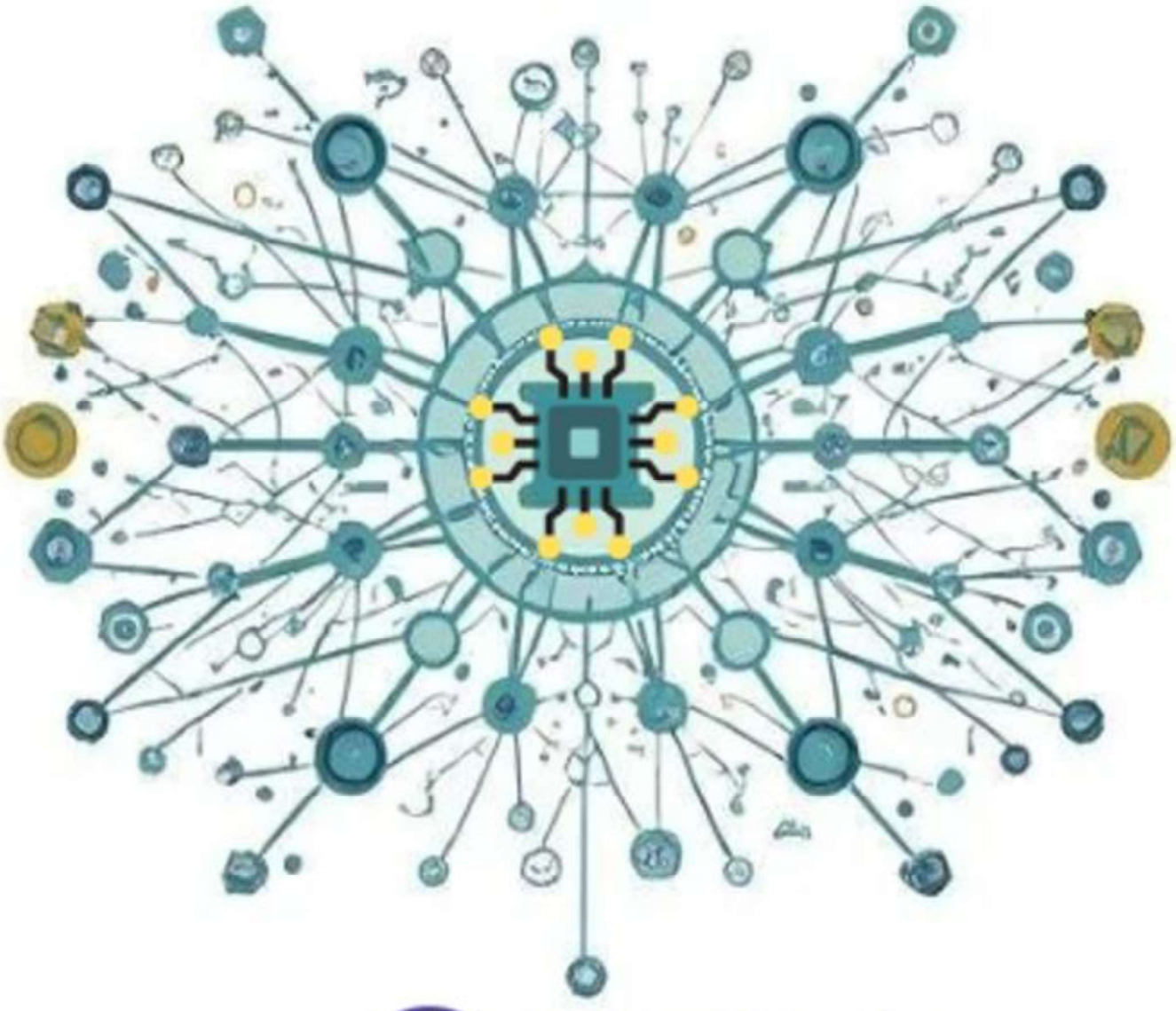
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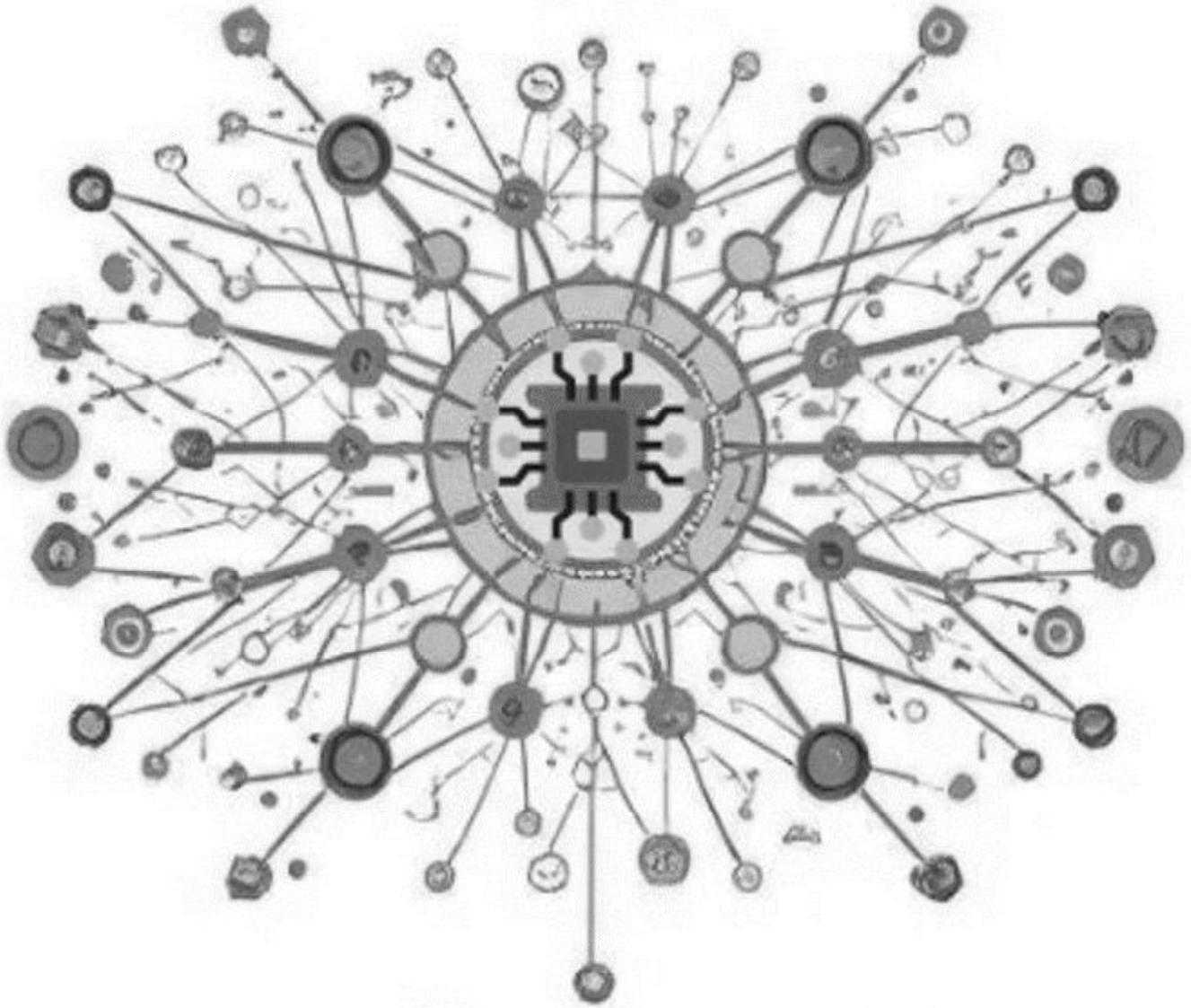
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PREFACE

Education, science, technology, and society are being reshaped by the rapid evolution of artificial intelligence. As AI systems become more capable, their effects extend far beyond technical domains, influencing how we work, learn, communicate, govern, and create value. The true benefit of artificial intelligence, however, emerges only when it is guided by responsible, interdisciplinary, and human-centered approaches.

Interdisciplinary Applications of Artificial Intelligence – 2 has been prepared with this vision in mind. Building on the foundations established in the first volume, this book explores how AI is transforming diverse fields—from robotics and healthcare to business, digital media, cybersecurity, and education-related practices. Our aim is not simply to present technological advancements but to examine how AI can meaningfully integrate with human expertise, ethics, creativity, and social responsibility.

This volume brings together contributions from scholars and practitioners who approach AI from different perspectives. Each chapter offers conceptual insights, real-world examples, and reflections on opportunities and risks. Readers will encounter discussions that span intelligent systems, organizational decision-making, creativity, innovation, and sustainability—all connected by the unifying theme of artificial intelligence.

The book opens with an exploration of AI-based robotic systems, examining architectures, learning methods, applications, and ethical considerations. Subsequent chapters delve into AI in healthcare, presenting diagnostic support, clinical decision systems, and patient-centered innovations; generative AI, gamification, and interactive learning, highlighting how intelligent tools reshape educational engagement; and AI-driven cybersecurity, addressing advanced threats, defense strategies, and resilience.

Further sections investigate AI in visual design, digital media content creation, and enterprise applications, revealing how creativity, communication, and business processes are being reimagined. The volume continues with chapters on human resources management, marketing and sustainability, and AI in finance and banking, offering perspectives on workforce transformation, strategic decision-making, risk management, and ethical responsibility in data-driven environments.

Across all chapters, recurring themes emerge: the need for transparency, accountability, sustainable development, data security, and respect for human dignity. Rather than viewing artificial intelligence as a replacement for human capability, this book treats it as a partner—a powerful instrument that can enhance human judgment, expand opportunities, and support more equitable and informed societies when thoughtfully designed.

This work is the result of dedicated collaboration among experts from multiple disciplines. We are grateful to all authors whose insights, research, and experiences shaped this volume. We also hope that this book will serve not only as a reference but also as an invitation—encouraging new research, responsible innovation, and critical dialogue about the future roles of artificial intelligence.

We believe that Interdisciplinary Applications of Artificial Intelligence – 2 will guide researchers, educators, professionals, and policymakers who seek to understand and apply AI thoughtfully. We wish you an inspiring and reflective reading journey as you explore the many ways artificial intelligence intersects with human life and societal progress.

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Chapter 8- Artificial Intelligence Applications in Human Resource Management

Abdullah Yiğit Güngör

Chapter Highlights

- The chapter explores the applications of artificial intelligence (AI) in human resource management (HRM).
- The evolution of AI in HRM is outlined.
- Key examples of AI applications in HRM are given.
- The potential benefits and risks of AI applications in HRM are discussed.
- Practical guidance for the application of AI in HRM is provided.

Introduction

The market of artificial intelligence (AI) has been increasing all over the world. According to Statista, the AI market is worth $244 billion in 2025, with generative AI accounting for $63 billion of that. With this rapid growth, the AI market value is projected to reach $800 billion by 2030 (Vailshery, 2025). According to a study conducted by the University of Melbourne and Klynveld Peat Marwick Goerdeler (KPMG), 66% of people regularly use AI, and 83% of them find it useful (Gillespie et al., 2025). In addition to the individuals, enterprises also benefit from AI to a considerable extent.

Eurostat, the official statistical office of the European Union (EU), states that around one in five enterprises used AI technologies in 2025. When it comes to large enterprises, the ratio rises from one in five to one in two enterprises in the EU. Scandinavian members (Denmark, Finland, and Sweden) are the leaders of AI use in enterprise, consecutively. In this context, the ratio is around 42% for Denmark, 38% for Finland, and 35% for Sweden. On the contrary, Romania (5%), Türkiye (7%), and Poland (8%) have the lowest ratio of AI use in 2025. The most commonly used AI types are text mining, generation of pictures/videos/audio, natural language generation and speech synthesis, speech recognition, automating various workflows, or assisting in decision making, respectively (Eurostat, 2025).

Types of AI show that the field of human resource management (HRM) can benefit significantly from AI. According to the report from McKinsey & Company (2025), around 50% of human resources (HR) employees indicated that the use of AI decreased the cost within the department. Similarly, the majority of participants revealed that the number of employees was cut down last year within the HR department, and this decline is expected to continue. Under these circumstances, both managers and employees working within the HR department should expand their knowledge regarding the use of AI in HRM. Hence, on one hand, decision makers will be able to enhance efficiency via AI; on the other hand, employees will update their knowledge, skills, and competencies to benefit from AI. Thus, it is crucial to comprehend the use of AI in the field of HRM.

Conceptual Framework

Artificial Intelligence

The concept of artificial intelligence (AI) dates back to the Dartmouth Conference held in 1956. Although a considerable amount of time has passed since the concept emerged, there are different perspectives on its definition. In this context, AI definitions have been classified under three headings. Accordingly, AI can be defined as a technology, a capability, or an intelligent action. As a technology, AI is a machine, technology, or software that enables computers to perform tasks requiring human intelligence. As an ability, AI is the ability of machines, computers, and systems to simulate, interpret, and learn human thought. As an intelligent action, AI refers to any kind of activity performed intelligently. Considering these definitions, AI as a capability can be seen as an extension of AI as a technology, while AI as an intelligent action can also be considered an extension of AI as a capability (Zhai et al., 2024).

In addition to academic definitions, the concept of AI has also been defined by leading dictionaries. In this context, AI is defined as computer technology that enables anything to be done in a manner similar to how it would be done by a human (Cambridge); the ability of computer systems or algorithms to mimic intelligent human behavior (Merriam-Webster); the capacity of computers or other machines to exhibit or simulate intelligent behavior (Oxford); the ability of a computer, computer-controlled robot, or programmable device to perform functions such as perception, learning, reasoning, decision-making, problem-solving, communication, etc., in a manner similar to humans (Turkish Language Association).

AI has significantly transformed the world from its early beginnings in the mid-20th century to the present day. This transformation has occurred through various technologies, purposes (e.g., face or image recognition), functions (e.g., language understanding or problem solving), and types of tools (e.g., robots, driverless cars). It also encompasses various methods and disciplines such as vision, speech recognition, and robotics. These developments show that AI supports the Sustainable Development Goals (SDGs) to a large extent (approximately 80%). For example, notable progress can be seen in areas such as diagnosis and predictive analysis in healthcare through AI (SDG 3); crop monitoring and climate resilience in agriculture (SDGs 2 and 15); personalized learning in education (SDG 4); and crisis mapping and aid distribution for humanitarian assistance (United Nations).

Human Resource Management

The concept of human resource management (HRM) emerged in the 1980s. However, it is known that some activities within the scope of HRM date back to ancient armies. This is because, even in those days, there was a need for activities such as the selection and training of army members. In this context, it can be seen that HRM activities date back to ancient times, but the conceptual emergence of the term took time (Dessler, 2016). However, throughout history, different expectations regarding HRM have emerged due to the impact of environmental changes. As a result of these expectations, various concepts have been used chronologically as follows: Manpower Management → Personnel Management → Human Resources Management → Intellectual Capital Management → Talent Management. At the beginning of this process, “people” were considered muscle power and seen as a significant cost factor, but today they are seen as a value that provides businesses with a competitive advantage through their innovative and creative characteristics. The elements that create this value can be expressed as the skills, talents, competencies, personality, and experience that people possess (Benligiray, 2016).

Various definitions of the HRM concept have been provided in different sources. In this context, HRM is defined as: the management of work and people to achieve desired results (Boxall et al., 2007); a strategic, integrated, and consistent approach to the employment, development, and well-being of people working in organizations (Armstrong, 2014); the process of addressing concerns related to employee recruitment, training, evaluation, and compensation, as well as working relationships, health, safety, and equality (Dessler, 2016); and designing formal systems within an organization to manage human talent in order to achieve organizational goals (Mathis et al., 2019).

Human resource management has various functions. These functions can be classified under four headings: acquisition, development, retention (of qualified personnel), and performance enhancement. The main areas of activity covered by these functions are as follows (Benligiray, 2016).

- **Acquisition of human resources:** planning human resources, analyzing and defining jobs, designing jobs, finding and selecting human resources, placing and training employees, promoting and transferring employees.
- **Development of human resources:** training, rewarding, career planning and development, and providing feedback.
- **Retention of qualified human resources:** compensation, increasing organizational commitment, protecting worker health and safety, maintaining industrial relations, and organizing cultural and social events.
- **Improvement of human resource performance:** performance appraisal, disciplining, and evaluating HRM results.

Application of AI in HRM

To examine the applications of AI in HRM, it is necessary to understand the historical development of this process. In this context, four milestones can be identified. These are the info renaissance period (1990-2009), the data revolution period (2010-2018), the tech fusion epoch period (2019-2023), and the intelligence era (2024-present). During these periods, the role of artificial intelligence has evolved into expert systems, data analytical tools, augmentation platforms, and competitive resources. In this context, artificial intelligence is still a critical competitive advantage factor for HRM today. The evolution of artificial intelligence applications in the field of HRM is shown in Table 1 (Gong et al., 2025).

Table 1. Evolution of AI applications in HRM

Period	Role of AI	HRM Applications
1990-2009: Info renaissance	Expert systems	Expert systems were used for the selection of candidates and arrangements of shifts.
2010-2018: Data revolution	Data analytical tools	Human resources information systems were developed for employee monitoring.
2019-2023: Tech fusion epoch	Augmentation platforms	AI and robotics reshaped the global HRM (such as remote work)
2024-present: Intelligence era	Competitive resources	AI can promote sustainable HRM (e.g., ethical risk detection).

Source: Adapted from Gong et al. (2025)

There are various studies on the application of AI within the scope of HRM (e.g., Aguinis et al., 2024; Chowdhury et al., 2023; Johnson et al., 2022). Zhai et al. (2024) can also be considered one of the significant studies in this field. According to the study, human resources planning, recruitment and disposition, training and development,

performance evaluation, composition, and labor relations are the areas of HRM where AI is applied. Table 2 lists these areas and the AI techniques and applications used.

Table 2. Application Fields of AI in HRM

AI Application Field	AI Techniques and Applications
Human resource planning	*Evaluation of alternatives:* Artificial neural networks, cognitive computing, fuzzy theory, genetic algorithms, multiagents, and probabilistic reasoning can be used (Phillips-Wren et al., 2009).
Recruitment and disposition	*Diversity recruitment:* Bayesian models of variable order can be implemented (Pessach et al., 2020).
Training and development	*Training:* E-learning, which is a web-based teaching method, can be used (Orvis et al., 2011).
Performance	*Performance feedback:* Computerized performance monitoring can be used (Earley, 1988).
Composition	*Salary:* Machine learning can be used to estimate the contract salary of the candidate (Lin et al., 2016) and develop compensation models (Zhou, 2016).
Labor relations	*Employee turnover rate:* Logistic regression can be used to calculate (Stoltzfus, 2011).

Source: Zhai et al. (2024)

Chowdhury et al. (2023) provided examples of applications for HRM functions in their study. The HRM functions covered in this context include job application, candidate recruitment, onboarding, employee engagement, career development, performance appraisal, compensation, employee development, employee attrition detection, workforce management analytics, HR budget, and resource allocation. In this vein, AI technologies such as digital virtual assistants (chatbots) supported by automation, big data analytics, or data mining, can be used in a particular HRM function.

- **Job application:** Inquiries of candidates are handled via digital virtual assistants (chatbots) simultaneously. Hence, the e-mail workload of HRM is mitigated; evaluation of the curriculum vitae of the candidates is carried out, and preselection is completed. Additionally, feedback is given to the eliminated candidates and remained. In this way, objectivity and transparency of the selection process are provided (van Esch et al., 2021; Upadhyay & Khandelwal, 2018).
- **Candidate recruitment:** During the job interview, question reccommendations and performance appraisal are obtained via AI, which is integrated with video scanning and machine learning assistance. The likelihood of a job offer being accepted can be estimated. Moreover, future performance and expected working period of the candidate can be foreseen (van Esch et al., 2019; Upadhyay & Khandelwal, 2018).
- **Onboarding:** The orientation process is supported through digital virtual assistants. For this purpose, digital virtual assistants answer the questions of newcomers, direct them regarding the tasks, remind the duties, helping them to learn adequately (Babic et al., 2021).

- **Employee engagement:** Shifts and meetings are automated and personalized. Timely suggestions or warnings are provided to support decision-making. Collaboration is promoted by gathering employees who have similar profiles. Suitable mentors are appointed to the particular employees (Wang et al., 2021).
- **Career development:** Career goals of employees are elicited. Accordingly, career pathways are constituted, which include personalized skill, training, and development requirements. Additionally, employees are motivated for performance enhancement through competence maps (Braganza et al., 2021).
- **Performance appraisal:** Employee performance is estimated before the evaluation stage. During the evaluation, current and expected performance are compared. Suggestions are made for both managers and subordinates according to this difference. Hereunder, employees might be awarded through bonuses or promotion (Krekel et al., 2019; Smith, 2019).
- **Compensation:** A salary system is established with data-driven calculations. This smart system considers several indicators such as performance trends, productivity, significance level, and so on. Additionally, external data can also be used through comparison of the employees with competitors (Zehir et al., 2020).
- **Employee development:** An automatic skill map is generated, which justifies the need for training and organizes it. This smart way also provides a monitoring opportunity for HR regarding the whole learning process of employees. Hence, this process is audited by the managers. Furthermore, required feedback is given to the employees whether they are on the right path or not (Bughin et al., 2018; Jaiswal et al., 2021).
- **Employee attrition detection:** Data obtained from previous experiences is used to predict the intention to leave. Machine learning models are useful to implement this process. Thus, factors related to leave are determined, required measures are taken, and employee turnover rate is controlled (Sabbineni, 2020; Shankar et al., 2018).
- **Workforce management analytics:** Problems regarding well-being, presenteeism/abstenteeism, or mental health are identified by gathering information from behavior, practices, or social media posts within any level of organization (individual/group/department). Hence, due precautions are taken and required improvements are made (Margherita, 2021).
- **HR budget and resource allocation:** All kinds of information collected from both internal and external environments are processed in consideration of the priorities of the organization. Thus, effective resource allocation alternatives are offered to the decision makers (Ahmed, 2018; Tambe et al., 2019).

The application of AI in the field of HRM results in various benefits for businesses. In this context, according to the study by Johnson et al. (2022), the potential benefits expected from the application of AI technology in HRM functions (talent acquisition, employee development, performance management, compensation, turnover, and retention) are as shown in Table 3. Thus, decision makers from the department of human resources can take the necessary actions by considering the benefits and the current status of their departments.

Table 3. AI and HRM

HR Function	Potential Benefit of AI
Talent acquisition	Expanding the candidate pool, increasing processing capacity, and improving the evaluation process
Employee development	Developing timely and personalized orientation/training programs
Performance management	Comparative and balanced performance evaluation system
Compensation	Automatic tracking of pay across multiple data sources
Turnover and retention	Anticipating potential resignations and creating strategic incentives

Source: Johnson et al. (2022)

There are two main types of classification used for AI. One categorizes AI based on its capabilities. According to this, there are narrow AI, general AI, and super AI types (Strelkova, 2017). The other classification considers the philosophy, purpose, and techniques used behind AI. Accordingly, there are limited memory, reactive machines, self-awareness, and theory of mind AI types (Chung et al., 2022). In this context, generative AI (e.g., ChatGPT, Gemini, Copilot), a type of narrow AI with limited memory, is the most commonly used type of AI.

On the one hand, generative AI (GenAI) is used in the field of HRM and provides many benefits. On the other hand, this use also carries certain risks. In this regard, Jiang et al. (2024) investigated the risks that may arise when genAI is applied in HRM. Within the scope of the study, risks were evaluated in terms of both impact level and likelihood of occurrence. According to the results obtained, high, medium, and low-level risks are as follows. Accordingly, it would be beneficial for HRM to conduct possible risk analyses and take necessary precautions.

- **High-level risks:** These are risk types with relatively high impact levels and likelihood of occurrence. Privacy and cyber security, ethical concerns, and trust are examples of such risks. Attacks manipulating GenAI results related to HRM or privacy breaches, the possibility of GenAI reinforcing biases through fabricated content, and excessive trust in GenAI can be cited as examples.
- **Medium-level risks:** These are risk types that either have a high impact level and low probability of occurrence, or a low impact level and high probability of occurrence. Employee well-being, verification process, barriers to innovation, job security, business model disruption, governance, resistance to change, task transparency, technology dependency, and workforce transformation are such risks. Employees' fear of losing their jobs due to AI, their resistance to change, and their increased stress levels can be given as examples.
- **Low-level risks:** These are risk types where either the impact level is average and the likelihood of occurrence is low, or the impact level is low and the likelihood of occurrence is average. Employee engagement, system integration, task complexity, job redefinition, resource constraint, upskilling, professional development, technical constraint, task automation, and communication pattern change are examples of such risks. As a result of routine tasks being performed by AI, HRM employees may become inadequate in terms of development, competence, and performance in the long term, and AI tools may require regular maintenance and updating.

GenAI is used extensively in both daily life and work. However, its effective usage rate is a subject of debate. Therefore, Auginis et al. (2024) have created a valuable guide for using GenAI in HRM. This guide aims to provide high-quality and effective prompts that can be used in HRM functions (recruitment and selection, compensation management, performance management, benefits management, professional development and training, strategic HRM, job analysis, and retention and separation). The relevant guide and the steps to follow are as follows.

1. **Clarification of HRM issue:** Indicate the specific field of HRM, such as selection, training, compensation, or performance evaluation, for the inquiry. Specify the problem or question.
2. **Provision of organizational context:** Give details about the industry, region, or scale of the business. Remark human capital characteristics, such as diversity.
3. **Use of uniform HRM terminology:** Utilise standard concepts or terms of HRM to prevent ambiguity.
4. **Specification of the desired result:** Elucidate the expected outcome or sought suggestion.
5. **Request for evidence-based suggestions (if necessary):** Ask for citations, research, case studies, analysis, or instances.
6. **Compliance with recognized best practices:** Follow established practices to reduce possible corrections, which are time-consuming and costly.
7. **Ensuring confidentiality:** Refrain from sharing any private information about the organization or employees. For this purpose, use anonymous scenarios.
8. **Continuity of communication:** Provide follow-up questions or feedback for any additional information. Adopt an interactive approach through identification.

Conclusion

This chapter covers the applications of AI in the field of HRM. For this purpose, it first presents striking statistics showing how rapidly AI usage is increasing worldwide, both individually and organizationally. From an organizational perspective, one of the most important departments affected by the use of AI is HR. For this reason, the historical evolution of AI applications in the HR field has been discussed, and important milestones have been highlighted. Subsequently, AI techniques and sample AI applications for HR functions are provided, along with their benefits. On the other hand, the different levels of risk associated with AI have been identified. Lastly, this chapter is completed with a practical guide developed for the use of generative AI. Eventually, a conceptual perspective is introduced in this chapter regarding the AI applications in HRM. In this direction, it is expected to shed light on both practitioners (HR managers, HR professionals, AI engineers, AI specialists), researchers, trainers, and policymakers. Future empirical studies will build upon this perspective to further deepen the existing knowledge in the field.

References

Aguinis, H., Beltran, J. R., & Cope, A. (2024). How to use generative AI as a human resource management assistant. *Organizational Dynamics, 53*(1), 101029. https://doi.org/10.1016/j.orgdyn.2024.101029

Ahmed, O. (2018). Artificial intelligence in HR. *International Journal of Research and Analytical Reviews, 5*(4), 971–978. https://doi.org/10.31221/osf.io/cfwvm

Armstrong, M. (2014). *Armstrong's handbook of human resource management practice.* (11th ed.). Kogan Page.

Babic, B., Chen, D. L., Evgeniou, T., & Fayard, A. L. (2021). A better way to onboard AI. *Harvard Business Review, 98*(4), 56–65.

Benligiray, S. (2016). İnsan kaynakları yönetimi. Nisan Kitabevi.

Boxall, P. F., Purcell, J., & Wright, P. M. (2007). *The Oxford handbook of human resource management.* Oxford University Press.

Braganza, A., Chen, W., Canhoto, A., & Sap, S. (2021). Productive employment and decent work: The impact of AI adoption on psychological contracts, job engagement and employee trust. *Journal of Business Research, 131,* 485–494. https://doi.org/10.1016/j.jbusres.2020.08.018

Bughin, J., Hazan, E., Lund, S., Dahlström, P., Wiesinger, A., & Subramaniam, A. (2018). Skill shift: Automation and the future of the workforce. *McKinsey Global Institute, 1,* 3–84.

Cambridge. (n.d.). Artificial Intelligence. In *dictionary.cambridge.org dictionary.* Retrieved December 15, 2025, from https://dictionary.cambridge.org/dictionary/english/artificial-intelligence

Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human resource management review, 33*(1), 100899. https://doi.org/10.1016/j.hrmr.2022.100899

Chung, K., Thaichon, P., & Quach, S. (2022). Types of artificial intelligence (AI) in marketing management. In P. Thaichon & S. Quach (Eds.), *Artificial intelligence for marketing management* (pp. 29-40). Routledge.

Dessler, G. (2016). *Human resource management.* (15th ed.). Pearson.

Earley, P. C. (1988). Computer-generated performance feedback in the magazine-subscription industry. *Organizational Behavior and Human Decision Processes, 41,* 50–64. https://doi.org/10.1016/0749-5978(88)90046-5

Eurostat. (2025). *Use of artificial intelligence in enterprises.* Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained

Gillespie, N., Lockey, S., Ward, T., Macdade, A., & Hassed, G. (2025). Trust, attitudes and use of artificial intelligence: A global study 2025. The University of Melbourne and KPMG. https://doi.org/10.26188/28822919

Gong, Q., Fan, D., & Bartram, T. (2025). Integrating artificial intelligence and human resource management: a review and future research agenda. *The International Journal of Human Resource Management, 36*(1), 103-141. https://doi.org/10.1080/09585192.2024.2440065

Jaiswal, A., Arun, C. J., & Varma, A. (2022). Rebooting employees: upskilling for artificial intelligence in multinational corporations. *The International Journal of Human Resource Management, 33*(6), 1179–1208. https://doi.org/10.1080/09585192.2021.1891114

Jiang, Y., Cai, Z., & Wang, X. (2025). Leverage generative AI for human resource management: Integrated risk analysis approach. *The International Journal of Human Resource Management, 36*(11), 1929-1959. https://doi.org/10.1080/09585192.2025.2544972

Johnson, B. A., Coggburn, J. D., & Llorens, J. J. (2022). Artificial intelligence and public human resource management: questions for research and practice. *Public Personnel Management, 51*(4), 538-562. https://doi.org/10.1177/00910260221126498

Krekel, C., Ward, G., & De Neve, J. E. (2019). Employee wellbeing, productivity, and firm performance. *Saïd Business School WP,* 4.

Lin, Y., Lei, H., Addo, P. C., & Li, X. (2016). Machine learned resume-job matching solution. *arXiv,* 1-8. https://doi.org/10.48550/arXiv.1607.07657

Margherita, A. (2021). Human resources analytics: A systematization of research topics and directions for future research. *Human Resource Management Review, 32*(3), 100795. https://doi.org/10.1016/j.hrmr.2020.100795

McKinsey & Company. (2025). *The state of AI: McKinsey Global Survey.* https://www.mckinsey.com/

Merriam-Webster. (n.d.). Artificial Intelligence. In *Merriam-Webster.com dictionary.* Retrieved December 15, 2025, from https://www.merriam-webster.com/dictionary/artificialintelligence

Orvis, K. A., Brusso, R. C., Wasserman, M. E., & Fisher, S. L. (2011). Enabled for e-learning? The moderating role of personality in determining the optimal degree of learner control in an e-learning environment. *Human Performance, 24,* 60–78. https://doi.org/10.1080/08959285.2010.530633

Oxford (n.d.). Artificial Intelligence. In *www.oed.com dictionary* . Retrieved December 15, 2025, from https://www.oed.com/search/dictionary/artificial%20intelligence

Pessach, D., Singer, G., Avrahami, D., Ben-Gal, H. C., Shmueli, E., & Ben-Gal, I. (2020). Employees recruitment: A prescriptive analytics approach via machine learning and mathematical programming. *Decision Support Systems, 134,* 113–290. https://doi.org/10.1016/j.dss.2020.113290

Phillips-Wren, G., Mora, M., Forgionne, G. A., & Gupta, J. N. (2009). An integrative evaluation framework for intelligent decision support systems. *European Journal of Operational Research, 195*(3), 642–652. https://doi.org/10.1016/j.ejor.2007.11.001

Sabbineni, N. (2020). Understanding Employee Attrition Using Explainable AI. [Master thesis, The Pennsylvania State University]. Penn State University Library.

Shankar, R. S., Rajanikanth, J., Sivaramaraju, V. V., & Murthy, K. V. S. S. R. (2018, July). Prediction of employee attrition using datamining. In *İEEE international conference on system, computation, automation and networking (ICSCAN)* (pp. 1-8). https://doi.org/10.1109/ICSCAN.2018.8541242

Smith, A. R., & Bartholomew, D. J. (1988). Manpower planning in the United Kingdom: An historical review. *Journal of the Operational Research Society, 39*(3), 235-248. https://doi.org/10.1057/jors.1988.41

Smith, C. (2019). An employee's best friend? How AI can boost employee engagement and performance. *Strategic HR Review, 18*(1), 17–20. https://doi.org/10.1108/SHR-11-2018-0092

Stoltzfus, J. C. (2011). Logistic regrssion: A brief primer. *Academic Emergency Medicine, 10,* 1099–1104. https://doi.org/10.1111/j.1553-2712.2011.01185.x

Strelkova, O. (2017). *Three types of artificial intelligence.* Zhytomyr Polytechnic State University

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management:

challenges and a path forward. *California Management Review, 61*(4), 15–42. https://doi.org/10.1177/0008125619867910

Türk Dil Kurumu (n.d.). Yapay Zekâ. In *https://sozluk.gov.tr/ dictionary.* Retrieved December 15, 2025, from https://sozluk.gov.tr/?ara=yapay%20zek%C3%A2

United Nations. (n.d.). *Artificial intelligence,* Global Issues. https://www.un.org/en/global-issues/artificial-intelligence

Upadhyay, A. K., & Khandelwal, K. (2018). Applying artificial intelligence: implications for recruitment. *Strategic HR Review, 17*(5), 255–258. https://doi.org/10.1108/SHR-07-2018-0051

Vailsher L. S. (2025). *Artificial intelligence (AI) worldwide – statistics & facts.* Statista. https://www.statista.com/

Valentine, S. R., Meglich, P., Mathis, R. L., & Jackson, J. H. (2019). *Human resource management.* (16th ed.). Cengage Learning.

van Esch, P., Black, J. S., & Arli, D. (2021). Job candidates' reactions to AI-enabled job application processes. *AI and Ethics, 1*(2), 119–130. https://doi.org/10.1007/s43681-020-00025-0

van Esch, P., Black, J. S., & Ferolie, J. (2019). Marketing AI recruitment: The next phase in job application and selection. *Computers in Human Behavior, 90,* 215–222. https://doi.org/10.1016/j.chb.2018.09.009

Wang, W., Chen, L., Xiong, M., & Wang, Y. (2021). Accelerating AI adoption with responsible AI signals and employee engagement mechanisms in health care. *Information Systems Frontiers, 25,* 2239-2256. https://doi.org/10.1007/s10796-021-10154-4

Zehir, C., Karaboğa, T., & Başar, D. (2020). The transformation of human resource management and its impact on overall business performance: big data analytics and AI technologies in strategic HRM. (U. Hacıoğlu Ed.), *Digital business strategies in blockchain ecosystems* (pp. 265–279). Springer. https://doi.org/10.1007/978-3-030-29739-8

Zhai, Y., Zhang, L., & Yu, M. (2024). AI in human resource management: Literature review and research implications. *Journal of the Knowledge Economy, 15*(4), 16227-16263. https://doi.org/10.1007/s13132-023-01631-z

Zhou, Z. (2016). *Machine learning.* Tsinghua University Press.

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