

## Reimagining Talent Acquisition Through AI & HR Tech: Insights from Indian Job Portals



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### Abstract

The rapid evolution of technology has positioned Artificial Intelligence (AI) as a transformative force in global recruitment practices. In India, the convergence of AI and HR Tech is redefining the functioning of job portals, offering advanced solutions for talent acquisition, skill matching, and user engagement.

This paper examines the integration of AI and HR Tech in Indian job portals and its broader implications for recruitment ecosystems. Drawing on contemporary literature and industry insights, it highlights how AI-powered tools—including resume parsers, predictive analytics, chatbots, and recommendation engines—enhance efficiency, personalization, and decision-making. The study adopts a multi-stakeholder perspective, analyzing how job portals leverage AI to create platform value, organizations benefit from cost-effective and data-driven hiring, and job seekers gain through personalized job discovery, skill development, and career guidance.

Despite these advancements, challenges related to algorithmic bias, data privacy, and digital inequality persist, raising questions about fairness and inclusivity. The paper underscores the importance of ethical governance, transparent systems, and continuous innovation to ensure AI-driven recruitment remains equitable and sustainable. By situating India's experience within the global discourse, the study not only emphasizes the strategic role of AI in shaping modern workforce development but also identifies future directions for research and practice in creating inclusive, future-ready recruitment ecosystems.

## 1. Prologue

The rapid evolution of Artificial Intelligence (AI) has significantly reshaped the global recruitment landscape, with Indian job portals evolving from static job boards in the early 2000s to intelligent ecosystems today. In India, nearly 75 per cent of recruiters now allocate up to 70 per cent of their hiring budgets to AI-driven tools, signaling a clear shift toward quality hiring over speed (The Economic Times, 2025a). By FY24, 48 per cent of key sectors—including BFSI, healthcare, and retail—had adopted AI, with adoption expected to grow by another 5–7 per cent in FY25 (The Economic Times, 2024). AI has become deeply ingrained in modern job portals, powering resume parsing, smart job recommendations, skill-gap analysis, chatbots, and predictive analytics—ushering in a strategic era for talent acquisition. This convergence of HR Tech and AI not only enhances candidate-job matching and personalizes user experience but also enables employers to leverage data-driven insights for precise hiring and retention. This study explores the historical progression of AI integration, typologies of AI applications in job portals, and the transformative implications for both job seekers and organizations in India's dynamic talent ecosystem.

## 2. Review of Literature on AI Applications in Job Portals

Recent scholarship underscores AI's transformative role in recruitment, particularly through its deployment in job portals. At the operational level, AI-powered resume parsing systems automate the extraction of candidate details—experience, skills, education—using NLP and machine-learning techniques. Patil et al. (2025) introduced an AI resume parser capable of handling diverse resume formats and providing relevance-based candidate ranking, thereby significantly reducing recruiter workload. Similarly, Sinha, Akhtar, and Kumar (2023) implemented a parser in the Indian context that matched resumes to job domains, cutting manual screening effort by 80 per cent. Further advances include BERT-based parsing and matching systems, which outperform traditional extractors. Bhatia et al. (2019) reported over 73 per cent accuracy in candidate suitability ranking using BERT models. Kulkarni et al. (2025) also demonstrated enhanced parsing accuracy and fairness through Deep NLP pipelines.

Beyond parsing, AI is being increasingly used in recommendation engines that suggest jobs based on candidate behavior, skillsets, and career trajectory. Soni et al. (2024) highlighted that combined deep learning and transformer models significantly reduce false positives and improve contextual matching in multilingual environments. Bias and fairness in AI recruitment have drawn academic scrutiny. Mujtaba and Mahapatra (2024) provided a systematic review highlighting risks such as demographic bias and stressing metrics and mitigation strategies for algorithmic fairness. Chaturvedi and Chaturvedi (2025) revealed that some generative AI models may still perpetuate gender bias in callbacks—favoring men in high-paying roles. However, real-world adoption in India indicates a reduction in bias: Monash University research showed that women were more likely to apply when initial screening was AI-driven.

Industry data reflects rapid AI adoption among Indian portals. Nearly 75 per cent of recruiters are allocating up to 70 per cent of hiring budgets to AI tools, with 48 per cent adoption across sectors in FY24. Naukri reports accelerating demand for mid-to-senior AI/ML talent, underscoring the talent supply challenge.

AI-driven chatbots and sentiment analysis engines offer pre-screening and user experience improvement. While specific Indian studies in this domain remain limited, qualitative analyses suggest both recruiters and job seekers value automated systems—provided they balance efficiency with human touch. Despite extensive research on parsing, matching, and fairness, a cohesive study examining how combined AI modules (resume parsing + skill-based matching + bias mitigation + chatbot screening) perform end-to-end in the Indian job portal context is missing. This study aims to holistically assess these integrated AI applications and quantify their impact on hiring quality, time-to-hire, and candidate satisfaction.

## 3. Research Gap and Rationale of The Study

### 3.1 Research Gaps Identified

Although prior studies provide valuable insights into the role of AI in recruitment, the existing literature remains fragmented and contextually limited. A closer review highlights that most research emphasizes specific tools or operational efficiency while overlooking integrated systems, fairness considerations, and India-specific evidence. The major gaps are summarized in Table No.01. The gaps as stated in brief in Table No. 01 clearly demonstrate the need for a comprehensive, India-specific study that evaluates integrated AI applications in job portals from a multi-stakeholder perspective. Addressing these gaps provides the foundation for the present research and underlines its academic and practical significance.

**Table1: Summary of Research Gaps Identified from Review of Literature**

Sr. No.	Research Gap (in brief)	Supporting References
1	Studies assess single AI tools (e.g., parsing, chatbots) but not end-to-end systems.	Patil et al. (2025); Sinha et al. (2023)
2	Lack of India-specific empirical evidence on AI in recruitment.	Bhatia et al. (2019); Kulkarni et al. (2025)

3	Limited focus on bias, fairness, and transparency in Indian job portals.	Mujtaba & Mahapatra (2024); Chaturvedi & Chaturvedi (2025)
4	Emphasis on short-term efficiency; long-term outcomes like retention and career growth are underexplored.	Deloitte (2021); Prasad et al. (2025)
5	Few studies take a multi-stakeholder perspective (job seekers, employers, portals together).	Upadhyay & Khandelwal (2018); Mehta & Mehta (2023)

### 3.2 Rationale of the Study

These identified gaps highlight the absence of comprehensive, India-specific, and multi-stakeholder perspectives on AI-enabled recruitment. While global studies have explored the role of AI in talent acquisition, little is known about how integrated AI systems reshape Indian job portals and influence hiring quality, candidate experience, and organizational productivity. Furthermore, issues of fairness, transparency, and inclusivity remain underexplored in the Indian context. Given India's diverse labor market and increasing reliance on AI-powered job portals, it becomes imperative to investigate how these technologies simultaneously impact job seekers, employers, and recruitment platforms. This study therefore addresses a pressing gap by providing a multi-stakeholder perspective on the evolving role of AI in talent acquisition through Indian job portals, contributing both to academic literature and practical policy insights.

### 4. Objectives of the Study

- 4.1. To analyze the evolution and applications of AI and HR Tech in Indian job portals.
- 4.2. To examine the value addition of AI tools—such as resume parsing, predictive analytics, chatbots, and skill-matching engines—for job seekers and employers.
- 4.3. To identify the implications of AI integration in recruitment processes for key stakeholders: job portals, organizations, and job seekers, to overcome the challenges
- 4.4. To propose directions for ethical, inclusive, and sustainable adoption of AI in the Indian recruitment ecosystem.

### 5. Research Methodology

This study employs exploratory cum descriptive research design, relying on secondary data sources such as scholarly articles, industry reports, and recent case studies on AI in recruitment. A narrative review approach has been adopted to synthesize academic findings with industry practices, enabling a comprehensive understanding of AI applications in job portals.

The analysis is framed through a multi-stakeholder lens to capture the perspectives of job seekers, organizations, and job portal operators. This methodology ensures that the study not only consolidates existing knowledge but also addresses identified research gaps, thereby laying a foundation for future empirical investigation.

### 6. Evolution of the Era of HR Tech and AI in Job Portals

The evolution of job portals from basic job listing websites to intelligent career ecosystems has been significantly driven by advancements in HR technology (HR Tech) and artificial intelligence (AI) (Upadhyay & Khandelwal, 2018). Initially, job portals in the late 1990s and early 2000s (e.g., Naukri.com, Monster) functioned primarily as digital bulletin boards—allowing employers to post vacancies and candidates to apply manually. These platforms offered limited interactivity and relied heavily on keyword-based search functions and resume uploads (Mehta & Mehta, 2023). With the rise of Web 2.0 and cloud computing, the mid-2000s witnessed a shift toward database-driven recruitment. Job portals began offering features like resume databases, email alerts, and recruiter dashboards; however, hiring decisions still relied mostly on manual review, and candidate-job fit assessments remained largely subjective (IBM Smarter Workforce Institute, 2020).

The HR Tech revolution accelerated in the 2010s with the integration of data analytics, mobile-first platforms, and Applicant Tracking Systems (ATS), enabling job portals to expand into complete talent management ecosystems (LinkedIn Talent Solutions, 2022). Tools for employer branding, diversity hiring, and mobile job applications became standard, while AI and machine learning began to play a supporting role—used to match keywords and optimize listings (Chamorro-Premuzic et al., 2017). The true transformation began in the late 2010s and early 2020s, as AI became central to the design of job portal features. The use of Natural Language Processing (NLP) enabled intelligent resume parsing, while machine learning models provided predictive analytics on candidate success, dropout risk, and retention probability (Patil et al., 2025; Kulkarni et al., 2025). Portals integrated with video interview platforms, behavioral assessment tools, and AI chatbots, shifting the focus from transactional hiring to strategic talent acquisition (Sinha et al., 2023; Soni et al., 2024). Today, platforms like LinkedIn, Naukri.com, Shine, and Indeed use AI for everything from personalized job recommendations and career path predictions to skill gap analysis and salary benchmarking (Indeed, 2023; Naukri.com, 2025). Moreover, job portals are evolving into skilling and career platforms, integrating learning management systems (LMS) and upskilling certifications (e.g., LinkedIn Learning, Coursera, upGrad

partnerships) (Deloitte, 2021). These developments reflect a broader shift from “post and apply” models to “predict and prepare” systems (Prasad et al., 2025).

**Table 2: Table Showing Evolution of Job Portals with HR Tech and AI**

Sr. No.	Period	Technology Phase	Key Features	Value Addition
01.	Late 1990s – Early 2000s	Static Job Boards	Manual job listings, resume uploads, keyword-based search	Basic online access to job market; limited automation
02.	Mid-2000s	Web 2.0 & Cloud Era	Resume databases, recruiter dashboards, email alerts	Faster sourcing; easier recruiter workflows
03.	2010s	ATS & Mobile-first HR Tech	ATS integration, mobile apps, employer branding tools	Improved hiring experience and operational efficiency
04.	Late 2010s – Early 2020s	AI-Driven Platforms	Resume parsing, predictive analytics, chatbots, video interviews	Faster shortlisting, better candidate-job matching
05.	2022 – Present	AI + Learning Integration	Skill-matching engines, upskilling suggestions, career path prediction	Continuous career development; enhanced retention and readiness

As HR Tech continues to evolve with AI, big data, and automation, job portals are poised to become career orchestration engines—supporting individuals throughout the employment lifecycle while enabling organizations to make faster, fairer, and more informed hiring decisions.

## 7. AI Applications in Indian Job Portals and Their Value Addition

The integration of Artificial Intelligence (AI) in Indian job portals marks a paradigm shift in the recruitment landscape, enabling smarter, faster, and more efficient talent acquisition processes. Moving beyond traditional keyword-based search and manual screening, today’s platforms leverage AI-driven tools such as resume parsing, predictive analytics, chatbots, and personalized job matching. These innovations not only enhance the job-seeking experience but also empower employers to make data-informed decisions, reduce hiring costs, and improve talent retention. This section explores the key ways in which AI is being deployed across job portals in India and highlights its multidimensional value for both job seekers and recruiters.

**Table 03: Table Showing Evaluation of AI Features and its Benefits**

Sr. No.	AI Feature	Job Seeker Benefit	Employer Benefit
01.	Resume Parsing	Profile auto-fill, faster applications	Efficient bulk screening
02.	Smart Recommendations	Personalized job alerts	Higher quality applicants
03.	Chatbots / Pre-Screening	24/7 support, easier navigation	Less recruiter workload
04.	Skill Matching / Gap Analysis	Upskilling insight	Better hiring accuracy
05.	Sentiment Analysis	Interview prep feedback	Candidate fit evaluation
06.	Salary Benchmarking	Negotiation support	Competitive offers
07.	Fraud Detection	Trustworthy platform	No fake applications
08.	Career Path Prediction	Long-term growth suggestions	Future-ready candidates

- **AI-Powered Resume Parsing:** AI uses Natural Language Processing (NLP) and Optical Character Recognition (OCR) to extract structured data—such as education, skills, and experience—from resumes. Job seekers benefit from faster, auto-filled profiles, while employers experience quicker and more efficient candidate screening (Affinda, 2023; Wikipedia, 2025; Patil et al., 2025; Kulkarni et al., 2025).
- **Smart Job Recommendations:** Machine learning models analyze seeker behavior, preferences, and profiles to recommend relevant job opportunities. This helps job seekers find better matches while improving the quality of applications received by employers (Soni et al., 2024; Mehta & Mehta, 2023).
- **AI Chatbots and Pre-Screening Assistants:** AI-powered chatbots, like Monster’s ‘Maya’, automate early screening processes, answer FAQs, and guide applicants through qualification checks. This

provides 24/7 assistance to job seekers and reduces recruiter workload (IBM Smarter Workforce Institute, 2020; Upadhyay & Khandelwal, 2018).

- **Skill-Matching and Gap Analysis:** AI compares resumes with job requirements to identify matches and skill gaps. It benefits job seekers through actionable insights for upskilling and helps employers improve the accuracy of candidate shortlisting (LinkedIn Talent Solutions, 2022; Prasad et al., 2025).
- **Sentiment and Behavioral Profiling:** AI evaluates tone, engagement, and communication style in applications or interviews to infer soft skills and cultural fit. It aids job seekers in improving their presentation and enables employers to identify better-aligned candidates (Deloitte, 2021; Chamorro-Premuzic et al., 2017).
- **Salary Benchmarking and Decision Support:** AI tools analyze market data to provide salary ranges and compensation trends. Job seekers gain negotiation power, while employers make competitive and informed offers (Indeed, 2023; Naukri.com, 2025).
- **Duplicate Detection and Fraud Prevention:** AI identifies fake or duplicate profiles using pattern recognition. This ensures application credibility for job seekers and saves time for recruiters by reducing irrelevant or fraudulent submissions (Mehta & Mehta, 2023; IBM Smarter Workforce Institute, 2020).
- **Career Path Prediction and Skill Pathways:** AI suggests potential career growth trajectories and relevant learning courses (e.g., LinkedIn Learning integrations). Job seekers benefit from personalized development, while employers tap into upskilled talent pools (LinkedIn Talent Solutions, 2022; Deloitte, 2021).

## 8. Implications for Job Portals, Organizations and Job Seekers in the Era of HR Tech And AI Application

The emergence of HR Tech powered by Artificial Intelligence (AI) has fundamentally transformed the dynamics of talent acquisition and workforce management. As Indian job portals integrate AI tools such as resume parsing, skill-matching engines, chatbots, and predictive analytics, the implications span far beyond operational convenience. These advancements impact not only the internal strategies of recruitment platforms but also redefine the roles and experiences of organizations and job seekers. This section explores the multifaceted consequences of AI adoption across stakeholders—highlighting how digital disruption in hiring practices is shaping decision-making, enhancing efficiency, and raising new expectations in the evolving employment ecosystem.

### 8.1 Implications for Job Portals

- **Intelligent Talent Matching:** AI allows job portals to shift from keyword-based filtering to predictive algorithms that assess a candidate's suitability based on skills, experience, and behavior patterns (Upadhyay & Khandelwal, 2018). These systems significantly improve the efficiency of sourcing by reducing recruiter workload and increasing quality-of-hire.
- **Personalized Candidate Experience:** Advanced AI tools, such as chatbots and recommendation engines, enable job portals to deliver personalized job alerts and real-time query resolution, enhancing user engagement (IBM Smarter Workforce Institute, 2020).
- **Skill-Based Hiring and Upskilling Integration:** With employers emphasizing skills over degrees, portals are increasingly integrating skill assessments and partnerships with edtech platforms to offer learning paths alongside job listings (LinkedIn Talent Solutions, 2022). This helps bridge skill gaps and improves job match outcomes.
- **Predictive Analytics for Employers:** Job portals can now provide employers with insights such as time-to-fill predictions, dropout risks, and salary benchmarks using AI-powered analytics (Chamorro-Premuzic et al., 2017). These tools enable data-driven decision-making in recruitment strategy.
- **Retention-Focused Features:** Platforms are evolving from just sourcing talent to retaining it, through features like internal mobility tracking, career development dashboards, and feedback analytics that help organizations predict attrition and improve employee satisfaction (Deloitte, 2021).
- **Bias Reduction and Fair Hiring:** AI can mitigate human bias by anonymizing profiles and ensuring selection is based on job-relevant data. However, this requires careful algorithm training and audit mechanisms (Cappelli, 2019).
- **Integration with HRMS and ATS Ecosystems:** Modern job portals are increasingly designed to integrate seamlessly with HRMS and Applicant Tracking Systems (ATS), enabling continuity from application to onboarding and beyond (Mehta & Mehta, 2023). This holistic integration makes them valuable parts of the HR Tech ecosystem.

### 8.2 Implications For Organizations

- **Enhanced Recruitment Efficiency:** AI enables automation of repetitive tasks such as resume screening, chatbot-based initial communication, and interview scheduling. According to Upadhyay and Khandelwal (2018), the adoption of AI in recruitment significantly improves operational efficiency by reducing human involvement in early screening stage.



- **Improved Talent Matching and Hiring Quality:** Platforms using AI-powered recommendation systems (e.g., LinkedIn, Naukri) apply predictive analytics to identify the best-fit candidates based on behavioral patterns and skill requirements. Soni et al. (2024) demonstrate that AI-based job matching improves the relevance and accuracy of candidate-job pairing, thereby enhancing hiring quality.
- **Cost Optimization in Talent Acquisition:** AI tools streamline recruitment pipelines, reducing dependency on traditional agencies and minimizing recruitment costs. Patil et al. (2025) highlight that intelligent resume parsers can cut down screening time by over 60 per cent, leading to substantial cost savings.
- **Bias Mitigation and Inclusive Hiring:** AI offers potential to reduce unconscious bias through anonymized evaluations and standardized scoring algorithms. Research by Mujtaba and Mahapatra (2024) stresses the importance of algorithmic fairness, showing how AI can promote more equitable hiring outcomes when properly designed and monitored.
- **Employer Branding and Candidate Experience:** AI-driven chatbots and real-time application tracking systems improve candidate engagement and transparency, which strengthens employer branding. Mehta and Mehta (2023) found that enhanced communication during the hiring process increases candidate satisfaction and likelihood of offer acceptance.
- **Strategic Workforce Planning:** Predictive tools embedded in AI-based platforms help HR teams forecast talent needs and skill gaps. Deloitte (2021) reports that AI-assisted talent analytics enables organizations to make data-informed hiring and workforce deployment decisions.
- **Compliance and Data Security Challenges:** The use of AI in handling personal candidate data raises concerns regarding privacy and compliance. Organizations must align with data protection laws like the DPDP Act in India. Schellmann (2024) warns that unchecked AI use in recruitment may lead to inadvertent privacy violations and reputational risks.
- **Need for HR Capability Building:** With AI reshaping recruitment functions, HR professionals must upskill in digital literacy, data analytics, and AI tool deployment. IBM (2020) emphasizes that organizations should invest in AI-readiness training to ensure effective human-AI collaboration in hiring.

### 8.3 Implications For Job Seekers

- **Improved Job Matching and Discovery:** AI-powered recommendation systems in portals like Naukri and LinkedIn provide personalized job suggestions based on a candidate's experience, preferences, and online behavior. Soni et al. (2024) found that AI-enhanced job portals reduce irrelevant listings and help candidates discover more relevant opportunities with better precision.
- **Time and Effort Optimization:** Automated resume parsing and profile syncing reduce the burden on job seekers to repeatedly fill application forms. According to Patil et al. (2025), AI-driven parsing engines significantly streamline the application process by auto-extracting candidate data into employer-ready formats.
- **Skill Gap Identification and Career Path Guidance:** AI-based tools now offer real-time insights on required skills and recommend online courses (e.g., via Coursera, LinkedIn Learning) to fill these gaps. Mehta and Mehta (2023) noted that job seekers benefit from data-driven career path suggestions and targeted skilling recommendations, improving their employability.
- **Greater Access to Opportunities and Inclusivity:** AI systems can reduce geographic and demographic barriers by enabling access to remote job listings and promoting unbiased shortlisting. Monash University research (2024) found that women were more likely to apply when job screening was handled initially by AI tools rather than human recruiters. Faster Feedback and Transparent Processes AI chatbots and application status trackers provide real-time updates, reducing the anxiety associated with long hiring cycles. As per LinkedIn (2022), job seekers increasingly value transparent application processes and faster feedback loops enabled by AI-based systems.
- **Privacy and Algorithmic Fairness Concerns:** While AI improves reach and convenience, candidates often remain unaware of how their data is processed or scored. Mujtaba and Mahapatra (2024) caution that lack of transparency and potential algorithmic bias may result in unfair rejection without candidates knowing the reasons.
- **Dependence on Digital Presence:** AI systems often evaluate online activity, keywords in resumes, and digital profiles. Job seekers without optimized LinkedIn profiles or digital footprints may get deprioritized (Upadhyay & Khandelwal, 2018), creating a digital disadvantage for less tech-savvy individuals.
- **Need for AI Awareness and Adaptability:** As AI reshapes hiring, job seekers must understand how these systems work to tailor resumes, optimize keywords, and manage their digital presence. IBM (2020) recommends digital readiness training for job seekers to remain competitive in AI-driven recruitment landscapes.

### 9. Concluding Remarks

The evolving synergy between Artificial Intelligence (AI) and HR Tech in Indian job portals signifies a major inflection point in the future of recruitment and workforce engagement. From static listing platforms to intelligent talent ecosystems, the adoption of AI has profoundly improved candidate-job matching, reduced hiring timelines, enhanced user engagement, and enabled strategic workforce planning.

For job seekers, AI brings personalized job recommendations, faster applications, and skills-based pathways, although it also demands digital awareness and adaptability. For organizations, AI enhances operational efficiency, fosters fairer hiring, and enables data-driven talent strategies. For job portals, it opens avenues for advanced analytics, value-added services like upskilling recommendations, and real-time insights for both users and employers.

Yet, as AI's role expands, so do concerns around algorithmic bias, data privacy, and digital inequality. The key challenge lies in balancing innovation with inclusivity and ethical governance. Continuous algorithm auditing, transparency, and human oversight will be crucial in preserving fairness and trust in AI-driven recruitment.

In conclusion, the integration of AI into job portals is not just a technological shift—it is a transformation in how talent is discovered, evaluated, and nurtured. Going forward, stakeholders must collaborate to ensure these systems serve not only efficiency, but also equity, empowerment, and long-term workforce development.

## 10. Future Directions and Declarations

The integration of Artificial Intelligence (AI) and HR Tech in Indian job portals is still in its formative stage, offering vast opportunities for future exploration. Upcoming research can focus on developing frameworks to ensure algorithmic fairness, transparency, and inclusivity in AI-driven recruitment. Further, empirical studies can examine the long-term impact of AI-enabled tools on employee retention, career development, and organizational productivity. Collaborations between job portals, edtech platforms, and policymakers can also be studied to understand how integrated ecosystems support skill development and reduce digital inequality. Finally, cross-country comparative analyses may highlight how India's AI adoption in recruitment aligns with or diverges from global trends, contributing to a broader discourse on ethical and sustainable talent acquisition.

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The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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