

Human-Centered AI Adoption in Organizational Human Resource Management: Determinants and Implementation Strategies

Meirong Yang

Management and Service Department, Shanxi Management Vocational College, Linfen 041051, Shanxi, China

Corresponding author: Meirong Yang (e-mail: Sxglxyymr1227@163.com)

ABSTRACT The increasing adoption of artificial intelligence in organizational management requires effective integration of intelligent decision support, human-centered design, and secure information governance. This study investigates the key determinants affecting human-centered AI adoption in human resource management and develops an implementation framework that combines employee participation, explainable decision mechanisms, and data-governance strategies. The proposed framework analyzes technology acceptance, algorithm transparency, human–AI collaboration, and privacy protection as interconnected components of an intelligent management architecture. Furthermore, a dual-track decision model is introduced to balance automated analytical efficiency with human judgment in high-impact management scenarios. To support trustworthy deployment, a governance structure incorporating hierarchical access control, privacy-preserving computation, ethical review mechanisms, and transparent information management is established. The framework also emphasizes continuous feedback, interpretability, and employee engagement to improve system acceptance and operational reliability. By integrating intelligent information processing, explainable decision support, and secure data governance, the proposed approach provides an engineering-oriented methodology for trustworthy AI deployment and human–AI collaborative management in data-intensive organizational environments.

INDEX TERMS explainable artificial intelligence, human–AI collaboration, intelligent decision support, secure data governance

I. INTRODUCTION

IN the era of the digital economy, artificial intelligence (AI) technology is profoundly transforming human resource management by synchronizing workforce agility with the high-precision demands of modern production. This integration ensures that talent development and labor scheduling evolve alongside the automated complexities of contemporary spinning and weaving environments [1]. It brings unprecedented value and convenience to recruitment, performance appraisal, employee development, and many other aspects of human resource management. However, the application of technology must not deviate from its human-centered purpose. How to maintain worker agency during AI adoption—specifically by utilizing high-speed data processing to reduce manual fatigue while retaining human oversight in complex weaving adjustments—has become a crucial question that organizations must answer. As enterprises integrate AI to manage specialized labor, they frequently encounter employee resistance and data security risks, necessitating a human-centered approach to ensure technological adoption aligns with the unique craft and

safety needs of the mill floor.

II. THE SIGNIFICANCE OF HUMAN-CENTERED AI ADOPTION IN HUMAN RESOURCE MANAGEMENT

To present the value system of AI adoption in a systematic way, this paper constructs a human-centered AI adoption value framework, as shown in Figure 1.

A. IMPROVING HUMAN RESOURCE MANAGEMENT EFFICIENCY AND DECISION-MAKING QUALITY

Artificial intelligence can significantly improve the efficiency of human resource management and enhance the scientific basis of decision-making [2]. Processing large amounts of complex HR data using machine learning algorithms enables organizations to quickly complete a series of tedious and repetitive personnel tasks such as resume screening and candidate matching, freeing HR personnel from heavy and complex tasks. AI-driven data analysis can identify employee turnover risks, predict talent demand trends, and provide precise references for management decisions. Intelligent systems have the potential to mitigate

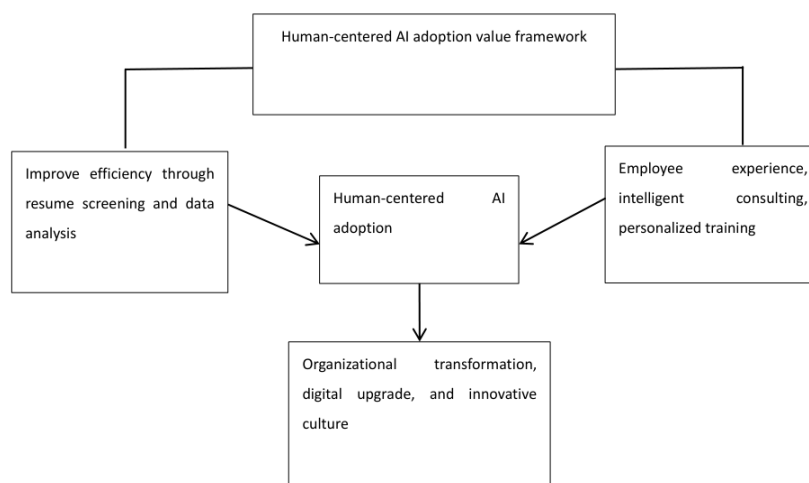


FIGURE 1. Human-Centered AI Adoption Value Framework

individual human subjectivity by conducting performance evaluations and promotion recommendations based on objective data. While AI can improve decision-making fairness by standardizing evaluation criteria, it must be noted that this 'objectivity' is dependent on the quality of the training data. By transitioning HR management from administrative support to a strategic partner, AI provides a data-driven foundation that—when properly audited—reduces the impact of subconscious human prejudices [3]. To provide readers with a clear understanding of the effects of AI technology applications, this article systematically outlines the main application scenarios in Table 1. It should be noted that 'Application Maturity' here distinguishes between technical availability and regulatory/ethical readiness; while certain tools are technically advanced, their deployment in high-stakes HR decisions remains subject to evolving legal frameworks and ethical scrutiny.

TABLE 1. Comparison of AI Technology Application Areas in Human Resource Management

Application areas	AI technology types	Main functions	Efficiency Improvement	Application maturity
Recruitment and Selection	Machine learning, natural language processing	Resume screening and high candidate matching		Developing (Technical maturity high; Ethical/Legal maturity low)
Performance evaluation	Data analysis and predictive models	Performance forecasting, bias elimination	middle	Developing
Employee training	Recommendation systems, knowledge graphs	Personalized learning recommendations	middle	Developing
Churn prediction	Predictive analytics, deep learning	Risk identification and high trend prediction		Developing (Subject to high-stakes bias concerns)
Employee Consultation	Chatbots, semantic understanding	24/7 service and problem solving	high	Mature

B. ENHANCING EMPLOYEE EXPERIENCE AND ORGANIZATIONAL HUMANISTIC CARE

Human-centric AI applications can significantly improve employee work experience and organizational belonging. Intelligent chatbots can provide 24/7 consultation services, promptly answering employee questions and improving

service response speed [4]. Personalized learning recommendation systems allocate training resources based on employee abilities and career development, promoting employee growth and progress. AI-assisted work arrangements consider employees' personal preferences and family needs, achieving a harmonious work-life balance. This allows employees to feel the organization's humanistic care with the help of technology, enhancing their sense of belonging and loyalty.

C. PROMOTING ORGANIZATIONAL DIGITAL TRANSFORMATION AND SUSTAINABLE DEVELOPMENT

When AI plays a profound role in human resource management, it becomes a significant driving force for organizational digital transformation. Establishing an intelligent talent management system enables comprehensive integration and in-depth analysis of human resource data, providing strong support for strategic decision-making. Standardizing and automating human resource management processes with AI can improve organizational efficiency by reducing administrative latency and ensuring procedural consistency. However, this benefit is primarily realized in 'back-end' administrative workflows (such as data entry or payroll processing) where uniform application is required [5]. The adoption of human-centered AI also fosters an innovative culture within organizations, enhancing employees' digital literacy and adaptability to change with the support of intelligent systems, thus building intellectual capital for long-term corporate development and achieving sustainable and healthy growth.

III. CHALLENGES OF AI ADOPTION IN ORGANIZATIONAL HUMAN RESOURCE MANAGEMENT

Based on real-world research, this paper identifies three core issues facing AI adoption and constructs a problem diagnosis model as shown in Figure 2.

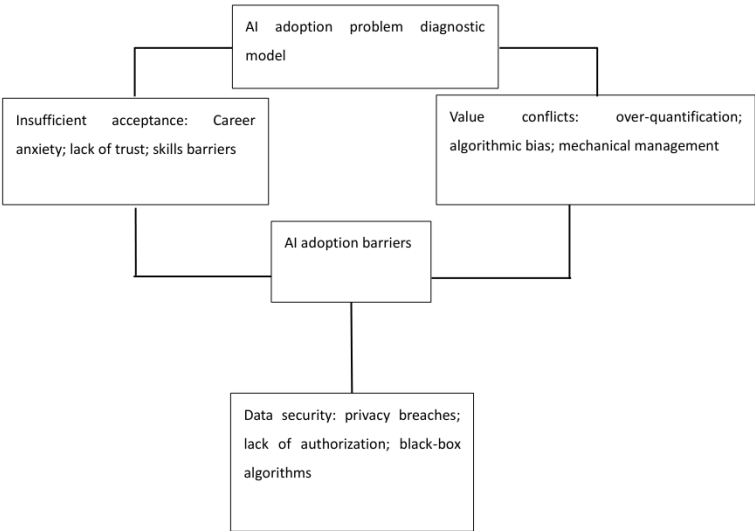


FIGURE 2. Diagnostic Model for AI Adoption Issues

A. INSUFFICIENT ACCEPTANCE AND TRUST AMONG EMPLOYEES REGARDING AI TECHNOLOGY

Many employees believe that AI technology will replace their jobs, leading to intense job anxiety, insecurity, and a negative attitude towards new systems. Some employees lack understanding of the decision-making logic of AI algorithms, questioning their fairness and accuracy, and are unwilling to accept the evaluations provided by AI systems [6]. Due to a lack of sufficient communication and explanation, employees generally view AI as a tool for managers to monitor and control, rather than an assistant to improve work efficiency. Older employees or those with lower technical literacy feel powerless with intelligent systems, exhibiting poor willingness and ability to learn and use new technologies, resulting in low acceptance and preventing AI systems from fulfilling their intended purpose. Based on the Technology Acceptance Model (TAM), this paper identifies key factors influencing employee acceptance of AI technology, as shown in Table 2.

TABLE 2. Analysis of Factors Influencing Employees' Acceptance of AI Technology

Category of influencing factors	Specific factors	Influence mechanism	degree of impact	Intervention difficulty
Cognitive factors	Perceived usefulness	Employees believe AI can improve work efficiency.	high	Low
Cognitive factors	Perceived ease of use	Employees found the AI system easy to operate.	high	middle
Emotional factors	Career anxiety	Fear of being replaced by AI creates resistance	high	high
Trust factors	Algorithm transparency	Understanding AI Decision-Making Logic Enhances Trust	middle	middle
Skill factors	Digital literacy	Level of ability to use AI tools	middle	Low
Organizational factors	Communication mechanism	The organization's level of explanation of AI applications	middle	Low

B. THE CONFLICT BETWEEN AI APPLICATIONS AND HUMANISTIC VALUES

The application of artificial intelligence (AI) in human resource management has brought about profound contradictions in human-centered values. Algorithm-driven decision-making prioritizes data quantification and efficiency, easily overlooking the complexity and diversity of employees as human beings, reducing them to data labels and performance indicators. However, AI is not a panacea for impartiality. If the historical data used to train these systems contains human prejudices, the AI may unintentionally codify and perpetuate these past biases. This creates a risk of systemic discrimination, where the algorithm treats historical patterns

as gold standards, thereby violating principles of fairness. Therefore, the bias-reduction potential mentioned earlier is only achievable if organizations actively implement the bias identification mechanisms discussed in the following sections [7]. Over-reliance on technological means for employee supervision and management deprives employees of their autonomy and dignity, damaging trust relationships between organizations. AI applications tend to focus on standardized processes, but a value conflict arises when standardization shifts from administrative consistency to the rigid management of human behavior. When systems fail to account for the diverse needs and special circumstances of employees it results in mechanized management. Standardization becomes a detriment at the point where it suppresses individual agency and ignores the 'human exception,' deviating from human-centered principles by treating workers as uniform units of production rather than unique contributors. This article summarizes the human-centered value conflicts that arise during AI applications; Table 3 outlines corresponding coping strategies.

TABLE 3. Impact on Values and Mitigation Strategies for AI-Driven Conflicts in HRM

Conflict Types	Specific Indicators	Negative Impact on Human Values	Response strategies	Implementing entities
Overquantification	Simplify employees into data metrics	Ignoring the complexity of human beings	Retain the qualitative assessment stage	Human Resources Department
Algorithmic bias	Encoding of historical human prejudices into automated models	Damage to fairness and justice	Establish a continuous bias identification and data-cleansing mechanism	Technical Department
Over-surveillance	Real-time tracking of employee behavior	Eroding autonomous space	Limited data collection scope	Management
Standardization	Over-extension of uniform logic to complex human interactions; the process is too mechanized	Loss of individual agency; ignoring individual needs	Define "Standardization Thresholds"; set up manual intervention channels	Human Resources Department
Decision substitution	AI completely replaces human judgment.	weakening human subjectivity	Preserving the final decision-making power of human beings	Management

C. DATA SECURITY AND PRIVACY PROTECTION CHALLENGES IN THE IMPLEMENTATION OF AI TECHNOLOGY

The use of AI systems in human resource management poses serious data security and privacy protection issues. AI technology collects and processes vast amounts of employee personal information, including resumes, performance data, behavioral patterns, and biometric data. Leaks of this information can cause significant losses to employees [8]. Many organizations collect data without informing employees of its purpose and scope, or obtaining their explicit permission, thus violating their right to know and choose. The black-box nature of AI algorithms makes data processing opaque; employees are unaware of how their personal information is used or analyzed. Cross-departmental and cross-system data sharing increases the risk of information leakage. Furthermore, the 'Developing' status of AI maturity in HR stems from the fact that organizational governance and legal compliance frameworks often lag behind the pace of algorithmic deployment, making high-stakes decisions like recruitment and churn prediction experimental from a

liability perspective.

IV. HUMAN-CENTERED AI ADOPTION AND IMPLEMENTATION STRATEGIES

A. BUILDING AN AI ADOPTION MECHANISM WITH EMPLOYEE PARTICIPATION: ENHANCING ACCEPTANCE AND TRUST

Organizations should establish AI adoption mechanisms with deep employee involvement to improve technology acceptance from the outset. Employee representatives should be involved in needs assessments and solution discussions from the initial AI system design stage to ensure that the application of technology truly serves employee needs rather than simply pursuing management convenience. Transparent communication mechanisms should be used to fully explain the purpose, working principles, and expected effects of AI technology applications to employees. While communication alone cannot resolve deep-seated job anxiety, it serves as a critical first step in reducing the doubts and misunderstandings caused by information asymmetry. By providing a clear rationale for AI adoption, organizations can move from a state of opaque implementation to one of informed dialogue, creating the necessary conditions for building long-term trust [9]. An explainable framework for AI decision-making should be created so that employees understand how the algorithm arrives at its conclusions, thereby increasing their trust in the system's fairness. Systematic digital skills training should be developed to enable workers to master the use of AI tools, viewing AI as an assistant to improve efficiency rather than a threat. Human review and appeal channels should be established so that employees can raise objections to AI decisions, protecting their rights. These participatory mechanisms transform employees from passive recipients of AI applications into active builders. Trust is not a guaranteed outcome of mere explanation; rather, it is earned when transparent communication is backed by the tangible protections mentioned above—such as appeal channels and manual review mechanisms. By aligning verbal transparency with structural accountability, organizations can systematically lower the barriers of career anxiety and gradually increase technological acceptance. This paper designs an employee-participatory AI adoption mechanism, the specific process of which is shown in Figure 3.

B. BALANCING TECHNOLOGICAL EFFICIENCY WITH HUMANISTIC CONCERN: INTEGRATING AI WITH HUMAN-CENTERED PHILOSOPHY

Organizations should find ways to integrate technology and humanism in the application of AI, allowing them to complement and promote each other. Adhering to the principle of technology serving people, AI should be positioned as an auxiliary tool rather than a replacement, with human managers maintaining a leading role in important decisions. Human values such as fairness and diversity should be incorporated into algorithm design, creating mechanisms

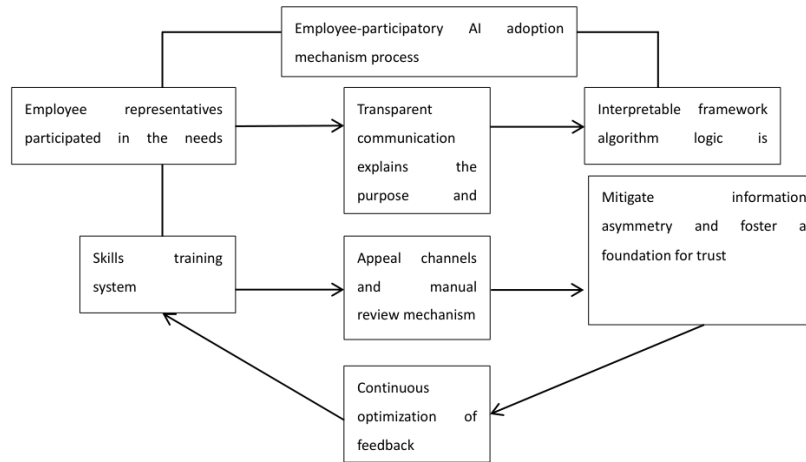


FIGURE 3. Flowchart of Employee Participatory AI Adoption Mechanism

for bias identification and correction to prevent technology from solidifying discrimination. Sufficient space for interpersonal interaction should be provided for employees, preserving necessary humanistic touchpoints outside of automated processes, such as face-to-face communication on important matters and personalized career guidance. A human-machine collaborative work model should be created, leveraging AI's advantages in data processing while also utilizing human strengths in emotional understanding and creative thinking to achieve complementary advantages [10]. While pursuing efficiency, the impact of AI applications on employees should be considered, and inappropriate practices should be adjusted promptly. Well-designed systems should ensure that AI applications function as tools for skill-enhancement and safety; for instance, using AI to identify potential loom malfunctions before they require hazardous manual intervention, thereby prioritizing physical well-being alongside operational output. This paper proposes a dual-track decision-making model to balance technological efficiency and humanistic care in the use of artificial intelligence. To achieve a balance between technological efficiency and humanistic care in AI applications, this paper proposes a dual-track decision-making model. The 'Equilibrium Decision Point' is not a static midpoint but a dynamic optimization reached by assigning weights to efficiency (E) and humanistic care (H). Organizations reach this equilibrium by evaluating tasks based on two criteria: 'Task Complexity' (requiring human intuition) and 'Impact Severity' (the risk of high-stakes errors). For routine data processing, the model weights efficiency more heavily; however, for sensitive HR interventions, the weight shifts toward the humanistic track to ensure ethical compliance. The decision model for balancing technology and humanities is shown in Figure 4.

Where ω_1 (Efficiency Weight) is prioritized for high-volume, low-risk automation (e.g., payroll data). Where ω_2 (Humanistic Weight) is prioritized for high-stakes, qualitative assessments (e.g., specialized talent development). The

equilibrium is achieved when the marginal gain in efficiency does not result in a disproportionate loss of employee agency or dignity.

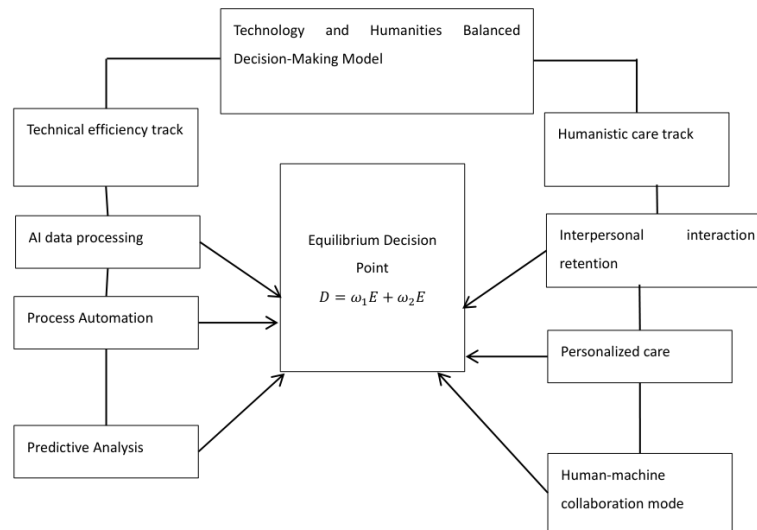


FIGURE 4. Decision-making model for balancing technology and humanism

C. ESTABLISHING A SOUND DATA GOVERNANCE SYSTEM: ENSURING PRIVACY AND ETHICAL COMPLIANCE

Organizations need to establish a data governance system to define clear ethical and legal boundaries for AI applications. This includes developing clear data collection and usage guidelines, adhering to the principle of minimum necessity, collecting only information directly relevant to management purposes, and avoiding excessive collection. A strict data access permission management system should be established, implementing tiered and categorized control to ensure sensitive information is used only by those who need it and when it is needed. Data encryption and anonymization methods should be used to ensure the integrity and confidentiality of sensitive employee information during storage and transmission. While these security protocols protect against unauthorized access and leaks caused by outward infringement, organizations must carefully calibrate anonymization levels, as excessive data masking can lead to a 'utility-privacy trade-off' that slightly reduces the granular

accuracy available for AI-driven predictive modeling. A transparent data usage system should be created, regularly disclosing employee data usage and accepting internal and external supervision. An independent ethics review committee should be established to evaluate the compliance and ethical aspects of AI applications and promptly correct deviations. The responsible parties for data security should be clearly defined, and an accountability mechanism should be established to hold violators accountable. A sound data governance system, while ensuring the effective operation of AI systems, effectively protects employee privacy rights, enabling the healthy development of technology applications within a legal and ethical framework [11]. To ensure data security and ethical compliance during AI applications, this paper designs a complete data governance system architecture as shown in Figure 5. To standardize database management behavior in AI applications, this paper proposes the core elements and implementation standards of the data governance system as shown in Table 4.

TABLE 4. Core Elements and Implementation Standards of Data Governance System

Governance elements	Implementation Standards	Technical means	Responsible Entity	Oversight mechanism
Data collection	Minimum Necessity Principle	Demand mapping analysis	Data Management Department	Ethics Review Committee
Access permissions	Hierarchical and Classified Management	Access Control System	IT Department	Internal audit
Data encryption and Privacy-Preserving Computation	Secure multi-party computation and differential privacy	Homomorphic encryption to maintain data utility while ensuring privacy	Technical Department	Security Testing
Information Disclosure Ethical review	Regular Transparency Reports Weighted Impact Analysis (Efficiency vs. Ethics)	Data usage log Decision-matrix scoring system	Data Protection Officer Ethics Committee	Employee feedback External supervision
Accountability	Accountability mechanism for violations	Accountability system	Management	Legal and Compliance Department

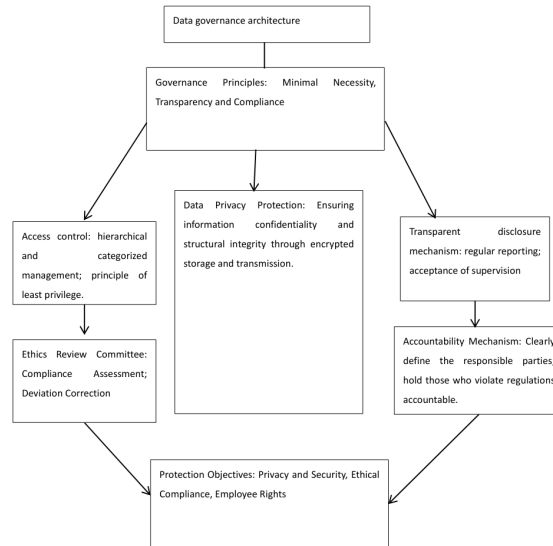


FIGURE 5. Data Governance System Architecture Diagram

V. CONCLUSION

The adoption of human-centered AI is an inevitable choice for the intelligent transformation of human resource management seek to balance high-tech spinning and weaving automation with the essential craftsmanship of their workforce. This evolution ensures that technological progress enhances rather than replaces the specialized expertise required in modern production. Faced with the opportunities and challenges brought by technological change, organizations should maintain a human-centered value stance, ensuring management effectiveness while also protecting employee rights and dignity. By building employee participation mechanisms, balancing technology and humanism, and improving data governance, organizations can achieve a deep integration of AI technology and humanistic principles, truly enabling technology to serve the comprehensive development of people. Only by placing employees at the core of technology application and using artificial intelligence to help and care for employees can organizations steadily embark on the path of digital transformation and write a new chapter of human-centered management in the intelligent era.

AUTHOR CONTRIBUTIONS

Yang Meirong designed, collected and analyzed the data, and drafted the manuscript. Yang Meirong conducted the study, critically revised the manuscript for important intellectual content, and gave final approval of the version to be published. Yang Meirong participated fully in the work, take public responsibility for appropriate portions of the content, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

FUNDING

This research received no external funding.

ACKNOWLEDGEMENTS

Not applicable.

REFERENCES

- [1] C. Reineholm, D. Lundqvist, and C. Ståhl, "Collaboration, coordination, and cooperation in occupational health and safety management: perspectives of managers, human resource practitioners, and occupational health and safety representatives," *International Journal of Qualitative Studies on Health and Well-Being*, vol. 20, no. 1, 2563399, 2025, doi: 10.1080/17482631.2025.2563399.
- [2] L. Peng, "Research on Innovative Strategies for Enterprise Human Resource Management in the Era of Digital Transformation," *Journal of Global Humanities and Social Sciences*, vol. 6, no. 7, 2025, doi: 10.61360/BONIGHSS252019150707.
- [3] J. A. Teixeira da Silva and M. Filiz, "Questioning the Classification of the Highest SJR-Ranked Organizational Behavior and Human Resource Management Journals by an Artificial Intelligence Tool," *The Review of Socionetwork Strategies*, prepublsh, pp. 1-7, 2025, doi: 10.1007/S12626-025-00196-4.
- [4] E. A. Alzeiby, N. Islam, A. S. Shaik, and M. Z. Yaqub, "AI adoption in enterprises for enhanced strategic human resource management practices: benefiting the employee engagement and experience," *Journal of Enterprise Information Management*, vol. 38, no. 5, pp. 1441-1464, 2025, doi: 10.1108/JEIM-05-2024-0249.
- [5] T. Noerman, E. S. Riyadi Yulijai, and C. A. M. Natasha, "The impacts of social influence and hedonic motivation on experience and continuance intention of using AI in SMEs' HRM," *Cogent Business & Management*, vol. 12, no. 1, 2025, doi: 10.1080/23311975.2025.2542422.
- [6] R. Alexandro, "Strategic human resource management in the digital economy era: an empirical study of challenges and opportunities among MSMEs and startups in Indonesia," *Cogent Business & Management*, vol. 12, no. 1, 2025, doi: 10.1080/23311975.2025.2528436.
- [7] E. Mebratie, B. Shanbel, A. Awoke, and B. Dessalegne, "Knowledge-based human resource management practices and organizational performance in selected universities of Amhara regional state, Ethiopia: the mod-

- erating effect of intellectual capital,” *Cogent Business & Management*, vol. 12, no. 1, 2025, doi: 10.1080/23311975.2025.2491688.
- [8] C. Zhao, “Using deep learning approaches to optimize cross-cultural management and global human resource allocation,” *Human Systems Management*, vol. 45, no. 1, pp. 38-54, 2026, doi: 10.1177/01672533251350855.
- [9] C. G. de Aragão, D. Jugend, and P. D. Camargo Fiorini, “Promoting the Circular Economy Through Green Human Resource Management: Insights on the Development of Green Skills and Future Research Directions,” *Business Strategy & Development*, vol. 8, no. 4, e70252, 2025, doi: 10.1002/BSD2.70252.
- [10] T. Zhou, X. Liu, W. Yu, X. Wang, and H. Teng, “Application and Experience of Putting People First in Hospital Human Resource Management,” *Proceedings of Anticancer Research*, vol. 4, no. 6, 2020, doi: 10.26689/PAR.V4I6.1686.
- [11] L. R. Cardy, S. J. Miller, and D. A. Ellis, “Employee equity: Toward a person-based approach to HRM,” *Human Resource Management Review*, vol. 17, no. 2, pp. 140-151, 2007, doi: 10.26689/PAR.V4I6.1686.