

LEVERAGING ARTIFICIAL INTELLIGENCE FOR STRATEGIC HRM IN PAKISTAN A MULTIDIMENSIONAL ANALYSIS OF PERFORMANCE, WELL-BEING, AND CHALLENGES

Sana Karim

SHRM-SCP | MBA (HRM) | NLP Master Practitioner (ABNLP, USA)

Independent HR Researcher, Karachi, Pakistan

sana.kq@gmail.com

Abstract

Artificial intelligence is rapidly reshaping human resource management by changing how organizations recruit employees, analyze workforce data, support employee well-being, improve performance, and make strategic decisions. In Pakistan, this transformation is especially important because organizations continue to face persistent challenges related to skill shortages, weak governance structures, uneven digital readiness, high implementation costs, and ethical uncertainty. This literature review examines the role of artificial intelligence in strategic human resource management in Pakistan, with particular attention to performance, employee well-being, leadership, HR analytics, recruitment, workforce development, and institutional challenges. Drawing on recent studies from Pakistan's corporate, education, manufacturing, public-sector, and technology-related contexts, the review shows that AI can strengthen evidence-based decision-making, improve administrative efficiency, support competency development, and enhance organizational performance. However, the findings also indicate that AI adoption cannot produce sustainable HR outcomes without human-centered leadership, ethical governance, employee trust, digital literacy, and continuous upskilling. The review further highlights key risks, including algorithmic bias, technostress, employee surveillance, lack of regulatory clarity, and unequal access to AI capabilities across sectors. Overall, the paper argues that AI should not be treated as a replacement for human-centered HRM. Instead, it should be positioned as a strategic support system that strengthens human capability, improves workforce planning, and enables responsible organizational transformation in Pakistan.

Keywords: Artificial intelligence, strategic HRM, Pakistan, HR analytics, employee well-being, workforce performance, digital transformation, AI governance

1. Introduction

Artificial intelligence has moved from being a purely technical innovation to becoming a strategic force in organizational management. Across the world, organizations are using AI to improve recruitment, performance management, employee engagement, learning and development, workforce analytics, and administrative decision-making. In human resource management, this shift is especially significant because HR departments are no longer expected only to manage routine personnel functions. They are now expected to contribute to strategic planning, organizational agility, employee well-being, and long-term workforce capability.

In Pakistan, the relevance of AI-enabled HRM is increasing due to rapid digitalization, competitive pressure, changing employee expectations, and the growing need for data-driven decision-making. Traditional HR practices in many Pakistani organizations remain heavily manual, slow, reactive, and sometimes vulnerable to bias. Recruitment decisions may rely on personal judgment rather than structured assessment, performance management may lack reliable data, and employee development initiatives are often disconnected from future skill requirements. These weaknesses make AI particularly relevant because it can support more systematic decision-making, improve workforce planning, reduce administrative delays, and help organizations identify performance and skill gaps more accurately.

However, AI adoption in Pakistan remains uneven. Private-sector organizations, multinational companies, software houses, export-oriented firms, and some large manufacturing organizations are more likely to experiment with AI-based systems. In contrast, many public-sector organizations and smaller institutions continue to face barriers such as limited infrastructure, bureaucratic procedures, weak digital skills, insufficient investment, and unclear

policy direction. Public-sector readiness is especially important because national AI capacity depends not only on private innovation but also on governance, regulation, data systems, and institutional coordination. Oxford Insights' Government AI Readiness work shows that governments are increasingly being assessed according to their ability to harness AI for public benefit, and Pakistan's readiness remains constrained by gaps in digital capacity, data infrastructure, and policy implementation. (Oxford Insights, 2026)

The central problem is that many organizations view AI as a technological shortcut rather than a strategic HRM transformation. This is a serious mistake. AI cannot improve organizational performance by itself. Its value depends on how it is integrated into human resource systems, leadership practices, employee training, ethical governance, and workplace culture. If AI is introduced without transparency, employee consultation, and proper safeguards, it may increase anxiety, resistance, surveillance concerns, and perceptions of unfairness. If implemented responsibly, however, AI can support better recruitment, stronger HR analytics, personalized training, improved workload management, and more evidence-based decision-making.

This literature review therefore, examines how artificial intelligence can be leveraged for strategic HRM in Pakistan. It focuses on three broad dimensions: organizational performance, employee well-being, and implementation challenges. The paper also considers how leadership, governance, digital skills, and ethical policy frameworks shape the success or failure of AI adoption. By synthesizing existing literature, the review aims to clarify the opportunities and risks of AI-enabled HRM and to identify research gaps that require further academic and professional attention.

2. Methodology

This study adopts a narrative literature review approach to examine the role of artificial intelligence in strategic human resource management in Pakistan. A narrative review is appropriate because the topic is multidisciplinary and still developing, covering areas such as HR analytics, recruitment technology, leadership, employee well-being, AI governance, workforce development, and public-sector digital readiness. Rather than testing a single hypothesis, the purpose of this review is to synthesize existing knowledge, compare major themes, and identify practical and research-based gaps in the Pakistani context.

The review draws on academic sources already identified in the manuscript, including studies on AI adoption, strategic decision-making, HR analytics, recruitment, high-performance work systems, employee support programs, leadership, digital literacy, governance, and workforce development. The included literature covers different sectors, including higher education, manufacturing, corporate organizations, public-sector institutions, software houses, SMEs, and technology-enabled service environments. This range of sources allows the review to examine AI-HRM not as a narrow technical issue but as a broader organizational and institutional transformation.

The selection of studies was guided by four inclusion criteria. First, the source had to address artificial intelligence, digital technology, HRM, leadership, employee performance, workforce development, or organizational decision-making. Second, preference was given to studies connected to Pakistan or comparable developing-economy contexts. Third, the review included both conceptual and empirical studies, including quantitative, qualitative, mixed-method, and review-based research. Fourth, the selected literature had to contribute directly to at least one of the core themes of the paper: strategic HRM, employee performance, well-being, AI governance, workforce capability, or implementation challenges.

The review excluded sources that were unrelated to HRM, organizational performance, workforce development, AI governance, or employee outcomes. Studies dealing only with general education, environmental issues, unrelated social concerns, or non-HRM technology

adoption were not used as central evidence unless they contributed to institutional governance, digital skills, or workforce capability. This helped maintain the focus of the paper and avoided the problem of forcing irrelevant citations into the discussion.

The analysis followed a thematic synthesis approach. The selected literature was reviewed and organized into major themes: AI and strategic decision-making, AI and workforce development, leadership and institutional governance, AI-enabled performance management, employee well-being, HR analytics, recruitment, training, ethical risks, and implementation barriers. This thematic organization allows the review to move beyond simple summary and instead develop an integrated understanding of how AI affects strategic HRM in Pakistan.

3. Literature Review

3.1 AI and Strategic Decision-Making in HRM

Artificial intelligence has become an important tool for strategic decision-making because it enables organizations to process large amounts of information, identify patterns, and make more evidence-based decisions. In HRM, this capability is particularly valuable because workforce decisions often involve complex variables such as employee performance, skills, engagement, turnover risk, training needs, and organizational culture. Iram et al. (2025) argue that AI supports strategic decision-making by improving data analysis, forecasting, and managerial planning. This is especially relevant in Pakistan, where organizations often operate in uncertain economic, institutional, and regulatory environments. Rafiq-uz-Zaman (2024a) similarly emphasizes that decision-making in uncertain environments requires structured, analytical, and flexible approaches. AI can support these requirements by helping HR managers move from reactive decision-making toward predictive and strategic workforce planning.

In the Pakistani context, AI-enabled decision-making can help HR departments identify skill gaps, forecast staffing needs, assess employee performance trends, and support leadership decisions. However, strategic decision-making through AI depends on data quality, managerial competence, and ethical safeguards. Poor data can produce poor decisions, while weak governance can turn AI into a tool for surveillance or biased evaluation. Therefore, AI should be treated as a decision-support mechanism rather than a substitute for human judgment.

3.2 AI, Workforce Development, and Strategic Upskilling

A major theme in the literature is that AI adoption must be connected with workforce capability development. Rafiq-uz-Zaman (2022a) argues that education and training systems must be redesigned to prepare individuals for a rapidly changing workforce. This point is reinforced by Rafiq-uz-Zaman (2022b), who explains that strategic upskilling requires integrating technical expertise with human capabilities. These arguments are directly relevant to AI-enabled HRM because organizations cannot benefit from AI if employees lack digital literacy, adaptability, problem-solving skills, and confidence in working with intelligent systems.

Rafiq-uz-Zaman (2024b) further links skill development and innovation with workforce performance in emerging markets. This suggests that AI should not be used only for automation or monitoring. Instead, it should be integrated into training, competency mapping, career development, and organizational learning systems. In Pakistan, where many organizations face skill shortages and uneven digital readiness, AI can help identify competency gaps and personalize employee development. However, this requires investment in continuous learning rather than one-time technical training.

Rafiq-uz-Zaman (2026) extends this argument through the concept of AI-driven competency-based education, showing that AI can support lifelong learning and skill acquisition in dynamic environments. This has clear implications for strategic HRM. HR departments can use AI to design personalized learning pathways, align training with job roles, and prepare employees for future organizational needs. In this sense, AI becomes not only a technological tool but also a mechanism for long-term human capital development.

3.3 Leadership, Governance, and Institutional Readiness

Leadership is a critical factor in the success of AI adoption. Technology alone cannot transform HRM unless leaders are capable of aligning AI systems with organizational goals, ethical standards, and employee needs. Rafiq-uz-Zaman (2023) shows that leadership styles influence decision-making effectiveness in Pakistani public-sector universities. This finding is relevant to AI-HRM because leaders determine whether AI is introduced transparently, collaboratively, and strategically or imposed rigidly without employee trust.

Rafiq-uz-Zaman et al. (2025b) also demonstrate that leadership styles affect management effectiveness, especially when comparing authoritative and democratic leadership approaches. In AI-driven HRM, this distinction matters because authoritarian implementation may increase resistance, fear, and mistrust among employees. In contrast, participatory leadership can improve acceptance by involving employees in the adoption process, explaining the purpose of AI systems, and addressing ethical concerns. Malik and Rafiq-uz-Zaman (2025) further connect AI with leadership and management quality in Pakistani higher education, suggesting that AI can improve service quality and administrative performance when supported by effective leadership practices.

Governance remains one of the most serious challenges in AI adoption. Ali and Rafiq-uz-Zaman (2025) identify a tension between institutional inertia and ethical innovation, showing that organizations may understand the value of AI but struggle to implement it because of rigid structures, weak governance, and ethical uncertainty. Rafiq-uz-Zaman (2025a) describes a similar problem as an AI policy vacuum in Pakistani higher education. This is highly relevant to HRM because AI-based recruitment, performance evaluation, and employee monitoring require clear rules on fairness, privacy, transparency, and accountability.

Rafiq-uz-Zaman (2025b) also explains that governance crises in Pakistani universities are shaped by structural, political, and institutional drivers. These governance weaknesses may limit responsible AI adoption not only in universities but also in other Pakistani organizations where decision-making is centralized, policies are unclear, and accountability mechanisms are weak. For strategic HRM, this means AI adoption must be accompanied by ethical frameworks, data protection policies, employee consultation, and clear accountability structures.

3.4 AI and Employee Performance

Employee performance is one of the most important areas affected by AI-enabled HRM. AI can support performance management through predictive analytics, workload analysis, competency mapping, real-time feedback, and performance trend identification. However, performance improvement does not happen automatically when organizations adopt AI. It depends on whether AI is used to support employees or merely to control them.

Rafiq-uz-Zaman et al. (2025a) note that the work environment influences employee performance, particularly in educational institutions. This supports the argument that workplace conditions, institutional support, resources, and leadership practices continue to shape employee outcomes even when technology is introduced. If AI is implemented in a weak organizational culture, it may intensify existing problems rather than solve them. For example, AI-based monitoring may increase pressure on employees if it is not paired with fair workload distribution, recognition, training, and support.

Asif and Rafiq-uz-Zaman (2026) provide further insight through their study on quiet quitting among knowledge workers. Their findings highlight leadership, recognition, and workload as important predictors of disengagement. This has direct implications for AI-HRM. If AI systems are used to increase surveillance or intensify work without addressing recognition and workload balance, they may contribute to disengagement. On the other hand, if AI is used to identify burnout risks, improve workload distribution, and support fairer performance evaluation, it can strengthen employee performance and commitment.

3.5 AI, Employee Well-being, and Emotional Intelligence

Employee well-being is central to responsible AI adoption. AI has the potential to reduce repetitive work, automate routine administrative tasks, personalize training, identify stress patterns, and support flexible work arrangements. These benefits can improve job satisfaction and reduce workload pressure. However, AI can also create anxiety, fear of job replacement, digital fatigue, surveillance concerns, and technostress if it is introduced without proper communication and support.

Rafiq-uz-Zaman et al. (2026a) emphasize the relationship between digital literacy, innovation, and well-being, especially among Generation Z. This is important for Pakistan's emerging workforce, where younger employees may be more open to AI but still require training, confidence, and institutional support. Rafiq-uz-Zaman et al. (2026b) further connect emotional intelligence, AI-driven learning, student well-being, and university HR policies. Their work suggests that AI adoption should not be separated from emotional and psychological considerations.

In HRM terms, this means that AI implementation should be guided by emotionally intelligent leadership. Employees need to understand why AI is being adopted, how their data will be used, and how the technology will support rather than threaten them. Without transparent communication, AI may be perceived as a tool of control. With proper leadership, counseling, and humane policy design, AI can support employee well-being while improving organizational effectiveness.

3.6 AI in HR Analytics, Recruitment, and Organizational Efficiency

AI is increasingly being used in HR analytics, recruitment, and administrative decision-making. Khan et al. (2023) discuss the transformative impact of AI applications on HRM, showing that AI can improve efficiency, decision-making, and HR service delivery. Zafar (2023), in a case study of the corporate sector in Karachi, also highlights the potential of AI in HRM, especially in improving administrative processes and organizational responsiveness. Rasheed et al. (2024) connect HR analytics with organizational success in Pakistan, showing that AI-era analytics can help organizations leverage knowledge for better performance outcomes.

Recruitment is one of the most visible areas of AI application. Sial et al. (2025) examine the role of AI in recruitment among SMEs in Pakistan, indicating that AI can support candidate screening, matching, and engagement. AI-based recruitment tools can reduce delays, improve shortlisting, and support more structured hiring decisions. However, recruitment AI also creates risks. If algorithms are trained on biased data, they may reproduce existing discrimination in hiring decisions. For this reason, AI recruitment systems must be transparent, regularly audited, and used alongside human judgment.

Generative AI and chatbot-based systems are also becoming relevant in HR and organizational communication. Khan et al. (2023) discuss AI-enabled chatbot use in Pakistan's tourism sector, showing how conversational AI can support engagement and service delivery. Although their study is not limited to HRM, its implications are relevant for employee support systems, HR help desks, onboarding, and internal communication. Similarly, Oad et al. (2024) examine perceptions of AI in learning optimization in Karachi, which supports the broader argument that AI acceptance depends on user readiness, perceived usefulness, and institutional support.

3.7 AI, High-Performance Work Systems, and Sustainable Performance

The relationship between AI and high-performance work systems is another important theme. Zahoor et al. (2024) examine AI application and high-performance work systems in the manufacturing sector through a moderated-mediating model. Their work is significant because it shows that AI's impact on performance is not direct and automatic; rather, it is shaped by mediating and moderating conditions such as workforce capability, training, and organizational

readiness. This supports the broader argument that AI must be integrated into HR systems rather than implemented as a separate technology project.

Jamil et al. (2025) also examine AI adoption and technological readiness in Pakistani export-sector manufacturing SMEs. Their study highlights the importance of technological readiness in achieving sustainable performance. This is highly relevant for Pakistan because many organizations want the benefits of AI but lack the internal capacity to implement it effectively. AI adoption requires skilled employees, leadership support, reliable infrastructure, and alignment with organizational strategy.

Ali et al. (2025) extend the discussion by linking AI elements, green HR practices, green work commitment, and environmental sustainability. Their work suggests that AI can also support sustainability-oriented HRM, especially when combined with employee commitment and organizational values. This broadens the role of AI-HRM beyond efficiency and performance, showing that AI may contribute to environmental and social objectives when integrated with responsible HR practices.

3.8 AI in Public-Sector and Institutional Contexts

AI adoption in Pakistan cannot be understood without considering public-sector readiness and institutional constraints. Nazir and Gul (2023) discuss AI challenges in Pakistani public-sector organizations, highlighting barriers such as institutional resistance, limited capacity, and governance issues. These challenges are consistent with Rafiq-uz-Zaman's (2025a) argument regarding the AI policy vacuum and Rafiq-uz-Zaman's (2025b) analysis of governance weaknesses in Pakistani universities.

Rafiq-uz-Zaman (2025c) examines AI use in school management in Punjab, Pakistan, and presents AI as a contemporary need for educational administration. Although this study focuses on school management, its implications extend to HRM because educational institutions also require recruitment, training, performance evaluation, workload distribution, employee support, and administrative coordination. Malik and Rafiq-uz-Zaman (2025) similarly emphasize AI's role in educational leadership and management for service quality in Pakistani higher education. These studies suggest that AI can improve institutional management, but only when organizations have the governance capacity, leadership readiness, and employee skills needed for responsible implementation.

3.9 AI-Driven Innovation, Employee Support, and Human-Centered HRM

Recent studies also emphasize the human-centered side of AI adoption. Faheem et al. (2024) examine AI-driven innovation in HRM and its impact on business management, showing that technological advancement must be connected to strategic implementation. This is important because AI can improve HR outcomes only when it is aligned with business goals, employee needs, and organizational systems.

Hanif et al. (2026) focus on the role of AI and digital technologies in employee support programs in Pakistan's public and private sectors. Their work is especially relevant to employee well-being because it suggests that AI can help organizations manage workplace stress, improve support systems, and enhance productivity. However, this benefit depends on responsible implementation. AI-enabled support programs should not become superficial digital tools; they must be integrated with real HR policies, counseling support, workload management, and employee trust.

Fatima et al. (2025) also highlight the role of HRM in teacher training for inclusive education. While their study is education-focused, its HR implications are broader. It shows that training, inclusion, and human resource development are central to institutional effectiveness. In AI-enabled workplaces, HR departments must ensure that employees are not excluded because of low digital skills, lack of access, disability, age, gender, or limited exposure to technology. Therefore, AI-HRM in Pakistan must be inclusive, ethical, and development-oriented.

3.10 Synthesis of the Literature

Overall, the literature shows that AI has strong potential to transform strategic HRM in Pakistan, but this transformation depends on the quality of implementation. AI can improve decision-making, recruitment, HR analytics, performance management, training, employee support, and institutional efficiency. However, the literature also shows that AI adoption is constrained by governance gaps, policy ambiguity, weak digital readiness, high costs, skill shortages, ethical concerns, and employee anxiety.

A clear pattern emerges from the reviewed studies: AI produces the strongest HR outcomes when it is connected with human capability. Strategic upskilling, digital literacy, leadership transformation, employee engagement, emotional intelligence, and ethical governance are not optional additions; they are necessary conditions for successful AI adoption. In Pakistan, organizations that adopt AI without investing in people are likely to experience resistance, misuse, or limited impact. Organizations that combine AI with training, transparent leadership, fair policies, and employee-centered implementation are more likely to achieve sustainable performance gains.

Therefore, AI should not be framed as a replacement for HR professionals or human judgment. It should be understood as a strategic support system that improves the quality, speed, and evidence base of HR decisions while preserving human dignity, fairness, and employee well-being. This human-centered approach is especially important for Pakistan, where institutional weaknesses and uneven digital capacity can easily turn AI from an opportunity into a source of inequality and mistrust.

4. AI Applications in Key HRM Functions

Artificial intelligence is increasingly being applied across core human resource management functions in Pakistan, particularly in recruitment and selection, HR analytics, performance management, training, employee engagement, and well-being support. These applications show that AI is not a single tool but a broad set of technologies that can support decision-making, automate routine processes, and improve the strategic role of HR departments.

4.1 Recruitment and Selection

Recruitment and selection are among the most visible areas of AI application in HRM. Traditional recruitment practices in Pakistan often involve manual screening, personal references, lengthy shortlisting procedures, and subjective decision-making. AI can improve these processes by automating résumé screening, matching candidates with job requirements, supporting video interviews, and improving communication with applicants. Sial et al. (2025) highlight the role of AI in recruitment among SMEs in Pakistan, showing that AI-supported recruitment can improve candidate matching and strengthen engagement when implemented properly.

AI-based recruitment systems can reduce administrative delays and help HR departments manage a large number of applications more efficiently. In the corporate sector, Zafar (2023) reports that AI utilization is strongly associated with improved HR efficiency and administrative streamlining. However, recruitment AI also creates serious ethical concerns. If algorithms are trained on biased historical data, they may reproduce discrimination based on gender, ethnicity, educational background, location, or institutional prestige. Therefore, AI should support recruitment decisions but should not replace human judgment entirely.

4.2 HR Analytics and Evidence-Based Decision-Making

HR analytics is another major area where AI can improve strategic HRM. In conventional HR systems, employee data is often underused, fragmented, or limited to basic administrative records. AI-enabled HR analytics allows organizations to identify workforce patterns, predict turnover risks, assess training needs, evaluate employee performance trends, and support strategic workforce planning. Rasheed et al. (2024) emphasize the importance of human

resource analytics in the AI era, arguing that organizations in Pakistan can use knowledge-based analytics to improve organizational success.

AI also strengthens evidence-based decision-making by reducing reliance on intuition alone. Iram et al. (2025) argue that AI improves strategic decision-making by helping organizations analyze complex information and identify emerging patterns. In HRM, this means that decisions related to hiring, promotion, training, workload allocation, and retention can be made with stronger analytical support. However, the quality of HR analytics depends on the quality of data. Incomplete, biased, or poorly managed data can produce misleading recommendations and damage employee trust.

4.3 Performance Management and High-Performance Work Systems

AI can also improve performance management by helping organizations monitor performance indicators, identify productivity trends, map employee competencies, and provide timely feedback. In manufacturing organizations, AI has been linked with high-performance work systems, particularly when supported by employee development and training. Zahoor et al. (2024) show that AI application in the manufacturing sector can support high-performance work systems through a moderated-mediating model, indicating that AI's impact depends on organizational readiness and human capability development.

This finding is important because it shows that AI does not automatically improve performance. The relationship between AI and performance is shaped by mediating factors such as potential development, training, employee capability, and management support. Rafiq-uz-Zaman (2024b) also connects skill development and innovation with workforce performance in emerging markets, reinforcing the point that technology must be linked with human capital development. Therefore, organizations in Pakistan should use AI to strengthen performance systems, not merely to increase surveillance or pressure.

4.4 Training, Learning, and Workforce Development

Training and development are central to successful AI adoption. AI can help HR departments identify skill gaps, design personalized learning pathways, recommend training programs, and track employee development. Rafiq-uz-Zaman (2022a) stresses the need to redesign education and training systems for a rapidly changing workforce, while Rafiq-uz-Zaman (2022b) argues that strategic upskilling must combine technical expertise with human capabilities. These arguments are highly relevant for Pakistani organizations because AI adoption requires employees who are digitally literate, adaptable, and capable of working with intelligent systems.

Rafiq-uz-Zaman (2026) further explains that AI-driven competency-based education can support lifelong learning and skill acquisition. This idea can be applied directly to HRM. Instead of treating training as a one-time activity, organizations should use AI to create continuous learning systems. Fatima et al. (2025) also show the importance of HRM in training and inclusive development, which supports the argument that AI-enabled training should be accessible, inclusive, and aligned with employee needs.

4.5 Employee Well-being and Support Systems

AI is increasingly being used to support employee well-being through workload analysis, digital counseling systems, stress monitoring, chatbots, and personalized support services. Hanif et al. (2026) examine the role of AI and digital technologies in employee support programs in Pakistan's public and private sectors, suggesting that AI can help reduce stress and improve productivity when implemented responsibly. Similarly, Rafiq-uz-Zaman et al. (2026b) connect emotional intelligence, AI-driven learning, well-being, and HR policy, showing that AI adoption must include psychological and emotional considerations.

However, AI can also harm well-being if it is introduced poorly. Employees may experience anxiety about job security, increased surveillance, data misuse, and lack of transparency. Asif

and Rafiq-uz-Zaman (2026) show that leadership, recognition, and workload are important predictors of quiet quitting among knowledge workers. This suggests that AI-based HR systems must support fair workload management, recognition, and employee trust rather than intensifying control.

4.6 AI Chatbots and Employee Communication

AI chatbots are becoming useful in HR communication, onboarding, employee query management, and digital assistance. Khan et al. (2023) show that chatbots can influence engagement and service outcomes in Pakistan's tourism sector. Although their study focuses on customer loyalty, the findings are relevant to HRM because chatbots can also support employee communication, internal service delivery, and HR helpdesk functions.

In HR departments, chatbots can answer routine questions about leave policies, benefits, attendance, training schedules, and onboarding procedures. This reduces administrative burden and allows HR professionals to focus on strategic issues. However, chatbot systems must be designed carefully. Employees should know when they are interacting with AI, how their data is being used, and when human support is available.

5. Results and Discussion

The reviewed literature shows that AI has a significant and growing influence on HRM practices in Pakistan. However, the impact of AI is not uniform across sectors. It varies according to organizational size, leadership quality, digital readiness, employee skills, governance structures, and the purpose for which AI is adopted.

5.1 Sectoral Differences in AI Adoption

AI adoption appears stronger in private-sector organizations, software houses, multinational companies, export-oriented manufacturing firms, and urban corporate environments. These organizations usually have better digital infrastructure, stronger exposure to global business practices, and greater pressure to improve efficiency. Zafar (2023) shows that AI has meaningful potential in Karachi's corporate sector, especially for improving HR efficiency and administrative effectiveness. Rasheed et al. (2024) similarly show that HR analytics can help organizations in Pakistan use knowledge more effectively for organizational success.

In the manufacturing sector, Zahoor et al. (2024) show that AI application is linked with high-performance work systems. This suggests that AI can support industrial HRM by improving performance monitoring, workforce planning, skill development, and productivity-related decision-making. Jamil et al. (2025) also show that AI adoption and technological readiness influence sustainable performance in Pakistani export-sector manufacturing SMEs. These findings suggest that AI is particularly valuable in sectors where competitiveness depends on productivity, quality, innovation, and workforce efficiency.

The public sector shows a slower and more uneven pattern of AI adoption. Nazir and Gul (2023) identify several challenges faced by public-sector organizations in Pakistan, including institutional resistance, limited readiness, and governance-related barriers. Rafiq-uz-Zaman (2025a) also highlights the AI policy vacuum in Pakistani higher education, while Rafiq-uz-Zaman (2025b) explains how leadership and governance crises affect institutional performance. These studies indicate that public-sector AI adoption requires more than technological investment. It requires policy clarity, leadership reform, accountability, training, and institutional readiness.

5.2 AI and Organizational Performance

The literature consistently suggests that AI can improve organizational performance, but only when it is integrated with human capability and organizational strategy. AI can reduce administrative burden, improve the speed of HR processes, strengthen decision-making, support employee development, and improve performance management. Faheem et al. (2024) argue that AI-driven innovation in HRM can influence business management when supported

by strategic implementation. This means that AI must be linked with organizational goals rather than used as an isolated digital tool.

In manufacturing and export-oriented organizations, AI appears especially useful when connected with high-performance work systems, technological readiness, and employee capability development. Zahoor et al. (2024) show that the relationship between AI and high-performance work systems is shaped by mediating and moderating factors. Jamil et al. (2025) similarly emphasize technological readiness and sustainable performance in Pakistani manufacturing SMEs. These findings suggest that AI works best when employees are trained, systems are ready, and leadership supports implementation.

5.3 Human Capital as the Central Mediator

A major conclusion from the reviewed literature is that AI does not create value by itself. Human capital is the bridge between AI adoption and organizational success. Rafiq-uz-Zaman (2022b) argues that strategic upskilling must combine technical and human capabilities, while Rafiq-uz-Zaman (2024b) links workforce performance with skill development and innovation. These studies support the view that AI must be integrated with continuous learning, digital literacy, and employee capability-building.

The same pattern appears in studies on SMEs and manufacturing organizations. Jamil et al. (2025) show that technological readiness and employee capacity are important for sustainable performance, while Zahoor et al. (2024) show that AI's effect on high-performance systems depends on developmental mechanisms within the organization. This suggests that Pakistani organizations should not expect AI to solve performance problems unless employees are prepared to use it effectively.

5.4 The Paradox of Efficiency and Anxiety

AI creates a paradox in HRM. On one side, it improves efficiency, reduces repetitive work, supports faster decisions, and improves administrative systems. On the other side, it may increase anxiety, fear of replacement, surveillance concerns, and technostress. Hanif et al. (2026) show that AI and digital technologies can support employee well-being and productivity, especially when used in employee support programs. However, Asif and Rafiq-uz-Zaman (2026) show that workload, recognition, and leadership remain central to employee disengagement.

This means that AI adoption can either reduce stress or create stress, depending on how it is managed. If AI is introduced as a support system, employees may experience greater efficiency and reduced workload. If it is introduced as a monitoring and control mechanism, employees may experience anxiety and mistrust. Rafiq-uz-Zaman et al. (2026b) therefore emphasize the importance of emotional intelligence and well-being-oriented HR policies. AI adoption must be balanced with transparent communication, employee counseling, fair evaluation systems, and humane leadership.

5.5 Leadership and Governance as Success Conditions

Leadership and governance are among the most important conditions for successful AI adoption. Rafiq-uz-Zaman (2023) shows that leadership styles influence decision-making effectiveness in Pakistani public-sector universities. Rafiq-uz-Zaman et al. (2025b) also demonstrate that leadership style affects management effectiveness. These findings are directly relevant to AI-HRM because leadership determines whether AI is implemented ethically, transparently, and strategically.

Ali and Rafiq-uz-Zaman (2025) identify a tension between institutional inertia and ethical innovation. This tension is visible in many Pakistani organizations, where leaders may recognize the value of AI but lack the institutional capacity or willingness to implement it responsibly. Rafiq-uz-Zaman (2025a) further highlights the problem of policy ambiguity in AI

adoption. Without governance frameworks, AI can create risks related to bias, privacy, surveillance, and unfair decision-making.

5.6 Sustainability and Broader Organizational Value

AI also has implications beyond efficiency and productivity. Ali et al. (2025) link AI elements and green HR practices with environmental sustainability, suggesting that AI can support broader organizational responsibility when aligned with employee commitment and sustainability goals. This expands the discussion of AI-HRM from administrative efficiency to strategic organizational value.

For Pakistan, this is important because organizations increasingly need to compete not only on cost and productivity but also on sustainability, innovation, employee welfare, and responsible governance. AI can support these goals, but only when HR policies are aligned with ethical, social, and environmental priorities.

6. Challenges and Ethical Barriers

Despite its potential, AI adoption in HRM creates several challenges for Pakistani organizations. These challenges are not minor technical issues. They directly affect fairness, employee trust, organizational credibility, legal compliance, and long-term sustainability.

6.1 Algorithmic Bias and Fairness

Algorithmic bias is one of the most serious risks in AI-enabled HRM. AI systems learn from existing data. If that data reflects historical discrimination, social inequality, or biased hiring patterns, the system may reproduce those biases. In recruitment, this may disadvantage candidates based on gender, ethnicity, region, educational institution, socioeconomic background, or language ability.

Ali and Rafiq-uz-Zaman (2025) emphasize the ethical dimension of AI governance, showing that innovation must be balanced with accountability. In HRM, ethical AI requires regular auditing, transparent criteria, human oversight, and appeal mechanisms. AI should assist decision-making, but final HR decisions should remain accountable to human managers.

6.2 Data Privacy and Employee Surveillance

AI-based HR systems often require employee data, including performance records, attendance patterns, communication behavior, training activity, and engagement indicators. Without proper data governance, this can become invasive. Employees may feel that AI is being used to monitor them rather than support them.

Rafiq-uz-Zaman (2025a) highlights the problem of policy ambiguity in AI adoption. In HRM, this ambiguity can create serious privacy risks. Organizations need clear rules on what data is collected, why it is collected, who can access it, how long it is stored, and how it is used in employment decisions.

6.3 Technostress and AI Anxiety

AI adoption can produce technostress when employees feel overwhelmed by new systems, fear job replacement, or lack confidence in using digital tools. Hanif et al. (2026) show that AI can support employee well-being, but this benefit depends on responsible implementation. If AI is introduced without training and communication, it may increase psychological pressure.

Asif and Rafiq-uz-Zaman (2026) show that workload, leadership, and recognition affect disengagement among knowledge workers. This is relevant because poorly implemented AI may intensify workload pressure or reduce employees' sense of recognition. Employees may feel that their work is being reduced to metrics and dashboards.

6.4 Skill Gaps and Digital Readiness

Skill shortages remain a major barrier to AI adoption in Pakistan. Many organizations lack employees who understand data science, HR analytics, machine learning, digital ethics, and AI governance. Rafiq-uz-Zaman (2022a, 2022b) emphasizes the importance of workforce

redesign and strategic upskilling. Without these capabilities, AI systems may be underused, misused, or resisted.

Digital readiness also varies across sectors. Large organizations may have the resources to adopt AI systems, while SMEs and public-sector institutions may struggle with infrastructure, cost, and training. Jamil et al. (2025) show that technological readiness is important for sustainable performance in export-sector manufacturing SMEs. This suggests that AI adoption must be gradual, contextual, and supported by capacity-building.

6.5 High Cost of Implementation

AI systems can be expensive to procure, customize, maintain, and secure. Smaller organizations may not have the budget to implement advanced HR analytics platforms or AI recruitment tools. Even when software is available, organizations still need training, data systems, technical support, cybersecurity measures, and governance frameworks.

High cost is especially problematic when organizations adopt AI without a clear strategy. In such cases, AI becomes an expensive symbolic tool rather than a meaningful HR transformation. Faheem et al. (2024) emphasize that AI-driven innovation requires strategic implementation. This means organizations should adopt AI based on clear HR needs, not because of technological pressure or trend-following.

6.6 Weak Governance and Policy Vacuum

Weak governance is one of the largest barriers to responsible AI-HRM in Pakistan. Rafiq-uz-Zaman (2025a) identifies an AI policy vacuum in Pakistani higher education, while Rafiq-uz-Zaman (2025b) highlights broader leadership and governance crises. Nazir and Gul (2023) also show that public-sector organizations face significant AI-related challenges.

For HRM, weak governance can result in unclear accountability, unfair evaluation systems, biased recruitment, privacy violations, and employee distrust. Therefore, AI adoption should be accompanied by policy frameworks, ethical review mechanisms, employee consultation, and transparent implementation guidelines.

7. Research Gaps

Although the literature on AI and HRM in Pakistan is expanding, several important gaps remain.

First, most available studies focus on urban centers such as Karachi, Lahore, and Islamabad. This creates a geographical limitation. There is limited evidence on AI adoption in smaller cities, rural organizations, public-sector departments outside major urban centers, and less-developed regions of Pakistan.

Second, the literature remains concentrated in certain sectors, especially education, manufacturing, corporate organizations, software houses, SMEs, and public-sector institutions. More research is needed in agriculture, healthcare, banking, judicial administration, logistics, retail, and informal-sector employment. These sectors are important for Pakistan's economy but remain underexplored in AI-HRM research.

Third, many studies rely on cross-sectional designs. Cross-sectional research can show relationships at one point in time, but it cannot explain how AI adoption affects employees, organizational culture, performance, and retention over several years. Longitudinal studies are needed to understand whether AI produces sustainable benefits or creates long-term stress and resistance.

Fourth, more qualitative research is needed on employee experiences. Much of the existing literature focuses on organizational outcomes, efficiency, performance, and adoption. Less attention is given to how employees feel about AI, whether they trust AI systems, how AI affects their psychological well-being, and whether they perceive AI-based decisions as fair.

Fifth, there is a need for research on indigenous AI solutions in Pakistan. Many organizations rely on imported or proprietary AI platforms, which may create issues related to cost,

customization, data security, and cultural fit. Future research should compare locally developed AI tools with international platforms to assess affordability, effectiveness, and ethical suitability.

Sixth, more research is needed on AI governance in HRM. Existing studies highlight ethical concerns and policy ambiguity, but there is limited work on practical frameworks for responsible AI implementation in Pakistani organizations. Future studies should examine how organizations can create AI audit systems, data protection policies, employee consent frameworks, and transparent HR decision-making processes.

8. Recommendations

Based on the reviewed literature, several recommendations can be proposed for organizations, HR professionals, policymakers, and researchers.

8.1 Recommendations for Organizations

Pakistani organizations should treat AI adoption as a strategic HR transformation rather than a simple technology upgrade. Before adopting AI tools, organizations should identify clear HR problems, such as recruitment delays, weak performance tracking, training gaps, workload imbalance, or employee disengagement. AI should then be selected and implemented according to these needs.

Organizations should also invest in workforce upskilling. Employees and HR professionals need training in digital literacy, HR analytics, AI ethics, data interpretation, and responsible technology use. Without these capabilities, AI adoption will remain superficial.

Organizations should also develop clear policies on AI use in HRM. Employees should know how AI systems work, what data is collected, how decisions are made, and how they can challenge unfair outcomes. Transparency will be essential for building trust.

8.2 Recommendations for HR Professionals

HR professionals should not see AI as a threat to their role. Instead, they should use AI to strengthen their strategic contribution. AI can automate routine work, but HR professionals are still needed for judgment, empathy, conflict resolution, policy design, ethical oversight, and employee support.

HR departments should use AI for employee development, not only for monitoring. AI tools should help identify training needs, improve workload balance, support well-being, and personalize career development. If AI is used only for surveillance, it will damage employee trust.

8.3 Recommendations for Policymakers

Policymakers should develop national and sector-level guidelines for responsible AI use in employment and HRM. These guidelines should address algorithmic fairness, data privacy, employee consent, transparency, accountability, and anti-discrimination protections.

Pakistan also needs stronger public-sector readiness for AI. This requires investment in digital infrastructure, training for public-sector employees, data governance systems, and ethical AI frameworks. Without public-sector readiness, AI adoption will remain uneven and fragmented.

8.4 Recommendations for Researchers

Future researchers should conduct longitudinal studies on AI-HRM in Pakistan to examine how AI affects employee retention, organizational culture, trust, and performance over time. More qualitative studies are also needed to capture employee voices, especially regarding AI anxiety, surveillance concerns, and perceptions of fairness.

Researchers should also expand beyond major cities and commonly studied sectors. Studies on agriculture, healthcare, banking, retail, judicial systems, and rural organizations would provide a more complete understanding of AI adoption in Pakistan.

9. Conclusion

Artificial intelligence has the potential to transform strategic human resource management in Pakistan by improving recruitment, HR analytics, decision-making, performance management, training, employee support, and organizational efficiency. The reviewed literature shows that AI can help organizations move from traditional, manual, and reactive HR practices toward more data-driven and strategic systems.

However, the evidence also shows that AI is not a guaranteed solution. Its success depends on leadership quality, digital readiness, ethical governance, employee trust, workforce upskilling, and human-centered implementation. AI can improve efficiency and reduce repetitive work, but it can also create anxiety, surveillance concerns, algorithmic bias, and employee resistance if implemented poorly.

For Pakistan, the most important lesson is that AI adoption must be responsible, inclusive, and strategic. Organizations should not adopt AI simply to follow global trends. They should adopt it to solve real HR problems, strengthen human capability, support employee well-being, and improve organizational performance. AI should therefore be understood not as a replacement for human resource professionals, but as a strategic support system that enhances human judgment, improves evidence-based decision-making, and strengthens the future of work in Pakistan.

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