflecting contemporary insights and trends in AI adoption	- Articles published outside the specified timeframe - Outdated studies with limited relevance to current AI research
Research language	- Articles published in English	- Articles published in languages other than English - Studies without full-text availability

Source(s): Authors' own work

From the initial 87 articles extracted from reputable databases.

(1) Elimination of duplicates: In the first step, 15 duplicate articles (17%) were removed to ensure originality and uniqueness of the selected studies.

(2) Title screening: The titles of the remaining articles were carefully reviewed, leading to the exclusion of 22 articles (25%) that were deemed irrelevant to the topic of AI adoption in HRM.

(3) Abstract review: Abstracts of the remaining articles were examined to assess relevance and methodological rigor. This stage resulted in the removal of 19 additional articles (21%) that failed to meet the inclusion criteria.

(4) Full-text content analysis: A deeper evaluation of the full texts was conducted to identify studies with insufficient information or lacking direct relevance to the research topic. Consequently, 11 more articles (12%) were excluded.

(5) Quality assessment using Critical Appraisal Skills Programme (CASP) criteria: Quality assessment of the final 20 articles was conducted using the CASP checklist (Lachal *et al.*, 2015). The evaluation covered 10 key criteria: (1) clarity of research aims, (2) appropriateness of methodology, (3) relevance of research design, (4) recruitment strategy suitability, (5) data collection adequacy, (6) researcher–participant relationships, (7) ethical considerations, (8) data analysis rigor, (9) findings clarity and (10) research value. Each criterion was scored from 0 to 5 points. All studies met quality standards, with most scoring highly across criteria, as detailed in Table 3.

Table 3. Scores assigned to selected articles

Article number	Score	Article number	Score
1	40	*11*	47
2	36	*12*	43
3	47	*13*	44
4	45	*14*	43
5	50	*15*	45
6	46	*16*	37
7	41	*17*	50
8	44	*18*	49
9	40	*19*	45
10	50	*20*	41

Source(s): Authors' own work

Stage four: results extraction

In the fourth stage, the analysis focused on identifying and categorizing factors influencing AI adoption in HR processes across organizational, technological and human contexts. This systematic process enabled the extraction of key concepts and patterns, forming the basis for developing a conceptual framework.

Stage five: synthesis and interpretation of findings

The fifth stage revealed that no previous study had taken a comprehensive approach to AI adoption in HR processes. A systematic literature review demonstrated that earlier research had primarily focused on specific aspects of this topic. Table 4 displays the final extracted codes for each dimension, category and influencing factor, providing deeper insights into the studied phenomenon and establishing groundwork for an integrated model of AI adoption factors in HR.

Table 4. Main and sub-themes

Main themes	Sub-themes	Concepts	References	Repetition of themes
Organizational and strategic factors	Organizational strategies for facilitating AI adoption	Training and skill development (1): increasing employee knowledge and reducing anxiety/ Participation in decision-making (1): Creating opportunities for employee involvement/ Reassurance about Job Security (1): reducing employee concerns/ Improving employee selection criteria (1): focusing on adaptability to change/ Developing AI-specific resources (1): encouraging managers to implement relevant resources/ Developing AI literacy (1): enhancing knowledge of HR professionals/Strategic leadership (1): collaboration between leaders and HR development specialists/ Stakeholder engagement (1): involving a wide range of stakeholders in the adoption process	Ghosh *et al*. (2024), Palos-Sánchez *et al*. (2022), Suseno *et al*. (2021)	8
	Organizational and leadership factors	Senior management support (3): Supporting AI adoption/ Organizational culture (2): Supporting change and innovation/Integrated competency development (2): continuous improvement to address integration/HR managers' understanding (1): facilitating adoption through increased comprehension/Competitive pressure (1): impact of competition in talent acquisition/ Vision and strategy (1): connection with AI implementation/High-performance work systems (1): Reducing anxiety and increasing readiness/Reward system (1): motivation for AI adoption/ Continuous learning (1): adapting to AI-induced changes	Pillai and Sivathanu (2020), Joshi *et al*. (2024), Suseno *et al*. (2021), Merhi and Harfouche (2024), Tuffaha and Perello-Marin (2022), Dima *et al*. (2024), Alkudah *et al*. (2024), Ghosh *et al*. (2024)	13
	Strategic and competitive advantages	Creating competitive advantage (2): assisting in talent attraction and retention/Improving recruitment and hiring processes (2): enhancing interview quality and employee matching/ Improving performance management (2): automated analysis of performance data/ Modernizing processes (1): digitalization of HR/Human-AI integration (1): creating effective interaction models/Focus on human development (1): maintaining focus on employee well-being/Increasing fairness in compensation management (1): creating a more equitable evaluation system	Pillai and Sivathanu (2020), Alkudah *et al*. (2024), Joshi *et al*. (2024), Jia *et al*. (2018), Rathi (2018), Ghosh *et al*. (2024)	10

(*continued*)

Table 4. Continued

Main themes	Sub-themes	Concepts	References	Repetition of themes
Technological and operational factors	Technical and infrastructure factors	HR readiness (1): ensuring readiness of personnel and technological resources/Vendor support (1): assistance at each stage of adoption and use/ Technology competence (1): positive relationship with AI adoption/Technology complexity (1): negative relationship with AI adoption/Computational power and capacity (1): impact on data processing and productivity/Real-time experience (1): positive impact on rapid decision-making/ IT infrastructure (1): prerequisite for digital technologies/Perceived compatibility (1): impact on implementation success/Data quality and complexity (1): importance in output accuracy/ Security and privacy (1): necessity of data protection	Pillai and Sivathanu (2020), Pan *et al.* (2022), Panda *et al.* (2023), Merhi and Harfouche (2024)	10
	Technology characteristics affecting AI adoption	Perceived usefulness (1): extent of user belief in performance improvement with AI use/ Perceived ease of use (1): employees' belief in the ease of interacting with AI/Compatibility (1): degree of AI alignment with organizational values and needs/ Relative advantage (1): degree of perceiving AI as value-adding/ Complexity (1): level of difficulty in understanding and using AI/ Performance speed (1): high processing and performance speed of AI	Lichtenthaler (2020), Tuffaha and Perello-Marin (2022), Tabor-Błażewicz (2023)	6
	Operational and functional benefits of AI in HR	Automation of repetitive tasks (3): reducing fatigue and errors, improving variety/Optimization of HR data usage (1): aiding data-driven decision-making/ Enhancement of human capabilities (1): increasing specialists' abilities/Improvement of organizational efficiency (1): enhancing performance by combining procedures and tools/ Increasing efficiency of recruitment processes (1): eliminating 75% of related tasks/ Effective candidate screening (1): assisting in initial screening and engagement/Automated scheduling (1): automatic booking of meetings and interviews/Big data analysis (1): processing and analyzing large volumes of data/ Predicting employee turnover (1): preventing productivity decline	Alkudah *et al.* (2024), Dima *et al.* (2024), Geetha and Bhanu (2018), George and Thomas (2019), Palos-Sánchez *et al.*, (2022), Tabor-Błażewicz (2023)	11

(*continued*)

Table 4. Continued

Main themes	Sub-themes	Concepts	References	Repetition of themes
Human-centric factors	Improving decision-making and reducing bias	Employee performance and sentiment Analysis (1): identifying psycho-emotional characteristics/Reducing bias in HR Processes (1): creating equal opportunities/Quality and unbiased hiring (1): utilizing extensive data/Precise talent matching (1): identifying and matching skills with job requirements/Increasing accuracy in analysis and prediction (1): Improving workforce planning/Relative advantage (1): improving decision-making and candidate selection	Geetha and Bhanu (2018), George and Thomas (2019), Panda *et al*. (2023), Pillai and Sivathanu (2020)	6
	Enhancing employee and candidate experience	Personalization of training and development (2): creating customized training programs/Improving candidate interaction (1): using chatbots for responses/Facilitating access to information (1): providing easy access to company information/Improving request processes (1): using automated emails and messaging/Facilitating new employee onboarding (1): providing necessary information and resources/Offering career development programs (1): providing individualized training and coaching programs	Geetha and Bhanu (2018), George and Thomas (2019), Jia *et al*. (2018)	7
	Psychological and attitudinal factors	Employee attitudes (3): key role in adoption/Concerns about job automation (2): fear of unemployment and resistance to adoption/Trust-building (1): reducing psychological barriers to adoption/Adherence to traditional methods (1): obstacle to full AI utilization/AI anxiety (1): negative impact on adoption readiness/Knowledge and awareness (1): lack of knowledge as an adoption barrier/Skills and competencies (1): lack of skills as an adoption barrier/Technology inclination (1): more positive attitude towards AI/Comfort orientation (1): more positive attitude towards AI/Social acceptance of AI (1): essential condition for successful implementation	Dima *et al*. (2024), Joshi *et al*. (2024), Lichtenthaler (2020), Palos-Sánchez *et al*. (2022), Pillai and Sivathanu (2020), Suseno *et al*. (2021), Tabor-Błażewicz (2023)	13

(*continued*)

Table 4. Continued

Main themes	Sub-themes	Concepts	References	Repetition of themes
Challenges and opportunities	Ethical and legal considerations	Ethics (4): integrating ethical aspects for greater transparency and privacy/Security and privacy concerns (3): concern about candidate confidential data/ Transparency and accountability (2): increasing trust and acceptance/Legal environment (2): positive relationship between supportive legal environment and adoption/Reducing discrimination and increasing diversity (1): helping identify and eliminate bias patterns/Ethical approach (1): creating ethical frameworks for responsible use/Transparency (1): creating transparency in decision-making processes/Data security and privacy (1): prioritizing employee privacy protection/ Ethical and legal issues (1): responsibility for ethical implementation and compliance with laws and regulations	Alkudah *et al*. (2024), Dima *et al*. (2024), Ghosh *et al*. (2024), Joshi *et al*. (2024), Merhi and Harfouche (2023), Pan *et al*. (2022), Pillai and Sivathanu (2020), Rathi (2018)	16
	Implementation and management challenges	Technical and systemic challenges (1): technical barriers can delay AI adoption/Lack of expertise (1): organizations often lack necessary expertise for automation adoption/ Governance (1): current AI governance efforts are still in early stages/Accountability (1): inability to explain the reason for a particular action can create accountability issues/Lack of empathy and "Human" Approach (1): this deficiency can be a barrier to AI adoption in HR processes/ Lack of understanding of complex issues (1): virtual assistants' inability to understand complex issues can be an adoption barrier/ Lack of Creativity (1): lack of creativity in AI can be a negative factor in its adoption/ Implementation challenges (1): difficulty in understanding and implementing software or algorithms can be an adoption barrier/Complexity of HR phenomena (1): complexities in HR phenomena can be a barrier to AI adoption and implementation in this field/Transformation of HR procedures (1): AI profoundly transforms HRM and impacts hiring, employee management, and decision-making/Workplace redesign (1): AI changes the form and content of work, necessitating preparation of employees for higher value-added jobs	Alkudah *et al*. (2024), Dima *et al*. (2024), Joshi *et al*. (2024), Palos-Sánchez *et al*. (2022), Rathi (2018), Tabor-Błażewicz (2023)	11

(*continued*)

Table 4. Continued

Main themes	Sub-themes	Concepts	References	Repetition of themes
Environmental and economic factors	Environmental and institutional factors	Legal regulations (2): necessity of complying with current and evolving laws as a challenge to AI adoption/Vendor support (2): technical and human resource support from vendors/External pressure (1): competitive pressure for faster AI adoption/ Government involvement (1): impact of government policies and laws on encouraging AI dissemination/Vendor participation (1): reducing costs of managing and maintaining technical assets through vendor collaboration/Asset specificity (1): moderating effect on technology complexity and competence/Uncertainty (1): moderating effect on technology competence	Tabor-Błażewicz (2023), Merhi and Harfouche (2024), Tuffaha and Perello-Marin (2023), Pan *et al.* (2022)	9
	Economic factors	Economic viability (2): reducing labor costs and time required for repetitive tasks/Reducing recruitment time and cost (1): reducing costs by up to 71% and increasing recruiter efficiency	Joshi *et al.* (2024), Pillai and Sivathanu (2020), George and Thomas (2019)	3

Source(s): Authors' own work

Stage six: quality assessment of results

To validate research reliability, Cohen's Kappa coefficient (1960) was employed with two independent evaluators classifying articles into five main categories of AI adoption factors in HR (organizational-strategic, technological-operational, human-centric, challenges-considerations and environmental-economic). The Kappa coefficient of 0.81 demonstrated strong inter-rater agreement, confirming high validity in both categorization and factor extraction processes.

Stage seven: presentation of results

The final stage integrates the research outcomes into a cohesive process, systematically synthesizing findings from previous studies on AI adoption in HR processes. Through detailed analysis and classification, this culminated in a comprehensive model (Figure 2) that illustrates the factors influencing AI adoption in HR, providing both a research summary and a conceptual framework.

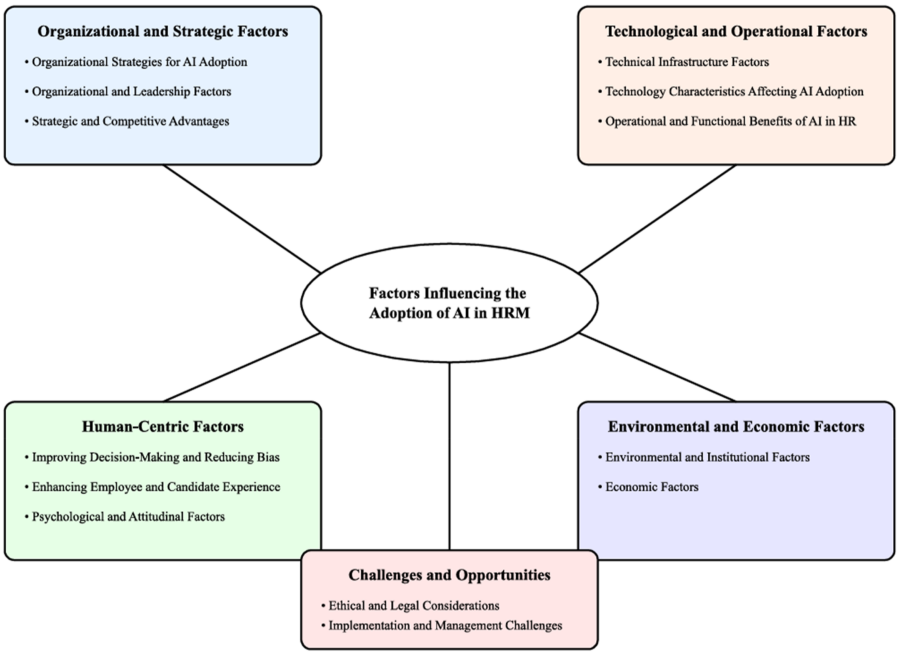

Figure 2. The model of factors influencing the adoption of AI in HRM. **Source(s):** Authors' own work

Figure 3 ranks the factors influencing the adoption of AI in HRM based on theme frequency. These data not only demonstrate the relative importance of each factor but also provide a comprehensive overview of the influential factors in this domain.

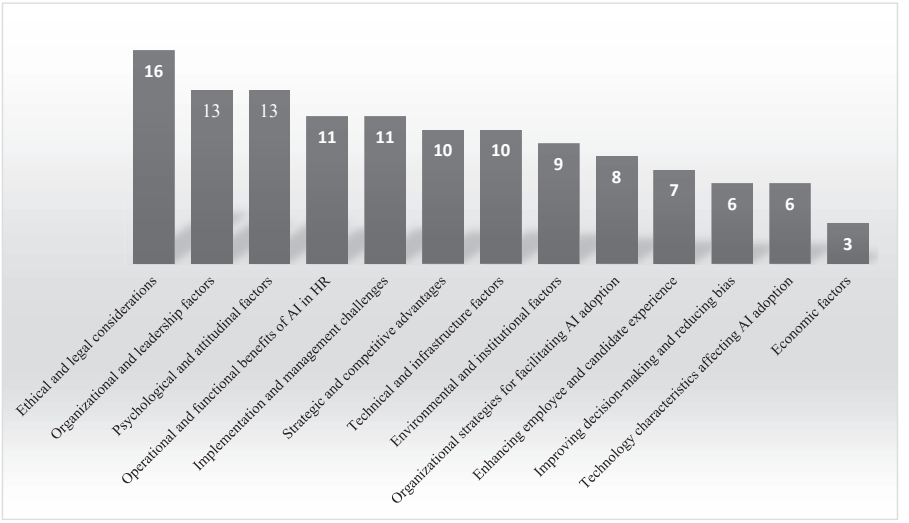

Figure 3. Ranking of factors influencing AI adoption in HRM. **Source(s):** Authors' own work

Discussion and conclusion

Through a meta-synthesis of 2015–2023 studies, this research examined AI adoption factors in HRM. The analysis identified five main themes: organizational and strategic factors, technological and operational factors, human-centric factors, challenges and opportunities and environmental and economic factors.

Analysis highlights ethical and legal considerations as the primary concern, with the highest frequency (16), emphasizing the critical importance of addressing risks and regulatory challenges in AI implementation. Notably, economic factors demonstrated the lowest frequency (3), suggesting that noneconomic considerations currently dominate organizational decision-making.

Organizational and strategic elements emerge as foundational, with leadership factors underlining the importance of vision. Psychological and attitudinal factors demonstrate that successful adoption depends heavily on employee perceptions and organizational culture. Operational benefits and technical infrastructure provide the technological groundwork for implementation, while management challenges highlight integration complexities.

This analysis reveals that AI adoption in HRM requires a holistic approach balancing technological capabilities with human readiness, ethical considerations and strategic opportunities. Success depends on creating an organizational ecosystem that effectively leverages technology while maintaining human-centric values and compliance standards.

The findings demonstrate that multiple interconnected factors shape AI adoption in HRM, with ethical and legal considerations emerging as the predominant factors (16 occurrences). Singh and Pandey (2024) recount a case in which a global company discontinued AI-based hiring in 2018 due to biases with significant legal and societal impacts. Parallel to these legal considerations, ethical frameworks play a crucial but separate role, as emphasized by Asif's (2024) research on developing ethical guidelines for AI implementation in recruitment processes.

The multifaceted nature of AI adoption is particularly evident in the domain of user trust, as identified by Kelly *et al*. (2023) in their comprehensive analysis. While ethical and legal compliance forms one dimension of trust-building, the phenomenon is inherently more complex, encompassing multiple interconnected factors: technological reliability, algorithmic transparency, system performance metrics, user experience outcomes and demonstrated operational efficiency (Xu *et al*., 2024; Chatterjee *et al*., 2024). This multidimensional trust framework is further complicated by privacy considerations, which Choi (2021) identifies as a significant moderator of user adoption willingness. Tuffaha and Perello-Marin's (2023) identification of research gaps in ethical implications suggests an emerging scholarly focus on these critical aspects.

Organizational and leadership factors, alongside psychological and attitudinal considerations (13 occurrences each), represent the second tier of influence in AI adoption dynamics. Alsheibani *et al*.'s (2020) empirical investigation demonstrates the crucial interplay between top management support, organizational readiness and regulatory compliance. This finding is reinforced by Pillai and Sivathanu's (2020) analysis of leadership support's role in successful AI integration within talent acquisition processes. Hamm and Klesel's (2021) identification of 13 distinct organizational factors further validates the complexity of institutional dynamics in AI adoption. The psychological dimension, particularly evident in Ochmann and Laumer's (2020) examination of candidate expectations in automated recruitment, reveals the intricate relationship between user attitudes and adoption outcomes, a finding substantiated by Kelly *et al*.'s (2023) predictive modeling of AI acceptance patterns.

Operational benefits and implementation challenges (11 occurrences each) constitute the next significant cluster of factors. Cost-effectiveness and comparative advantages emerge as primary drivers of adoption (Pillai and Sivathanu, 2020), while performance expectancy significantly influences implementation success (Kelly *et al*., 2023). However, organizations face substantial challenges, including resource allocation demands, organizational resistance,

standardization complexities (Rane *et al*., 2024) and cybersecurity considerations (Pillai and Sivathanu, 2020).

Technical and infrastructure factors (ten occurrences) play a crucial role in adoption outcomes, with vendor support emerging as a critical success factor (Pillai and Sivathanu, 2020). The environmental and economic context (nine occurrences) shapes adoption through regulatory frameworks (Alsheibani *et al*., 2020) and market competition dynamics (Pillai and Sivathanu, 2020; Rane *et al*., 2024).

The findings largely align with existing literature while highlighting emerging trends, particularly the prominence of ethical and legal considerations in AI adoption for HRM. The high ranking of both organizational/leadership and psychological/attitudinal factors emphasizes that successful AI integration requires a holistic approach beyond technical implementation. This meta-synthesis demonstrates the multidimensional nature of AI adoption in HRM, suggesting organizations must address these interrelated factors comprehensively to optimize AI implementation while managing associated challenges.

Theoretical implications

This study's findings align with and extend key technology adoption frameworks. The prominence of psychological and attitudinal factors corresponds with the Technology Acceptance Model's core constructs (Davis *et al*., 1989), while the high frequency of ethical and legal considerations (16 occurrences) suggests the need to expand traditional frameworks. This aligns with recent developments in TAM2 [1] and UTAUT [2] (Mogaji *et al*., 2024), which recognize broader social and psychological determinants.

The findings also reflect the five characteristics of the diffusion of innovation theory (Muliadi and Usman, 2024). Organizational readiness and strategic alignment mirror the theory's emphasis on compatibility, while ethical considerations highlight innovation complexity. This research uniquely bridges the technology acceptance model's cognitive-psychological focus with the diffusion of innovation theory's organizational–societal perspective, demonstrating how individual user experiences interact with broader organizational dynamics in AI adoption for HRM.

The prominent role of ethical and legal considerations introduces a critical dimension often understated in traditional frameworks. This suggests the need for an integrated adoption framework that synthesizes insights from existing theories while incorporating ethical responsibility, human-centric readiness and strategic alignment. Such theoretical advancement would better address the complexities of AI adoption in HRM and guide future research on the interplay between technological, psychological and organizational factors.

Practical recommendations

Successful AI adoption in HRM requires a comprehensive strategy addressing multiple dimensions, with ethical and legal considerations emerging as the highest priority factor. Organizations must establish robust frameworks for data privacy, algorithmic fairness and regulatory compliance to mitigate the risks of bias and discrimination.

Organizational leadership and psychological factors form the next critical layer, requiring strong strategic alignment and cultural adaptation. This involves implementing transparent communication strategies, developing targeted training programs and actively engaging employees to address technology resistance and build trust. These initiatives should leverage AI's operational benefits while managing implementation challenges through systematic change management approaches.

Technical infrastructure and strategic advantages demand equal attention, requiring scalable systems and expert collaboration to optimize AI performance. Environmental and economic factors must be considered within the broader ecosystem, while organizational

strategies should focus on enhancing employee experience and improving decision-making processes.

The successful integration of AI in HRM ultimately depends on balancing these interconnected dimensions while prioritizing factors based on their empirically determined significance. This evidence-based approach ensures organizations can effectively leverage AI's transformative potential while maintaining ethical responsibility and operational excellence.

Future research directions

Future research should address the critical issue of AI bias, which remains a significant challenge to fairness and transparency in HRM. Bias in AI systems often stems from imbalances or prejudices in training data, algorithmic limitations or design flaws, potentially leading to discriminatory practices and undermining trust in AI-based decisions (Ahn *et al*., 2022; Leong and Sung, 2024). Exploring strategies for detecting, mitigating, and preventing such biases is crucial for ensuring ethical and equitable AI adoption in HR processes. Addressing these concerns will not only improve the ethical implementation of AI but also enhance its acceptance and effectiveness in diverse organizational contexts.

Notes

1. Extended technology acceptance model.
2. Unified theory of acceptance and use of technology.

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