

DOI: 10.55643/ser.1.69.2026.664

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AI-POWERED EMPLOYEE EXPERIENCE AS A STRATEGIC ENABLER OF SUSTAINABLE HUMAN CAPITAL MANAGEMENT

ABSTRACT

The growing integration of artificial intelligence (AI) into human resource management has significantly transformed the ways organizations manage employee experience and develop human capital capabilities. At the same time, increasing attention to sustainable human capital management highlights the need for HR practices that simultaneously support employee development, well-being, and long-term organizational performance. In this context, the purpose of this study is to conceptualize AI-powered employee experience as an organization's strategic capability that enables the operationalization of sustainable human capital management principles. The study is based on a conceptual and analytical approach combining methods of theoretical generalization, comparative analysis, and systematization of contemporary research on artificial intelligence in human resource management and employee experience management. Building on these methods, the article develops an enhanced analytical framework explaining how AI technologies, employee data, and HR practices interact to create personalized, data-driven employee experiences across the employee lifecycle. The results demonstrate that AI-powered employee experience functions as a strategic enabler of sustainable human capital management by facilitating the alignment between individual employee development, well-being, and broader organizational objectives. At the same time, the study highlights the importance of human-AI complementarity, emphasizing that AI strengthens analytical and operational HR processes, while human managerial roles remain essential for relational, developmental, and value-based aspects of people management. The proposed framework contributes to the literature on AI in HRM by clarifying the role of AI-enabled employee experience in supporting sustainable human capital development and providing conceptual guidance for organizations integrating AI technologies into human-centered HR strategies.

Keywords: employee experience, artificial intelligence (AI), digital transformation, AI-powered employee experience, employee experience management, human capital, sustainable human capital management, employee lifecycle, HR analytics

JEL Classification: M12, O33, J24, M15

INTRODUCTION

The accelerating digital transformation of the global economy has significantly reshaped the way organizations manage their human resources and develop competitive capabilities. In knowledge-driven and innovation-based economies, the ability to effectively manage human capital has become a central determinant of organizational performance and long-term competitiveness. Companies increasingly operate in environments characterized by rapid technological change, evolving skill requirements, and intensified global competition, which requires organizations to develop adaptive and resilient workforce management systems capable of supporting continuous learning and employee engagement. Within this paradigm, the concept of sustainable human capital management has emerged as a significant focus of both academic inquiry and managerial application. Sustainable approaches emphasize the long-term development of employees' competencies, the responsible management of human resources, and alignment between organizational goals and employee well-being. Empirical research demonstrates that human capital management practices are closely linked with broader sustainability

Received: 16/01/2026

Accepted: 20/03/2026

Published: 31/03/2026

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and ESG performance, highlighting the strategic importance of workforce development, diversity, and employee engagement in modern organizations (Cai et al., 2024).

At the same time, digitalization has profoundly transformed the ways in which organizations design and implement human resource management practices. Artificial intelligence technologies are increasingly integrated into HR processes, enabling advanced analytics, automation of routine tasks, predictive workforce planning, and more personalized employee development strategies. AI-driven solutions are capable of improving the efficiency of recruitment, performance management, training, and talent management processes, while also supporting data-driven decision-making within HR departments (Chowdhury et al., 2023). In this context, the concept of employee experience has emerged as a managerial priority that reflects the cumulative perceptions and interactions employees have with organizational systems, culture, and management practices throughout the entire employee lifecycle. The integration of artificial intelligence into HRM processes has further expanded the possibilities for designing more personalized and data-driven employee experiences.

The emergence of AI-powered employee experience represents a new stage in the evolution of human capital management. The strategic imperative of integrating artificial intelligence into organizational frameworks is underscored by its projected contribution of approximately USD 4.4 trillion to global productivity growth (Mayer et al., 2025). This significant economic potential is reflected in current corporate priorities, with 92% of organizations planning to increase their AI investments within the next three years, effectively positioning AI-powered employee experience as a foundational element of modern competitiveness (Mayer et al., 2025). AI technologies enable organizations to analyze large volumes of workforce data, identify patterns in employee behavior, predict engagement or turnover risks, and tailor development opportunities to individual employees. Such technologies also facilitate more responsive and adaptive HR systems capable of supporting sustainable workforce development and organizational adaptability in dynamic environments (Jia & Hou, 2024; Venugopal et al., 2024). However, the growing adoption of AI technologies in human resource management also raises important ethical, organizational, and managerial challenges. Concerns related to algorithmic bias, data privacy, transparency, and the potential dehumanization of organizational processes require careful consideration in order to ensure responsible and sustainable implementation of AI-based HR solutions (Bujold et al., 2023; Köchling & Wehner, 2023).

Despite widespread investment, a profound “readiness gap” remains, as only 1% of organizations believe they have achieved maturity in their AI capabilities (Mayer et al., 2025). This indicates that the primary bottleneck to scaling these technologies is not workforce readiness, but rather the speed and strategic orientation of leadership. This paradox justifies the need for research into managerial models that can bridge the gap between technological potential and the practical realization of sustainable human capital outcomes. Against this background, the integration of AI-powered employee experience into sustainable human capital management systems represents an important research and managerial challenge. Understanding how AI technologies can support the development of employee-centered HR systems while maintaining ethical standards and organizational sustainability is essential for both academic research and managerial practice.

LITERATURE REVIEW

The concept of human capital has long been recognized as a fundamental component of economic and organizational performance. Human capital theory emphasizes that investments in education, training, and skill development enhance employee productivity and contribute to economic growth (Becker, 1993). Subsequent research extended this perspective by emphasizing the strategic role of human capital management in shaping organizational competitiveness and adaptability. In modern organizations, human capital management encompasses a wide range of managerial practices aimed at attracting, developing, and retaining talented employees. These practices include talent acquisition, learning and development, performance management, and career development initiatives. Research in strategic human resource management (HRM) suggests that organizations that effectively align human capital practices with organizational strategy achieve higher levels of performance and innovation. In the context of Industry 4.0 and digital transformation, scholars also emphasize the growing importance of employee competencies, organizational culture, and motivation as key determinants of organizational performance and adaptability (Štaffenová & Kucharčíková, 2024).

The concept of sustainable human resource management emerged as an extension of strategic human resource management that integrates economic, social, and ethical considerations into workforce management practices. Sustainable HRM focuses on maintaining and developing human capital over the long term while ensuring employee well-being, social responsibility, and organizational sustainability. Recent studies demonstrate that sustainable HRM contributes to stronger social capital within organizations, which in turn enhances employee commitment and retention (Cachón-Rodríguez et al., 2022). Contemporary research frameworks also emphasize the multidimensional nature of sustainable HRM, highlighting

the interconnected relationships between employee well-being, organizational performance, and long-term workforce development (Liang & Li, 2025).

The integration of artificial intelligence into human resource management has attracted significant scholarly attention over the past decade. AI technologies are increasingly used to support HR functions such as recruitment, workforce planning, performance management, and employee engagement. Systematic literature reviews indicate that AI can enhance the efficiency and accuracy of HR decision-making by analyzing large datasets and identifying patterns that may not be visible through traditional analytical methods. Studies identify several major research directions, including AI-driven recruitment systems, predictive workforce analytics, intelligent learning platforms, and ethical governance of AI in HR processes (Koştı & Kayadibi, 2025). Scholars argue that the use of advanced analytics allows organizations to move from descriptive HR reporting toward predictive workforce management and more personalized employee development practices (Marler & Boudreau, 2017; Boudreau & Cascio, 2017). Another important research direction focuses on the strategic implications of AI for workforce management. Studies demonstrate that AI-driven HR technologies improve talent allocation, workforce planning, and skills management, thereby strengthening organizational adaptability and competitiveness in dynamic environments (Tambe et al., 2019).

In parallel with the development of digital HR technologies, the concept of employee experience has emerged as an element of contemporary human capital management (Morgan, 2017; Plaskoff, 2017). Employee experience refers to the overall set of perceptions, interactions, and emotional responses that employees develop throughout their relationship with an organization. These experiences are shaped by organizational culture, leadership practices, workplace environment, and HR policies. Recent research suggests that organizations that actively manage employee experience achieve higher levels of employee engagement, productivity, and retention. AI technologies increasingly play a role in shaping these experiences by enabling personalized and adaptive interactions between employees and organizational systems. AI-driven tools such as intelligent recruitment systems, digital assistants, predictive analytics, and sentiment-analysis platforms allow organizations to design more personalized employee journeys and support proactive workforce management strategies. Scholars also examine the role of AI in enhancing employee engagement and the overall employee experience. Research indicates that AI-enabled HR platforms can personalize employee interactions, improve access to HR services, and support more responsive and adaptive organizational practices (Bondarouk & Brewster, 2016).

However, the implementation of AI in HRM also raises important ethical and organizational concerns. Research highlights risks associated with algorithmic bias, lack of transparency in AI decision-making, and potential negative effects on employee trust and well-being. Studies examining responsible AI in HRM emphasize the need for ethical governance frameworks that ensure fairness, transparency, and accountability in AI-assisted HR decision-making processes (Bujold et al., 2023). At the same time, scholars highlight that the successful implementation of AI-powered employee experience requires balancing technological efficiency with human-centered management principles. Studies emphasize that AI adoption in HR must be accompanied by transparent governance mechanisms, employee participation, and ethical oversight to ensure that technological innovations support rather than undermine employee well-being and organizational trust (Pereira et al., 2023).

Overall, existing research demonstrates that the integration of AI technologies into HRM offers significant opportunities for enhancing employee experience and improving human capital management efficiency. At the same time, it highlights the need for responsible implementation strategies that ensure ethical governance, transparency, and the preservation of human-centric organizational practices. These considerations create a strong foundation for further investigation of AI-powered employee experience as a component of sustainable human capital management in modern organizations. Despite growing interest in AI in HRM and employee experience, limited research has examined how AI-enabled employee experience contributes to sustainable human capital management outcomes. This study contributes to the literature in three ways. First, it conceptualizes AI-powered employee experience as an organization's strategic capability rather than a set of digital HR tools. Second, it positions employee experience as a mediating mechanism through which HR practices influence sustainable human capital outcomes. Third, it develops a conceptual framework explaining how AI-enabled employee experience contributes to sustainable human capital management through multi-level inputs, processes, and outcomes.

AIMS AND OBJECTIVES

The growing integration of artificial intelligence into human resource management is reshaping how organizations design and manage employee experience. At the same time, the concept of sustainable human capital management emphasizes the need for organizational practices that support long-term employee development, well-being, and effective utilization

of workforce capabilities. Despite the increasing attention to both topics, the relationship between AI-enabled employee experience and sustainable human capital outcomes remains insufficiently conceptualized in the academic literature.

Against this background, the aim of this study is to develop a conceptual framework that explains the role of AI-powered employee experience in supporting sustainable human capital management. The study seeks to clarify how artificial intelligence can enhance employee experience management across the employee lifecycle and how these processes contribute to the sustainability of human capital within organizations. The study addresses several interrelated objectives. It aims to analyze the conceptual relationship between employee experience and sustainable human capital management, to examine the role of artificial intelligence in shaping employee experience across the employee lifecycle, and to develop an analytical framework explaining how AI-powered employee experience can support sustainable human capital management. In addition, the study seeks to identify key managerial implications associated with the implementation of AI-enabled employee experience practices in organizations.

METHODS

The methodology of the study is based on a systematic approach to analyzing the role of artificial intelligence in employee experience management and sustainable human capital management. Within this approach, a set of general scientific and analytical methods was applied.

The methods of analysis and synthesis were used to examine scientific literature on employee experience, artificial intelligence in human resource management, and sustainable human capital development. Comparison and systematization were applied to identify the main theoretical approaches and to clarify the conceptual relationship between employee experience and sustainable human capital management. The methods of induction and deduction were used to generalize the findings of previous studies and to formulate theoretical conclusions regarding the role of AI-powered employee experience in organizations. The method of conceptual modeling was applied to develop an analytical framework explaining how AI-powered employee experience can support sustainable human capital management across the employee lifecycle. In addition, the graphic method was used to visualize the proposed analytical framework.

RESULTS

The Role of AI in Employee Experience Management

The evolution of employee experience (EX) reflects a shift from transactional, administratively oriented HR practices toward a holistic, personalized understanding of how employees interact with organizations across the entire employee lifecycle. Employee experience can be formally conceptualized as the synchronized perceptual outcome derived from the totality of interactions between an individual and the organization (Morgan, 2017). Initially emerging from the service-dominant logic and customer experience frameworks, employee experience is conceptualized as the sum of all organizational touchpoints, interactions, and environments provided by the employer – cultural, comprising its underlying norms, values, and policies, technological, digital, and physical – that shape an employee's perception of their work (Morgan, 2017; Plaskoff, 2017). When organizations invest in improving the quality of these factors through the adoption of digital technologies, artificial intelligence, an inclusive culture, challenging and meaningful work, and a supportive work environment, employees are more likely to experience positive interactions with the organization, their work, and their colleagues. These interactions generate satisfying, enjoyable, and motivating experiences, which in turn enhance their engagement and drive towards organizational excellence (Ghosh & Itam, 2020). Unlike the often-reactive approaches of traditional employee engagement strategies, employee experience emphasizes proactive design, treating employees as internal customers whose journeys are intentionally curated to enhance both performance and well-being. Contemporary employee experience frameworks integrate personalized learning, data-driven feedback, and engagement monitoring across all stages of the employee lifecycle, including talent acquisition and onboarding, development, performance evaluation, retention, and offboarding.

Sustainable human capital management is defined by the objective of regenerating and preserving human resources rather than consuming them, emphasizing long-term social and economic viability over short-term gains. It prioritizes the alignment of economic efficiency, social responsibility, and human-centered practices, with particular focus on skill renewal, psychological well-being, and inclusivity (Ehnert, 2009; Kramar, 2014). In this context, employee experience functions as a foundational mechanism for achieving social sustainability within the organization, as it directly shapes employees' engagement, well-being, and perceptions of fairness and inclusion. By intentionally designing the conditions under which

employees engage with their work, teams, and organizational systems, employee experience aligns workforce practices with broader organizational goals of social responsibility and long-term resilience.

The integration of artificial intelligence (AI) into human resource management represents a fundamental transformation in how organizations manage, develop, and engage their human capital. Contemporary businesses operate in environments marked by rapid technological advancement, workforce globalization, and dynamic labor market shifts – conditions that increasingly challenge traditional, administratively oriented approaches to human capital management. Within this context, the AI-powered employee experience emerges not simply as a technological enhancement but as a strategic driver capable of advancing sustainable human capital management (Bujold et al., 2023). When AI applications are aligned with broader sustainability principles, organizations can simultaneously optimize workforce effectiveness and enhance employee well-being, thereby strengthening long-term organizational resilience and competitive advantage.

The strategic value of AI-enhanced employee experience lies in its capacity to individualize engagement, development, and support – elements central to sustainable human capital management. Such tailored experiences promote deeper engagement, foster continuous learning, and support the cultivation of future-ready skills. Furthermore, AI-enabled well-being tools can identify early signs of stress or disengagement, enabling timely interventions, provided that these systems operate under conditions of transparency, fairness, and robust data governance. Emerging empirical evidence demonstrates that organizations implementing AI in these ways achieve improvements in employee satisfaction, retention, and overall workforce productivity (Deloitte, 2024; Pan & Froese, 2023). At the same time, the integration of AI into employee experience design introduces complex challenges that can undermine its strategic potential. Algorithmic bias may reproduce or amplify inequities in recruitment, development, or performance evaluation, while non-transparent decision-making processes weaken perceptions of fairness and justice. Expanding reliance on behavioral and communication data heightens privacy concerns and complicates questions of consent. Mitigating these challenges requires strong ethical oversight, transparent data practices, participatory design, and continuous auditing of AI systems. Consequently, when effectively governed, AI-powered employee experience can function as a strategic mechanism for advancing sustainable human capital management, enabling a balance between operational efficiency, employee well-being, and long-term organizational resilience.

Conceptual Framework: AI-Powered Employee Experience in the Context of Sustainable Human Capital Management

AI-powered employee experience management can be conceptualized as an integrated system where digital technologies, organizational practices, and human actors interact to co-create tailored employee experiences that subsequently shape long-term human capital outcomes. Within this framework, AI contributes to sustainable human capital development by transforming managerial approaches from “one-size-fits-all” standardization toward large-scale personalization, thereby optimizing the alignment between individual employee needs and organizational strategic goals. At its core, the framework reflects a transition from traditionally reactive human capital management – where organizations respond to performance issues, disengagement, or turnover only after they become visible – toward predictive and preventative models. Through continuous sensing, pattern recognition, and real-time analytics, AI systems allow organizations to anticipate employee needs, identify emerging risks such as burnout or skill obsolescence, and design timely interventions that enhance well-being, capability development, and retention.

Within the context of sustainable human capital management, employee experience should not be interpreted merely as a set of employee-centered practices or engagement initiatives. Rather, it represents a process-based mechanism that translates HR practices into long-term human capital outcomes. Contemporary research increasingly emphasizes that sustainable HRM outcomes emerge not only from the formal content of HR policies but also from the way employees experience organizational systems, managerial interactions, and workplace processes in their everyday work environment (Elias, Sanders & Hu, 2023). In this light, employee experience functions as a mediating layer between HR practices and sustainable outcomes, shaping how employees interpret organizational support, opportunities for development, and the fairness and transparency of managerial decisions. These experiential perceptions influence employees’ motivation, commitment, and capability development, thereby determining the long-term sustainability of human capital within organizations. In this sense, employee experience constitutes the organizational context through which HR practices are interpreted by employees and translated into engagement, well-being, and capability development outcomes.

It is important to distinguish employee experience from related concepts such as employee engagement and employee well-being. While employee engagement reflects a state characterized by employees’ level of involvement, enthusiasm, and commitment to their work, and employee well-being refers to the broader condition of employees’ physical, psychological, and social health, employee experience represents the overall process through which employees interact with

organizational systems, managerial practices, and work environments across the employee lifecycle. Consequently, employee experience can be understood as the contextual environment that shapes both engagement and well-being, ultimately influencing long-term human capital sustainability. Thus, AI-powered employee experience can be conceptualized as an organizational capability that serves as a strategic enabler of sustainable human capital management. By integrating AI technologies, employee data, and HR practices into personalized, data-driven interactions across the employee lifecycle, this capability allows organizations to operationalize sustainable HRM principles in managerial processes. Through the ability to tailor development opportunities, anticipate employee needs, and design more responsive managerial interventions, artificial intelligence facilitates the alignment between individual employee development, well-being, and broader strategic human capital objectives. To conceptualize how these interactions translate into sustainable human capital outcomes, this study proposes an enhanced analytical framework of AI-powered employee experience. The framework integrates key inputs, core processes, and outcomes to illustrate how AI-enabled employee experience functions as a critical enabler of sustainable human capital management. By linking AI capabilities with employee lifecycle processes and organizational outcomes, the framework highlights the mechanisms through which AI-supported employee experience contributes to organizational adaptability, innovation capacity, and long-term human capital development. The proposed analytical framework is presented in Figure 1.

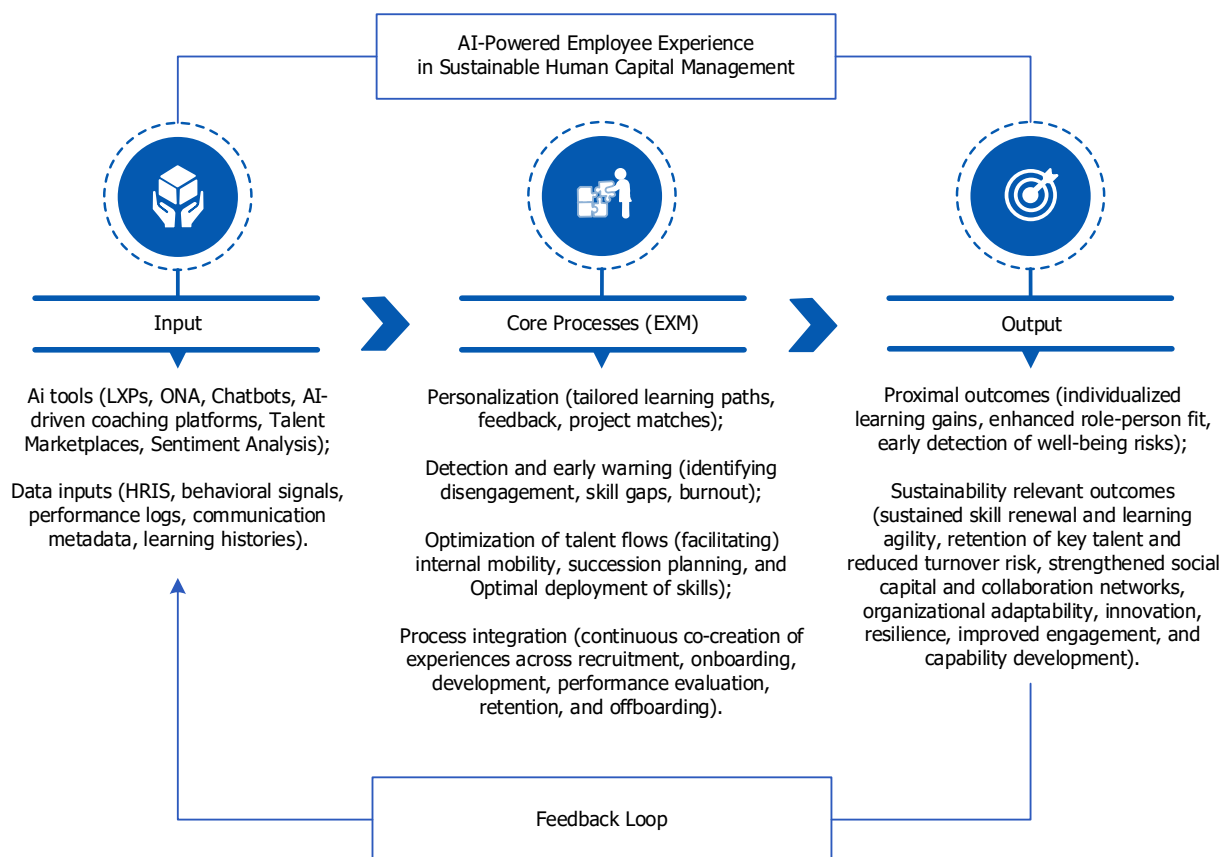


Figure 1. Conceptual framework of AI-powered employee experience for sustainable human capital management. (Source: developed by the author based on Mayer et al., 2025; Bujold et al., 2023; DecisionWise; AI in HR)

At the input level, the framework distinguishes AI artefacts, including Learning Experience Platforms (LXPs), talent-marketplaces, matching algorithms, sentiment-analysis engines, organizational network analysis (ONA) tools, chatbots, generative AI assistants, and the data ecosystem (HRIS records, performance logs, learning histories, communications metadata, and behavioral signals). The quality, variety, and integration of these inputs are critical in determining the precision of AI-driven personalization and the extent to which employee experience can be meaningfully tailored. Moreover, the interplay between these inputs and organizational culture, leadership practices, and team dynamics can amplify or constrain the effectiveness of AI applications, highlighting the need for context-aware design and cross-functional integration.

In this context, AI influences employee experience through three interrelated functions. First, personalization: algorithms tailor learning paths, feedback, and role matches to individual profiles, accelerating capability development and aligning employee ambitions with organizational needs. Evidence from studies of AI-driven learning systems confirms substantial

gains in the relevance and efficiency of employee development when personalization is effectively implemented (Davis et al., 2025). Second, detection and early warning: predictive analytics and sentiment analysis can surface signals of disengagement, skill gaps, or psychosocial strain, enabling targeted interventions before problems escalate. These predictive capabilities also enable organizations to anticipate systemic workforce challenges, such as team-level skill gaps or emerging collaboration bottlenecks, thus facilitating proactive planning at multiple organizational levels. Empirical work suggests that AI influences well-being indirectly via changes in task design and safety, underscoring the conditional nature of these effects (Valtonen et al., 2025). Third, optimization of internal talent flows: matching algorithms and talent marketplaces improve internal mobility, reduce reliance on external hires, and increase the utilization of existing human capital, which supports organizational adaptability and cost-effective skill renewal. Reviews of AI-augmented human resource management emphasize the strategic value of these multilevel effects (Prikshat et al., 2023). Moreover, the integration of AI into HR processes requires participatory design and continuous involvement of employees, ensuring that technology complements rather than substitutes human judgment and managerial oversight.

From a strategic perspective, AI-powered employee experience can be interpreted through the lens of the resource-based view of the firm. Human capital that is continuously developed, retained, and effectively deployed becomes a valuable and difficult-to-imitate organizational resource. Personalized employee experience systems supported by artificial intelligence contribute to this process by strengthening employees' capabilities, motivation, and opportunities for contribution, thereby aligning with the Ability, Motivation, and Opportunity (AMO) framework widely used in strategic HRM research (Jia & Hou, 2024). These mechanisms collectively reinforce the strategic value of human capital and contribute to organizational competitiveness.

Outcomes in the framework are conceptualized at two scales: proximal outcomes include individualized learning gains, improved fit between role and employee, earlier detection of well-being issues, and higher perceived responsiveness of HR services; sustainability-relevant outcomes comprise sustained skill renewal, higher retention of key talent, strengthened social capital, inclusivity, and enhanced organizational resilience in the face of labour-market turbulence. Recent studies indicate that AI-enabled recruitment systems facilitate a 51.1% reduction in time-to-hire, while enhancing the precision and objectivity of performance appraisals by 50.8% (Kayusi et al., 2025). Furthermore, from a human capital development perspective, AI-powered adaptive learning platforms have demonstrated a 55.6% improvement in the speed of identifying organizational skill gaps, while yielding a 21% increase in overall productivity and a 63% rise in workforce satisfaction (Deloitte, 2024; Kayusi et al., 2025). The empirical literature suggests that AI's effect on well-being and sustainability is conditional: AI can promote social sustainability when mechanisms are transparent, accountable, and embedded within participatory organizational practices; conversely, poorly governed AI can impair social trust and equity (Prikshat et al., 2023). To fully leverage AI in shaping employee experience, organizations should not only embed ethical safeguards, human oversight, and participatory governance into HR practices but also continuously evaluate the systemic impact of AI interventions on team dynamics, employee motivation, and organizational adaptability. This systemic perspective ensures that AI contributes to long-term sustainable human capital development rather than isolated efficiency gains, reinforcing its role as a strategic enabler of human-centered organizational resilience.

At the organizational level, these outcomes extend beyond individual development and contribute to broader sustainability objectives. Sustainable human capital management increasingly intersects with ESG frameworks, where employee well-being, diversity, skill development, and fair employment practices constitute core social sustainability indicators. Empirical analyses demonstrate that investments in human capital development, inclusive workplace practices, and technology-enabled training are positively associated with firms' ESG performance and long-term organizational resilience (Cai et al., 2024). In this context, AI-powered employee experience becomes a critical enabler of sustainable HRM by supporting inclusive talent development, equitable access to opportunities, and transparent decision-making processes.

Finally, the framework incorporates a dynamic learning feedback mechanism. Data generated through employee interactions with AI-enabled systems continuously refines predictive models, enabling organizations to improve the accuracy of personalization and the effectiveness of HR interventions over time. This iterative learning process transforms employee experience management into a continuously evolving system in which organizational practices, AI capabilities, and employee behaviors co-evolve.

AI-Enabled Tools for Shaping Employee Experience

Within the context of sustainable human capital management, artificial intelligence plays an enabling role in shaping employee experience by supporting the personalization of organizational practices, interactions, and decision-making across the employee journey, with subsequent effects on engagement, capability development, and long-term human capital sustainability. The contemporary literature on artificial intelligence in human resource management (HRM) underscores

that AI technologies are not only automating routine tasks but also generating actionable insights that support personalized employee engagement and growth (Aksoy & Alsaif, 2023).

AI systems contribute to the sustainability of human capital by enabling organizations to anticipate needs, tailor experiences, and intervene before issues escalate, thereby fostering continuous capability development and well-being over employees' organizational tenure. In doing so, AI supports sustainable human capital management by enhancing workforce adaptability, reducing turnover risks, and contributing to organizational resilience, which are central objectives of sustainable HRM frameworks. Responsible artificial intelligence research in HRM argues that the strategic use of AI technologies can augment fairness, accountability, and transparency – conditions that are prerequisites for socially sustainable human capital outcomes (Bujold et al., 2023).

Within this evolving landscape, Learning Experience Platforms (LXPs) constitute a pivotal mechanism for personalizing employee development. By analyzing individual skill profiles, learning histories, and career trajectories, LXPs construct adaptive learning pathways, recommend targeted content, and facilitate microlearning tailored to evolving organizational and individual needs. This personalized approach not only enhances the efficiency and relevance of learning but also contributes to sustainable skill renewal – an essential component of long-term human capital resilience. Talent marketplaces represent another significant innovation, transforming internal mobility and career personalization. Powered by machine learning algorithms, these platforms match employees' skills, motivations, and performance data with internal roles, projects, and stretch assignments. Such dynamic alignment supports career growth, ensures more strategic deployment of internal talent, and enhances retention by offering transparent and individualized career pathways.

AI-driven sentiment analysis further enables organizations to assess employee attitudes, stress signals, and emerging concerns by analyzing data from surveys, communication platforms, and feedback systems. These insights allow HR managers to design proactive, targeted interventions that reduce burnout risks and strengthen the overall employee experience. Complementing this, organizational network analysis (ONA) uses AI to map formal and informal collaboration patterns, revealing knowledge flows, relational structures, and potential bottlenecks. Understanding these dynamics allows organizations to design more effective team-building initiatives, mentorship, and cross-functional collaborations, thereby reinforcing social capital and organizational cohesion. AI-enabled coaching platforms deliver individualized development guidance, goal-setting support, and performance recommendations based on continuous analysis of behavioral and performance data. Likewise, adaptive performance management systems leverage AI to monitor progress, identify development needs, and align individual goals with evolving organizational priorities. Beyond active feedback collection, AI-driven diagnostics are increasingly capable of analyzing "data exhaust" – unstructured information generated through daily interactions with business applications, such as email volumes, meeting frequencies, and leave usage patterns (DecisionWise). By processing these vast datasets, AI can identify subtle correlations and hidden factors that influence employee engagement and sentiment, which human analysts might overlook due to inherent cognitive biases. This continuous, real-time sensing provides a holistic view of the organization's health without the limitations of traditional, periodic surveys.

Employee experience is shaped through a series of key organizational touchpoints that structure interactions between employees and organizational systems throughout the employee lifecycle. Across the employee journey, the contribution of specific AI tools can be conceptually mapped according to the predominant needs at each stage. At the entry stage of the employee journey, encompassing talent attraction, recruitment, and onboarding, AI-powered systems influence employee experience by enabling more precise matching between individual profiles and organizational roles. Machine learning-based recruitment tools, skills inference engines, and AI-supported onboarding platforms personalize early interactions by aligning job content, learning materials, and social integration processes with employees' backgrounds, expectations, and career aspirations. During talent acquisition and selection, algorithmic systems enhance recruiter decision-making by processing large candidate datasets, thereby streamlining the identification of high-fit candidates and reducing administrative burden. These technologies, which include intelligent screening and matching algorithms, not only improve operational efficiency but also contribute to perceptions of procedural fairness when implemented with transparency and corrective bias measures. From a sustainability perspective, improved person-organization fit reduces early turnover and lays the foundation for long-term capability accumulation.

During onboarding and integration, AI-driven platforms tailor induction content and community engagement recommendations based on individual profiles and data patterns. These platforms effectively support social integration and role clarity – conditions that empirical research associates with early engagement and longer tenure. Adaptive learning and coaching systems provide real-time feedback and development recommendations that align employees' evolving skills with organizational demands, thus accelerating the co-creation of competency and purpose. The technological landscape is currently shifting toward "agentic AI" – a paradigm where systems operate with higher degrees of autonomy, capable of complex reasoning, planning, and independent goal pursuit (Lee, 2025). These agents utilize Large Language Models (LLMs) to

provide contextually relevant support throughout the onboarding and integration stages, fundamentally enhancing the digital employee experience (Lee, 2025; Mercy et al., 2025).

Mid-career stages are characterized by the need for ongoing development, performance, and meaningful engagement. Learning Experience Platforms, AI-driven coaching systems, and talent marketplaces personalize skill development pathways by dynamically aligning learning content, project opportunities, and feedback with evolving competence profiles and organizational skill demands. The sentiment analysis tools and organizational network analysis applications contribute to a nuanced understanding of employee strengths, social connectivity, and risk signals related to disengagement or burnout. Through continuous measurement of affective and behavioral indicators, organizations can proactively design interventions that strengthen psychological safety and organizational support. For example, emotion-aware AI research demonstrates that employees' receptivity to well-being monitoring is enhanced when mechanisms are transparent, policies are clear, and communications are open, reinforcing the importance of governance conditions in the efficacy of AI systems (Piispanen & Rousi, 2025).

In later stages that encompass retention and potential offboarding, AI-based predictive models support decision-making about career pathways, succession planning, and retention strategies by identifying patterns that correlate with attrition risks. These models, when made explainable and integrated with human oversight, empower HR professionals to craft personalized retention strategies rooted in both performance analytics and human-centered insights. Such approaches can strengthen the sustainability of human capital by aligning individual aspirations with organizational continuity. Engagement at this stage is reinforced through responsiveness and trust, while capability development is sustained through stable, supportive work environments. The cumulative effect is a workforce that is not only productive but resilient, adaptable, and more likely to remain within the organization, thereby preserving critical human capital over time.

Based on a comprehensive review of recent scientific literature on AI applications in human resource management and employee experience, key AI-enabled solutions have been synthesized that are employed at various stages of the employee life cycle to shape and personalize the employee experience (Table 1).

Table 1. AI-enabled tools across the employee lifecycle and their role in personalizing employee experience. (Source: compiled by the author based on Deloitte, 2024; Gartner, 2025; AIHR; Pillai et al., 2024; Nawaz et al., 2024; Basu et al., 2023; Bauer, 2010)

Employee life cycle stage	AI-enabled tools	Impact on personalization of employee experience	Expected employee experience outcomes
Attraction and Recruitment	AI-driven matching systems, resume screening algorithms, conversational AI (chatbots)	Personalizes job matching based on skills and career aspirations, enhances early perceptions of role fit and fairness. Candidates encounter opportunities aligned with their values and aspirations. Enhances the perception of meritocracy and fairness from the first touchpoint.	Transparent and responsive recruitment experience; improved perceived fairness and job fit through data-driven matching; better talent alignment and quality of hire.
Onboarding and Integration	Adaptive learning platforms, personalized social integration programs, and virtual assistants	Tailors learning and integration experiences, improves role clarity and social integration, helping new hires build a relevant support network faster. Delivers information exactly when needed, reducing anxiety.	Faster adaptation; personalized integration into the organization; faster access to knowledge and support; reduced uncertainty during early employment stages; stronger early organizational commitment.
Development and Performance	Learning Experience Platforms (LXPs), AI coaching systems, project and internal mobility recommendation engines, Internal Talent Marketplaces, Organizational Network Analysis (ONA)	Shifts focus from judgment to development by providing objective, timely, and actionable insights. Personalizes learning paths, provides targeted project recommendations, supports competency development, and internal mobility. Aligns challenges with skills to maintain optimal engagement.	Personalized learning pathways aligned with individual skills, career goals, and performance data; continuous capability renewal, and workforce adaptability; higher engagement in learning.
Retention	Sentiment analysis tools, predictive attrition models, AI-driven monitoring of psychosocial signals, and well-being chatbots	Enables the organization to intervene before burnout occurs, treating human capital as a renewable resource. Personalizes well-being support, identifies burnout or disengagement risks, strengthens trust and perceived organizational support, promotes retention of key talent. Demonstrates that the organization is "listening" and responsive to individual needs.	Improved employee well-being, higher engagement, and long-term workforce retention; reduced turnover intentions, and stronger long-term workforce stability supporting sustainable human capital development.
Offboarding / Career Transition	AI-driven career path forecasting, internal mobility recommendation systems, and Alumni Management Platforms	Personalizes career planning and transition decisions, facilitates smooth role transitions, and supports knowledge retention within the organization. Transforms the "end" into a transition, maintaining a personalized connection for potential "boomerang" hiring or brand advocacy.	Improved organizational learning and development of long-term alumni networks supporting future talent mobility and employer reputation.

The findings suggest that organizations seeking to advance sustainable human capital management should strategically integrate AI applications at each stage of the employee journey, from recruitment and onboarding to development, well-being, retention, and career transition. AI-enabled tools are central to shaping personalized and anticipatory employee experience, which underpins sustainable human capital management. For organizational leaders and HR practitioners, the integration of these technologies offers a pathway to move beyond the limitations of standardized personnel management toward a model of precision talent development. By shifting employee experience from reactive administrative routines to proactive, data-informed practices across the employee journey, AI enhances engagement, capability development, and long-term retention, provided that its deployment is guided by ethical governance and transparency. Moreover, proactive monitoring of well-being and relational dynamics through AI can enable early identification of disengagement or burnout, supporting inclusive and resilient workforce outcomes. To fully leverage these benefits, managers must ensure transparent oversight, foster participatory design processes, and mitigate risks associated with algorithmic bias. The evidence indicates that AI-powered personalization of employee experience is not merely a technological enhancement but a strategic lever for achieving sustainable human capital outcomes, reinforcing both organizational effectiveness and employee-centered value creation.

Artificial intelligence significantly expands the possibilities for improving employee experience across the entire employee lifecycle by enabling the automation of routine and data-intensive HR processes and supporting more personalized management practices. At the same time, the effective implementation of AI-powered employee experience requires a balanced integration of technological capabilities with human-centered managerial involvement. In this context, the concept of human-AI complementarity becomes particularly important: rather than replacing managerial roles, AI augments human decision-making by strengthening analytical capacity, operational efficiency, and process consistency, while managers remain responsible for relational, developmental, and value-based aspects of people management. As illustrated in Figure 2, the employee lifecycle – from attraction and recruitment to offboarding or career transition – represents a sequence of key stages where the complementarity between AI-enabled automation and human-centered managerial roles shapes the overall quality and sustainability of employee experience.

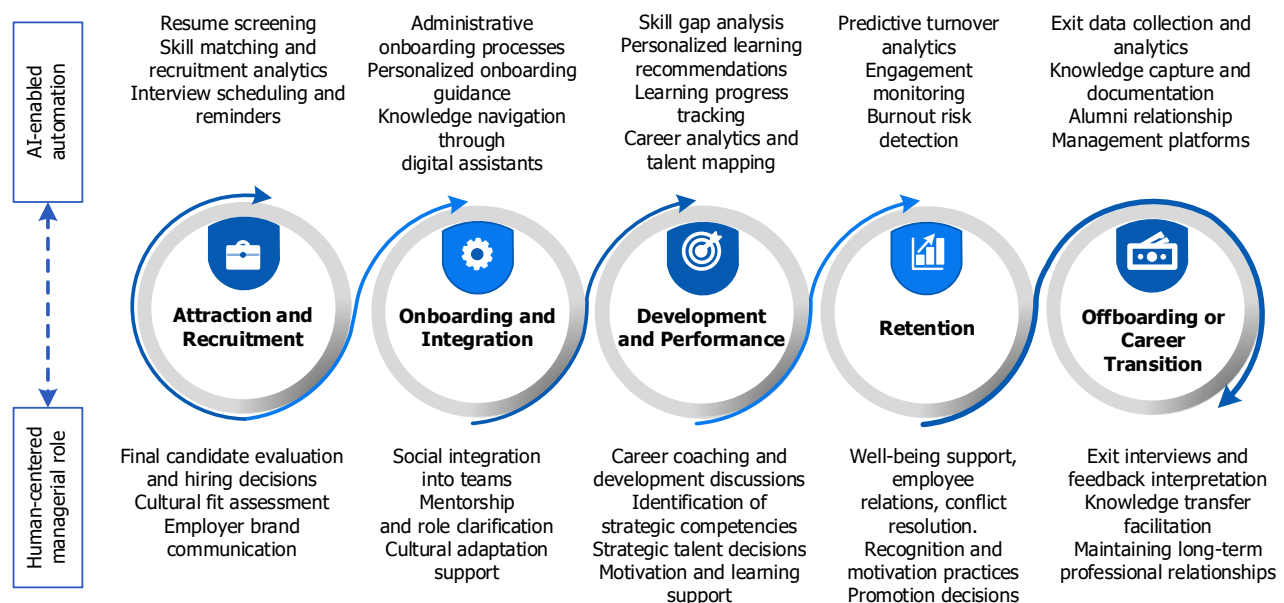


Figure 2. Human-AI complementarity in managing employee experience across the employee lifecycle. (Source: developed by the author based on Plaskoff, 2017; Bujold et al., 2023; Mayer et al., 2025; Lee, 2025; AIHR)

Beyond automation and analytics, AI technologies increasingly support hybrid forms of human-AI collaboration in managerial processes. Rather than replacing human judgment, AI systems augment managerial decision-making by providing predictive insights about employee engagement, skill development trajectories, and potential retention risks. Studies on AI-enabled HR analytics indicate that such systems strengthen managerial capabilities by transforming fragmented HR data into actionable insights that support proactive talent management strategies (Basu et al., 2023). In this context, AI acts as a decision-support infrastructure that enhances managerial capacity to design responsive and adaptive employee experience strategies.

Following the logic of the socio-technical approach shown in Figure 2, effective employee experience management should focus on the complementarity between technological tools and human-centered practices. AI provides a critical analytical foundation by sensing risks such as burnout or skill gaps through real-time data analytics. However, these technological insights only become effective when managers apply them through empathetic coaching and ethical leadership. This division of roles allows managers to reduce time spent on routine administrative tasks and prioritize the cultivation of a strong organizational culture. By following these recommendations, organizations can create a more responsive work environment that supports long-term employee well-being and capability development. Ultimately, this balance ensures that AI acts as a decision-support system that strengthens interpersonal connections without replacing the essential human dimensions of management.

Ethical Considerations and Implementation Challenges of AI in Employee Experience

Despite the considerable opportunities offered by AI-enabled tools in shaping employee experience, their adoption in human capital management introduces significant ethical, social, and operational challenges. Algorithmic bias, resulting from incomplete or unrepresentative data sets or flawed modeling assumptions, can perpetuate or amplify inequities in recruitment, development, and performance evaluation, thereby undermining organizational fairness and employee trust. Similarly, the opacity of AI decision-making processes may compromise procedural justice, as employees may be unable to understand how decisions affecting their careers, compensation, or developmental opportunities are made. In parallel, the increasing reliance on continuous behavioral, biometric, or communication data raises profound concerns regarding employee privacy, informed consent, and the boundaries of legitimate monitoring. A particularly pressing challenge is the rise of "shadow AI," referring to the unauthorized or unmonitored use of AI applications – such as generative tools, analytics plugins, or automated decision aids – by teams or individuals outside formal IT and HR governance structures. Shadow AI introduces inconsistencies in employee-related decision-making, exposes organizations to data security vulnerabilities, and may embed unvalidated algorithms into critical HR processes, potentially compromising both individual and organizational outcomes (Gartner, 2025).

From the perspective of sustainable human capital management, ethical lapses or failures in oversight can erode social sustainability by diminishing trust, engagement, and inclusivity, while operational inconsistencies threaten the long-term resilience and adaptability of the workforce. Therefore, organizations must implement robust governance frameworks that combine human oversight, ethical safeguards, transparency, and participatory design processes. Mechanisms for continuous monitoring, auditing, and regulation of both formal and informal AI applications are essential to ensure that AI supports rather than supplants human judgment, particularly in complex, context-dependent decisions that require empathy, creativity, and social intelligence.

The integration of AI-enabled tools into employee experience requires managerial consideration to ensure both ethical compliance and the achievement of sustainable human capital outcomes. Organizations should design governance structures that embed human oversight and accountability into AI-mediated HR processes, ensuring that decision-making remains transparent, explainable, and aligned with principles of fairness. Employee involvement in the design and deployment of AI applications is essential to foster trust, inclusivity, and acceptance, while robust data stewardship practices must safeguard privacy, define clear boundaries for data collection, and secure informed consent. Managers should also actively monitor the use of informal or shadow AI applications to prevent inconsistencies, data security vulnerabilities, and the incorporation of unvalidated algorithms into critical HR decisions. By integrating these ethical and operational safeguards into broader workforce strategies, organizations can leverage AI to enhance personalization, engagement, and capability development, while simultaneously promoting long-term retention, workforce resilience, and the social dimensions of sustainability. When effectively governed, AI-powered employee experience can act as a strategic enabler for sustainable human capital management, fostering human-centered organizational development while simultaneously enhancing operational efficiency, employee engagement, and long-term retention. By aligning AI adoption with principles of ethical practice and social responsibility, organizations can leverage technological capabilities to advance both individual well-being and organizational resilience, creating a cycle of sustainable workforce development.

To maintain social sustainability and organizational trust, management should adopt a hybrid model that balances AI-driven efficiency with human-centered engagement (Lee, 2025). While AI excels at managing transactional and repetitive tasks, human HR professionals remain indispensable for transmitting organizational culture and fostering meaningful connections – elements captured in the "Four C's" framework: compliance, clarification, culture, and connection (Bauer, 2010; Lee, 2025). This socio-technical approach ensures that technology augments rather than replaces the empathetic and relational aspects of management, preserving the interpersonal dimensions essential for long-term commitment (Lee, 2025). From a managerial perspective, the successful implementation of AI-powered employee experience systems requires the development of several organizational capabilities. First, organizations must establish advanced HR analytics

competencies capable of integrating heterogeneous data sources across the employee lifecycle. Second, cross-functional collaboration between HR, IT, and data science units becomes essential for translating AI insights into actionable HR practices. Third, organizations must cultivate an organizational culture that supports data-informed decision-making while preserving human-centered values in people management. Research on AI-enabled HRM suggests that technological investments alone rarely generate sustainable outcomes unless accompanied by organizational learning, managerial upskilling, and employee participation in the design of AI-enabled HR systems.

DISCUSSION

The proposed analytical framework provides a conceptual interpretation of how artificial intelligence can reshape employee experience management in the context of sustainable human capital management. The findings suggest that AI-powered employee experience should be understood not merely as the digitalization of HR processes but as an organizational capability that enables more adaptive, personalized, and data-driven management of employee interactions across the employee lifecycle. In this light, artificial intelligence supports the alignment between individual employee development, well-being, and broader organizational objectives related to long-term human capital sustainability.

The study also contributes to the literature (Ehnert, 2009; Kramar, 2014; Elias, Sanders, & Hu, 2023; Liang & Li, 2025) by positioning employee experience as a mediating mechanism through which HR practices translate into sustainable human capital outcomes. While prior research has widely examined the role of AI in HR analytics and talent management (Aksoy & Alsaif, 2023; Basu et al., 2023; Pan & Froese, 2023; Prikshat et al., 2023; Nawaz et al., 2024; Kayusi et al., 2025), and separately explored employee experience as a key dimension of modern people management (Morgan, 2017; Plaskoff, 2017; Ghosh & Itam, 2020), the proposed framework integrates these perspectives by demonstrating how AI-enabled employee experience can support sustainable human capital development. In particular, the model highlights the importance of continuous data feedback, personalization mechanisms, and lifecycle-oriented HR processes that allow organizations to anticipate employee needs and design more responsive managerial interventions. From a managerial perspective, the framework emphasizes that the impact of AI-powered employee experience depends not only on technological tools but also on the strategic governance and integration of AI within HR systems. Effective implementation requires coordinated managerial decisions at both input and output levels, including data management, AI tool selection, and the design of employee-centered processes. When properly integrated, AI-powered employee experience may contribute to improved utilization of human capital, enhanced team performance, and greater organizational adaptability in dynamic labor market conditions.

Despite these contributions, the study has several limitations. The research is conceptual in nature and does not provide empirical validation of the proposed framework. In addition, the model does not explicitly address potential differences across industries, organizational sizes, or national institutional contexts that may influence the implementation of AI-powered employee experience systems. These limitations suggest that the proposed framework should be interpreted as a theoretical foundation for further empirical investigation.

CONCLUSIONS

This study develops a conceptual framework explaining how AI-powered employee experience can contribute to sustainable human capital management. The results suggest that artificial intelligence expands the role of employee experience management by enabling continuous data-driven insights, personalized HR practices, and more adaptive management of employee interactions across the employee lifecycle. Within this perspective, AI-powered employee experience can be understood as an organizational capability that supports the strategic alignment between employee development, well-being, and long-term organizational objectives related to sustainable human capital development.

The proposed analytical framework highlights that the contribution of artificial intelligence to sustainable human capital management emerges through the interaction of technological inputs, lifecycle-oriented HR processes, and organizational outcomes. By integrating AI tools such as learning platforms, talent marketplaces, and predictive analytics with employee experience management practices, organizations can improve the responsiveness of HR systems, enhance internal talent utilization, and strengthen organizational adaptability in dynamic labor market conditions. The study therefore, contributes to the literature by linking AI-enabled employee experience with sustainability-oriented human capital management and by conceptualizing employee experience as a mechanism through which HR practices translate into long-term human capital outcomes.

At the same time, the conceptual nature of the study indicates several directions for further research. Future studies may focus on the empirical validation of the proposed framework and examine the relationships between AI-powered employee experience, employee engagement, and organizational performance. Additionally, comparative studies across industries and organizational contexts may provide further insights into how AI-enabled employee experience systems contribute to long-term organizational sustainability.

ADDITIONAL INFORMATION

FUNDING

The Authors received no funding for this research.

CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ДОСВІД ПРАЦІВНИКІВ НА ОСНОВІ ШТУЧНОГО ІНТЕЛЕКТУ ЯК СТРАТЕГІЧНИЙ ФАКТОР СТАЛОГО УПРАВЛІННЯ ЛЮДСЬКИМ КАПІТАЛОМ

Стрімка інтеграція технологій штучного інтелекту в управління бізнес-процесами докорінно трансформує підходи організацій до формування досвіду працівників і розвитку людського капіталу. Водночас посилення уваги до концепції сталого управління людським капіталом актуалізує потребу в таких HR-практиках, які одночасно підтримують професійний розвиток співробітників, їхній добробут і довгострокову результативність організацій. У цьому контексті метою дослідження є концептуалізація досвіду працівника на основі штучного інтелекту як стратегічної організаційної спроможності, що підтримує впровадження принципів сталого управління людським капіталом у діяльності сучасних компаній. Методологічною основою дослідження є концептуально-аналітичний підхід, що поєднує методи теоретичного узагальнення, порівняльного аналізу та систематизації сучасних наукових досліджень у царині застосування штучного інтелекту в управлінні людськими ресурсами та досвідом працівників. На основі проведеного аналізу розроблено розширену аналітичну модель, яка пояснює механізми взаємодії технологій штучного інтелекту, даних про співробітників та HR-практик у процесі формування персоналізованого, орієнтованого на дані досвіду впродовж усього життєвого циклу працівника в організації. Результати дослідження свідчать, що досвід працівників, сформований із застосуванням технологій штучного інтелекту, може виступати стратегічним фактором забезпечення сталого управління людським капіталом, сприяючи узгодженню індивідуального професійного розвитку працівників, їх залученості та досягненням довгострокових цілей організації. Розроблена аналітична модель демонструє, що використання інструментів штучного інтелекту дозволяє підвищити адаптивність HR-процесів, забезпечити більш точну ідентифікацію потреб і запитів працівників і створити умови для персоналізованих управлінських рішень. Водночас дослідження підкреслює важливість комплементарності людського фактора та технологій штучного інтелекту на всіх стадіях життєвого циклу працівника: AI посилює аналітичні та операційні складові HR-процесів, а управлінці зберігають ключову роль у реалізації соціальних і ціннісних аспектів взаємодії з окремими співробітниками та командами. Запропонований концептуальний підхід розширює наукове розуміння ролі AI-орієнтованого досвіду працівників у забезпеченні сталого розвитку людського капіталу та формує теоретичне підґрунтя для інтеграції рішень на основі штучного інтелекту в людиноцентричні HR-стратегії сучасних бізнес-організацій.

Ключові слова: досвід працівників, штучний інтелект (ШІ), цифрова трансформація, досвід працівників на основі штучного інтелекту, управління досвідом працівників, людський капітал, стале управління людським капіталом, життєвий цикл працівника, HR-аналітика

JEL Класифікація: M12, O33, J24, M1