

Modern Trends in Artificial Intelligence Applications in Human Resource Management: An Analytical Study

Nassir Guerguet ¹ ♦, Sriti Mohamed Ali², Samia Ayed Al Jaed ³

¹ University of Biskra (Algeria), nassir.guerguet@univ-biskra.dz

 ORCID: <https://orcid.org/0000-0002-3014-7391>

² University of Biskra (Algeria), mohamedali.sriti@univ-biskra.dz

 ORCID: <https://orcid.org/0009-0003-3387-8725>

³ University of Taif (Saudi Arabia), samia.a@tu.edu.sa

 ORCID: <https://orcid.org/0009-0001-0927-592X>

Received: 01/08/2025

Accepted: 28/12/2025

Published:20/01/2026

Abstract:

This study aims to explore and analyze the role of Artificial Intelligence (AI) in enhancing Human Resource Management (HRM) functions on a global level, with a focus on key objectives and practical applications. The descriptive-analytical method was adopted, relying on statistical data issued by organizations such as SHRM, BCG, and HR Policy Association during the year 2024. The results revealed that 87% of HR professionals consider improving efficiency and reducing manual workload to be the most important goal of adopting AI, followed by personalizing employee experiences (49%) and enhancing accuracy and impartiality (39%). The data also showed that the most common areas of AI application are recruitment (64%), followed by training and development (43%), while its use in termination and promotion decisions remains limited. Additionally, it was found that AI is widely used in creating job descriptions (65%) and providing personalized performance feedback (57%). Considering these findings, the study recommends enhancing the use of AI in bias analysis and performance evaluation, alongside establishing legal and ethical frameworks to protect data and maintain human involvement in sensitive decision-making.

Keywords: Artificial Intelligence, Human resource management, Recruitment, Learning and Development, Performance Management

♦ Corresponding author.

مجلة الدراسات التجارية والاقتصادية المعاصرة المجلد (09) العدد (01) (2026)



Ce(tte) œuvre est mise à disposition selon les termes de la [Licence Creative Commons Attribution - Pas d'Utilisation Commerciale 4.0 International](https://creativecommons.org/licenses/by-nc/4.0/)

I- Introduction

Over the past two decades, Artificial Intelligence (AI) has received growing attention from organizations across nearly all fields. AI has also become a hallmark of modern organizations striving to gain a competitive advantage. Contemporary organizations must continuously evolve to operate with greater accuracy, professionalism, and responsiveness to rapidly changing markets and customer demands. This transformation can be driven by the adoption of intelligent tools that demonstrate effective behavior by analyzing their environment and working toward specific goals. Human Resources (HR) plays a pivotal role in helping organizations achieve these goals, address complex problems, and support strategic decision-making—tasks that AI increasingly enhances. Leaders who overlook the importance of integrating AI tools risk falling behind in an era where technological advancement is essential for organizational success.

Human Resource Management (HRM) functions such as performance evaluation and employee engagement have been significantly transformed in modern organizations through the integration of AI (Kambur & Akar, 2022; Sadeghi, 2024). AI offers numerous advantages across HRM practices, particularly in recruitment, training, performance management, and staffing by reducing bias and boosting efficiency (Dutta et al., 2023). Moreover, incorporating AI into HR functions enhances employee satisfaction and fosters organizational loyalty by delivering continuous support and hyper-personalized experiences (Malik, Budhwar, Mohan, & NR, 2023). For example, AI can dramatically reduce the time spent on manual tasks like performance reviews, while ensuring greater accuracy, fairness, and real-time feedback (Chukwuka & Dibie, 2024).

Undoubtedly, integrating AI into HR functions is a promising strategy. Nevertheless, this integration may present certain challenges. For instance, AI can function effectively only when it is provided with high-quality data by humans, and there is a risk that confidential organizational documents might be misused (Nawaz et al., 2024). Despite the challenges associated with integrating AI into HRM, organizations continue to make significant efforts to adopt it, as the benefits of integration outweigh the potential drawbacks (George & Thomas, 2019). In light of this growing role of AI in transforming Human Resources, the central question arises: What are the main objectives and uses of AI in Human Resources departments within the global workplace?

Based on this inquiry, the present study adopts a descriptive analytical approach grounded in secondary data analysis, drawing on quantitative data published in recent global reports and survey-based studies issued during 2024–2025 by internationally recognized human resource institutions, including the Society for Human Resource Management (SHRM), Boston Consulting Group (BCG), and the HR Policy Association. The study focuses on analyzing and interpreting contemporary trends in the adoption and application of artificial intelligence within human resource departments and on deriving their organizational and strategic implications at the global level.

Accordingly, this study aims to analyze and interpret current global trends in the use of artificial intelligence within human resource departments. Specifically, it seeks to examine the main objectives driving AI adoption in HRM, identify the key functional areas in which AI is applied, and highlight its most prominent applications in recruitment, learning and development, and performance management. Through this analytical perspective, the study endeavors to provide a comprehensive understanding of how artificial intelligence is utilized to enhance the effectiveness and efficiency of human resource management in modern workplaces.

1. The Theoretical Framework of The Study

1.1 The Notion of Artificial intelligence (AI)

In the modern era, artificial intelligence (AI) has emerged as one of the most significant technological innovations, driving fundamental transformations across various domains of life. Today, AI is integrated into a wide range of applications—from smartphones and digital assistants to self-driving cars, medical diagnostics, and data analysis in organizations and businesses. It has evolved from being merely a supportive tool to becoming an active partner in decision-making and the development of innovative solutions.

1.1.1 The origins of Artificial intelligence

The origins of artificial intelligence date back more than eight decades, rooted in the pioneering contributions of Alan Turing as well as McCulloch and Pitts, whose work centered on mathematical logic and computational theories (Hernández, 2020). A major milestone in this intellectual trajectory was Alan Turing's seminal paper *Computing Machinery and Intelligence*, in which he posed the influential question, "Can machines think?"—a question that laid the conceptual and theoretical foundations of artificial intelligence (Fields et al., 2024). Subsequently, in 1956, John McCarthy introduced the term "Artificial Intelligence" during the Dartmouth Conference, an event widely regarded as the formal inception of artificial intelligence as an independent field of scientific inquiry (Ma et al., 2023).

Among the most notable early artificial intelligence projects was the Logic Theorist program, developed by Allen Newell and Herbert A. Simon, which demonstrated the ability to prove mathematical theorems through symbolic logic. Another significant milestone was the construction of the first neural network machine in 1951, reflecting early efforts to model human cognitive processes computationally. Despite these promising advances, initial AI research encountered substantial technical and practical limitations. These challenges contributed to recurring periods of diminished funding and scholarly interest, commonly referred to as "AI winters," which temporarily slowed progress in the field. (Gursoy & Kakadiaris, 2023).

1.1.2 Artificial Intelligence Definition

Artificial intelligence (AI) refers to the behaviors and distinctive features of computer programs that allow them to replicate human cognitive capabilities and work patterns. One of the key characteristics of AI is its capacity to learn, reason, and react to situations that have not been explicitly programmed into the system (Lachache, 2024). Therefore, AI includes software or computer programs developed to carry out tasks that normally depend on human intelligence, such as visual perception, speech recognition, decision-making, and language translation. (Patil et al., 2023).

Moreover, AI represents the capability of digital computers to carry out tasks commonly associated with intelligent beings. This term is often used to describe efforts to develop systems endowed with intellectual processes characteristic of humans, including reasoning, discovering meaning, generalizing, and learning from experience (Corvello et al., 2023). In addition, AI is recognized as a branch of computer science focused on simulating intelligent behaviors such as cognitive thinking, learning, and problem-solving, which are typically human traits. For instance, in the field of assisted reproduction, AI has been introduced to enhance non-invasive embryo classification and selection (Nuñez-Calonge et al., 2024).

Furthermore, AI is regarded as a scientific discipline aimed at defining and developing programs or machines—whether in software or hardware form—that exhibit behavior considered intelligent if demonstrated by humans (Collecchia & De Gobbi, 2024).

Taking these definitions into account, AI can be comprehensively described as a branch of computer science concerned with designing and developing systems and software capable of simulating intelligent human behavior. This intelligence involves the ability to learn from experience, think logically, make decisions, understand language, and handle situations beyond pre-programmed instructions. Consequently, AI seeks to enable machines to perform complex tasks that ordinarily require human cognition, including visual perception, language translation, data analysis, and problem-solving. Thus, AI serves as a pivotal tool across diverse scientific, medical, and administrative fields.

1.1.3 Competent Of Artificial Intelligence

AI comprises several key components that work together to enable intelligent systems to perform tasks efficiently. These components include:

- **Machine learning:** is an arena of study inside AI that emphasizes on teaching machines to learn from past experiences and improve their performance without explicit programming. It involves developing computer algorithms that learn from rather than being explicitly programmed to perform a task (Kumar et al., 2024).
- **Artificial Neural Networks (ANNs):** An artificial neural network (ANN) is a computational model inspired by the biological neural networks of the human brain. ANNs are designed to recognize patterns, learn from data, and generate decisions or predictions. They are widely applied across a range of domains, including image and speech recognition, medical diagnosis, financial forecasting, and, more recently, the optimization of industrial processes such as desalination. (Mahadeva et al., 2024).
- **Natural Language Processing (NLP):** is the study of computer programs that process natural, or human, language as input. Natural language processing applications address tasks ranging from low-level analysis, such as assigning parts of speech to words, to higher-level functions, including answering questions. (Cohen, 2014).
- **Computer Vision:** is a field of study concerned with enabling computers to interpret, analyze, and understand visual information from the surrounding environment, such as images and videos. It focuses on the development of algorithms and techniques that allow machines to extract meaningful information from visual data, including the identification of objects, people, and activities. The primary objective of computer vision is to allow machines to perceive and comprehend the visual world in a manner comparable to human vision, supporting applications that range from autonomous vehicles to medical imaging and facial recognition (Bimpas et al., 2024).
- **Robotics:** It is an interdisciplinary field that integrates science, engineering, and technology, concentrating on the design, construction, and application of machines known as robots to imitate or replicate the actions and activities of intelligent beings, particularly humans. Robots are programmable machines or devices capable of autonomously performing specific tasks or operating under the control of a guiding system. (Naeem et al., 2024).
- **Knowledge representation:** refers to the process of encoding information and knowledge in a form that can be utilized by an AI system. It is a fundamental component of many AI applications, as it allows machines to reason about the world, make informed decisions, and solve problems effectively (Khare et. al, 2024)

1.1.4 Classifications of Artificial Intelligence

AI can be categorized into several types based on different criteria. The most notable classifications include:

1.1.4.1 Based on Functionality and Capability: This category includes the following types:

- **Artificial Narrow Intelligence (ANI):** It refers to AI systems that are developed to carry out a specific task or address a particular problem at a level comparable to human intelligence. Narrow AI can equal or even surpass human performance in certain contexts characterized by defined conditions, constraints, and limitations, and it is often described as weak AI. (Guerrero, 2023).

- **Artificial General Intelligence (AGI):** It is the hypothetical concept of a machine possessing general intelligence that mirrors human intelligence and/or behavior, with the capacity to learn and apply this intelligence to solve a wide range of problems. (Mitek, 2022).

- **Artificial Super Intelligence (ASI):** refers to highly advanced AI systems that easily outperform human intelligence in every way, including problem-solving, gaining new knowledge, and making critical decisions (Sufyan et al., 2023).

1.1.4.2 Based on Application: This category includes the following types:

- **Mechanical AI:** refers to the ability of AI systems to perform routine, repetitive tasks automatically. This type of intelligence is considered the easiest for AI to master and is ideal for tasks that require consistency and are free from human fatigue (Chang, 2022).

- **Analytical AI:** is a subset of AI focused on incorporating cognitive intelligence into machines. This involves understanding previous experiences and applying that knowledge to future decisions (Kaplan, 2022).

- **Intuitive AI:** Refers to AI systems that have the ability to act intuitively, mimicking human intuition to enhance efficiency, autonomy, and decision-making in a human-like manner. It is suggested that intuitive AI could surpass human intuition in certain tasks, such as digital games (Johanssen & Wang, 2021).

- **Empathetic AI:** refers to the ability of intelligent systems to perceive, understand, and respond to human emotions in a way that simulates human empathy. This includes the AI's capacity to recognize users' emotional states, understand their needs and feelings, and respond appropriately. This concept is important in fields like healthcare, human-computer interaction, and AI-based services, as it helps improve interaction and enhances the effectiveness of the services provided (Lv et al., 2022).

2.2 Human Resource Management (HRM)

HRM has evolved into a strategic function that plays a crucial role in achieving organizational goals and fostering sustainable growth. Beyond its traditional administrative duties, HRM now encompasses a wide range of practices aimed at attracting, developing, motivating, and retaining talent. By aligning human capital with organizational strategies, HRM contributes significantly to building a competitive workforce and enhancing overall performance. This section explores the concept of HRM and its key practices, which collectively shape the success and resilience of modern organizations.

2.2.1 Human Resource Management Definition

HRM refers to a comprehensive and coordinated system of organizational policies, programs, and practices aimed at effectively deploying and developing employees. It plays a vital role in helping organizations achieve their strategic objectives and maintain a competitive edge. While some scholars have approached HRM as a collection of discrete activities, others emphasize its function as a strategic process that integrates decisions related to employee behavior, attitudes, and performance. Despite ongoing debate, there is

broad agreement that HRM is central to shaping workforce capabilities and enhancing organizational success (Lathabhavan, 2024).

In addition, human resource management (HRM) is defined as a set of practices, approaches, and strategies aimed at selecting and developing employees' skills. Furthermore, recent research has emphasized examining HR practices from the employees' perspective as a means of evaluating organizational performance (Al Daboub et al., 2024a).

Furthermore, human resource management (HRM) refers to a set of rules and practices used to organize jobs within the workplace. It emphasizes job administration and the management of individuals responsible for performing work. The core components of HRM include recruitment and placement, learning and development, rewards, collaboration and employee engagement, coordination, and performance improvement (Wani, 2025).

In general, HRM can be described as the process of planning, coordinating, and managing all tasks related to handling people within an organization. It covers a wide range of functions, including hiring, training, evaluating employee performance, managing compensation, and maintaining healthy workplace relationships. The overall aim is to ensure that human potential is used effectively and developed in alignment with the organization's objectives.

2.2.2 Human Resource Management Practices

Organizations rely on a set of HRM practices to attract, develop, and retain talent, aiming to foster organizational effectiveness and long-term growth. These practices typically include the following (Al Daboub et al., 2024):

- **Workforce Planning and Staffing:** The systematic process of attracting, selecting, and assigning human capital to roles that align individual competencies with organizational needs. Well-structured staffing strategies contribute to enhanced employee proficiency.
- **Learning and Development (L&D):** Structured interventions aimed at augmenting employees' technical competencies, knowledge base, and behavioral capabilities to ensure optimal job performance. Development programs strengthen employees' functional expertise.
- **Total Rewards and Compensation Management:** The comprehensive system of financial and non-financial incentives designed to recognize and reinforce employee contributions. Equitable and strategically aligned compensation frameworks enhance motivation and retention.
- **Job and Work Design:** The deliberate structuring of tasks, responsibilities, and workflows to maximize operational efficiency and employee autonomy. Adaptive job design fosters greater accountability and role ownership.
- **Employee Involvement and Participative Decision-Making:** Mechanisms that empower employees to engage in organizational governance and contribute to strategic and operational decisions. Such participatory frameworks bolster employee commitment and perceived influence.
- **Performance Appraisal and Management Systems:** Performance evaluation is a periodic assessment that measures an individual's performance and behavior in relation to the skills and responsibilities required for their assigned role. It enables supervisors to identify areas of weakness, if present, and to reinforce areas of strength (Hasbaia, 2023).

1.3 Role of Artificial Intelligence in Human Resources Management

Artificial intelligence in human resource management (HRM) involves the integration of technological systems into the management of employees within the workplace. By using algorithms to analyze data and generate predictions, AI supports a variety of HR functions, including recruitment, training, and performance evaluation. (Raju G et al., 2024).

1.3.1 Benefits of Artificial Intelligence in Human Resources Management

- **Improved Recruitment Processes:** Faster and more effective hiring by automating initial candidate screening and selection (Rožman et al., 2022)
- **Enhanced Employee Engagement:** AI tools help in understanding employee needs and improving engagement through personalized experiences (Grynciewicz et al., 2023)
- **Better Learning and Development:** AI identifies skill gaps and recommends training programs, facilitating continuous learning and development (Pereira et al., 2023)
- **Employee Retention:** Predictive analytics help in identifying employees at risk of leaving and implementing retention strategies (Grynciewicz et al., 2023).
- **Communication:** AI improves communication channels between employees and the HR department, ensuring timely and effective information exchange (De Obesso Arias et al., 2023).

1.3.2 Artificial Intelligence and HRM Practices

AI is playing a transformative role in modern HRM by enhancing efficiency, personalization, and objectivity across core HR functions. Its integration is evident in several key domains:

1.3.2.1 AI-enabled Recruitment

Recruitment is one of the most prominent areas of Human Resource Management that has benefited from Artificial Intelligence applications, as AI has enabled advanced capabilities in various tasks, most notably:

- **Efficiency and Automation:** Many organizations employ artificial intelligence in their recruitment processes, including candidate selection, assessment, and hiring, thereby enhancing efficiency in identifying talent with the required skills rather than relying solely on formal qualifications. This technology also helps eliminate inaccurate data and automate résumé screening and other manual tasks, resulting in significant time and effort savings during the recruitment process. (da Silva et al., 2022). AI supports recruiters by managing time-consuming tasks, thereby enabling them to focus on conducting direct interviews with applicants. Automated application screening reduces the overall time required in the recruitment process and assists in identifying top candidates through the generation of shortlists. When AI is applied in hiring, recruiters gain access to a broader pool of potential candidates while performing fewer administrative duties. One of the most significant advantages of AI-based recruitment is that it allows recruiters to devote more time to engaging with high-quality talent management candidates. (Goswami et al., 2023).
- **Improved Candidate Matching:** AI can enhance the process of matching candidates to jobs by analyzing data such as resumes, job applications, and online profiles to identify the best candidates for a given role. Using machine learning techniques, AI can detect patterns and connections within the data that recruiters may not recognize easily, thereby improving the accuracy of candidate-job matching and reducing the time and effort required for manual screening. Additionally, AI can personalize the job search experience for candidates by suggesting relevant job openings and providing guidance on how to improve their applications, helping attract top talent and retain them through a more interactive and tailored recruitment process (Murugesan et al., 2023).
- **Bias Reduction:** AI is crucial in enhancing transparency and fairness in recruitment processes by leveraging big data analytics and intelligent algorithms to provide objective candidate assessments, helping eliminate unconscious biases. Additionally, AI-powered evaluation tools, such as serious games, analyze candidates' skills without revealing their identities or personal characteristics, ensuring impartial selection (Murugesan et al., 2023). Moreover, AI-driven social networks and smart chatbots expand access to a broader and more diverse talent pool, reaching candidates beyond traditional applicants. At the same time, digital platforms enhance recruitment transparency and minimize discrimination. Furthermore, AI can assess a wide range of relevant criteria beyond superficial

qualifications, ensure a more accurate and comprehensive evaluation of candidates and ultimately help organizations attract and retain top talent (Nethi & Moturu, 2024).

- **Cost and Time Efficiency:** AI enhances the efficiency of numerous tasks and processes within the human resources function. For example, recruitment has become more effective through the use of AI-powered automated résumé screening. In addition, AI can assess applicants' cognitive skills to ensure alignment between the organization, the individual, and the job role. The use of AI in supporting talent acquisition is both cost-effective and time-efficient. This algorithm-driven approach relies on predictive analytics and data analysis to help organizations develop effective talent engagement strategies and reduce employee turnover (Nethi & Moturu, 2024).

1.3.2.2 AI-enabled Training and Development

AI plays an increasingly important role in training and development within organizations, serving as an effective tool to enhance the quality of learning and customize it to meet the needs of each employee. By analyzing data and adapting training content, AI helps bridge skill gaps, accelerate onboarding processes, and improve both individual and organizational efficiency. The following points illustrate this role :

- **Customized Onboarding and Training:** AI plays a crucial role in enhancing employee onboarding and skill development by personalizing training experiences and improving learning efficiency. It analyzes new employees' backgrounds and roles to offer tailored onboarding experiences, providing relevant information, training schedules, and customized resources that ensure a smooth and engaging integration into the organization. Additionally, AI-powered training programs adapt content and delivery methods based on individual learning styles and progress. By leveraging data analytics, these programs identify skill gaps and provide personalized learning modules, ultimately boosting employee competencies and overall organizational performance (Raju G et al., 2024).

- **Skill Development and Upskilling:** AI plays a pivotal role in enhancing skill development within organizations by analyzing employee performance data, skills, and competencies to accurately identify skill gaps and training needs. AI-powered learning platforms offer personalized training programs that help employees develop specific skills tailored to their individual needs, ultimately improving their professional capabilities. Additionally, AI supports continuous upskilling by monitoring employee progress and adjusting training content and pacing to ensure effective learning and skill acquisition, contributing to overall performance improvement and sustainable career growth (Shahzad et al., 2023).

1.3.2.3 AI-enabled Optimization of Total Rewards Programs

AI is increasingly contributing to the development of human resource management practices by improving the accuracy and fairness of decisions related to compensation and benefits, through several key areas, including (Stone et al., 2024):

- **Establishing Pay Rates and Pay Plans:** AI helps organizations conduct thorough job evaluations by identifying key duties, required skills, and qualifications. AI collects data from internal and external databases and interviews with employees and supervisors. This information is analyzed to determine the market value of each job using salary comparisons. As a result, organisations can set accurate and fair pay rates that reflect the job's real worth. This reduces inconsistencies and promotes internal pay equity.

- **Developing Fair Pay Raises and Bonuses:** AI enables organisations to base raises and bonuses on actual performance and measurable achievements. Firms like KPMG and IBM use AI to track employee performance continuously and calculate appropriate rewards. The system reduces bias by using objective data and aligning rewards with skills, output, and value. This approach increases employee satisfaction and lowers turnover rates

significantly. Machine learning tools support decisions, while managers retain final approval overpay adjustments.

- **Assisting Employees with Benefits Selection:** AI simplifies the process of choosing benefits like health insurance and retirement plans, which are often complex. Intelligent tools offer personalized suggestions by analyzing past claims and employee preferences. Chatbots guide employees through options, helping them select the most cost-effective plans. AI also assists in managing retirement investments based on risk tolerance and financial goals. However, more research is still needed to fully assess the effectiveness of AI-powered benefit systems.

- **Tailoring Benefits:** AI aids benefits administration by evaluating employee data to suggest appropriate benefit packages or optimize benefits offers according to employee preferences. AI systems do compliance monitoring and risk management by tracking regulatory updates and analyzing extensive data to guarantee that HR activities adhere to legal obligations (Raju G et al., 2024).

1.3.2.4 AI-enabled Performance Appraisal and Management Systems

The integration of AI and Machine Learning (ML) technologies into performance evaluation methodologies has led to a fundamental shift in how organizations assess, manage, and develop their employees. Below is a comprehensive overview of the key impacts (Madanchian et al., 2023):

- **Enhanced Decision-Making:** AI tools improve HR decision-making efficiency and accuracy, optimizing recruitment, performance management, and employee engagement. AI enables real-time performance assessments and personalized training, strengthening feedback mechanisms.

- **Data-Driven Insights:** AI analyzes and forecasts employee performance, providing valuable insights for tailored feedback and development plans, ensuring feedback is precise and relevant to individual employees.

- **Enhanced Objectivity and Consistency:** AI tools promise enhanced objectivity and consistency in performance appraisals. However, the lack of transparency in how these tools make decisions can be problematic for employees who wish to understand or challenge their assessments (Gandía et al., 2025)

- **Real-Time Feedback and Continuous Monitoring:** Providing employees with feedback that aligns with their unique needs and ways of learning has proven to be particularly effective in enhancing performance. Through analyzing work patterns and individual profiles, intelligent systems can deliver precise and relevant guidance that supports both professional growth and job satisfaction. Furthermore, the ability to offer immediate input—made possible through advanced technologies—has shown to positively influence engagement and productivity. When performance is tracked consistently, individuals tend to stay more motivated and focused. This evolving approach promotes a flexible, target-driven workplace where people can respond quickly to challenges and continuously improve their skills in a supportive environment (Subhadarshini et al., 2024).

1.3.2.5 Job and Work Design: AI is reshaping work design and job roles across various sectors, influencing not only the nature of tasks but also the distribution of roles, employee experiences, and the ways in which value is created within organizations. These impacts can be summarized as follows: (Dou et al., 2025):

- **Job Creation:** AI can generate new job roles, particularly in technical domains such as data science and machine learning. It also has the potential to enhance employee productivity by automating routine tasks, thereby enabling workers to concentrate on more creative and strategic activities.

- **Productivity Gains:** AI is reshaping the job market by introducing new positions, especially in fields like data science and machine learning. In addition to generating these

new roles, AI boosts employee productivity by handling repetitive and routine work. This allows workers to focus more on creative thinking and strategic planning. Such advancements in productivity can contribute to economic expansion and help achieve sustainable development goals.

1.3.2.6 Redesigning Workflows: When organizations scale up their use of AI, it transforms the workplace especially the way humans and machines collaborate and divide tasks. The adoption of AI systems makes it possible to automate activities that are cognitively intensive. For example, AI can support executives in fulfilling leadership functions and assume certain aspects of administrative coordination and oversight. Consequently, organizational workflows and processes need to be redesigned or, at a minimum, adjusted to align with these changes (Peifer & Terstegen, 2024).

2. The Analytical Framework of the Study

The integration of AI into human resource management has led to fundamental changes in organizational practices aimed at enhancing efficiency, accuracy, and strategic decision-making. Empirical studies and global surveys reveal that AI technologies are increasingly utilized to improve recruitment processes, learning and development, and performance management. By automating routine tasks and providing data-driven insights, AI enables HR professionals to better align workforce capabilities with organizational goals. This section reviews the key objectives of AI deployment in human resources, emphasizing its global impact and the adoption of AI by organizations across various HR functions.

2.1 Top Human Resources (HR) objectives for artificial intelligence (AI) deployment in the workplace

In a global survey conducted by the HR Policy Association in 2024, 102 senior HR executives from major corporations worldwide were targeted. The survey was conducted between February 6 and March 5, 2024, aiming to assess corporate trends in adopting artificial intelligence in human resource management and to identify the key objectives of this technology in improving the work environment and enhancing operational efficiency. The results were as follows:

Table (1): Top HR Objectives for AI Deployment in 2024

Objective	Share of respondents
Enhancing productivity and efficiency and reducing manual workload	87%
Personalizing employee experiences	49%
Improving accuracy and objectivity in HR processes	39%
Making better talent management decisions	31%
Broadening and increasing the pool of talent sources	24%
Fostering learning and development	22%
Redefining jobs and roles	20%
Supporting employee well-being and engagement	13%
Strengthening diversity and inclusion efforts	5%

Source: (HR Policy Association, 2025)

Table (1) outlines the key objectives of Human Resources (HR) departments when deploying AI in workplaces in 2024. Each objective is ranked by the percentage of HR professionals who consider it a priority.

- **Enhancing productivity and efficiency and reducing manual workload (87%):** The top priority for AI in HR is automating repetitive tasks, improving efficiency, and reducing the burden of manual work. This allows HR teams to focus on strategic decision-making.
- **Personalizing employee experiences (49%):** AI is used to create personalized work experiences, such as customized training programs, career development plans, and employee support systems that cater to individual needs.
- **Improving accuracy and objectivity in HR processes (39%):** AI helps eliminate human bias in hiring, performance evaluations, and decision-making, leading to fairer and data-driven HR practices.
- **Making better talent management decisions (31%):** AI-powered analytics assist in identifying high-potential employees, predicting turnover risks, and making smarter workforce planning decisions.
- **Broadening and increasing the pool of talent sources (24%):** AI expands recruitment efforts by scanning job platforms, social media, and databases to identify the best candidates globally, increasing hiring efficiency.
- **Fostering learning and development (22%):** AI is used to analyze employees' skills and suggest personalized training programs, enhancing continuous learning and career growth.
- **Redefining jobs and roles (20%):** As automation and AI reshape industries, HR is focusing on redefining job roles, ensuring employees adapt to evolving responsibilities.
- **Supporting employee well-being and engagement (13%):** AI helps monitor employee satisfaction through surveys and sentiment analysis, providing insights to improve workplace culture and mental well-being.
- **Strengthening diversity and inclusion efforts (5%):** Although AI can support diversity initiatives, its implementation in this area remains limited, likely due to concerns about bias in AI-driven decision-making.

The data suggests that AI in HR is primarily focused on boosting efficiency, automating processes, and improving decision-making. However, areas like employee well-being and diversity efforts receive less attention, indicating potential areas for future growth and development. As AI technology evolves, HR strategies will likely become more balanced, integrating automation with a stronger emphasis on employee-centric initiatives.

2.2 Impact of generative artificial intelligence (GenAI) in Human Resources (HR) departments worldwide

According to a study by Boston Consulting Group (BCG) in 2024, the most significant impacts of generative artificial intelligence (GenAI) in HR departments were observed in recruiting and administrative tasks. In recruitment, GenAI was primarily used for content creation, while in administrative functions, it was utilized as an HR chatbot. A notable 70% of respondents stated that their HR departments had already implemented GenAI for these purposes. The following table illustrates the details of this study:

Table (2): GenAI impact in HR departments worldwide 2024

Characteristic	Not considering	Considering	Implementing, piloting, or scaling
Recruiting (content creation)	12%	18%	70%
Admin (HR chatbot)	5%	25%	70%
Talent/L&D (interactive workforce planning)	28%	44%	28%
Engagement (employee listening)	40%	36%	24%

Source :(BCG, 2024)

Table (2) reflects the adoption levels of Generative AI (GenAI) in HR departments worldwide in 2024. It highlights that some areas, such as recruiting and administration, have high adoption rates, while others, like interactive workforce planning and employee listening, are still under evaluation or facing resistance.

- **Areas with the Highest AI Adoption**

- Recruiting (70%):** AI is widely used to generate job descriptions and screen resumes, accelerating hiring processes and reducing human bias.

- HR Chatbots (70%):** These are enhancing employee interactions with HR by providing instant and accurate responses to common inquiries, improving administrative efficiency.

- **Areas Still Under Consideration**

- Interactive Workforce Planning (44% under consideration, 28% implemented):** Companies are hesitant to fully adopt AI in this area due to the need for significant investments, but as AI-driven data analysis improves, adoption is expected to grow.

- **Areas Facing Resistance**

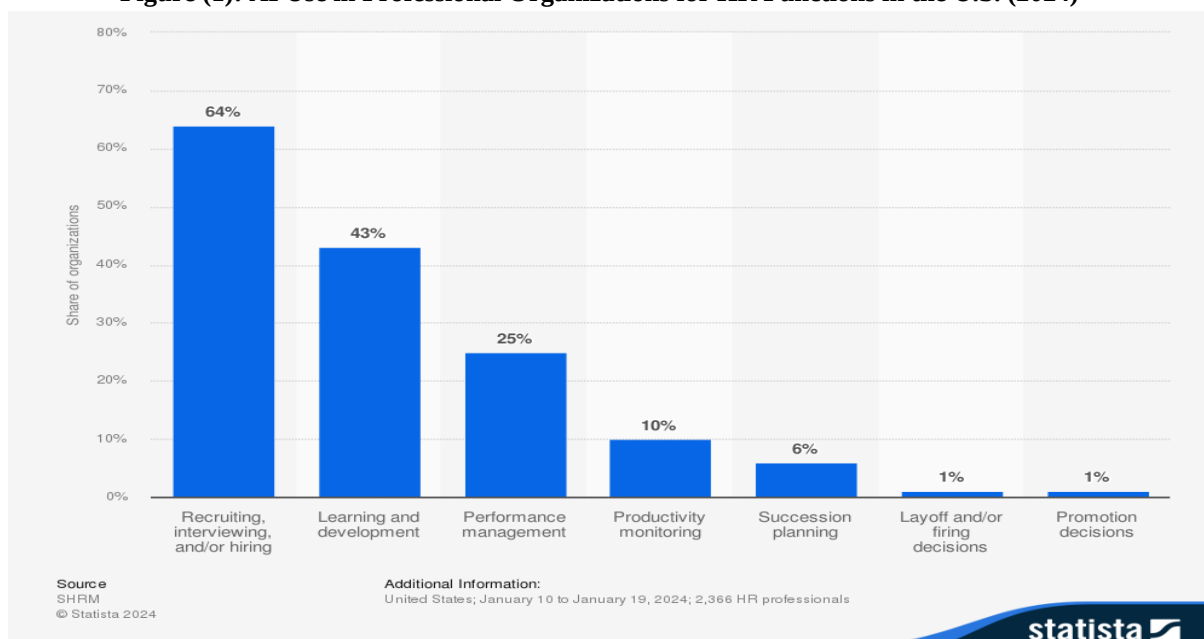
- Employee Listening (40% not considering, only 24% implemented):** Companies show reluctance to use AI for employee sentiment analysis due to concerns over privacy, trust, and the potential misinterpretation of emotions.

AI is a key tool in HR, especially in recruitment and administration. While concerns about accuracy and privacy slow adoption in sentiment analysis and workforce planning, advancements may drive wider use. The main challenge is balancing automation with human interaction for a sustainable work environment.

2.3 Uses of artificial intelligence (AI) in HR departments

According to a 2024 study by the Society for Human Resource Management (SHRM), the most common use of artificial intelligence (AI) in professional organizations across the United States was for recruiting, interviewing, and hiring, with 64% of HR professionals reporting that AI was utilized for these purposes in their workplace. On the other hand, only 1% of respondents acknowledged that AI was used for laying off employees. The following figure illustrates the details of this study:

Figure (1): AI Use in Professional Organizations for HR Functions in the U.S. (2024)



Source: (SHRM, 2025d)

The data in Figure (1) shows that AI has become a key tool in the field of human resources, being widely used for recruitment and training, while its use remains limited in critical decision-making such as layoffs and promotions. This reflects a trend toward automating operational processes while keeping strategic decisions under human supervision.

- **Recruitment as a Top Priority:** Recruitment, interviewing, and hiring rank first at 64%, highlighting companies' efforts to leverage AI in enhancing the speed and quality of hiring processes. Smart systems assist in candidate screening, interview scheduling, and skill assessments, reducing human bias and saving time and effort.

- **Learning and Development to Enhance Performance:** Learning and development rank second at 43%, indicating that organizations use AI to improve employees' skills through adaptive learning and personalized training. AI can help provide individualized training paths based on employees' needs and performance, ultimately boosting workforce efficiency.

- **Limited Use in Critical Decision-Making:** Despite AI's growing role in performance evaluation (25%) and productivity monitoring (10%), its application in strategic planning, such as succession planning (6%) and making promotion and layoff decisions (1%), remains minimal. This is due to:

- Ethical concerns regarding personal data analysis.
- The need to assess human factors, such as leadership skills, which AI struggles to measure accurately.
- Regulatory constraints that prevent full reliance on AI for high-stakes decisions.

2.4 HR use of AI in recruiting

According to a 2024 study by the Society for Human Resource Management (SHRM), the most common use of artificial intelligence by HR departments in the United States for recruitment, interviewing, and hiring was generating job descriptions, with 65% of HR professionals utilizing AI for this purpose. In contrast, the least common application

was analyzing applicants' interview performance, reported by only 3% of respondents. The following table provides further details on this study:

Table 3: HR Use of AI in Recruiting in the U.S. 2024

Characteristic	Share Of Organization
Generate job descriptions	65%
Customize or target job postings to specific groups	42%
Review or screen applicant resumes	34%
Communicate with applicants during the interview process	33%
Automate candidate searches	33%
Identify passive candidates	22%
Schedule or manage interview logistics	22%
Identify prospective sources of candidates	19%
Help identify potential discriminatory, biased, or non-inclusive language	18%
Conduct background checks or verify candidate information	15%
Administer and score applicant skills assessments	14%
Engage applicants through chatbots designed to answer questions	13%
Pre-select applicants for interviews	10%
Conduct pre-screening interviews (e.g., AI-powered video interview)	7%
Analyze applicants' interview performance	3%

Source: (SHRM, 2025c)

Table (4) highlights key trends in the integration of AI technology within U.S. recruiting practices for 2024, revealing significant developments in HR processes:

- **Job Description Generation:** Leading the list of uses, job description generation indicates that companies are focusing on improving the accuracy and customization of job content to attract suitable candidates.
- **Targeting Job Postings:** The 42% usage rate for customizing job postings shows a clear interest in targeting specific groups, reflecting companies' awareness of the importance of effective recruitment strategies.
- **Resume Review:** The use of AI for screening resumes (34%) suggests that companies rely on technology to streamline the initial vetting process, which helps accelerate hiring.
- **Communication with Applicants:** The significant percentage (33%) using AI for communication highlights the importance of smooth interaction throughout the hiring process for a positive candidate experience.
- **Automating Candidate Searches:** The 33% adoption rate for automating candidate searches demonstrates a desire to enhance the efficiency of search processes, saving time and resources.
- **Engagement via Chatbots:** The use of chatbots (13%) shows companies' interest in providing immediate support to candidates, enhancing the application experience.
- **Potential Challenges:** Despite the benefits, lower percentages in using AI for background checks or analyzing interview performance (15% and 3%, respectively) suggest that these areas may still require a reliance on human judgment, particularly in sensitive issues like information verification.

Overall, the results reflect a trend toward utilizing AI to improve efficiency and accuracy in recruitment processes while maintaining the importance of human interaction in critical areas.

2.5 HR use of AI in learning and development

According to a study conducted by the Society for Human Resource Management (SHRM) in 2024, the most prominent use of artificial intelligence (AI) in learning and development (L&D) within HR departments was recommending or creating personalized learning and development opportunities for employees. Nearly half of HR professionals stated that this was the case within their departments. At the bottom of the list was providing immersive learning experiences (such as virtual reality or augmented reality), with only 15% of respondents selecting this option.

Table 4: HR use of AI in learning and development in the U.S. 2024

Characteristic	Share Of Organization
Recommend or create personalized learning and development opportunities	49%
Track employees' learning and development progress	45%
Identify gaps in employee knowledge or skills	28%
Measure the effectiveness of L&D programs	21%
Implement game-based learning experiences (e.g., gamification)	18%
Provide immersive learning experiences (e.g., virtual reality or augmented reality)	15%

Sources: (SHRM, 2025a)

Table (4) provides a summary of key insights into how organizations in the U.S. are leveraging AI technology in learning and development (L&D) throughout 2024 to enhance employee training and growth:

- **Personalized Learning Opportunities:** With 49% of HR departments using AI to recommend or create personalized learning experiences, it's clear that companies are prioritizing tailored development paths. This approach helps ensure that employees receive training that aligns with their specific needs and career goals.
- **Tracking Progress:** The 45% utilization of AI for tracking employees' learning and development progress indicates a growing emphasis on monitoring and evaluating employee engagement with training programs. This capability allows organizations to make data-driven adjustments to improve outcomes.
- **Identifying Knowledge Gaps:** 28% of HR departments employing AI to identify gaps in employee knowledge or skills highlights a proactive approach to workforce development. By pinpointing these gaps, organizations can address skill deficiencies and prepare their employees for future challenges.
- **Measuring Effectiveness:** With only 21% measuring the effectiveness of L&D programs using AI, there is an opportunity for growth. Understanding which programs yield the best results can guide investment and improvement in training initiatives.
- **Game-Based Learning:** The implementation of game-based learning experiences (18%) reflects a trend towards engaging and interactive training methods. Gamification can enhance motivation and retention by making learning more enjoyable.
- **Immersive Learning Experiences:** The 15% use of immersive technologies, such as virtual reality (VR) and augmented reality (AR), signifies an innovative approach to training. These technologies can provide realistic simulations that enhance hands-on learning.

The findings suggest that while many organizations are adopting AI in L&D, there is still room for improvement, particularly in measuring program effectiveness and utilizing immersive technologies. As AI continues to evolve, its integration into training programs is likely to expand, offering new opportunities for enhancing employee development and

organizational performance. Companies that strategically leverage these tools will be better positioned to cultivate a skilled and adaptable workforce.

2.6 HR use of AI in performance management

According to a study conducted by the Society for Human Resource Management (SHRM) in 2024, the most prominent use of artificial intelligence (AI) in supporting performance management within HR departments was assisting managers in providing more comprehensive and actionable feedback to employees, with nearly 60% of HR professionals stating that their departments used AI for this purpose. At the bottom of the list, the least common use was identifying potential areas of bias within performance evaluations, with only 9% of respondents reporting the use of AI for this purpose. The details of the study are illustrated in Table (5) below:

Table 5: HR use of AI in performance management in the U.S. 2024

Characteristic	Share of Organization
Assist managers in providing more comprehensive or actionable feedback	57%
Facilitate employee goal setting around performance	46%
Summarize organization-wide performance review data	35%
Help employees prepare for their performance reviews	34%
Analyze organization-wide performance review data and identify trends	29%
Identify potential areas of bias within performance evaluations	9%

Source: (SHRM, 2025b)

Table (5) illustrates the extent to which HR departments have adopted AI in performance management. The most common use is assisting managers in providing more comprehensive performance evaluations, with a 57% adoption rate. This indicates that organizations are increasingly leveraging AI to enhance the quality of feedback employees receive, ultimately improving their professional development. The second most common application is using AI to facilitate employee goal setting based on performance, reported by 46% of organizations. This highlights AI’s role in strategic workforce planning and aligning individual employee objectives with broader company goals. Additionally, AI is being used to summarize and analyze organization-wide performance review data, with adoption rates ranging from 29% to 35%, reflecting companies' growing interest in utilizing AI to extract insights and refine HR policies.

Conversely, the least common use of AI in performance management is identifying potential areas of bias within performance evaluations, with only 9% of organizations implementing this feature. This low percentage may suggest challenges in detecting bias accurately or a lack of prioritization compared to other performance management functions. However, since bias in performance reviews can negatively affect workplace fairness, investing in more sophisticated AI tools to address this issue could become a higher priority for companies in the future.

Discussion

The results of this study indicate that the adoption of artificial intelligence in human resource management reflects a qualitative shift toward improving efficiency and enhancing decision accuracy across HR functions. The role of AI extends beyond the automation of routine tasks, contributing instead to the reshaping of HR practices by supporting data-driven decision-making and reducing administrative workload. This orientation is

consistent with the study's objective of analyzing the key areas and purposes of AI use within human resource departments at the global level.

The findings further reveal that AI adoption is most strongly concentrated in recruitment related activities, such as job description development and résumé screening. This concentration can be attributed to the structured and data-intensive nature of recruitment processes, which enables AI systems to operate more effectively while minimizing human bias. Similarly, the application of AI in learning and development through personalized training recommendations and progress monitoring supports the mitigation of skill gaps and enhances workforce adaptability, underscoring the strategic role of AI in long-term human capital development.

In the area of performance management, AI tools are employed to deliver more comprehensive and timely feedback, thereby assisting managers in monitoring performance with greater accuracy. Nevertheless, the findings highlight clear limitations in the application of AI to the assessment of human attributes such as motivation and leadership. This reinforces the continued importance of human judgment in sensitive managerial decisions and provides a critical perspective on the boundaries of AI implementation in HRM.

The analysis also indicates that ethical and regulatory considerations remain influential factors shaping AI adoption. Concerns related to data privacy and the use of employees' personal information contribute to cautious implementation in certain HR domains. In addition, the results reveal noticeable disparities in AI adoption across HR functions. While recruitment and training demonstrate high levels of implementation, applications such as sentiment analysis and advanced workforce planning remain limited or at experimental stages due to technical and regulatory constraints.

Overall, these findings reflect a selective pattern in the integration of artificial intelligence across HR functions, allowing organizations to enhance operational efficiency while maintaining human oversight in processes that require managerial judgment and contextual understanding. Within this framework, AI emerges as a decision-support tool rather than a complete substitute for human expertise in human resource management.

Conclusion

In conclusion, it is evident that artificial intelligence serves as a strategic tool capable of transforming human resource management by enhancing efficiency and reducing routine tasks, as it contributes to making decisions that are more objective and effective. However, maximizing the benefits of this technology requires effectively addressing ethical and regulatory challenges while ensuring the continued presence of human interaction in sensitive decision-making. In this context, and from a future perspective, it is essential to expand the use of AI tools to improve performance evaluation and detect biases with greater accuracy. In addition to adopting training and professional development programs that foster a continuous learning environment, helping employees enhance their skills and keep up with changes in the job market. Furthermore, there is a growing need to establish clear policies and regulatory guidelines to ensure the ethical and secure use of AI, while protecting personal data and promoting transparency in decision-making processes. This, in turn, enables organizations to build a balanced work environment that integrates technological advancements while preserving the human element.

References

1. Al Daboub, R. S., Al-Madadha, A., & Al-Adwan, A. S. (2024). Fostering firm innovativeness: Understanding the sequential relationships between human resource practices, psychological empowerment, innovative work behavior, and firm innovative capability. *International Journal of Innovation Studies*, 8(1), 76–91. <https://doi.org/10.1016/J.IJIS.2023.12.001>
2. Alvarez Hernández, J. (2020). Big data: Value creation in clinical nutrition. *Endocrinología, Diabetes y Nutrición (English Ed.)*, 67(4), 221–223. <https://doi.org/https://doi.org/10.1016/j.endien.2020.02.003>
3. HR Policy Association. (2025). Top Human Resources (HR) objectives for artificial intelligence (AI) deployment in the workplace in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1546277/hr-future-ai-objectives/>
4. BCG. (2024). Impact of generative artificial intelligence (GenAI) in Human Resources (HR) departments worldwide in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1546629/genai-impact-in-hr-departments/>
5. Bimpas, A., Violos, J., Leivadeas, A., & Varlamis, I. (2024). Leveraging pervasive computing for ambient intelligence: A survey on recent advancements, applications and open challenges. *Computer Networks*, 239, 110156. <https://doi.org/10.1016/J.COMNET.2023.110156>
6. Chang, W. (2022). The effectiveness of AI salesperson vs. human salesperson across the buyer-seller relationship stages. *Journal of Business Research*, 148, 241–251. <https://doi.org/10.1016/J.JBUSRES.2022.04.065>
7. Cohen, K. B. (2014). Biomedical Natural Language Processing and Text Mining. *Methods in Biomedical Informatics: A Pragmatic Approach*, 141–177. <https://doi.org/10.1016/B978-0-12-401678-1.00006-3>
8. Collecchia, G., & De Gobbi, R. (2024). What does artificial intelligence mean? *AI in Clinical Practice*, 3–5. <https://doi.org/10.1016/B978-0-443-14054-9.00019-3>
9. Corvello, V., Cimino, A., & Felicetti, A. M. (2023). Building start-up acceleration capability: A dynamic capability framework for collaboration with start-ups. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100104. <https://doi.org/10.1016/J.JOITMC.2023.100104>
10. da Silva, L. B. P., Soltovski, R., Pontes, J., Treinta, F. T., Leitão, P., Mosconi, E., de Resende, L. M. M., & Yoshino, R. T. (2022). Human resources management 4.0: Literature review and trends. *Computers & Industrial Engineering*, 168, 108111. <https://doi.org/10.1016/J.CIE.2022.108111>
11. De Obesso Arias, M. de las M., Pérez Rivero, C. A., & Carrero Márquez, O. (2023). Artificial intelligence to manage workplace bullying. *Journal of Business Research*, 160, 113813. <https://doi.org/10.1016/J.JBUSRES.2023.113813>
12. Dou, J., Chen, D., & Zhang, Y. (2025). Towards energy transition: Accessing the significance of artificial intelligence in ESG performance. *Energy Economics*, 146, 108515. <https://doi.org/10.1016/J.ENERCO.2025.108515>
13. Fields, M. W., Lee, N. J., & Lehman, R. A. (2024). Implications of artificial intelligence. *Seminars in Spine Surgery*, 36(3), 101122. <https://doi.org/10.1016/J.SEMSS.2024.101122>
14. Gandía, J. A. G., Ancillo, A. de L., & del Val Núñez, M. T. (2025). Knowledge and artificial intelligence on employee behaviour advancing safe and respectful workplace. *Journal of Innovation & Knowledge*, 10(4), 100750. <https://doi.org/10.1016/J.JIK.2025.100750>
15. Goswami, M., Jain, S., Alam, T., Deifalla, A. F., Ragab, A. E., & Khargotra, R. (2023). Exploring the antecedents of AI adoption for effective HRM practices in the Indian pharmaceutical sector. *Frontiers in Pharmacology, Volume 14*. <https://doi.org/10.3389/fphar.2023.1215706>
16. Gryncewicz, W., Zygala, R., & Pilch, A. (2023). AI in HRM: case study analysis. Preliminary research. *Procedia Computer Science*, 225, 2351–2360. <https://doi.org/10.1016/J.PROCS.2023.10.226>
17. Guerrero, J. M. (2023). Artificial narrow intelligence. *Mind Mapping and Artificial Intelligence*, 159–180. <https://doi.org/10.1016/B978-0-12-820119-0.00010-8>
18. Gursoy, F., & Kakadiaris, I. A. (2023). Artificial intelligence research strategy of the United States: critical assessment and policy recommendations. *Frontiers in Big Data*, 6. <https://doi.org/10.3389/fdata.2023.1206139>

19. Hasbaia, R. M. (2023). The Problem of Evaluating the Performance of Human Resources and Training in Algerian Institutions – A Field Study in the Forest Governorate of Djelfa Governorate. *Journal of Contemporary Business and Economic Studies*, 6(1), 262–275. <https://asjp.cerist.dz/en/article/213789>
20. Johanssen, J., & Wang, X. (2021). Artificial intuition in tech journalism on AI: Imagining the human subject. *Human-Machine Communication*, 2, 173–190. <https://doi.org/10.30658/hmc.2.9>
21. Kaplan, A. (2022). Social Media Powered by Artificial Intelligence, Violence and Nonviolence. *Encyclopedia of Violence, Peace, & Conflict: Volume 1-4, Third Edition*, 4, 253–258. <https://doi.org/10.1016/B978-0-12-820195-4.00033-9>
22. Khare, V., Dwivedi, S. K., & Bhatia, M. (2024). *Artificial intelligence and machine learning application in data analysis*. In V. Khare, S. K. Dwivedi, & M. Bhatia (Eds.), *Cognitive science, computational intelligence, and data analytics* (pp. 221–272). Morgan Kaufmann. <https://doi.org/10.1016/B978-0-443-16078-3.00001-0>
- 23.
24. Kumar, R., Dubey, S., Sen, D., & Mandal, S. K. (2024). A machine learning based approach for predicting Pool boiling heat transfer coefficient of CNT + GO nanoparticle coated surfaces. *International Communications in Heat and Mass Transfer*, 154, 107455. <https://doi.org/10.1016/J.ICHEATMASSTRANSFER.2024.107455>
25. Lachache, A. (2024). The extent to which Algerian companies understand the practices of artificial intelligence in business. *Journal of Contemporary Business and Economic Studies*, 7(1), 163–179. <https://asjp.cerist.dz/en/article/238444>
26. Lathabhavan, R. (2024). COVID-19: Impact on HRM. *Reference Module in Social Sciences*. <https://doi.org/10.1016/B978-0-443-13701-3.00117-1>
27. Lv, X., Yang, Y., Qin, D., Cao, X., & Xu, H. (2022). Artificial intelligence service recovery: The role of empathic response in hospitality customers' continuous usage intention. *Computers in Human Behavior*, 126, 106993. <https://doi.org/10.1016/J.CHB.2021.106993>
28. Ma, L., Yu, S., Xu, X., Moses Amadi, S., Zhang, J., & Wang, Z. (2023). Application of artificial intelligence in 3D printing physical organ models. *Materials Today Bio*, 23, 100792. <https://doi.org/10.1016/J.MTBIO.2023.100792>
29. Madanchian, M., Taherdoost, H., & Mohamed, N. (2023). AI-Based Human Resource Management Tools and Techniques; A Systematic Literature Review. *Procedia Computer Science*, 229, 367–377. <https://doi.org/10.1016/J.PROCS.2023.12.039>
30. Mahadeva, R., Kumar, M., Diwan, A., Manik, G., Dixit, S., Das, G., Gupta, V., & Sharma, A. (2024). Improved grey wolf optimizer assisted artificial neural network (IGWO-ANN) predictive models to accurately predict the permeate flux of desalination plants. *Heliyon*, 10(13), e34132. <https://doi.org/10.1016/J.HELİYON.2024.E34132>
31. Mitek, A. (2022). Technology Basics for Telemedicine: What Practitioners Need to Know. *Veterinary Clinics of North America: Small Animal Practice*, 52(5), 1109–1122. <https://doi.org/10.1016/J.CVSM.2022.06.003>
32. Murugesan, U., Subramanian, P., Srivastava, S., & Dwivedi, A. (2023a). A study of Artificial Intelligence impacts on Human Resource Digitalization in Industry 4.0. *Decision Analytics Journal*, 7, 100249. <https://doi.org/10.1016/J.DAJOUR.2023.100249>
33. Naeem, G., Asif, M., & Khalid, M. (2024). Industry 4.0 digital technologies for the advancement of renewable energy: Functions, applications, potential and challenges. *Energy Conversion and Management: X*, 24, 100779. <https://doi.org/10.1016/J.ECMX.2024.100779>
34. Nethi, S. D., & Moturu, V. R. (2024). Artificial Intelligence and Human Resources Management. *Reference Module in Social Sciences*. <https://doi.org/10.1016/B978-0-443-13701-3.00452-7>
35. Nuñez-Calonge, R., Santamaria, N., Rubio, T., & Manuel Moreno, J. (2024). Making and Selecting the Best Embryo in In vitro Fertilization. *Archives of Medical Research*, 55(8), 103068. <https://doi.org/10.1016/J.ARCMED.2024.103068>
36. Patil, R. S., Kulkarni, S. B., & Gaikwad, V. L. (2023). Artificial intelligence in pharmaceutical regulatory affairs. *Drug Discovery Today*, 28(9), 103700. <https://doi.org/https://doi.org/10.1016/j.drudis.2023.103700>

37. Peifer, Y., & Terstegen, S. (2024). Artificial Intelligence – Qualification and Competence Development Requirements for Executives. *Procedia Computer Science*, 232, 736–744. <https://doi.org/10.1016/J.PROCS.2024.01.073>
38. Pereira, V., Hadjielias, E., Christofi, M., & Vrontis, D. (2023). A systematic literature review on the impact of artificial intelligence on workplace outcomes: A multi-process perspective. *Human Resource Management Review*, 33(1), 100857. <https://doi.org/10.1016/J.HRMR.2021.100857>
39. Raju G, S., Singh, S. P., & Ch, N. (2024). Artificial Intelligence in Human Resources Management. *Reference Module in Social Sciences*. <https://doi.org/10.1016/B978-0-443-13701-3.00413-8>
40. Rožman, M., Oreški, D., & Tominc, P. (2022). Integrating artificial intelligence into a talent management model to increase the work engagement and performance of enterprises. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1014434>
41. Shahzad, M. F., Xu, S., Naveed, W., Nusrat, S., & Zahid, I. (2023). Investigating the impact of artificial intelligence on human resource functions in the health sector of China: A mediated moderation model. *Heliyon*, 9(11). <https://doi.org/10.1016/j.heliyon.2023.e21818>
42. SHRM. (2025a). Use of artificial intelligence (AI) in learning and development (L&D) according to Human Resources (HR) professionals in the United States in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1535392/hr-use-of-ai-in-learning-and-development-usa/>
43. SHRM. (2025b). Use of artificial intelligence (AI) in performance management according to Human Resources (HR) professionals in the United States in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1535395/hr-use-of-ai-in-performance-management-us/>
44. SHRM. (2025c). Use of artificial intelligence (AI) in recruiting, interviewing, and hiring according to Human Resources (HR) professionals in the United States in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1535364/hr-use-of-ai-in-recruiting-us/>
45. SHRM. (2025d). Uses of artificial intelligence (AI) in HR departments in the United States in 2024 [Graph]. In *Statista*. <https://www.statista.com/statistics/1500122/uses-of-ai-in-hr-departments-us/>
46. Stone, D. L., Lukaszewski, K. M., & Johnson, R. D. (2024). Will artificial intelligence radically change human resource management processes? *Organizational Dynamics*, 53(1), 101034. <https://doi.org/10.1016/J.ORGDYN.2024.101034>
47. Subhadarshini, S., Nayak, A., & Sukanya Nisitgandha Biswal, D. S. C. (2024). The Future of performance management: Leveraging AI for better feedback and coaching. *Journal of Informatics Education and Research*, 4(2), 39–45. <https://doi.org/10.52783/jier.v4i2.649>
48. Sufyan, M., Shokat, Z., & Ashfaq, U. A. (2023). Artificial intelligence in cancer diagnosis and therapy: Current status and future perspective. *Computers in Biology and Medicine*, 165, 107356. <https://doi.org/10.1016/J.COMPBIOMED.2023.107356>
49. Wani, J. A. (2025). Human Resources Management. *Encyclopedia of Libraries, Librarianship, and Information Science*. <https://doi.org/10.1016/B978-0-323-95689-5.00051-1>