SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 229

ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCES MANAGEMENT: A MOMENTARY TREND OR NECESSITY?

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Purpose: The reason for writing this article is to answer the question about using artificial intelligence as a tool in human resources management. Is this a temporary trend caused by the fashion for using this new, not fully tested tool, or maybe a necessity in a world of increasingly complex social processes in which artificial intelligence plays an increasingly important role.
Project/methodology/approach: The purpose of this analysis is to try to understand what the tasks of artificial intelligence in human resources management are. How do different authors see the role of these tasks. The methodology used is the analysis of distributed sources, in which the authors try to answer not only the question about the current role of artificial intelligence in human resources management, but also about its role in the future. The article tries to analyze different sources and related approaches to the topic.
Practical implications: Artificial intelligence is a relatively new tool in the hands of managers. The article, based on the analyzed sources, tries to answer the questions; whether and to what extent it will be a helpful tool in human resources management. As well as to what extent the experience gained in previous work will be helpful and to what extent they will hinder the implementation of tasks using artificial intelligence.
Social implications: The article may be a signal to management regarding a completely new tool in their work. It may also signal the existence of traps in thoughtless use of artificial intelligence.
Originality/value: The integration of Artificial Intelligence into Human Resources Management is no longer a speculative trend but a transformative necessity. From automating repetitive tasks and enhancing decision-making to personalizing employee experiences and forecasting workforce trends, AI is fundamentally reshaping the HR landscape.
Keywords: human resources, Artificial Intelligence, management, new technologies.
Category of the paper: Research paper.

1. Introduction

In the 21st century, technological advances have redefined traditional practices in almost all industries, including human resource management (HRM). Once a science fiction topic, artificial intelligence (AI) has now permeated organizational practices and led to a paradigm

shift in the way organizations handle their most valuable assets: their employees (Rothmann, Mahomed, 2019). The debate on whether AI in HRM is a passing trend or an emerging necessity has become of considerable importance in the scientific, practical, and political spheres. The purpose of this paper is to examine the convergence of AI technologies with HRM practices, assess the benefits and challenges of such implementation, and evaluate whether the introduction of AI in HRM is a passing innovation or an indispensable advancement. By analyzing current applications, case studies, and future projections, this study aims to provide a comprehensive understanding of the transformative impact of AI on the HR function. The scope of this paper includes detailed theoretical background, practical applications, advantages, challenges, ethical considerations, and future prospects related to AI in HRM. The study is based on a wide range of sources, including academic articles, industry reports, and case studies.

2. Theoretical background

2.1. Definition of artificial intelligence

Artificial intelligence (AI) refers to the simulation of human intelligence processes by machines, especially computer systems (Russell, Norvig, 2020). These processes include learning, logical thinking, problem solving, perception, and language understanding. AI systems are designed for tasks that usually require human cognition and are continuously improved through data-driven learning algorithms (Goodfellow, Bengio, Courville, 2016). In the broader field of artificial intelligence, subfields such as machine learning (ML), natural language processing (NLP), and robotic process automation (RPA) play an important role in improving human resource functions (Jordan, Mitchell, 2015). AI has the potential to analyze large amounts of data, identify patterns, and provide predictive recommendations, which makes it a powerful tool in modern organizational environments.

2.2. The development of human resource management

Human resource management has evolved from administrative personnel management to a strategic function that is critical to the success of a business (Ulrich, 1997). Traditionally, HR processes are labor-intensive and rely heavily on human judgment, resulting in inefficiency and bias (Storey, 2007). The integration of digital technologies has gradually transformed HRM, culminating in the introduction of AI-driven systems to achieve greater accuracy, efficiency, and strategic alignment (Cascio, Montalegre, 2016).

The digital transformation of HRM can be divided into three waves: HRM 1.0 (administrative focus, 1950s to 1980s), HRM 2.0 (strategic HRM, 1990s to 2010s), and HRM 3.0 (digital and AI-enabled HRM, 2010s to present) (Bondarouk, Brewster, 2016).

3. Application of AI in Human Resource Management

3.1. Recruitment and Candidate Selection

AI has revolutionized the recruitment and selection process, making hiring decisions more efficient, fair, and data-driven. Traditional methods, which often require time-consuming manual review of resumes, are now being supplemented or replaced by AI tools that can analyze thousands of applications in seconds (Upadhyay, Khandelwal, 2018). These tools use algorithms to identify keywords, match qualifications to job descriptions, and evaluate candidates based on predefined metrics (Black, van Esch, 2020).

AI platforms such as HireVue and Pymetrics use machine learning and natural language processing to conduct preliminary interviews, analyze tone, facial expressions, and word choice, and predict whether a candidate is a good fit for the position (Chamorro-Premuzic et al., 2017). This not only speeds up the recruitment process, but also improves objectivity by minimizing the human bias inherent in traditional assessments (Raghavan et al., 2020).

Additionally, AI chatbots improve the candidate experience by providing 24/7 support, answering common questions, and automatically scheduling interviews (Langer, König, 2018). Companies such as Unilever have reported significant improvements in recruitment outcomes through AI, including increased diversity, reduced costs, and improved retention (Deloitte, 2020).

3.2. Talent Management and Employee Development

AI is revolutionizing talent management through a personalized and dynamic approach to employee development. By analyzing performance data, learning patterns, and career trajectories, AI systems can develop customized training plans that meet organizational goals and individual needs (Sivathanu, Pillai, 2018).

AI-powered learning management systems (LMS) recommend specific learning modules, courses, and certifications based on an employee's role, skills gaps, and performance metrics (Sharma, Sharma, 2020). These platforms also monitor engagement and adjust content delivery in real time to optimize learning outcomes (Wang, Siau, 2019).

AI coaching platforms like BetterUp use behavioral analytics and goal-setting frameworks to provide virtual coaching and performance feedback. This ensures continuous, personalized, and data-driven development and promotes long-term career development and loyalty to the company (Jarrahi, 2018).

3.3. Performance Evaluation and Employee Engagement

Performance evaluations in the past have been characterized by subjectivity, timeliness bias, and inconsistent metrics. AI addresses these challenges through real-time performance tracking, pattern recognition, and predictive analytics (Meijerink et al., 2020). Advanced platforms analyze project contributions, collaborative behaviors, and results to create holistic performance reports (Storey, 2007). AI-powered continuous feedback systems allow managers to gain actionable insights without waiting for annual reviews. This promotes transparency, encourages regular dialogue, and supports agile performance management practices (Cascio, Montalegre, 2016).

To improve employee engagement, sentiment analysis tools use communication channels such as emails and surveys to capture emotions, stress levels, and overall satisfaction (Zhang et al., 2020). These findings help take proactive interventions to improve work atmosphere and reduce the risk of turnover (Tursunbayeva et al., 2018).

3.4. HR Data Analysis and Trend Forecasting

HR analytics (often referred to as people analytics) has been significantly improved through AI capabilities. These tools collect and analyze large data sets from a variety of sources (such as employee records, surveys, and performance indicators) to discover patterns and predict future outcomes (Bondarouk, Brewster, 2016).

AI enables workforce planning models that predict talent shortages, succession risks, and hiring needs based on internal mobility trends and external labor market data (Ulrich, 1997). These predictions are critical for proactive strategic planning and risk mitigation.

Moreover, scenario modeling powered by AI supports decision-makers in simulating the impact of policy changes, restructuring, or training initiatives on workforce dynamics (Russell, Norvig, 2020). This elevates HR's role from a support function to a strategic business partner.

4. Benefits of AI Integration in Human Resources Management

The integration of Artificial Intelligence (AI) into Human Resources Management (HRM) has brought about substantial transformation, redefining how organizations manage people and develop strategic value from their workforce. The use of AI technologies not only improves operational efficiency but also enhances the strategic capabilities of HR departments by

enabling data-driven decision-making, personalizing employee experiences, and optimizing resource allocation (Jarrahi, 2018). This section provides an in-depth analysis of the key benefits of AI implementation in HRM, including increased efficiency, better decision-making, cost reductions, enhanced employee engagement, and improvements in diversity and inclusion practices.

4.1. Increased Efficiency and Automation of Repetitive Tasks

One of the most immediate and tangible benefits of AI in HRM is the automation of repetitive and administrative tasks. AI technologies such as Robotic Process Automation (RPA) can handle routine operations including employee onboarding, payroll processing, benefits administration, and document management at a much faster pace and with fewer errors than human workers (Upadhyay, Khandelwal, 2018). For instance, AI-powered systems can automatically verify documentation, populate employee records, and generate compliance reports without manual input (Deloitte, 2020).

This automation frees HR professionals from mundane tasks and allows them to focus on more strategic roles such as organizational development, talent strategy, and workforce planning. As a result, companies report notable improvements in HR response times, reduced paperwork, and more streamlined processes (Meijerink et al., 2020).

4.2. Improved Decision-Making with Predictive Analytics

Another significant advantage of AI in HRM lies in its capacity for advanced data analysis. AI tools enable predictive analytics that help HR leaders make informed decisions based on historical data, behavioral trends, and real-time inputs (Cascio, Montealegre, 2016). For example, predictive models can identify employees who are at risk of leaving, suggest optimal times for hiring or training, and recommend promotion candidates based on performance data (IBM, 2019).

By using predictive analytics, HR departments can move from reactive to proactive management. Such tools provide insights that are otherwise hidden in large datasets, helping organizations to act early and prevent workforce disruptions. Furthermore, AI systems reduce human bias in decision-making by basing recommendations on objective criteria and algorithmic models rather than subjective intuition (Raghavan et al., 2020).

4.3. Cost Reduction and Resource Optimization

AI adoption in HRM also contributes to significant cost savings. Automating high-volume tasks reduces the need for large administrative teams, minimizing labor costs without compromising productivity. According to a McKinsey Global Institute report, AI technologies can reduce operational expenses in HR departments by as much as 30% when deployed effectively (McKinsey, 2017).

AI also optimizes resource utilization through smarter workforce planning. Tools equipped with AI can analyze workloads, employee competencies, and future business needs to allocate human resources more effectively (Ulrich, 1997). This not only ensures optimal performance but also reduces overtime costs and burnout by balancing workloads across teams.

4.4. Enhanced Employee Experience and Engagement

Employee experience has emerged as a critical factor in attracting and retaining talent. AI contributes to improving this experience through personalization and continuous engagement. Chatbots and virtual assistants provide employees with immediate support for HR-related inquiries, improving response times and accessibility (Tursunbayeva et al., 2018).

Furthermore, AI-enabled platforms track individual employee behaviors and preferences to customize learning, development, and wellness programs (Sharma, Sharma, 2020). These systems can suggest training courses, career paths, and even wellness initiatives based on an employee's engagement history and career objectives (Sivathanu, Pillai, 2018).

Sentiment analysis tools, which scan emails, feedback forms, and social media, help HR teams gauge morale and respond to concerns before they escalate. This fosters a culture of inclusivity and responsiveness, contributing to higher levels of satisfaction and loyalty among employees.

4.5. Enhancing Diversity and Inclusion Initiatives

Diversity and inclusion (D&I) remain central goals for modern organizations. AI can serve as a powerful tool in supporting D&I efforts by identifying and reducing unconscious bias in hiring and promotion decisions. AI tools anonymize candidate data during screening, ensuring that decisions are made based on qualifications and competencies rather than demographics (Raghavan et al., 2020).

In addition, AI-driven dashboards allow HR teams to monitor diversity metrics across departments and adjust recruitment strategies accordingly. Such real-time tracking provides transparency and accountability in D&I initiatives. However, organizations must remain vigilant about the data used to train AI systems, as biased datasets can perpetuate existing inequalities (Binns, 2018).

4.6. Strategic Workforce Planning and Agility

AI enhances an organization's strategic agility by enabling real-time workforce analytics and scenario modeling. HR departments can simulate the impact of business decisions—such as mergers, reorganizations, or layoffs—on workforce composition and performance (Bondarouk, Brewster, 2016). These simulations help prepare contingency plans and facilitate smoother transitions during organizational changes.

AI tools also support continuous alignment between workforce capabilities and strategic business goals. Through skills gap analysis and talent forecasting, AI helps leaders plan for future needs and ensure readiness in an ever-evolving business environment.

5. Challenges and Ethical Considerations in Implementing AI in HRM

While Artificial Intelligence (AI) offers numerous benefits to Human Resources Management (HRM), its implementation is not without significant challenges. As organizations increasingly integrate AI technologies into their HR functions, they must navigate a complex landscape of ethical dilemmas, technical limitations, legal constraints, and organizational resistance. This section provides a comprehensive exploration of the key challenges and ethical considerations related to AI in HRM, focusing on algorithmic bias, data privacy, transparency, accountability, and change management (Binns, 2018).

5.1. Algorithmic Bias and Discrimination

One of the most widely discussed ethical concerns in AI-based HRM is algorithmic bias. Although AI is often perceived as objective, it can reflect and even exacerbate existing human biases if trained on skewed or incomplete datasets (Raghavan et al., 2020). For example, Amazon famously scrapped an AI recruiting tool that favored male candidates for technical roles because the training data reflected historical hiring patterns biased against women (Dastin, 2018).

Bias can be introduced at multiple stages, including data collection, model selection, and algorithm design. If unchecked, these biases can result in discriminatory practices in hiring, promotions, and evaluations, undermining diversity and inclusion efforts (Mehrabi et al., 2021). Therefore, HR professionals must work closely with data scientists to audit and validate AI systems, ensuring that they promote fairness and equity.

5.2. Data Privacy and Confidentiality

AI systems in HRM rely heavily on data—often personal, sensitive, and confidential. From tracking employee performance and behavior to processing biometric data and communication patterns, AI can gather and analyze vast quantities of information (Tursunbayeva et al., 2018). While this enables powerful insights, it also raises serious privacy concerns.

Employees may feel that their autonomy and personal space are being violated, particularly when AI systems operate without transparency. The General Data Protection Regulation (GDPR) in the European Union, along with other privacy laws, mandates strict controls over how employee data can be collected, stored, and used (Voigt, von dem Bussche, 2017).

Organizations must implement robust data governance frameworks and ensure that AI systems comply with legal requirements, including the right to explanation and consent.

5.3. Lack of Transparency and Explainability

Another major challenge in AI-driven HRM is the lack of transparency in algorithmic decision-making. Many AI models—especially those based on deep learning—function as 'black boxes,' offering limited insight into how specific decisions are made (Burrell, 2016). This can be particularly problematic in HR contexts where decisions about hiring, promotions, or performance reviews must be clearly justified to maintain trust and legal defensibility.

Explainable AI (XAI) has emerged as a field focused on making algorithms more interpretable. However, the balance between accuracy and interpretability remains difficult to achieve. HR professionals must advocate for transparency in AI systems and collaborate with vendors who prioritize model explainability.

5.4. Accountability and Liability Issues

As AI systems become more autonomous, questions about responsibility and accountability become increasingly complex. When an AI system makes a decision that adversely affects an employee—such as rejecting a qualified applicant or issuing an incorrect performance rating—who is to blame? The software developer, the HR department, or the executive leadership? (Eubanks, 2018).

These grey areas present significant legal risks. Organizations must clearly define roles and responsibilities for AI oversight, ensuring that human review mechanisms are in place to catch and correct erroneous or unjust outcomes. This includes regular audits, ethical review boards, and the designation of responsible AI officers or teams.

5.5. Resistance to Change and Organizational Culture

Implementing AI in HRM also faces internal resistance from employees and HR practitioners who fear job displacement, loss of control, or skill obsolescence (Susskind, Susskind, 2015). Resistance is especially prevalent in organizations with hierarchical cultures or limited technological maturity.

Overcoming resistance requires transparent communication, inclusive implementation strategies, and continuous upskilling. Change management initiatives should emphasize the collaborative nature of AI—augmenting rather than replacing human roles—and involve stakeholders at every stage of deployment (Kotter, 2012).

5.6. Reliability, Security, and System Failures

AI systems are not immune to technical issues. Bugs, system outages, and cyberattacks can compromise the reliability of HR functions and erode employee trust. For instance, an error in an AI scheduling system could result in misassigned shifts or unprocessed payroll, leading to operational disruptions and dissatisfaction.

Furthermore, because AI systems often operate on cloud infrastructure and interface with multiple data sources, they become attractive targets for cyber threats. Organizations must invest in cybersecurity protocols, redundancy systems, and continuous monitoring to safeguard AI functionality (Brynjolfsson, McAfee, 2014).

5.7. Ethical Governance and Policy Development

In light of these challenges, establishing ethical frameworks for AI use in HR is crucial. Ethical governance involves setting clear policies on data use, bias mitigation, accountability, and employee rights. These frameworks should be developed collaboratively by HR leaders, legal teams, ethicists, and technical experts (Jobin, Ienca, Vayena, 2019).

Additionally, organizations should adhere to international ethical standards such as the OECD Principles on Artificial Intelligence and the AI Ethics Guidelines by the European Commission. Embedding these principles into HR strategy can promote responsible AI use and build stakeholder trust.

6. Case Studies: AI Implementation in HRM Practice

The practical application of Artificial Intelligence (AI) in Human Resources Management (HRM) can be best illustrated through real-world case studies. Analyzing how different organizations implement AI offers valuable insights into the benefits, challenges, and strategic considerations associated with digital HR transformation. This section presents a detailed examination of AI adoption in HRM across several leading organizations, highlighting their objectives, tools, outcomes, and lessons learned.

6.1. Unilever: AI in Recruitment and Candidate Screening

Unilever, one of the world's largest consumer goods companies, has successfully leveraged AI to transform its recruitment process. The company implemented a multi-stage AI-powered hiring pipeline, including gamified assessments, video interviews analyzed by machine learning, and AI chatbots to guide candidates through the process (Black, van Esch, 2020).

The AI system evaluates candidates based on verbal and non-verbal cues, comparing them against a profile of successful employees. According to Unilever, the integration of AI reduced hiring time by 75% and improved candidate satisfaction by offering a smoother, more transparent process (Deloitte, 2020). It also led to increased diversity among new hires by minimizing unconscious bias.

6.2. IBM: Predictive Analytics for Retention and Talent Management

IBM has been a pioneer in using AI for workforce analytics. The company's AI system, powered by IBM Watson, predicts employee attrition with up to 95% accuracy by analyzing a variety of factors including job satisfaction, performance trends, and external labor market conditions (IBM, 2019).

Managers receive early warnings and suggested interventions, allowing them to proactively retain top talent. IBM reports that these AI-driven insights have saved the company millions in rehiring and retraining costs. Furthermore, the system supports career pathing by recommending learning modules and lateral opportunities.

6.3. Hilton: Chatbots and AI Assistants for Candidate Engagement

Hilton, the global hospitality chain, implemented an AI chatbot named 'Connie' to assist with recruitment inquiries and candidate screening. Connie answers frequently asked questions, schedules interviews, and provides status updates. This innovation significantly improved response time and reduced the workload on HR personnel (Tursunbayeva et al., 2018).

The use of conversational AI led to a measurable increase in candidate engagement and a decrease in application abandonment rates. Hilton's example demonstrates how AI can enhance user experience while maintaining HR efficiency.

6.4. Amazon: Lessons from a Failed AI System

Not all implementations of AI in HRM have been successful. Amazon developed an AI tool to automate resume screening but ultimately abandoned the system after discovering that it favored male applicants for technical positions due to biased training data (Dastin, 2018).

This case highlights the importance of dataset quality and bias monitoring in AI development. It serves as a cautionary tale about the unintended consequences of poorly governed AI systems in sensitive HR functions.

6.5. Infosys: AI in Learning and Development

Infosys, a global leader in consulting and IT services, utilizes AI to customize learning experiences for its employees. The company's Lex platform uses machine learning to recommend personalized learning paths based on skill gaps, job roles, and employee interests (Sharma, Sharma, 2020).

The adoption of AI in training has improved engagement rates and accelerated upskilling, helping Infosys stay competitive in the rapidly evolving tech landscape. The case demonstrates how AI can support large-scale workforce development efficiently.

7. Future Outlook: The Evolving Role of AI in Human Resources Management

As the adoption of Artificial Intelligence (AI) in Human Resources Management (HRM) continues to expand, the future promises a more integrated, strategic, and employee-centered approach to workforce management. While AI technologies are currently focused on improving efficiency and streamlining administrative tasks, future developments are expected to deepen AI's role in talent strategy, organizational design, and workforce well-being (Jarrahi, 2018). This section explores key trends and future directions for AI in HRM, including hyper-personalization, augmented intelligence, ethical AI frameworks, and the evolving role of HR leaders.

7.1. Hyper-Personalization and the Employee Experience

AI will drive the next wave of hyper-personalized employee experiences. Using deep learning, AI will tailor every interaction—from onboarding and career planning to wellness programs and recognition—based on individual profiles, preferences, and behaviors (Sharma, Sharma, 2020). This personalization will go beyond generic benefits packages or training programs and instead deliver real-time, context-aware support for each employee.

For example, virtual assistants could suggest mental health resources during periods of stress or recommend career pivots when employee engagement declines. Such enhancements will contribute to increased satisfaction, loyalty, and performance.

7.2. Augmented Decision-Making and Strategic Alignment

Future AI tools will not replace HR leaders but augment their capabilities by synthesizing vast datasets into actionable insights. HR professionals will increasingly rely on AI to identify skills gaps, optimize succession planning, and forecast workforce needs in real time (Bondarouk, Brewster, 2016).

In strategic meetings, HR leaders will bring dashboards powered by predictive analytics, helping executive teams make data-driven decisions about mergers, diversity initiatives, or remote work strategies. This will elevate HR’s role as a strategic partner rather than an administrative function (Ulrich, 1997).

7.3. Rise of Responsible and Ethical AI Governance

As AI becomes more central to HR practices, the need for robust ethical governance will intensify. Organizations will be expected to implement explainable AI models, bias audits, and privacy-preserving technologies to ensure fairness and accountability (Binns, 2018).

Global bodies like the European Commission and the OECD are already developing regulatory frameworks, and these are likely to become mandatory in the near future. HR departments will need dedicated resources and expertise to manage ethical compliance, ensuring that AI enhances rather than erodes employee trust (Jobin, Ienca, Vayena, 2019).

7.4 Lifelong Learning and AI Literacy for HR Professionals

To effectively manage AI tools, HR professionals will need to acquire new competencies, including data interpretation, digital fluency, and AI ethics. Training programs and certifications focused on HR analytics and technology management will become standard (Brynjolfsson, McAfee, 2014).

This evolution will redefine the HR career path, blending human-centric skills such as empathy and negotiation with technical proficiencies. Forward-looking organizations will invest in upskilling their HR teams to lead in a data-driven environment.

7.5. Integration with Emerging Technologies

AI will increasingly converge with other technologies such as blockchain, virtual reality (VR), and the Internet of Things (IoT) to redefine HR functions. Blockchain could secure employee records and contract verification, while VR could simulate onboarding or soft skills training environments (Wang, Siau, 2019). AI-powered wearables may also monitor employee health metrics to optimize wellness initiatives.

This integration will demand cross-functional collaboration between HR, IT, and compliance teams, fostering a more holistic approach to human capital management.

8. Conclusion

The integration of Artificial Intelligence into Human Resources Management is no longer a speculative trend but a transformative necessity. From automating repetitive tasks and enhancing decision-making to personalizing employee experiences and forecasting workforce trends, AI is fundamentally reshaping the HR landscape. As organizations strive for agility and resilience in a rapidly changing environment, AI serves as a catalyst for smarter, faster, and more inclusive HR practices.

However, the journey toward AI-enhanced HRM is not without significant challenges. Concerns around bias, privacy, transparency, and accountability demand responsible implementation and robust ethical governance. Case studies demonstrate that while the benefits of AI are substantial, they are fully realized only when supported by clear policies, cultural readiness, and continuous learning.

Looking forward, the role of AI in HRM will continue to evolve, driven by advances in technology and shifts in organizational expectations. HR leaders must not only embrace AI tools but also guide their ethical use, ensuring that technology serves human needs and fosters fairness, engagement, and innovation. As this report demonstrates, AI in HRM is not a fleeting trend but a strategic imperative shaping the future of work.

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