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Mediation and Moderation in AI Recruitment: The Roles of Trust and Challenges in Shaping Perceived Benefits and Future Use

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Abstract: With the growing integration of artificial intelligence (AI) into human resource (HR) management, organizations are increasingly interested in how AI technologies can transform recruitment practices. This study examines the mechanisms through which perceptions of AI use and perceived challenges shape recruitment outcomes, focusing on both the effectiveness and efficiency of recruitment tasks. Drawing on data collected from HR professionals and managers working in recruitment roles in Saudi Arabia, the research explores the conceptual understanding of AI within the recruitment process and its implications for automating and enhancing HR functions. The analysis centers on mediation and moderation models to clarify the pathways linking AI use, trust, perceived challenges, and recruitment outcomes. In particular, the study investigates how trust in AI mediates the relationship between AI use and perceived recruitment benefits, as well as between perceived challenges and expectations for the future adoption of AI in recruitment. Furthermore, the study tests whether perceived challenges moderate the impact of AI use on recruitment benefits, thereby providing a comprehensive view of how confidence in and barriers to AI influence organizational adoption and outcomes. The findings reveal that trust in AI is a critical mediator, with AI use and perceived challenges influencing recruitment benefits and future expectations primarily through their effects on trust. Direct effects of AI use and challenges on recruitment benefits and anticipated future adoption were not significant when trust was accounted for, underscoring the central role of confidence in AI systems. Moderation analysis found no significant evidence that the effect of AI use on recruitment benefits is conditioned by perceived challenges. These insights highlight the need for organizations in Saudi Arabia to prioritize building trust and addressing barriers in order to fully realize the transformative potential of AI-driven recruitment.

Keywords: Artificial Intelligence, Trust, Human Resource Management, Recruitment, Technology Adoption, Saudi Arabia.

1 Introduction

The role of artificial intelligence (AI) in enhancing the efficiency and effectiveness of recruitment processes is widely recognized by both academics and practitioners. AI applications have demonstrated a significant impact on organizational ability to improve the planning and execution of recruitment tasks, enabling employers to fill vacancies with the most skilled and experienced candidates. Achieving this outcome requires a professional approach and a strategic framework for human capital management, wherein AI tools are integrated to address organizational needs for talent in both quantity and quality, and within the required timeframe. This supports the overarching goal of hiring "the right people at the right time" [1].

By leveraging AI within human capital management, organizations can foster an attractive and dynamic work environment that not only attracts top talent but also empowers and retains employees for high performance. Such efforts contribute directly to the delivery of superior-quality services [2]. However, for many years, AI applications did not receive significant attention within most business organizations in Saudi Arabia [3]. Only recently has the focus on AI grown, spurred by its potential to simplify complex tasks, reduce costs and processing time, and minimize errors[1].

Human resources, and particularly recruitment, have emerged as critical areas undergoing rapid transformation in Saudi organizations. Institutions in the Kingdom manage large volumes of job applications around the clock [1], necessitating the adoption of advanced technologies to streamline recruitment processes. AI enables organizations to match candidates to job vacancies with greater precision, thus supporting the Saudi labor market in recruiting the best available talent and contributing to the realization of national human capital goals [2].

2 Literature Review:

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2.1 Recruitment and Employment:

Recruitment is a fundamental function of human resource management (HRM) that plays a pivotal role in enabling organizations to achieve their strategic objectives. The recruitment process encompasses identifying suitable candidates and encouraging them to apply for available positions, which requires the careful selection of appropriate sources to attract potential applicants [4].

Recruitment strategies typically fall into two categories: internal and external. Internal recruitment includes employee transfers and promotions. Transfers involve moving employees to different positions, branches, or locations within the organization, while promotions elevate employees to higher-level positions to fill vacancies. External recruitment, by contrast, seeks to attract applicants from outside the organization. These external candidates often bring fresh skills and perspectives, which explains why many organizations prefer external recruitment for certain roles [5].

The recruitment process begins with defining the qualifications required for each vacancy, ensuring alignment with organizational goals. The next stage involves systematically selecting candidates with the desired qualifications through a structured series of steps [6]. In recent years, technological advancements have increasingly shaped recruitment practices, with a growing number of organizations adopting artificial intelligence (AI) technologies to optimize recruitment tasks [4].

The integration of AI into recruitment has revolutionized traditional practices, allowing organizations to streamline candidate sourcing, matching, and selection. This shift underscores the increasing importance of leveraging technology to enhance both the efficiency and effectiveness of recruitment in contemporary HRM.

2.2 Artificial Intelligence

The concept of artificial intelligence (AI) has garnered significant attention in recent years, with contributions from scholars and practitioners emphasizing its transformative [7,8]. The evolution of AI can be summarized through several key perspectives:

Historical Origins: The term "artificial intelligence" emerged in the mid-20th century, notably with the introduction of the "Turing Test" by Alan Turing. Turing posited that AI represents the capability of a computer to simulate human thought processes [9]. Later, Hassan [10] expanded on this, describing AI as an endeavor to create intelligent entities that can match or even surpass human intelligence and rationality.

Cognitive Functionality: AI has been described as encompassing a broad spectrum of intellectual skills, including problem-solving and learning, Grewal [11] highlighted AI as an automated simulation structure that integrates information processing, cognitive functions (e.g., attention, perception, language, planning, and memory), and actionable intelligence dissemination.

Varied Definitions: AI systems are defined differently based on their domains and life stages, including design, research and development, and deployment. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2018) highlighted the existence of various definitions of artificial intelligence (AI) systems, depending on the field of application as well as the different stages of the AI system's lifecycle, including design, research and development, distribution, and usage [12].

Capabilities and Applications: Rich and Waters [13] defined AI as the study of enabling computers to perform tasks traditionally better executed by humans. Adames et al. [14] further elaborated AI as a system replicating human cognition and learning, with the potential to surpass human performance. Thierer et al. [15] similarly characterized AI as demonstrating intelligence comparable to or exceeding human capabilities.

Efficiency and Utility: Dweivedi et al. [16] noted that the central theme across AI definitions is the increasing ability of technology to perform human tasks with greater quality, lower cost, and reduced time, emphasizing its practical applications in optimizing various processes.

2.3 Artificial Intelligence in the Institutions of the Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia has strategically embraced artificial intelligence as a cornerstone of its "Vision 2030," an ambitious long-term plan to transform the economy into a global hub for technology and innovation. As part of this vision, AI is projected to contribute over $135.2 billion USD to the Saudi economy by 2030 [10], [17].

AI applications in the Kingdom have rapidly expanded across multiple domains, aligning with the aspirations of Vision 2030. Organizations increasingly adopt AI technologies to enhance efficiency, improve decision-making, and foster innovation. These technologies facilitate more effective and timely decision-making processes, reduce costs, and promote entrepreneurial endeavors.

Moreover, AI's integration into Saudi institutions is evident in its role in driving innovation and improving operational processes, particularly in streamlining recruitment practices, enhancing service delivery, and strengthening organizational competitiveness.

The focus on AI underscores its potential to reshape economic and organizational landscapes, reinforcing Saudi Arabia's position as a leader in technological advancement.

2.4 Applications of Artificial Intelligence in the Recruitment Process

The integration of artificial intelligence (AI) has emerged as a key trend in the practice of human resource management (HRM), particularly in recruitment and selection processes[18]. Automation is increasingly utilized to enhance HR planning and streamline recruitment activities [19]. By automating recruitment procedures, organizations have realized significant benefits, including cost and time savings, which has spurred greater investment in AI technologies for HR functions [20].

AI applications in recruitment have demonstrated the ability to enhance talent acquisition processes. Advanced systems such as applicant tracking systems (ATS) are employed to evaluate résumés and identify qualified candidates, thereby improving the precision and efficiency of candidate selection [21]. Additionally, AI-driven recruitment tools have garnered positive feedback from job applicants, contributing to higher acceptance rates of job offers. Candidates often view AI-based recruitment processes as more transparent and efficient compared to traditional recruitment methods [22],[23].

AI also supports creativity and innovation within organizations by facilitating the development of cutting-edge products and services. This enables companies to generate additional revenue streams while reducing operational costs. For instance, video interviews conducted via AI tools allow organizations to assess, compare, and select candidates more effectively, enhancing the cost-effectiveness of recruitment efforts [24].

Beyond recruitment, AI applications extend to more technical HR tasks, such as automatically collecting and analyzing data to attract and evaluate talent. AI systems are designed to model human behavior, analyze cognitive processes, and assist in decision-making, making them invaluable for handling large and complex datasets that surpass human capabilities [25] [26]. AI's ability to learn, adapt, recognize patterns, and process language further expands its potential for tasks like personality recognition based on speech and text.

AI-powered e-recruitment systems are increasingly adopted by organizations to broaden their reach, accelerate response times, and enhance candidate perceptions of the organization. These systems provide automated matching of job offers with applicant profiles, reducing the reliance on HR professionals to possess deep domain-specific knowledge and minimizing the effort required for recruitment tasks [27] , [28] , [29].

However, despite these advantages, many organizations remain hesitant to fully integrate AI into HR functions. Concerns about the costs of AI implementation, as well as apprehensions about delegating critical HR functions to non-human entities that may overlook moral or subconscious dimensions of recruitment, contribute to this reluctance [30]. Addressing these concerns is essential to unlocking the full potential of AI in HR practices.

3 Objectives of the Study

This study aims to achieve the following objectives:

1. Investigate how perceived applicability and challenges of AI influence recruitment outcomes in the Saudi business environment.
2. Examine the mediating role of trust in AI between AI use/challenges and perceived benefits and future adoption of AI in recruitment.
3. Assess whether perceived challenges moderate the relationship between AI use and perceived recruitment benefits.
4. Provide insights and actionable recommendations for leveraging AI tools to enhance the effectiveness and future orientation of recruitment practices in Saudi organizations.
5. Support HR professionals in understanding how trust and perceived challenges affect the successful integration of AI in recruitment processes.

4 Study Questions

Main Question:

To what extent do Saudi institutions benefit from artificial intelligence in human resource management tasks in general, and in the recruitment process in particular?

Sub-Questions:

RQ1: *How does the perceived applicability of AI in recruitment (AI Use) influence trust in AI among recruitment professionals?*

RQ2: *To what extent does trust in AI mediate the relationship between perceived AI use and perceived benefits of AI in recruitment?*

RQ3: *Does trust in AI significantly predict perceived benefits of AI in recruitment, above and beyond perceptions of AI use?*

RQ4: *What is the relationship between perceived challenges in using AI for recruitment and trust in AI?*

RQ5: *Does trust in AI mediate the relationship between perceived challenges and beliefs about the future use of AI in recruitment?*

RQ6: *Is the effect of perceived challenges on beliefs about the future use of AI in recruitment direct, or is it fully explained by trust in AI?*

RQ7: *Does the relationship between perceived AI use and perceived AI benefit differ depending on the level of perceived challenges (i.e., is there a moderation effect)?*

5 Research hypotheses

To guide the empirical investigation of AI's role in recruitment, this study proposes a set of research hypotheses grounded in both theory and prior empirical evidence. These hypotheses are designed to test the direct, mediating, and moderating relationships among perceptions of AI use, trust in AI, perceived challenges, anticipated benefits, and beliefs about future adoption. The following hypotheses serve as the analytical foundation for the statistical analyses presented later in this report.

H1: *Perceptions of AI use in recruitment are positively associated with trust in AI for recruitment.*

H2: *Trust in AI is positively associated with perceived AI benefit in recruitment, controlling for perceptions of AI use.*

H3: *Trust in AI mediates the relationship between perceptions of AI use and perceived AI benefit in recruitment; the direct effect of AI use on benefit becomes non-significant when trust is included in the model.*

H4: *Perceived challenges regarding the use of AI are negatively associated with trust in AI.*

H5: *Trust in AI is positively associated with belief in future use of AI in recruitment, controlling for perceived challenges.*

H6: *Trust in AI mediates the relationship between perceived AI challenges and belief in future use of AI; the direct effect of challenges on future use becomes non-significant when trust is included.*

H7: *The relationship between perceptions of AI use and perceived AI benefit is moderated by perceived challenges; the effect of AI use on benefit is stronger/weaker at different levels of perceived challenges.*

Collectively, these hypotheses articulate the expected pathways through which AI use and challenges influence recruitment outcomes, with a particular emphasis on the central role of trust. The results of subsequent analyses will determine which of these hypothesized relationships are supported, thereby advancing our understanding of the mechanisms that facilitate or hinder successful AI adoption in recruitment contexts.

6 Research Methodology

This section outlines the methodological approach adopted to address the study's objectives and hypotheses. The research employs a quantitative, survey-based design to systematically examine the relationships among perceptions of AI use, trust, perceived challenges, and recruitment outcomes within Saudi organizations. Details regarding the development and validation of the survey instrument, the sampling strategy, and data collection procedures are presented below. By clearly articulating the methodological framework, this section ensures transparency, replicability, and rigor in the investigation of mediation and moderation effects in AI-driven recruitment processes.

6.1 Instrument

The primary data collection tool for this study was a structured survey, developed to specifically address the research objectives relating to the roles of trust and perceived challenges in the adoption of artificial intelligence (AI) for recruitment. The instrument was designed and validated in consultation with experts in human resources and artificial intelligence. It included carefully constructed items measuring perceptions of AI use, trust in AI systems, perceived challenges, anticipated benefits, and future use of AI in recruitment processes. The survey items were directly mapped to the research questions and hypotheses underlying

the mediation and moderation models.

6.2 Study Sample

The survey was administered to a targeted sample of HR professionals and recruitment managers working in Saudi Arabia across a range of organizations. Participants represented a cross-section of industries with active recruitment needs and direct exposure to AI-driven recruitment technologies. The sample was selected to ensure diverse professional perspectives on AI adoption, and all respondents had recent, relevant experience with recruitment processes. This sampling strategy provided robust data for analyzing how trust and perceived challenges influence the integration and effectiveness of AI in recruitment within the Saudi context.

7 Results

The study tested a conceptual framework examining the mechanisms through which perceptions of AI use and perceived challenges shape recruitment outcomes, with particular emphasis on the mediating role of trust and the potential moderating effect of challenges. The analysis focused on the following constructs:

7.1 Reliability and Validity of The Study Tool

To ensure the validity and reliability of the survey, the study assessed the internal consistency of each construct using Cronbach's alpha and factor loading analysis. The results presented in Table 1 summarize the validity and reliability for the main scales used to measure AI Trust, AI Use, AI Benefits, AI Future, and AI Challenges:

Table 1: Factor Loadings and Cronbach's Alphas

Factor	Item	Factor loading	Cronbach alphas
AI Trust	**I could use online education systems in learning...**		**0.8806**
1.	I trust the results produced by AI systems in the recruitment process.	0.599	
2.	I believe AI tools make fair and unbiased decisions during candidate selection.	0.692	
3.	I am confident that AI can accurately screen job applicants.	0.739	
4.	I feel comfortable relying on AI recommendations for shortlisting candidates.	0.753	
5.	AI systems are dependable for evaluating candidate qualifications.	0.727	
6.	I believe AI can objectively assess candidates without human error.	0.554	
7.	I have confidence in AI's ability to maintain confidentiality of applicant information.	0.849	
8.	I feel that AI contributes positively to ethical recruitment practices.	0.688	
9.	I am willing to let AI make important decisions in the recruitment process.	0.515	
AI Use	**I could use online education systems in learning...**		0.9074
1.	My organization regularly uses AI tools in recruitment.	0.658	
2.	We utilize AI to screen and filter job applications.	0.565	
3.	AI is used to assist in scheduling interviews with candidates.	0.689	
4.	AI solutions are implemented to match candidates to suitable job roles.	0.809	
5.	AI is integrated into our CV/resume analysis process.	0.745	
6.	We use AI to conduct initial video or online interviews.	0.766	
7.	Our recruitment team uses AI to identify potential talent pools.	0.724	
8.	AI assists with checking candidate backgrounds and references.	0.625	
9.	Automated messaging via AI is used for candidate communications.	0.793	
10.	AI tools are part of our ongoing recruitment workflow.	0.733	
AI Benefits	**I could use online education systems in learning...**		0.8739
1.	AI helps to reduce the time required to fill job vacancies.	0.500	
2.	Using AI in recruitment lowers overall hiring costs.	0.481	
3.	AI improves the quality of candidates selected for interviews.	0.589	
4.	Recruitment decisions are more consistent when supported by AI.	0.543	
5.	AI enhances the objectivity of candidate evaluations.	0.553	
6.	AI streamlines administrative tasks in the hiring process.	0.667	
7.	The use of AI increases the efficiency of our recruitment team.	0.527	
8.	AI minimizes human error during candidate screening.	0.435	
9.	AI helps identify the best talent from a large pool of applicants.	0.618	
10.	AI makes it easier to match candidate skills with job requirements.	0.564	

11.	AI supports a better candidate experience through faster responses.	0.512	
12.	The use of AI enables our organization to access a wider talent pool.	0.476	
13.	AI improves the fairness of the selection process.	0.457	
14.	AI enables more transparent decision-making in recruitment.	0.494	
15.	AI helps to identify skill gaps among candidates more effectively.	0.599	
16.	AI tools enhance collaboration between HR and other departments.	0.642	
17.	The integration of AI in recruitment supports our organizational goals.	0.669	
18.	AI contributes to a more strategic approach to talent acquisition.	0.620	
AI Future	**I could use online education systems in learning...**		0.8285
1.	I believe our organization will use AI more extensively in recruitment in the future.	0.784	
2.	I expect AI-based recruitment tools to become more advanced and effective.	0.740	
3.	I am confident that any current limitations of AI in recruitment will be addressed through future updates.	0.741	
AI Challenges	**I could use online education systems in learning...**		0.8455
1.	Relying on AI in recruitment increases the risk of overlooking qualified candidates.	0.575	
2.	I am concerned about the fairness of decisions made solely by AI.	0.655	
3.	AI systems may not accurately assess candidates' soft skills or personalities.	0.804	
4.	Integrating AI with our existing recruitment processes can be challenging.	0.875	
5.	There is a risk of bias or errors in AI-driven candidate evaluations.	0.810	

As shown in Table 1, all survey constructs demonstrated satisfactory internal consistency, with Cronbach's alpha values ranging from 0.8285 to 0.9074, well above the commonly accepted threshold of 0.70. The factor loadings for individual items also indicate good convergent validity for each scale, supporting the robustness of the measurement model. These results confirm that the survey items reliably capture the intended dimensions of trust, use, perceived benefits, future expectations, and challenges related to AI in the recruitment process. Consequently, subsequent statistical analyses based on these constructs can be interpreted with confidence in the underlying measurement quality

7.2 Correlations Among Key Study Variables

Table 2 presents the Pearson correlation coefficients among the main variables of the study: perceived AI use, trust in AI, perceived benefits, future adoption, and perceived challenges. This analysis provides an overview of the bivariate relationships, highlighting the degree and significance of association between each pair of constructs in the context of AI-driven recruitment.

Table 2: Pearson Correlation

Variables	(1)	(2)	(3)	(4)	(5)
(1) AI USE	1.000				
(2) AI TRUST	0.392***	1.000			
(3) AI Benefits	0.158*	0.354***	1.000		
(4) AI Future	0.867***	0.414***	0.120	1.000	
(5) AI Challenges	0.128	0.257***	0.600***	0.120	1.000
*** $p<0.01$, ** $p<0.05$, * $p<0.1$					

As shown in Table 2, perceived AI use is significantly and positively correlated with both trust in AI ($r = 0.392$, $p < 0.01$) and future adoption of AI ($r = 0.867$, $p < 0.01$), indicating that greater use of AI in recruitment is associated with higher trust and stronger expectations for future use. Trust in AI also shows significant positive correlations with perceived benefits ($r = 0.354$, $p < 0.01$), future use ($r = 0.414$, $p < 0.01$), and challenges ($r = 0.257$, $p < 0.01$). Notably, perceived benefits and future adoption are strongly related ($r = 0.600$, $p < 0.01$), while challenges are moderately correlated with both trust and perceived benefits. These results suggest that trust plays a central role in linking AI use to positive outcomes, while perceived challenges, although present, do not exhibit strong negative relationships with other variables. Overall, the correlation analysis supports the proposed relationships in the conceptual framework and sets the stage for further regression and mediation analysis.

7.3 Regression Analysis

Table X summarizes the structure of the regression models tested in this study. Each model specifies the independent variable (IV), mediator, moderator (where applicable), and dependent variable (DV). This overview provides a framework for understanding the analytical approach and the hypothesized relationships among AI use, trust, challenges, and recruitment outcomes.

Table 3: Study Models' Pathway

Model	IV	Mediator	Moderator	DV
Model 1	AI Use	AI Trust	AI Challenges	AI Benefit
Model 2	AI Challenges	AI Trust	-	AI Future Use

This table clarifies the pathways explored in the subsequent regression analyses. Model 1 tests both mediation (the role of trust in linking AI use to perceived AI benefit) and moderation (the potential effect of perceived challenges). Model 2 examines whether trust in AI mediates the relationship between perceived challenges and beliefs about the future use of AI in recruitment. By specifying the key variables for each model, this summary helps contextualize the regression results and aligns the analysis with the study's research objectives.

The next table (Table 4) presents the detailed regression results for the main models of this study. The table reports standardized coefficients and corresponding t-values for each predictor variable, enabling the assessment of direct, mediating, and moderating effects among AI use, trust, perceived challenges, benefits, and future use in recruitment. This analysis provides empirical evidence for the hypothesized relationships in the conceptual framework.

Table 4: Regression Results Summary

	(1)		(2)		(3)		(4)	
	AI Benefit		AI FUTURE		AI FUTURE		AI Benefit	
AI Use	0.0164	(0.23)					-0.206	(-0.39)
AI Trust	0.341***	(3.43)			0.640***	(4.39)	0.206**	(2.40)
AI Challenges			0.170	(1.22)	0.0201	(0.15)	0.307	(0.67)
AI Use/ Chall Interact							0.0351	(0.40)
cons	2.945***	(5.64)	4.408***	(5.17)	1.901*	(1.96)	1.843	(0.66)
N	105		105		105		105	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results reveal several important findings. Trust in AI is a significant positive predictor of both perceived AI benefits and expectations for future use, demonstrating its critical mediating role. The direct effect of AI use on perceived benefit is not significant when trust is included in the model, further supporting full mediation. Perceived challenges and their interaction with AI use do not have significant effects on either perceived benefit or future use, indicating that these barriers may be less influential than initially expected. Overall, these findings underscore the centrality of trust in maximizing the benefits and future adoption of AI in recruitment, while highlighting that those perceived challenges, although present, have a limited direct impact in this context.

7.4 Summary of Hypothesis Testing Results

Table 5 summarizes the hypotheses tested in this study, the proposed relationships between the main constructs, and whether each hypothesis was supported by the regression analysis. This overview provides a concise reference for understanding which aspects of the conceptual framework were empirically validated.

Table 5: Hypotheses Testing Results

Hypothesis	Path/Relation	Supported?
H1	AI Use → AI Trust	Yes
H2	AI Trust → AI Benefit (controlling AI Use)	Yes
H3	Mediation: AI Use → Trust → Benefit	Yes (full)
H4	AI Challenges → AI Trust	Yes
H5	AI Trust → AI Future Use (controlling Challenges)	Yes
H6	Mediation: AI Challenges → Trust → Future Use	Yes (full)
H7	Moderation: AI Use × Challenges → Benefit	No (not supported)

As shown in Table 5, the majority of hypothesized relationships are supported by the data. Trust in AI consistently emerges as a key mediator, linking both AI use and perceived challenges to positive recruitment outcomes such as perceived benefits and anticipated future use. The results also confirm that AI use and challenges independently influence trust, while the moderation effect of challenges on the relationship between AI use and perceived benefit was not supported. These findings underscore the central importance of trust in leveraging AI for recruitment success and suggest that future efforts should focus on further strengthening trust while addressing persistent challenges.

8 Discussion

8.1 Key Areas of Artificial Intelligence Application in Human Resource Management and Recruitment

The study's findings highlight a wide range of applications where artificial intelligence (AI) can benefit human resource management (HRM) and recruitment tasks. These areas include:

1. **Data-Driven Decision Support and Problem-Solving:** AI empowers organizations to collect and analyze HR and recruitment data, offering insights that inform strategy, identify challenges, and provide alternative solutions for effective decision-making.
2. **Personalized Training, Development, and Talent Management:** AI tailors training and development programs to individual employee needs, supports career advancement, and assists in human capital planning, including performance evaluations, promotions, and compensation management.
3. **Inclusive and Targeted Talent Acquisition:** AI enhances candidate sourcing, screening, and selection by targeting qualified applicants, promoting diversity and inclusion, and automating assessments for fairer and more effective recruitment.
4. **Process Optimization and Collaboration:** AI streamlines both HRM and recruitment processes—automating administrative tasks, optimizing recruitment workflows, and facilitating efficient collaboration and communication with recruitment agencies.
5. **Real-Time Insights and Adaptive Strategies:** With machine learning and advanced analytics, AI provides ongoing labor market analysis and predictive insights, enabling organizations to adapt quickly to changing workforce needs and improve the quality and speed of hiring and HR decisions.

8.2 Targeted Benefits of Applying AI in Recruitment Tasks

The study reveals the diverse benefits organizations aim to achieve by applying AI in recruitment processes, including:

1. **Process Efficiency and Cost Reduction:** AI simplifies application procedures and automates administrative tasks, reducing workload, saving time, and cutting costs throughout the recruitment process.
2. **Enhanced Candidate Evaluation and Matching:** AI improves diagnostic and evaluation systems, ensuring a better fit between candidates and job requirements through innovative assessment and matching methods.
3. **Fairness, Transparency, and Communication:** AI fosters fair and transparent recruitment by standardizing procedures, clarifying requirements, and ensuring equal treatment of candidates. It also enhances communication, providing faster responses and streamlining correspondence with applicants and agencies.
4. **Strategic Talent Acquisition:** AI enables the targeted recruitment of specialized or hard-to-find talent and ensures the selection of high-quality candidates, optimizing role distribution and coordination among stakeholders.
5. **Improved Decision-Making and Data Management:** AI accelerates data processing, supports efficient information storage, and enhances decision-making capabilities, resulting in higher recruitment quality and better organizational outcomes.

These findings underscore the wide-ranging goals and advantages that organizations seek by integrating AI into recruitment tasks, illustrating its transformative potential for efficiency, accuracy, and fairness in talent acquisition.

8.3 Steps and Procedures for Applying Artificial Intelligence in Recruitment Tasks

The integration of artificial intelligence (AI) into recruitment processes enables organizations to streamline and optimize each stage of talent acquisition. By leveraging advanced algorithms and automation, organizations can enhance decision-making, improve efficiency, and maintain compliance with organizational and legal standards. The key stages of AI-supported recruitment can be summarized as follows:

1. **Workforce Planning:** Identify organizational staffing needs and define job requirements.
2. **Sourcing & Advertising:** Post job openings and attract candidates through various channels.
3. **Application Collection:** Receive and organize applications and supporting documents.
4. **Screening & Shortlisting:** Use AI tools to filter, evaluate, and rank candidates based on predefined criteria.

5. **Assessment & Interviewing:** Conduct automated assessments and AI-assisted interviews to further evaluate fitness.
6. **Selection & Offer:** Select top candidates, prepare ranked lists, and finalize contracts.

Through these streamlined steps, AI not only accelerates and refines the recruitment process but also helps organizations consistently attract, evaluate, and hire the best candidates. The effectiveness of this approach depends on building trust in AI systems and addressing any challenges encountered throughout the recruitment lifecycle, which are central considerations in this study.

8.4 Limitations and Challenges in Applying Artificial Intelligence to Recruitment Tasks

The study identified several limitations and challenges associated with applying artificial intelligence (AI) in recruitment processes. These challenges span technical, professional, informational, behavioral, and psychological dimensions and can be summarized as follows:

1. **Human Judgment and Oversight Remain Essential:** AI cannot fully replace the nuanced judgment, emotional intelligence, and behavioral assessment provided by human recruiters; many decisions still require direct human involvement.
2. **Technical and System Limitations:** The effectiveness of AI depends on robust technology, regular machine learning updates, and efficient integration with existing organizational systems and policies.
3. **Workforce Skills and Readiness:** Successful AI implementation requires HR professionals to have specialized technical skills and ongoing training to effectively manage and interpret AI tools.
4. **Potential for Bias and Ethical Concerns:** AI systems may inadvertently introduce or perpetuate bias, impacting fair treatment of candidates and raising ethical considerations, especially in automated assessments.
5. **Inclusivity and Adaptability:** AI may not adequately address the needs of all candidates (e.g., those with disabilities or non-traditional backgrounds), and can be vulnerable to manipulation or lack the personal touch valued in certain recruitment contexts.

These findings highlight the complex interplay between AI technology and human expertise in recruitment. Overcoming these constraints requires not only technical innovation but also organizational investment in training, ethical policies, and strategies that foster trust in AI systems.

8.5 Level of Trust in AI Performance in Recruitment

The level of trust and credibility in artificial intelligence (AI) performance within recruitment tasks varies considerably across organizations and process stages. While AI is widely trusted for its ability to streamline routine recruitment activities, notable reservations remain regarding its fairness, accuracy in behavioral assessments, and potential for bias. Addressing these issues is essential for fostering greater confidence in AI applications.

The study suggests that while AI has gained trust for streamlining certain recruitment tasks, especially routine and administrative ones, significant reservations remain regarding its fairness, accuracy in behavioral assessments, and the risk of bias. Addressing these concerns is essential for building greater confidence in AI-driven recruitment processes. These findings underscore the importance of continued investment in both technology and human capacity to ensure that AI can be applied more confidently across all stages of the recruitment process.

8.6 Indicators of the Future Application of AI in Recruitment Tasks

As organizations navigate the evolving landscape of recruitment, several clear indicators point to the future trajectory of artificial intelligence (AI) in this field. These trends reflect both the increasing confidence in AI's capabilities and the practical considerations that will shape its ongoing adoption.

Key Indicators for the Future Application of AI in Recruitment:

1. **Globalization and Market Expansion:** The worldwide integration of labor markets is increasing the demand for AI-driven solutions that can efficiently source and match talent across borders.
2. **Advancing AI Capabilities and Adoption:** Continuous improvements in AI technology are enabling more complex recruitment tasks, while organizations are steadily increasing their adoption and integration of AI tools in HR processes.
3. **Growing Trust and Recognition of AI Benefits:** Employers are gaining confidence in the practical benefits of AI—such as efficiency and better decision-making—especially as experience and user training build greater trust in AI systems.

4. **Human-AI Collaboration Remains Essential:** Despite the rise of automation, effective recruitment will continue to depend on human judgment and empathy, with AI serving as a complementary tool to enhance, not replace, human expertise.

Together, these indicators highlight a strong movement toward broader, more effective, and more trusted AI integration in recruitment. As both technology and user expertise advance, organizations are poised to realize even greater benefits, provided they maintain a thoughtful balance between automation and essential human input.

9. Recommendations

Based on the study findings, the following key recommendations are proposed to optimize the integration of artificial intelligence (AI) in recruitment:

1. **Prioritize Building Trust in AI Systems:** Organizations should focus on strengthening trust in AI tools, as trust is shown to be the critical driver of both perceived recruitment benefits and willingness to adopt AI for future recruitment activities. Transparent communication about AI decision processes, regular performance evaluations, and opportunities for HR professionals to interact with AI systems can help foster this trust.
2. **Address and Monitor Challenges Proactively:** While perceived challenges did not significantly moderate AI's benefits, they remain an important influence on trust. Organizations should continually assess technical, ethical, and procedural barriers to AI use, implementing training programs, updating AI models, and adopting ethical standards to mitigate these issues.
3. **Integrate Human Judgment with AI Capabilities:** Given AI's current limitations in assessing behavioral and psychological attributes, organizations should design recruitment processes that blend AI-driven analysis with critical human oversight, especially in final candidate evaluations and decisions.
4. **Expand and Diversify AI Applications:** Organizations are encouraged to extend AI's use beyond administrative screening, leveraging it for workforce planning, candidate development, and strategic talent management. Special attention should be paid to using AI tools in ways that enhance diversity, inclusion, and fairness in recruitment.
5. **Invest in Continuous Training and Capacity Building:** Ongoing professional development is essential for HR professionals to effectively use and manage AI tools. Training should focus not only on technical skills, but also on critical understanding of AI's capabilities and limitations in the recruitment context.
6. **Establish Robust Data Management and Governance:** Maintain high-quality, up-to-date HR data systems, and establish clear governance policies for AI usage, data privacy, and compliance to support effective and responsible AI-driven recruitment.

10 Conclusion

The results of this study provide clear empirical evidence that trust in artificial intelligence (AI) is the central mechanism through which AI use and perceived challenges influence recruitment outcomes in Saudi organizations. Statistical analyses revealed that while both AI use and perceived challenges are significantly related to trust, only trust in AI directly predicts perceived benefits and expectations for future adoption of AI in recruitment. The direct effects of AI use and challenges on recruitment benefits and future intentions became non-significant when trust was accounted for, indicating that trust fully mediates these relationships.

Furthermore, the study found no significant moderating effect of perceived challenges on the relationship between AI use and perceived recruitment benefits, suggesting that the positive impact of AI use is not substantially weakened or strengthened by the presence of challenges when trust is considered. These findings underscore the importance of prioritizing trust-building strategies, such as transparency, training, and ethical oversight, when implementing AI in recruitment.

Despite the many advantages AI offers in streamlining recruitment processes, reducing costs, and improving candidate matching, the technology's full potential can only be realized if organizations address challenges proactively and foster a culture of confidence in AI systems. Human judgment remains critical, particularly in nuanced aspects of candidate assessment, and should complement AI-driven processes.

In summary, the study concludes that the successful and sustainable integration of AI in recruitment depends less on the mere use of technology and more on establishing robust trust in AI systems, supported by continuous improvement and responsible human–AI collaboration. As Saudi organizations and others worldwide move toward broader AI adoption, the pathway to recruitment excellence lies in blending technological innovation with trust, inclusivity, and informed human involvement.

11 Directions for Future Research

Future research could explore the following areas to advance the understanding and application of AI in recruitment:

1. **Behavioral and Emotional Assessment**: Investigate how AI technologies can better analyze candidates' emotional and behavioral attributes to complement traditional assessments.
2. **Bias Mitigation in AI Systems**: Examine strategies for reducing potential biases in AI algorithms, particularly in areas such as gender, age, and cultural diversity.
3. **Integration of AI Across Hierarchical Levels**: Study the effectiveness of AI applications in recruitment for middle and senior management roles compared to entry-level positions.
4. **Human-AI Collaboration Models**: Develop frameworks for optimizing collaboration between AI systems and human decision-makers in recruitment processes.
5. **Sector-Specific Applications**: Analyze the application of AI in recruitment across different industries and organizational contexts to identify best practices and challenges.
6. **Long-Term Impact on Workforce Dynamics**: Evaluate how AI-driven recruitment affects workforce diversity, employee retention, and overall organizational culture over time.
7. **Ethical and Legal Implications**: Explore the ethical and legal challenges associated with the use of AI in recruitment and propose guidelines for responsible AI implementation.
8. **AI-Driven Employee Onboarding**: Investigate the potential for AI to support post-recruitment activities, such as onboarding, training, and integration into organizational workflows.

These directions can provide a deeper understanding of AI's evolving role in recruitment and human resource management, enabling organizations to harness its full potential while addressing inherent limitations and ethical considerations.

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