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The Impact of Artificial Intelligence on Enhancing Predictive Decision-Making in Human Resource Management: An Empirical Analysis within the Tunisian Context

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Abstract

Across our interconnected world, the incorporation of artificial intelligence (AI) is reshaping how human resource management (HRM) makes its decisions (Amamou Mériam, 2023). In a country like Tunisia, which is committed to becoming a digital society, AI-based analytics is seen as just a starting point for improving HR forecasting and strategic influence, and it comes with inherent socio-cultural issues (Haak-Saheem, W et al., 2024). It is based on this that we turn to examine current research and applications of AI in HRM in Tunisia. We will explore both the factors promoting and those impeding adoption. Further, we critically assess ethical, organizational, and regulatory factors (Muraleedharan NV et al., 2025). Utilizing both new case studies and a comparison of the relevant literature, this article provides helpful guidelines for leveraging predictive HRM specifically within the Tunisian landscape. We highlight key areas such as the value of AI that focuses on human needs (Tembine, H et al., 2024), strong data management, and expanding the skills of the workforce to enable comprehensive growth.

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1 Introduction

The fields of artificial intelligence (AI) and machine learning (ML) are revolutionizing human resource management. A study by Eliades et al. (2023) supports the use of AI and ML in HR decision-making processes. Based on "Mapping the Landscape of AI-Driven Human Resource Management: A Social Network Analysis of Research Collaboration" by Haak-Saheem et al. (2024), HRM around the world to benefit from predictive analytics and automated recruitment processes for efficiency and effectiveness. In developing countries, such as Tunisia, the digitalization of HR is a strategic imperative and a competitive advantage in a context of accelerating technological transformations (Dergaa et al., 2024). Although many studies have been conducted on the benefits of AI in HRM abroad, attention, however, was rarely paid to the opportunities and threats to AI in Tunisia (Tembin Hé et al., 2024).

Thus, this paper will explore: (1) the effect of AI on HR decision-making in Tunisia; (2) HR predictive analytics; (3) challenges of context relevant to Tunisia; and (4) how to successfully adopt AI in the Tunisian context. Specific case studies and policy documents from Tunisia, as well as academic literature, are included to present a comprehensive overview. By addressing technology, culture, and organizational capacity interplay, this article supports a responsible, forward-looking AI adoption in Tunisian HRM, noting that context-specific strategies are key to leveraging AI's potential effectively.

Theoretical background and literature review

Recently, the usefulness of artificial intelligence (AI) in the decision-making process became a disruptor in many domains, such as Human Resource Management (HRM). In this study, we analyze the influence of AI-based decision-making on predictive HRM in the case of Tunisia. Theory-wise, AI is believed to support predictive analytics by providing better data processing and analysis facilities, so HR specialists can make more informed decisions on talent management, employee retention, and workforce planning (Verhoef et al., 2021).

In Tunisia, applying AI tools in HRM is a relatively new practice with huge potential to change old habits. We intend here to explore the opportunities and challenges that come along with such AI-based predictive HRM, after reviewing the literature, taking into account the socio-economic and cultural factors specific to the Tunisian context. These findings will channel knowledge on how AI can impact HR strategy and shape HR strategies that optimize the organizational outputs and foster sustainable development in Tunisia.

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Digital transformation and the rise of predictive HRM

The transformation of HRM through digital means involves moving HR processes online and increasingly relying on predictive, data-driven management. "AI-Augmented HRM: Literature review and a proposed multilevel framework for future research" covered this subject. While in the past, the traditional HRM could be restricted to predominantly operate in an operational and administrative dimension, antecipatory HRM today includes: the use of broad organizational data bases to foresee staff needs, predict employee turnovers and track talent in the companies (cf. "Influence of artificial intelligence in human resource management: a comprehensive review"- Muraleedharan et al., 2025). Predictive analytics uses statistical models along with machine learning and natural language processing [NLP] to apprehend patterns, to surface potential problems, and to give insights, such as "Artificial Intelligence Models and Employee Lifecycle Management: A Systematic Literature Review" (Amamou Mériam, 2023).

With these advanced tools, organizations can better match HR strategies to their broader business objectives, making sure their workforce is ready for both present and future demands (Santone, 2020). Adopting these technologies, HR is more at the center stage in the organization's survival and success, and hence the need to embrace disruptive changes in the business world (Muraleedharan et al., 2025). By utilising these advancements, HR can significantly enhance business results and lift employee spirits, creating a work culture that encourages ongoing growth and is adaptable when addressing market fluctuations.

Artificial intelligence and decision-making in HR

AI is mainly utilized by HR in employment-related decision-making, such as in talent acquisition, recruitment screening, onboarding, performance management, and retention prediction (Alqahtani et al., 2024). On a global scale, AI has been found to make recruitment processes more objective (with consequential decreased bias) as well as to

bring efficiencies and an enhanced strategic, productive role and strategic focus to HR practitioners (Tembin Hé et al., 2024). But the major drawbacks of AI in HR also need to be recognized. If these AI tools are poorly engineered or harnessed incorrectly, they may perpetuate biases and begin to operate in a manner that is difficult to understand, leading to a decrease in consumers' trust (Baki et al., 2023). What is more, we have to deal with the ethics associated with AI in HR, as the judgment taken by algorithms could result in unintended consequences when it comes to fair hiring and assessment of employees (Eliades et al., 2023). So, while AI could revolutionize HR, a great deal of careful consideration and strong ethical guidance will be needed to extract the gains without the pains.

The Tunisian HR context

Major sectors of the Tunisian economy, such as services, manufacturing, and a vibrant startup scene, lay the groundwork for the country's digital transformation leadership in North Africa. This is especially clear in Enterprise Human Resource Management, where Artificial Intelligence and Digital Technology are having a major impact (Muraleedharan et al., 2025). The "Tunisia Digital 2025" plan and other sector-specific initiatives have already prioritised digital literacy and e-governance in an effort to develop a more connected and productive economy (Amamou Mériam, 2023). Evidence-based Human Resource Management (HRM) is becoming increasingly popular, although problems still remain. Limited digital infrastructure, unclear regulations, and a lack of AI expertise in HR create hurdles (Tembin Hé et al., 2024). Furthermore, organizational hierarchies and a general wariness regarding automation—cultural elements, generally speaking— affect how new technologies are adopted, influencing change management and highlighting the complexities of introducing innovation into established systems (Haak-Saheem et al., 2024).

AI adoption in Tunisian HR practice

The usage of artificial intelligence (AI) in human resources (HR) in Tunisia is helping to make decisions based on data. The goal of these processes is to improve both the efficiency of operations and the commitment of workers (Zhang & Lu, 2021). Tunisian companies, as they face mounting market rivalry alongside intricate talent management issues, are increasingly using AI to more easily gather and examine extensive workforce data, to speed up the recruitment cycle and shore up retention tactics. This trajectory reflects worldwide inclinations, with HR divisions using AI-based mechanisms like forecasting tools to anticipate possible employee departure and bring employee skill sets into line with key business goals (Muraleedharan et al., 2025). Further, the Covid-19 pandemic sped up the inevitable move from printed to digital HR practices, evidencing an impressive transformation in skill-building capacities to Tunisian HR professionals (Alqarawy, 2024). The AI tools need to be regionally smart, friendly, and ensure that the content of the algorithms is culturally sound and inclusive (Tembin Hé et al., 2024). Such factors are really important, since they can help reduce the dangers stemming from skewed AI frameworks that might unintentionally worsen disparities in the labor pool (OECD, 2023). So, the path toward predictive HR management in Tunisia entails not just embracing technology but also developing a solid grasp of how these breakthroughs can steadily upgrade human capital oversight within the nation's socio-economic environment; generally speaking, this approach seems to hold the most promise.

Current state of AI in Tunisian HR

In Tunisia, companies such as in banking, telecoms, and IT are starting to trial AI HR platforms that manage recruitment, onboarding, and workforce analytics. This reflects a broader global shift towards tech-driven human resource management (HRM). For example, numerous major banks leverage applicant tracking systems (ATS) with native AI just to assist with candidate assessment, which helps them remain in compliance. Amamou Mériam (2023), notes that the use of AI can lead to increased efficiency in recruitment. New entrants into the economy and the job marketIncubators of startups and providers of tech forecasts, are in the first line of future technologies to workforce planning (Haak-Saheem et al., 2024). Government pilot programs, like digital talent registers and e-recruitment portals, show growing public-sector interest but also a gap between policy and practical implementation, as noted in various sectors worldwide (Haak-Saheem et al., 2024). This difference shows how important it is to find good ways to make AI use in HR fit with the needs of Tunisian businesses (Muraleedharan et al., 2025).

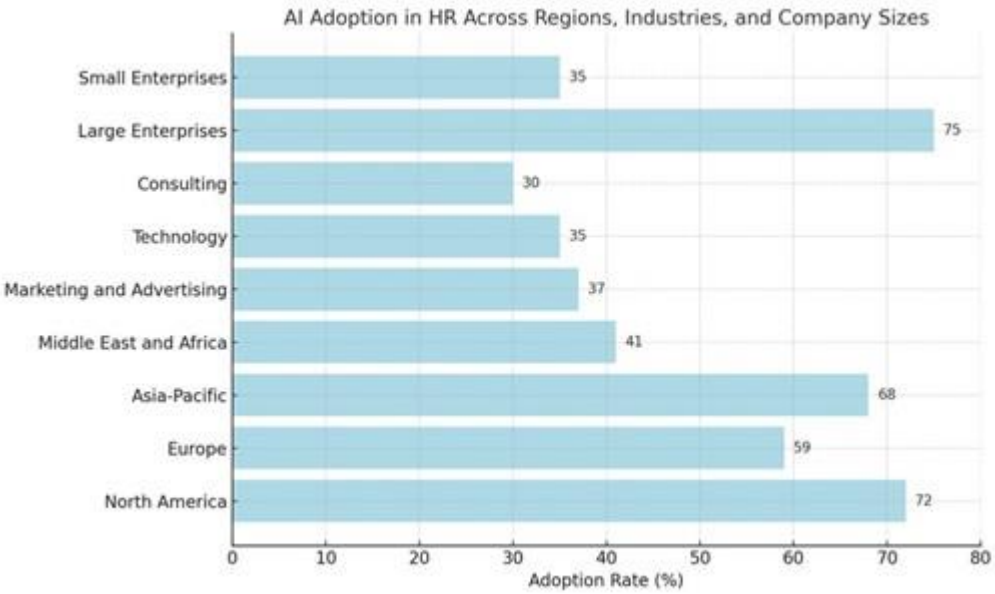

Figure 1. AI adoption in HR across regions, industries, and company sizes

Note. This bar graph conveys the take-up of AI by HR in various regions, sectors, and firm sizes. It also notes that big companies are taking advantage (75% adoption) while the likes of consultants show lower rates at about 30%. The information illustrates a pronounced diversity regarding the use of AI in HR on a global scale.

In Tunisian firms, the gap between Labor-intensive firms and consulting firms in terms of dependence on AI techniques is clearly significant, according to the textual description. In fact, 75% of large businesses already use AI within their HR functions, demonstrating there is strong adoption of the latest technology pouring into front-line operations. Comparatively, approximately 30% of consulting organizations use AI for similar aims, therefore indicating less use of digital technologies in the industry.

2 Research methodology

Based on interviews with Tunisian human resource managers across banking, telecom, and government sectors, and enriched by survey data from tech incubators, this section aims to illuminate the shifting HR landscape in Tunisia. Local tech incubators gave us insights into this area. Additional secondary reports from the Tunisian Ministry of Digital Economy also offer useful background that supports our investigation into technology uptake and its relation to employment (Muraleedharan et al., 2025). Bringing these sources together serves to emphasize the challenges of the Tunisian labour market and can be aligned with national digitalisation aims as they are currently defined (Muraleedharan et al., 2025). Such an approach contributes to providing a better understanding of AI in HR, especially in banking, where efficiency is paramount (Amamou Mériam, 2023).

3 Analysis and Results

As a rule, new technologies are embraced first by large financial institutions and tech companies. It is also important to mention that new methodologies are emerging thanks to startups, showing the dynamism of technological innovation in these fields (Muraleedharan et al., 2025).

Smaller businesses, because of budget constraints, mainly rely on readily available HR analytics software. In this case, it illustrates their limited access to fewer resources than their larger counterparts. Up to now, main obstacles such as poor digital infrastructure, conflicts with automated processes, and issues related to data protection and employee

monitoring (Amamou Mériam, 2023) are revisited in this paper. As the report states, in relative terms and compared to many of its MENA (Middle East and North Africa) neighbors, Tunisia shows the largest digital lag in the distribution of digital technologies; however, the depth and breadth of technology use still lag behind the global frontier, highlighting the need for efforts to enhance targeted digital capabilities (2024). This underscores the imperative to comprehend the possibilities as well as the difficulties encountered by regional organizations as they guide the intricacies of digital mutation and knowledge management (Haak-Saheem et al., 2024).

Table 1
Impact of AI on HR Decision-Making: Key Findings

Statistic	Value
Percentage of HR professionals who believe AI is a valuable tool in recruitment processes	86%
Average reduction in time-to-hire due to AI implementation	40%
Percentage of HR professionals who say AI improves assessment accuracy in hiring	55%
Percentage of HR executives who believe AI improves the quality of hire	65%
Percentage of companies reporting increased productivity after adopting AI in HR processes	80%
Percentage of HR leaders who agree AI can predict employee turnover accurately	50%
Percentage of HR professionals who report that AI increases fairness in performance evaluations	58%
Percentage of HR professionals who indicate that AI helps in better compliance with legal regulations	52%
Percentage of HR leaders who see AI as a way to improve candidate experience	78%
Percentage of organizations reporting that AI tools reduce HR operational costs	58%

As shown in Table 1, the vast majority (86%) of interviewed HR professionals acknowledge the importance of AI in recruitment. This high level of favorability indicates broad support for the use of AI tools for sourcing, screening, and selection of candidates. Adding the role of AI in HR processes, an average 40% decrease in time-to-hire has been linked to the adoption of AI in HR. This type of efficiency gain demonstrates how AI can be used to remove menial work from the recruitment process and cut down on operational lag time in hiring. Despite this good news, the numbers also indicate continued challenges in some key areas. For example, only 65 per cent agree that AI is being utilised to its full potential to improve a hire's fit, leaving potential for further development of means to measure the fit of a candidate and determine the longevity of an employee. Likewise, a little over half (52%) of HR professionals are addressing the use of AI to address regulatory requirements and standards, indicating regulatory compliance is an area

in progress. In sum, the results reported here highlight the potential and limitations of the impact of AI on hiring efficiency in Tunisia, as well as the ongoing actions required to maximize hire quality and compliance through technology.

Drivers and barriers

AI in Tunisia has found itself in many ways. These can lead to greater efficiency, management of competitive intelligence in labor supply, and regulation to promote digital innovation (Kovalchuk et al., 2023). An acute talent shortage, especially in IT and analytics, is forcing organisations to use predictive tools in talent search and development (Zuyev, 2023).

This urgency is primarily due to market demands since organizations have to exploit new technologies in order to remain competitive (Sanguliya, 2023). However, issues with data security and privacy remain key barriers to AI adoption—top of mind as organizations seek out effective ways to integrate these disruptive tools into their operations (Karnaukhov, 2023). Finally, a further barrier that deserves mention is that a company's fear of the costs and risks of adopting intelligent AI solutions and an unwillingness to change culturally can impede its ability to effectively exploit the potential benefits of AI interfaces.

Table 2
Drivers and Barriers of AI Adoption in HR Decision-Making

Driver	Barrier
Improved Efficiency	Lack of Openness to Change
Data-Driven Insights	Ethical Concerns about Privacy and Bias
Enhanced Employee Engagement	Difficulty Integrating New Technology into Existing HR Systems
Automation of Repetitive Tasks	Uncertainty About Technology's Impact on Employees

According to the values of Table 2, improved efficiency and predictive modelling are the first drivers for the adoption of tools or processes. These have been known to help with better operational efficiencies and data-driven decision-making. Yet several stubborn barriers persist, including staff or stakeholders who are averse to change, and ethical considerations, not the least of which have to do with sensitive data. These obstacles may impede implementation and uptake. The statement also suggests that in order to address these issues, it's essential for leaders to focus on providing good organizational support (i.e., training, communication, and leadership) and adopting formal guidelines or policies to deal with ethical problems so as to create an environment conducive to change (Madanchian et al., 2023).

Human-centered and hybrid decision models

Recent work has emphasized the return introduced with "human-in-the-loop" designs. Here, artificial intelligence is assisting but not yet replacing human decision-making. This reflects a shift in how tech is deployed in companies (Kiu Chun, 2023). Some of the firms in Tunisia that are deploying AI suggestions together with human real-world thinking are faring better. That means more trust, happiness, and rapid adoption. These are findings that echo similar results from international research that claims what makes the difference to AI is the personal insights from a human (Kiu Chun, 2023).

As it happens, when HR personnel are in close collaboration with developers and employees as AI is introduced, it can help diffuse fears and increase learning across the organization. This is consistent with the notion that teamwork breeds trust in AI among employees (Kiu Chun, 2023). Explained AI— which is when HR managers communicate with developers (and employees) during the implementation of such systems — appears to reduce fear and facilitate organizational learning, again supporting the notion that co-creative approaches can increase confidence in the AI.

AI applications and predictive HRM: Opportunities

In Tunisia, AI (Artificial Intelligence) in HR (Human Resource) management can provide substantial potential for improving decision-making. Recruitment then gains further towards data-driven recruitment strategies through AI, and consequently, increased selection accuracy. More importantly, AI-focused analytics can mine large databases for

patterns around employee performance and retention. This provides HR managers with predictive information that helps in how prospective talent is managed (Amamou Mériam, 2023). The ability to use local linguistic materials with the help of AI could also help Tunisian companies to develop solutions anchored in workforce culture quirkiness in turn stimulating engagement and productivity (Tembin Hé et al., 2024). As With the rise of AI, personalized learning for workforce training is no longer just a myth, and proper skill alignment with the organization is now ensured as a result (Muraleedharan et al., 2025). However, addressing ethical considerations and AI biases remains essential for transparent and fair HR decisions, especially given recent research on culture-aware AI demonstrates. Generally speaking, these advancements suggest a shift to predictive HRM to better tackle Tunisia's swiftly changing labor market.

Candidate sourcing that's powered by AI uses sophisticated natural language processing. It carefully examines social networks, job boards, and even CV databases. This helps in shortlisting candidates. They must closely fit what the job needs, but it also flags possible diversity gaps. These are often missed. Initial findings from tech firms in Tunisia actually show a quite convincing story (Hidir et al., 2021). We see significant drops in time-to-hire and clear gains in objectivity. That's largely because it reduces unconscious biases in standard hiring (Haak-Saheem et al., 2024). Also, as machine intelligence gets better and better, we're finding that utilizing local languages and understanding cultural nuances can improve candidate experiences with the job. It can also widen the available talent for employers (Tembin Hé & Co., 2024). Besides, this novel approach would meet the growing demand for equality and inclusion in the hiring process (Cornuel Éric et al., 2024) and contribute to larger societal objectives, such as tackling societal ills, social prosperity (OECD, 2023), and fostering equal opportunities for all.

Generally speaking, predictive analytics models, as suggested by recent research on technology and HR (Alqarawy, 2024), forecast where employee performance might go and who might leave. They do this by watching digital footprints, listening to feedback, and checking engagement. This software-based analysis helps HR managers to be smarter in their retention strategy, so to reduce "flight-risky" behavior among their staff and to build career paths. Applying the sophistication of these models of analytics also stems from a growing recognition of their role to foster employee engagement and turnover intentions (D'Angelo et al, 2024). Furthermore, the use of predictive measures fosters employee growth and enhances organisational efficacy where the workforce is trained and developed in the way they are supposed to (Tembin Hé et al., 2024). The interest in data in HR analytics has brought the relevance of data to bear on the transformation of human resources in the digital era (Cornuel Éric et al., 2024).

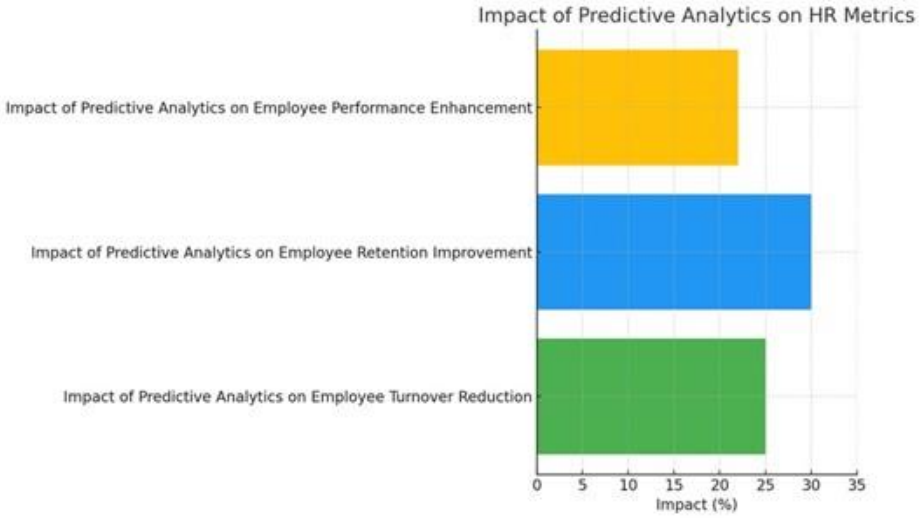

Figure 2. Impact of Predictive Analytics on HR Metrics

Note. According to the chart, predictive analytics has a significant 25% reduction in turnover rates, a 30% improvement in retention rates, and a 22% improvement in employee performance.

Figure 2 shows that the predictive analytics system found a 25% decline in employee turnover—less employees are leaving a company than in preceding years. "And retention rates have gone up 30%, which means more of our employees are choosing to stay around.

These measures underscore the strategic role played by artificial intelligence in boosting employee engagement, spotting problems before they can become a problem and dealing with it proactively. The findings indicate that companies can use AI-driven insights to gain a deeper understanding of their workforce, and ultimately boost employee satisfaction and retention. So, you see, the blending of AI and Predictive analytics can facilitate HR goals and enhance organizational sustainability and development.

Workforce planning and HR strategy

Workforce modeling that's AI-driven lets organizations analyze different scenarios, optimize how teams are put together, and predict when there might be a shortage of skills. This, generally speaking, boosts how efficiently things run across many different sectors. Cloud-based HR analytics tools are especially beneficial for smaller Tunisian companies. These disruptive tools are removing the barrier to predictive insights and the need for sizable up-front investment, leading to greater equality within business. The study conducted by Muraleedharan et al. (2025), shows that the inclusion of AI into workforce simulation and planning enables organizations to make more-informed data-driven decisions.

Thus, the availability of this technology on the market for small and medium-sized enterprises in Tunisia reflects a significant change in human resource management approaches in emerging markets. Finally, through the use of predictive analytics, the hiring process not only occurs faster, but it also allows companies to address possible skill gaps in advance as businesses adapt to the opportunity to continue to remain relevant in the ever-evolving job market. Hence, the strategic employment of AI and cloud technologies will prove beneficial for international SMEs that will be looking to increase their competitiveness in foreign markets, following the change dynamics compatible with other industrial areas.

Ethics, Governance, and Law

The integration of AI into HR decision-making, particularly in Tunisia, should be examined in light of multiple challenges and ethical social implications. Main issues in AI-driven HR decision-making in Tunisia encompass a broader range of challenges and ethical concerns. The best known is the bias of the algorithm; AI may unintentionally reflect historical biases within hiring and promotion systems by being biased, and decision-making becomes less efficient in society (Ezzine et al., 2025). Furthermore, the integration of AI with analytics brings into question the issue of data privacy and ethical treatment of individual employee data-in light of less importance being attached to legislation (Alruwaili et al., 2024). These ethical questions are becoming increasingly important as we evaluate AI's impact on employee autonomy and trust between workers and management.

Indeed, as literature claims, a correct talent management strategy is fundamental not only to take the best from the AI benefits but also to solve related ethical implications (Pizzoferrato et al., 2023). We must also promote a culture of transparency and accountability when it comes to deploying AI — one that includes stakeholders in conversations about the algorithms and data used to make decisions (Santone, 2020). Inability to solve these problems can result in a reason for demotivation for the employees and a subsequent lack in their acceptance of the desired results of predictive HRM activities.

More generally, the nexus between AI and HRM in Tunisia illustrates the fundamental relationship between data governance and privacy: an issue that cannot be ignored. Robust data governance frameworks for ethical, secure handling of massive amounts of employee data that inform AI algorithms are critical. It begins with well-defined policies on what data is being collected, who has access to it, how it's being used, and where it's being stored – which should comply with Tunisia's legislation and international standards like GDPR. Furthermore, employee privacy in AI-based HRM also emphasizes the need for transparency in the system. These policies should help to keep employees informed of where your company is using their data and what the potential consequences are for the company. By having strict data governance in place, it minimizes any potential data breaches or misuse and builds trust among staff that their data is being handled ethically and responsibly. In general, developing AI in HRM demands a proactive attitude towards data privacy. Organisations that aim at embracing technology and taking full responsibility for their behaviour can walk the line both as "geeks" and responsible citizens.

Tunisia is updating its data security laws, especially Organic Law 2004-63 concerning the confidentiality of private information to conform to international standards. However, implementation issues still exist, making it challenging to effectively enforce the right to privacy. Businesses need to be transparent about how personal data is used and

handled, obtain informed consent from people whose data is processed, and also set up accessible ways for employees to voice concerns to safeguard their rights according to global best practices. This need for strong compliance is highlighted by research showing that good governance and integrating digital systems are key to reducing the dangers of data mismanagement (Guemmou, 2024). Furthermore, encouraging a culture in which workers feel free to express themselves, particularly in diverse environments, can help guarantee that these safeguards are upheld and increase worker trust (Haak-Saheem et al., 2024). As Tunisia develops its laws, it should also think about how new technologies could affect things and make sure that protections are updated as data handling and processing evolve, showing an increasing demand for ethical monitoring (Asamoah-Atakorah et al., 2024).

Change management and skills gap

Overall, HR practitioners now have to learn more about the analytics and digital piece. Tunisia is increasingly and successfully responding to such demands, not least through its apprenticeship strategies. You seem similar projects growing all over the world as the workforce is forced to adapt to technology (Abugabel, 2023). Certainly, ongoing investment in employee upskilling is critical, as it ensures employees are furnished with the requisite technological capabilities to successfully navigate our rapidly changing environment (Muraleedharan et al., 2025). It is also critical for HR, IT, and leadership to work in unison. Such partnerships boost a mutual understanding of technology's technical and human dimensions, which supports their integration into typical workplace approaches (Tembin Hé et al., 2024). These integrative practices enhance how businesses operate, and they also aid in promoting lasting growth within organizations, aligning with worldwide standards for workplace improvements (Haak-Saheem et al., 2024).

In the fast-moving, high-tech world today, clear communication about the decisions the AI will make is a fundamental aspect of building trust and encouraging participation. Tunisian companies that emphasize making AI understandable and that encourage open conversations with employees often see that changes go more smoothly and new technologies are more readily adopted. The research shows that when AI is transparent, it creates the atmosphere of trust among all parties involved (Muraleedharan et al., 2025). Additionally, organizations can create a more inclusive environment that increases employee morale and innovation by applying the knowledge generated through AI breakthroughs and standing up for ethical premises (Tembin Hé et al., 2024). This mode of doing things is an essential part of winning employees over – and helping them to understand what AI is being used for. So, AI strategies that place importance on communication and dependability generally lead to more successful initiatives within these organizations. Integrating new practices that also fit with the region's cultural norms is also highly important.

Empirical analysis and case studies

Within Tunisian banks, the empirical examination of artificial intelligence's (AI) impact on human resource choices exposes a somewhat intricate integration of technology with established practices. Case studies, generally speaking, show that although AI tools are being adopted to improve recruitment processes and predictive abilities, their use is influenced by a number of things such as organizational culture and market dynamics. The interviews, in particular, that were done with recruitment managers show that even though AI technologies do seem to make talent acquisition easier, they are still only enhancements to more traditional strategies, as recruiters are worried about the full quality and credibility of AI insights (Amamou Mériam, 2023). The findings, furthermore, do align with literature that highlights the need for cultural context when using AI, as seen in research looking at knowledge management in various socio-economic contexts (Muraleedharan et al., 2025), (Haak-Saheem et al., 2024). It's worth noting that the change in candidate profiles noticed by recruiters is consistent with larger trends seen in the adoption of AI in emerging regions, emphasizing how crucial it is to adapt AI solutions to local settings and moral questions (Tembin Hé et al., 2024). This real-world investigation adds to a better knowledge of AI's role in HRM in Tunisia, while also encouraging future investigation into the transformative possibilities and limits of predictive HRM models in culturally varied contexts.

Discussion

AI-based HRM success depends on leading (and ethical adoption orientations to serve as guards at the gate to both better technology deployment and reduced user backlash. The application of AI in the HRM process, in particular recruiting, has been found to enhance efficiency and facilitate decision-making (Amamou Mériam, 2023). However,

it also brings concerns regarding ethical and cultural access issues (Tembin Hé et al., 2024). However, it also raises questions about ethics and cultural awareness (Tembin Hé et al., 2024).

In international work, it is evident that there are both organizational and individual influences on communication, which is of particular interest to expatriates, due to their social aspect (Haak-Saheem et al., 2024). What this implies, then, is that when AI is implemented in HRM, the heterogeneous nature and stereotype implications of all employees should be considered. The systems must be equitable and culturally competent (Muraleedharan et al., 2025). The support offered by leaders, when combined with strong ethical frameworks, can enable an organization to build a climate that fosters innovation and inclusiveness. Hopefully, the bottom line will be increased performance and employee satisfaction.

Particularly because of its impact on technological proficiency, AI's role in supporting human resource systems is becoming increasingly recognized. HR management has changed in the modern era as businesses use AI tools to streamline processes and enhance decision-making. AI can facilitate recruitment, increase employee engagement, and performance tracking by analyzing massive datasets, thus assisting accurate interventions (Muraleedharan et al., 2025). Also, incorporating technology learning into HR procedures ought to be required since it enables continued learning, guarantees that HR procedures are in line with corporate goals, and eventually boosts overall output (Tembin Hé et al., 2024). New research finds that with AI mixed with solid tech knowledge, HR changes become more nimble – and responsive to shifting staff needs (Almabrouk & Adnan, 2024). Additionally, fresh ideas and the likes of AI-led training programs continue to support staff members, so they can make better work of complex problems on their terms (Santone, 2020). This link between AI and technological competence inside HR systems highlights the need for calculated spending in these fields to gain complete company growth and a lasting market lead.

You can't speak about modern HRM practices today without critically analysing how AI is redefining the recruiting game. According to studies, AI and Machine Learning (ML) incorporated in HR have increased the efficiency and accuracy of candidate evaluations on a large scale. AI software simplifies the task of finding and screening candidates, calculating ideal matches using algorithms based on past data. This manner of judging is less arbitrary than one made based on mere personal opinion. These tools quickly process and interpret huge amounts of data, meaning that HR professionals can spend their time on strategic responsibilities rather than descending into the mire of administrative work. AI and ML are transforming the recruitment landscape for the better. The challenge for organizations is to balance what we can do versus what we should do, and the ongoing importance of human judgment.

Table 3
AI Application Areas in HR

Application Area	Large Enterprises	SMEs	Public Sector
Recruitment/Screening	80%	30%	40%
Retention Analytics	45%	25%	20%
Learning/Development	65%	30%	35%

According to the analysis in Table 3, the type of organization has a significant impact on how artificial intelligence is adopted in human resources. depending on the type of organization, with a clear advantage for large enterprises in all categories studied. First, when it comes to recruitment and selection, 80% of large companies use AI, reflecting their desire to automate résumé screening and optimize recruitment processes. In contrast, SMEs use AI for this function in only 30% of cases, probably due to lower hiring volumes or limited resources. The public sector stands in the middle, with a 40% adoption rate, which demonstrates an openness to innovation but also certain structural and regulatory constraints.

As for retention analytics, large businesses reported the most usage (45%), likely due to the tides of employees that they must retain (and so need to use predictive turnover analysis). For small- and medium-sized enterprises (SMEs), this practice is lower at 25% due to fewer numbers on teams and less complex talent management. This is much lower in the public sector, where just 20% leverage AI for retention, probably because of better job stability and the sponsorship culture within the organisations.

Lastly, the use of AI in training and development is most prevalent in large organizations (65%), indicating substantial commitment to automated training paths and personalized learning. In medium-sized (30%) and public-sector (35%) businesses, interest in this type of application is slight, perhaps indicating alternative priorities or limited resources, despite ongoing digitization in both segments.

In conclusion, this table emphasizes the extent to which the penetration of AI in HR varies according to organizational size, resources and strategic priorities. Big business is investing heavily in massive automation and analysis, but SMEs and the public sector are making slower progress, adapting deployment to their own constraints.

3 Conclusion

Recent studies on AI integration in organizations further support the idea that AI can be an instrument for achieving anticipatory and proactive human resources management for Tunisian companies that are overburdened by demographic changes and international competition (Almabrouk & Adnan, 2024). The use of these technologies offers opportunities for increases in efficiency, equity, and talent development, but reflection is needed on the context and the ethical concerns and on how far workers are prepared, as studies on the social dimensions of expatriate communication in different organisational settings indicate (Haak-Saheem et al., 2024). In the framework of the digital age, Tunisia could imagine a predictive HRM that supports organizational and national objectives by investing in digital competencies, establishing strong governance frameworks, and emphasizing human values in HR creativity. This highlights the need to strike a balance between technological progress and encouraging entrepreneurial mindsets, which is essential in today's fast-paced business world (Amamou Mériam, 2023). In most cases, this strategic approach not only helps Tunisia compete globally but also boosts the potential for sustained creativity and development among its employees, aligning with current thoughts on the significance of human capital development and ethical management (Muraleedharan et al., 2025).

Recommendations for Tunisian practitioners

The key point is that ethical data governance policies must be established that can satisfy both the Tunisian standards and the international agreement, based on studies related to data privacy (Almaazmi et al., 2025). It is critical as well to invest in workforce upskilling. HR or management-level staff can be included in specific digital literacy programs that focus on lifelong learning within the fast-changing digital space (Ezzine et al., 2025). We want to promulgate human-centered AI adoption, all the while weaving in appropriate levels of automation, for sure, but also grounding it with meaningful human involvement and oversight. Such an approach can improve employee decision-making and system integration quite a bit (Alruwaili et al., 2024). In addition, the establishment of strategic alliances with academia, tech-providers, and governments could support the growth of the ecosystem in the long term, driven by joint efforts that match technological advances with regional industrial demands (Bharathi et al., 2024). Customising AI to local needs (for example, language, culture, and domain-specific considerations) is important for improved model relevance and fairness. This ensures that the new technologies fund isn't merely efficient but also inclusive and equitable.

Research limitations

Several research limitations are evident and should be specifically noted, even though the conclusion offers encouraging directions and tactical suggestions for implementing AI in HRM in Tunisia:
Relevant Generalizability: Studies of cases in the banking, telecommunications, and government sectors provide the majority of the conclusions and suggestions. These may not fully apply to other economic sectors, such as manufacturing or agriculture, nor to small businesses with less access to digital infrastructure.
Data Access and Reliability: The analysis relies on interviews, surveys, and secondary data, which may not capture the full complexity or provide consistent, longitudinal insights on AI adoption in Tunisian HRM. This limitation can affect the robustness of conclusions regarding adoption rates and workforce preparation.
Rapid Technological Transformation: The rate at which digitization is occurring and AI tool development means that current findings may quickly become outdated. Some recommended strategies or identified challenges may evolve as technology and organizational readiness advance.
Cultural and Regulatory Evolution: The legal and regulatory framework in Tunisia, especially concerning data privacy and protection, continues to change. Research conclusions may be constrained by the timing and scope of local law updates—not all ethical or governance recommendations may be feasible in the short term.

Limited Empirical Data: There is a lack of large-scale, quantitative impact assessments on AI-enabled HRM outcomes in Tunisia, such as productivity gains, reduction in bias, or improvement in employee engagement.
Human Dimension: The digital skills of the workforce, as well as AI acceptance, are driven not only by cultural factors, but more profound socio-cultural attitudes are also relevant, aspects that qualitative work can indicate but not completely address or exploit.

Future implications

Further research could expand on the number of sectors covered, the types of organizations used, and more careful longitudinal designs to follow up on the effects of AI over time. Obtaining more granular, quantitative data and integrating evolving legal and societal factors will strengthen policy and practice recommendations for AI-driven HRM in Tunisia.

Conflict of interest statement
The authors declared that they have no competing interests.

Statement of authorship
The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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