

The Impact of AI and Automation on Recruitment Processes: Pune City

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Abstract:-

The study titled “**The Impact of AI and Automation on Recruitment Processes: Pune City**” examines the role of AI-driven technologies in modern recruitment practices. It focuses on understanding AI applications, evaluating their effectiveness, identifying challenges faced by HR professionals, and assessing candidate perceptions. The study also aims to suggest improvements and best practices for implementing AI-based recruitment systems to enhance efficiency, fairness, and decision-making in organizations.

Introduction:- AI refers to the simulation of human intelligence by machines. In recruitment, it's used to automate and improve hiring decisions by analyzing large volumes of data and patterns in resumes, job descriptions, and candidate behavior. This project explores how Artificial Intelligence (AI) and Automation are transforming recruitment processes across industries. It examines the benefits, challenges, and future implications of integrating AI-driven tools in talent acquisition. The study includes insights from secondary data and case studies of organizations implementing AI in their HR functions. The influence and transformation brought by Artificial Intelligence (AI) and automation technologies on how organizations attract, assess, select, and hire employees. These technologies are redefining traditional Human Resource (HR) functions, especially recruitment, by automating repetitive tasks, enhancing decision-making, and improving hiring efficiency. In the area of modern technological economy, we are in the beginning stage of a fourth industrial revolution which has quickly taken us into scientific developments such as nanotechnology, robotics, machine, learning, algorithm, and artificial intelligence are all graded up and almost acts as an extension of one another. The revolution of turning into the digital era has led to a lack of understanding between machine power and manpower. Attracting the most skilled candidates with job requirements is the responsibility of HR managers or outsourcing companies. The company and candidate can quickly find relevant jobs with the help of artificial intelligence and machine learning. New recruitment technology will prioritize candidate selection time over resume scrutiny.

Statement of the problem:-

AI and automation are transforming recruitment by improving efficiency, reducing costs, and enhancing candidate experiences. However, their impact in Pune City remains underexplored. This study examines AI adoption, sectoral influence, challenges faced by HR professionals, and concerns related to fairness, bias, and transparency, while evaluating opportunities and complexities in modern talent acquisition.

Objectives of the project:-

- 1.To understand the application of AI in recruitment processes
- 2.To evaluate the effectiveness and efficiency of AI-driven recruitment tools
- 3.To identify challenges faced by HR professionals in adopting automation
- 4.To assess the perception of candidates toward AI-based hiring
- 5.To suggest improvements and best practices for AI-driven recruitment systems

Significance of the project:-

The significance of this project lies in its potential to provide valuable insights into the evolving dynamics of recruitment in the context of AI and automation, particularly within Pune—a rapidly developing urban center and a major hub for information technology, manufacturing, and education in India. This study benefits employers, HR professionals, job seekers, policymakers, educators, and researchers by providing insights into AI and automation in recruitment. It highlights efficiency, bias reduction, candidate experience, ethical concerns, and skill requirements. The study supports workforce development, policy formation, and academic research by presenting a localized perspective on AI adoption and its impact on recruitment practices in Pune City.

Definition of terms

1. Artificial Intelligence (AI):

AI is the simulation of human intelligence by machines, especially computer systems. In recruitment, it is used to **analyze resumes, predict candidate fit, conduct automated interviews**, and more.

2. Automation:

Automation in HR means using software tools or systems to perform routine recruitment tasks without human intervention — such as screening resumes, sending follow-up emails, or scheduling interviews.

3. Recruitment Process:

The recruitment process includes several stages such as:

- Job posting
- Resume screening
- Candidate communication
- Interview scheduling
- Assessments
- Final selection

AI and automation touch every one of these stages to make them faster, smarter, and more data-driven.

Review of literature

Recent studies highlight that Artificial Intelligence (AI) and automation are significantly transforming recruitment and selection processes by improving efficiency, reducing operational costs, and enhancing decision-making accuracy. AI, when integrated with human expertise, supports various recruitment activities such as candidate sourcing, resume screening, interview assistance, and onboarding. According to Saumya and Srivastava (2024), AI improves data management, reduces recruitment time, enhances candidate engagement, and enables organizations to process large volumes of applications effectively. AI-based tools can analyze resumes, identify suitable candidates, conduct job simulations, and support personality assessments. However, the study also identifies challenges such as high implementation costs, dependence on quality datasets, algorithmic bias, reduced human interaction, and resistance to technological change. Despite these limitations, effective AI implementation can make recruitment processes more efficient, inclusive, and cost-effective. Anusha Hewage (2023) examined AI adoption among recruitment and selection professionals through interviews with 17 experts from different industries. The study revealed that acceptance of AI depends on the recruitment stage. AI is considered highly beneficial in sourcing, pre-selection, and candidate engagement, especially for high-volume recruitment and non-specialized job roles. Recruitment professionals prefer AI tools for reducing workload, expanding candidate pools, and improving work-life balance. However, they expressed concerns about using AI during interviews due to issues related to candidate experience, trust, and organizational commitment. The study incorporated recruitment

phases into the Unified Theory of Acceptance and Use of Technology (UTAUT) model, providing a contextual framework for understanding AI adoption. It also suggested that similar frameworks can be applied to emerging technologies such as ChatGPT, robotic process automation, augmented reality, and the metaverse. Maneesh M. Haridasan (2022) emphasized that globalization and technological advancement have increased the importance of digital transformation in Human Resource Management (HRM). AI provides opportunities to automate repetitive HR activities and improve functions such as talent acquisition, talent management, compensation, benefits, and learning and development. However, the study highlighted that human involvement remains essential because AI should complement rather than replace human decision-making. A balanced approach between technological advancement and human expertise is necessary for effective HR practices. Dr. Owais Ahmed (2018) focused on the importance of transparency in AI-based HR practices. The study suggested that while AI can improve recruitment decisions, organizations must understand how AI algorithms generate outcomes to avoid hidden biases. Transparency is essential for building employee trust and ensuring fair recruitment practices. HR professionals need to establish ethical guidelines and monitoring mechanisms to ensure responsible AI implementation. Mital Pipaliya and Dr. Bhavesh Vanpariya studied the impact of AI on employers and job seekers, particularly during the initial stages of recruitment. Their research indicated that although AI is still developing in academic discussions, organizations are increasingly adopting AI-based recruitment tools. AI is considered a transformative technology in HR; however, its successful adoption requires addressing concerns related to fairness, accessibility, and candidate experience. Madeline Laurano examined the role of AI providers in recruitment technology. The study found that organizations focused on efficiency often depend on Applicant Tracking System (ATS) providers and sourcing platforms for AI solutions. However, many organizations prioritize convenience over transparency and do not sufficiently evaluate AI methodologies. This highlights the need for stronger accountability and ethical standards among AI technology providers. James Wright and Dr. David Atkinson concluded that AI will significantly influence future recruitment strategies. Their study suggested that organizations must redesign recruitment processes by integrating advanced technologies to achieve better hiring outcomes, reduce operational costs, and gain competitive advantages. AI will transform traditional recruitment from a trial-and-error approach into a data-driven and success-oriented process.

Research methodology

Population and Sampling Unit:-

Population is HR professionals from various areas like Talent Acquisition, Talent Management, Compensation & Benefit and Learning & Development. And the sampling unit is individual HR.

Sample Size:

The researcher approached 55 HR professionals including employees, trainees, and interns from various industries. Out of these, 20 respondents (36.36%) provided responses for the study. The selected sample represents HR professionals from different sectors, enabling analysis of AI and automation impacts on recruitment practices based on their experiences and perspectives.

The sampling method used is non-probability sampling and it is convenient sampling

Mode of data collection:-

Data collection is defined as the procedure of collecting, measuring and analyzing accurate insights for research using standard validated techniques. Research can evaluate their hypothesis on the basis of collected data. The mode of data collected in this research is through questionnaire

Data collection instrument

Data collection tools refer to the devices/instruments used to collect data, such as a paper questionnaire or computer-assisted interviewing system. Case studies, checklist, interviews, observation sometimes, and surveys or questionnaire are all tools used to collect data collection for this research is done through google forms questionnaire.

Data Collection:

Primary Data:-

Primary data was collected through Google Forms, online surveys, LinkedIn, emails, and phone calls from HR professionals of various companies in Pune City. The questionnaire was designed to obtain firsthand insights into recruitment practices. Responses from HR professionals involved in employee recruitment were analyzed to draw meaningful conclusions regarding AI and automation in hiring processes. It was given to-

- Chief human Resource Officers (CHRO's)
- Vice & Assistant Vice Presidents
- Directors
- Managers and
- Recruiters
- HR like Talent Acquisition,
- Talent Management,
- Compensation & Benefit ,
- Learning & Development.

Secondary Data: - Secondary data refers to information that has already been collected and compiled by someone else, rather than being gathered directly by the researcher for their specific needs. It's readily available from sources like government publications, academic journals, market research reports, and internal organizational records. Secondary sources (industry reports, journal articles, and company websites) Case studies of companies using AI in HR

Data collection and analysis:-

Designation:-

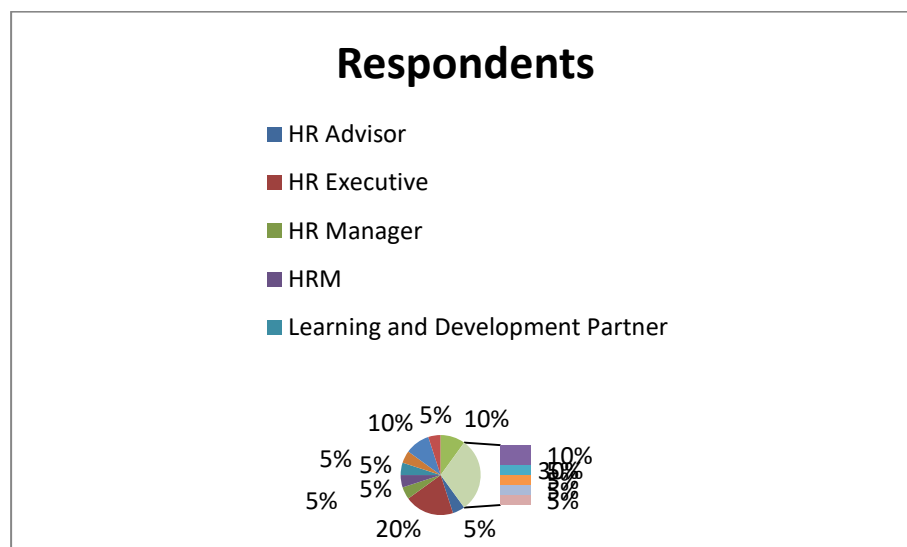


Figure No. 1

Interpretation:- The study included 20 respondents from diverse sectors, including HR, technology, academics, and hospitality. Participants comprised HR Executives (4), HR professionals (6), Senior Software Engineers (2), Business Analysts (2), Assistant Professors (2), hospitality professionals (4), and AEVP (1). This diverse sample provided multidimensional insights into AI and automation in recruitment practices across Pune.

Company name:

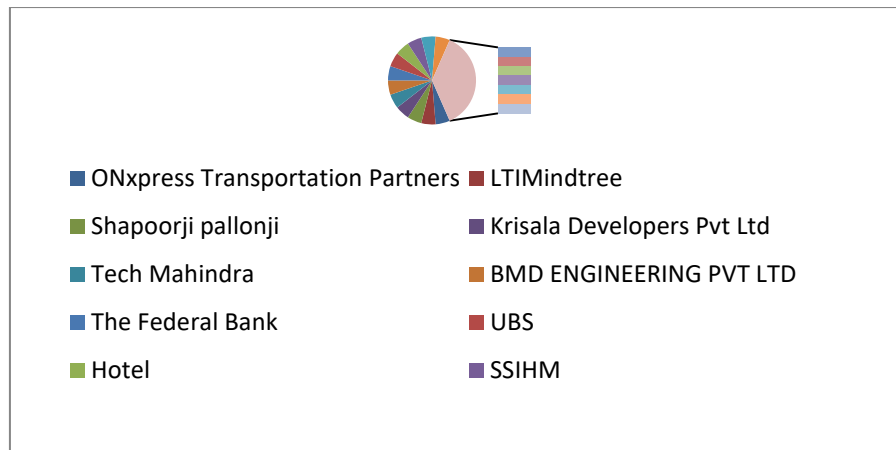


Figure No. 2

Interpretation:-

The study included 20 organizations across diverse sectors in Pune, including IT, engineering, banking, finance, real estate, transportation, education, hospitality, and entertainment. Companies such as LTIMindtree, Tech Mahindra, UBS, Suryadatta Group, Sai Krishna Hotel, and PVR INOX contributed insights. This cross-industry representation enhanced understanding of AI and automation in recruitment practices.

Industry:-

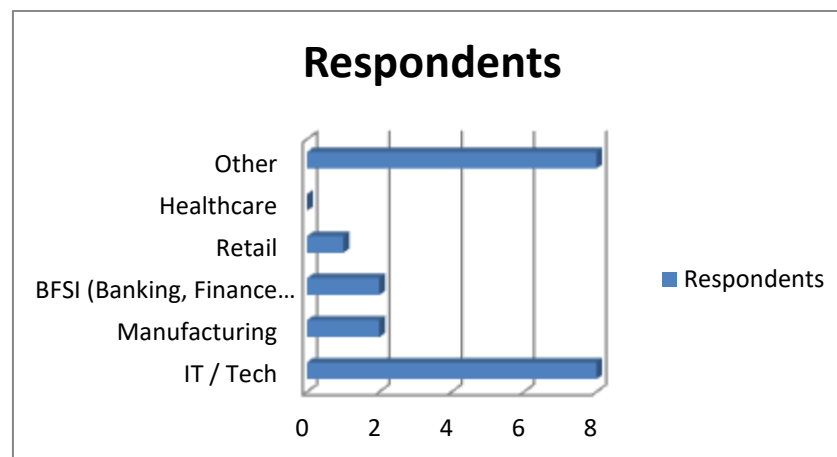


Figure No. 3

Interpretation:- The survey received responses from different industries, with IT/Tech and Other sectors having the highest participation (8 respondents each, 40% each). Manufacturing and BFSI contributed 2 respondents each (10% each), while Retail had 1 respondent (5%). Healthcare recorded no responses (0%), indicating varying levels of industry representation.

Years of experience in hr/recruitment:

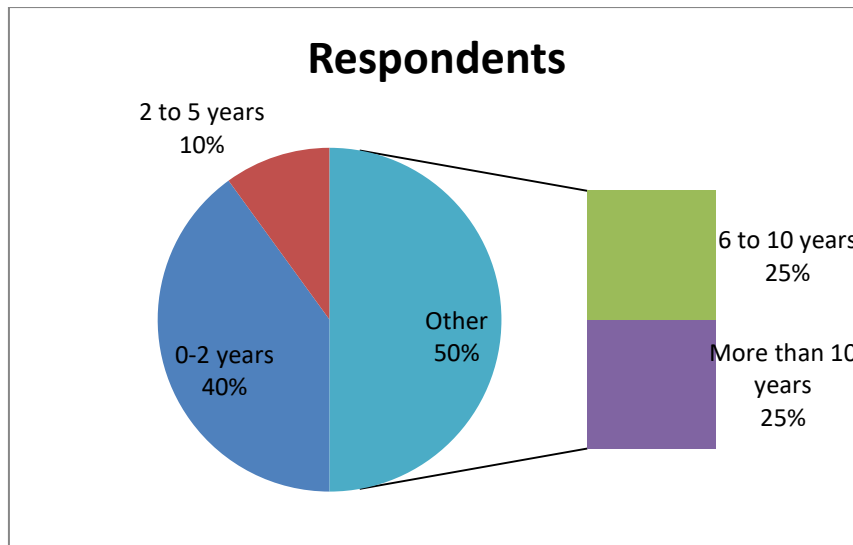


Figure No. 4

Interpretation:- The survey included HR professionals with varied experience levels. The highest participation was from 0–2 years of experience (8 respondents, 40%). 2–5 years had 2 respondents (10%), while 6–10 years and above 10 years each had 5 respondents (25%). The data reflects a mix of early-career and experienced HR professionals.

Does your organization currently use ai or automation in any part of the recruitment process?

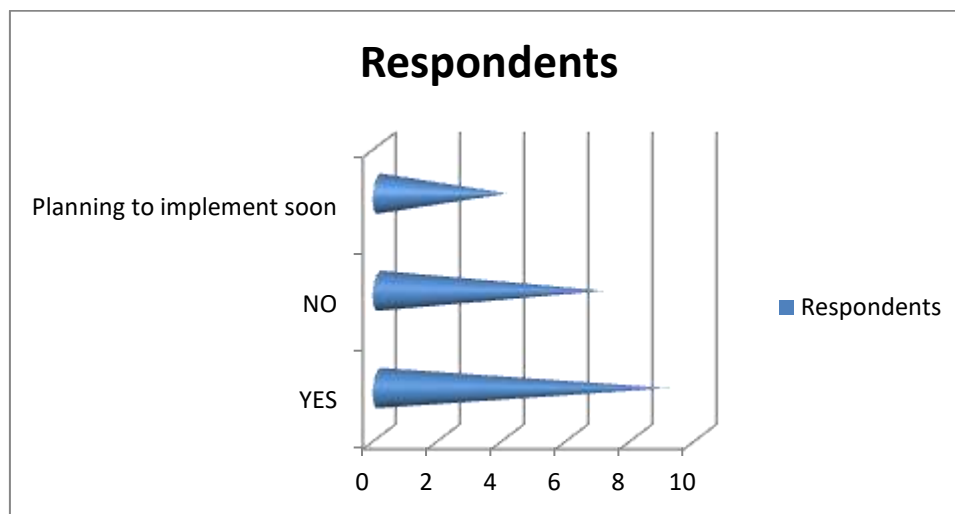


Figure No.5

Interpretation:- The data shows that 9 organizations (45%) are currently using AI or automation in recruitment, while 7 organizations (35%) are not using it. 4 organizations (20%) plan to implement AI soon. Overall, 65% are adopting or considering AI, indicating a growing trend in technology-driven hiring practices.

Which stages of recruitment are automated in your organization? (select all that apply)

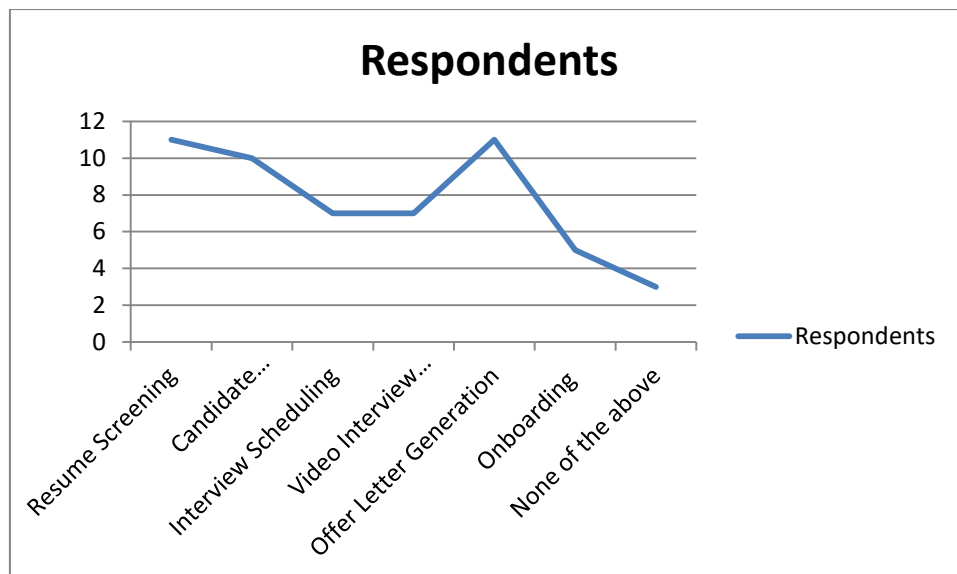


Figure No. 6

Interpretation: - The data indicates that Resume Screening and Offer Letter Generation are the most automated stages, used by 11 respondents each (55%). Candidate Communication follows with 10 (50%), while Interview Scheduling and Video Interviews have 7 each (35%). On boarding is automated by 5 (25%), and 3 (15%) use no automation.

What ai tools/platforms are you currently using? (e.g., hirevue, linkedin recruiter, zoho recruit, etc.)

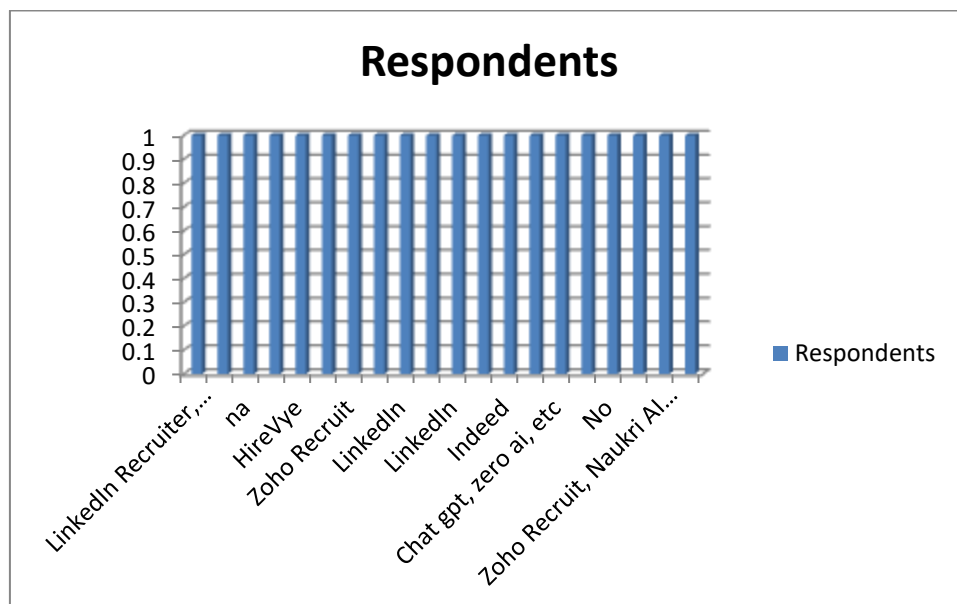


Figure No. 7

Interpretation: -The table lists the various AI tools and platforms used by survey respondents in their recruitment process. Each tool mentioned is used by one respondent, showing a wide variety of tools in use, but no single platform dominates significantly. Some of the tools mentioned include:

- LinkedIn and its various versions (LinkedIn Recruiter, LinkedIn.com, LinkedIn recruiter)

- Zoho Recruit
- Naukri and Naukri AI chatbox
- HireVue
- Oracle Cloud
- Indeed
- ChatGPT, Gen AI, and other AI-based tools

A few respondents also mentioned using in-house solutions, chatbots, or multiple tools combined. Notably, some participants wrote "na" or "no", indicating they either don't use any tools or chose not to disclose. This shows that while many respondents are exploring or using AI platforms, their preferences are quite diverse, and there is no one-size-fits-all solution in recruitment AI usage.

On a scale of 1 to 5, how effective is ai in improving recruitment efficiency?

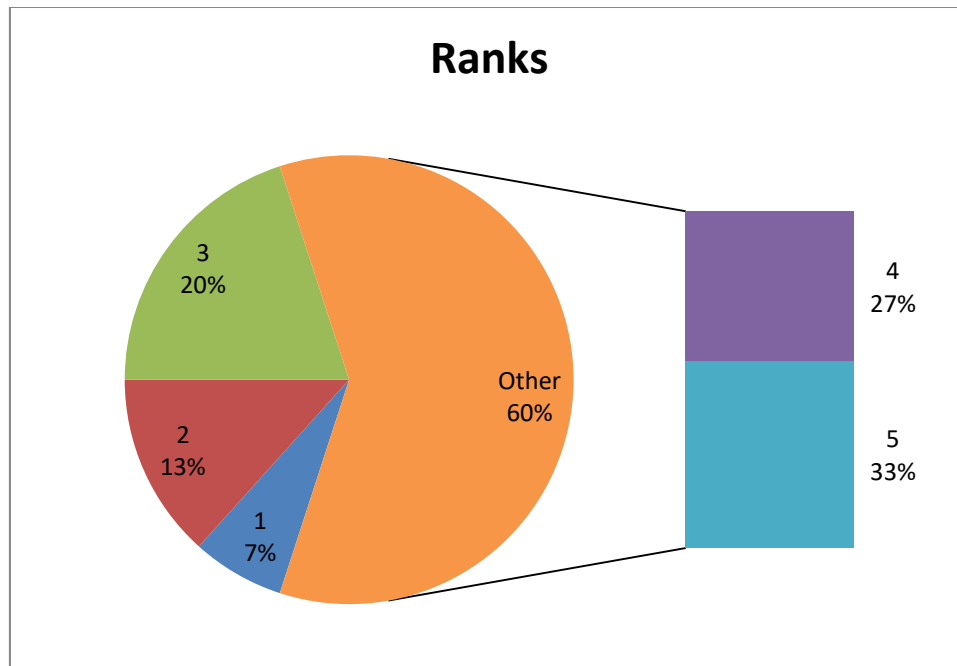


Figure no. 8

Interpretation:- The effectiveness of AI in improving recruitment was rated positively. 7 respondents (35%) gave a rating of 5, 6 respondents (30%) rated it 4, and 5 respondents (25%) rated it 3. Only 2 respondents (10%) gave a rating of 2, while 0 respondents (0%) rated it 1, indicating strong acceptance of AI.

Do you believe ai has improved the quality of hire?

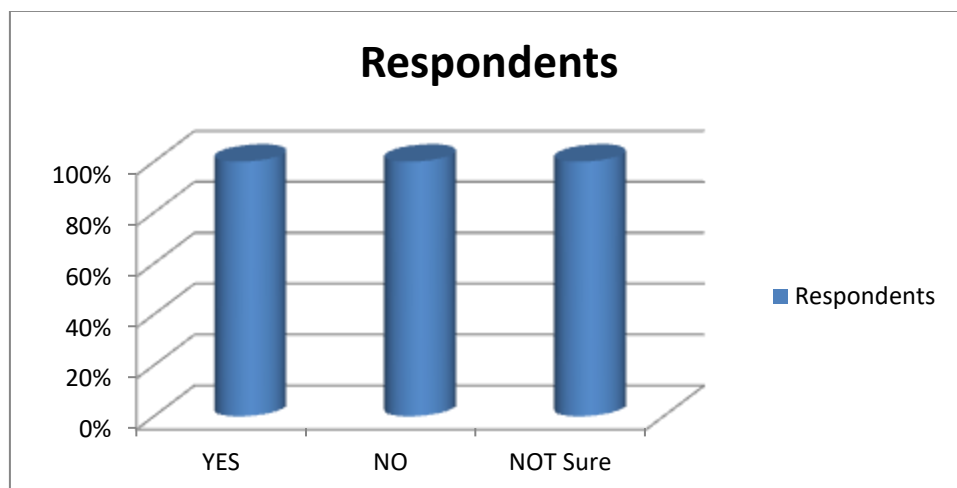


Figure No.9

Interpretation:- The data shows that 9 respondents (45%) believe AI has improved the quality of hires, while 3 respondents (15%) reported no improvement. 8 respondents (40%) were unsure about its impact. The findings indicate that AI is positively perceived by many, but organizations need clearer evaluation methods to measure hiring quality improvements.

Has ai helped reduce time-to-hire in your organization?

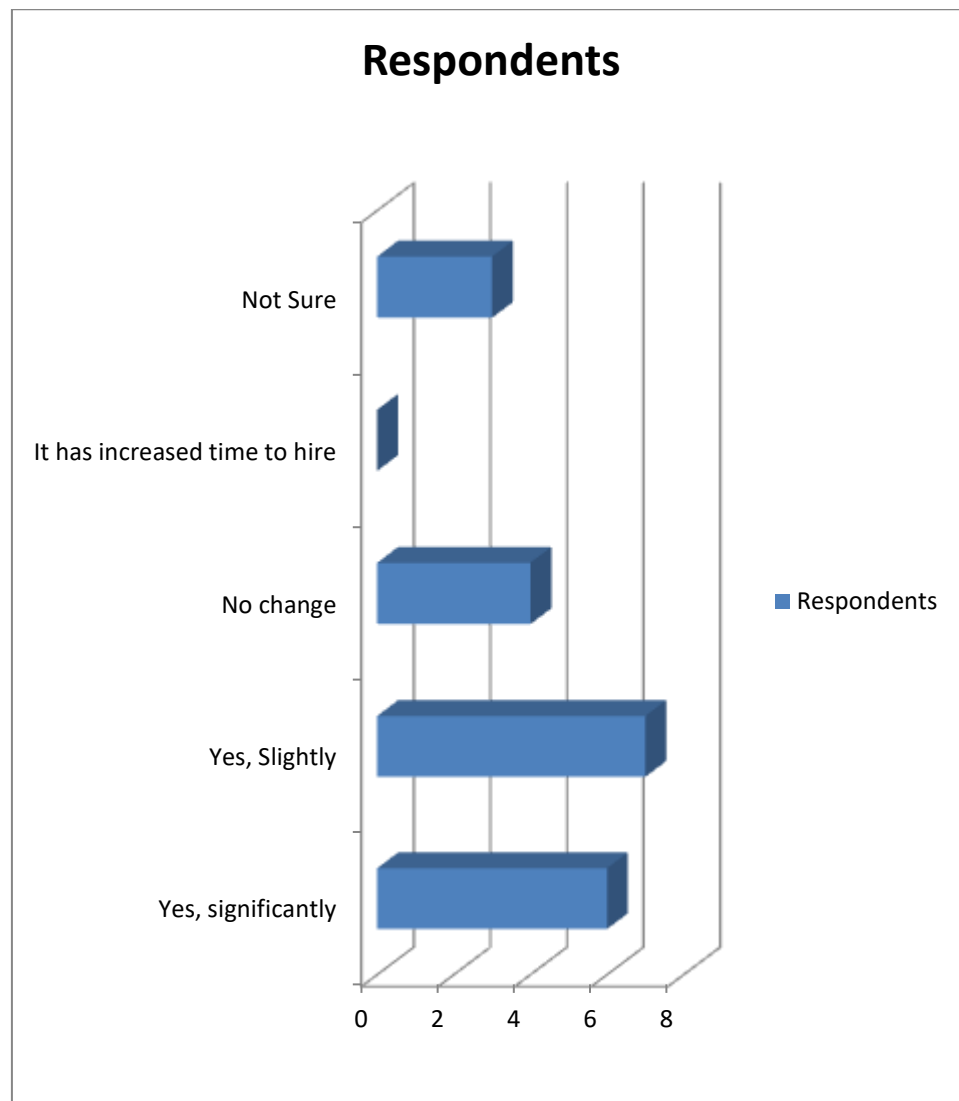


Figure No.10

Interpretation:- The findings show that 6 respondents (30%) reported a significant reduction and 7 respondents (35%) reported a slight reduction in time-to-hire through AI. 4 respondents (20%) observed no change, while 3 respondents (15%) were unsure. No respondents reported an increase, indicating AI positively supports recruitment efficiency.

Do you think automation makes the recruitment process more candidate-friendly?

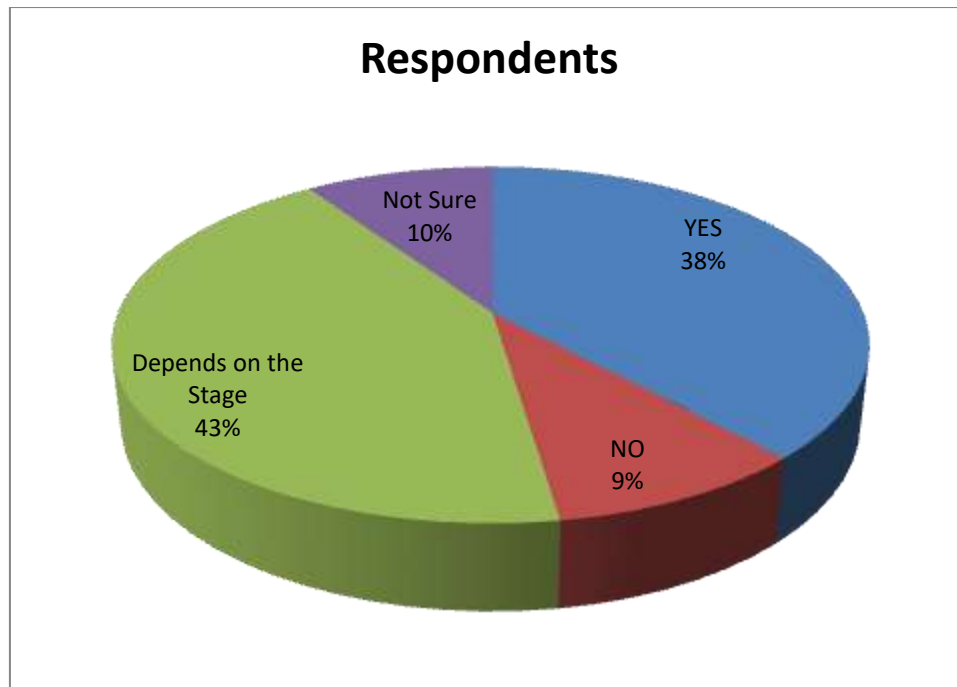


Figure No.11

Interpretation:- The data shows that 8 respondents (40%) believe automation improves the candidate experience, while 9 respondents (45%) feel its impact depends on the recruitment stage. 2 respondents (10%) reported no improvement, and 2 respondents (10%) were unsure. The findings suggest automation can enhance recruitment when implemented carefully and appropriately.

To what extent do you rely on ai vs human judgment in candidate selection?

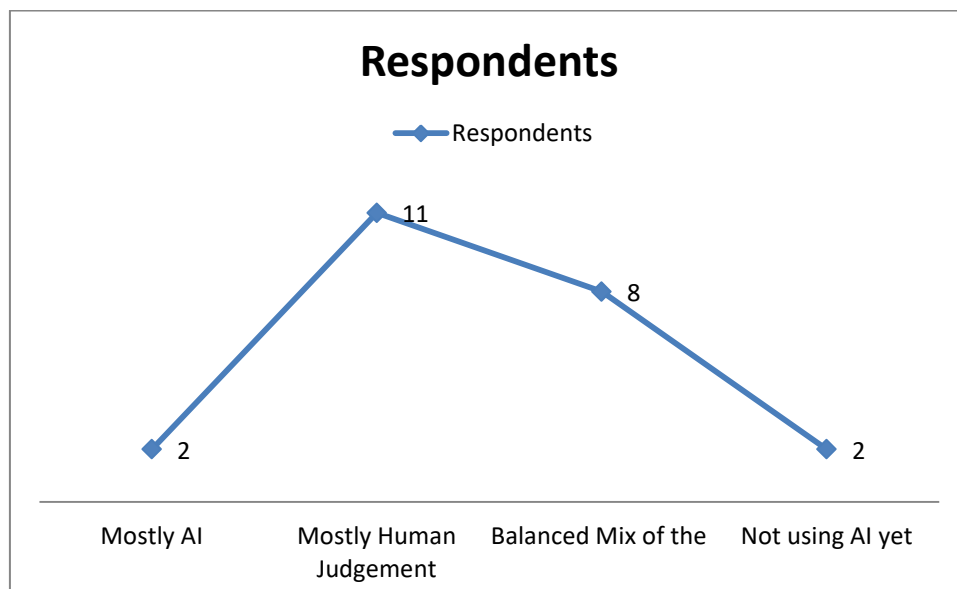


Figure No.12

Interpretation:- The findings show that 11 respondents (55%) rely mostly on human judgment in recruitment decisions, while 8 respondents (40%) use a balanced combination of AI and human

judgment. Only 2 respondents (10%) rely mostly on AI, and 2 respondents (10%) have not adopted AI yet, indicating human involvement remains dominant.

Have you faced any bias or fairness issues with ai recruitment tools?

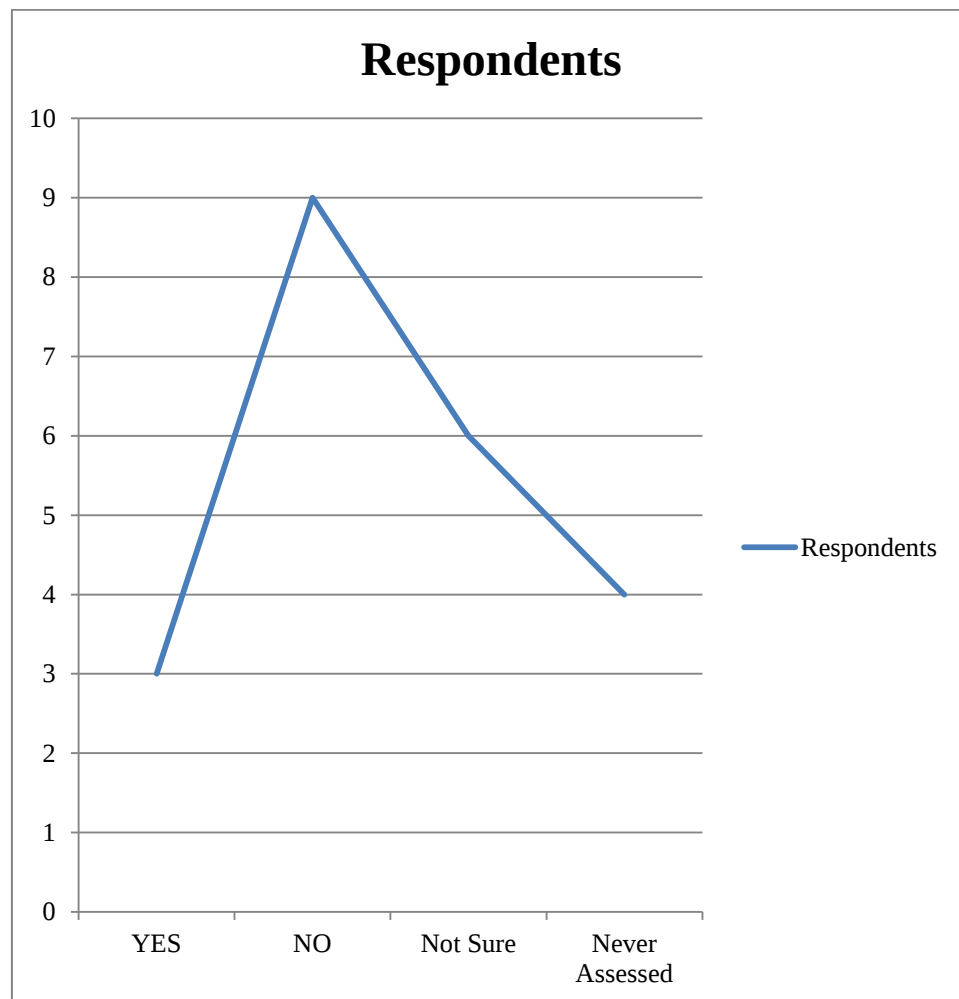


Figure No.13

Interpretation:- The findings show that 9 respondents (45%) reported no bias or fairness issues in AI-driven recruitment, while 3 respondents (15%) identified concerns. 6 respondents (30%) were unsure, and 4 respondents (20%) had never assessed fairness aspects. The results highlight the need for regular AI audits to ensure ethical and unbiased recruitment practices.

What are the main challenges you face while using ai in recruitment?

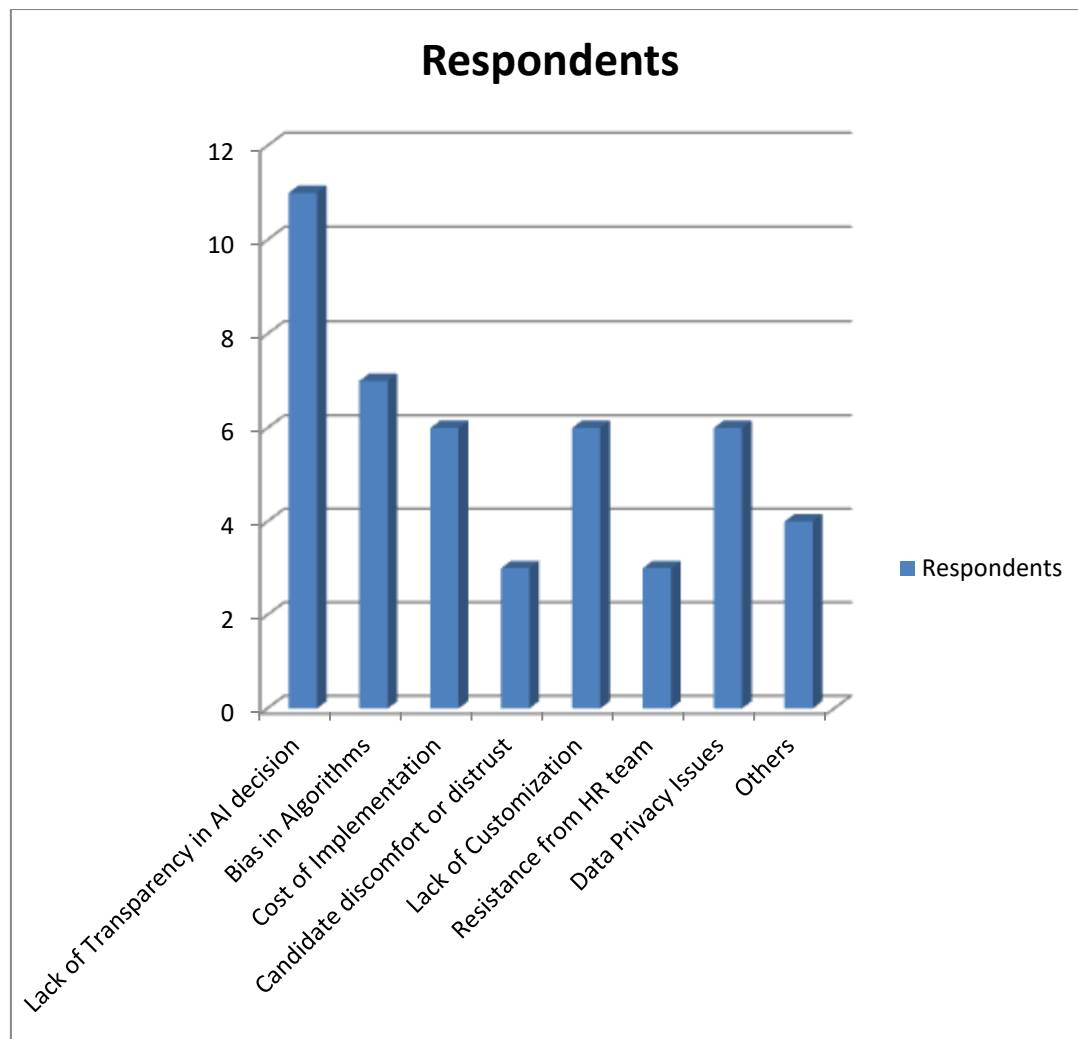


Figure No. 14

Interpretation:- The major AI recruitment challenges identified were lack of transparency (11 respondents, 55%), algorithm bias (7, 35%), and implementation cost, customization issues, and data privacy (6 each, 30%). Candidate distrust and HR resistance (3 each, 15%) were also reported, while 4 respondents (20%) mentioned other challenges, highlighting ethical and operational concerns.

Do you believe ai will replace traditional recruitment methods entirely in the next 5–10 years?

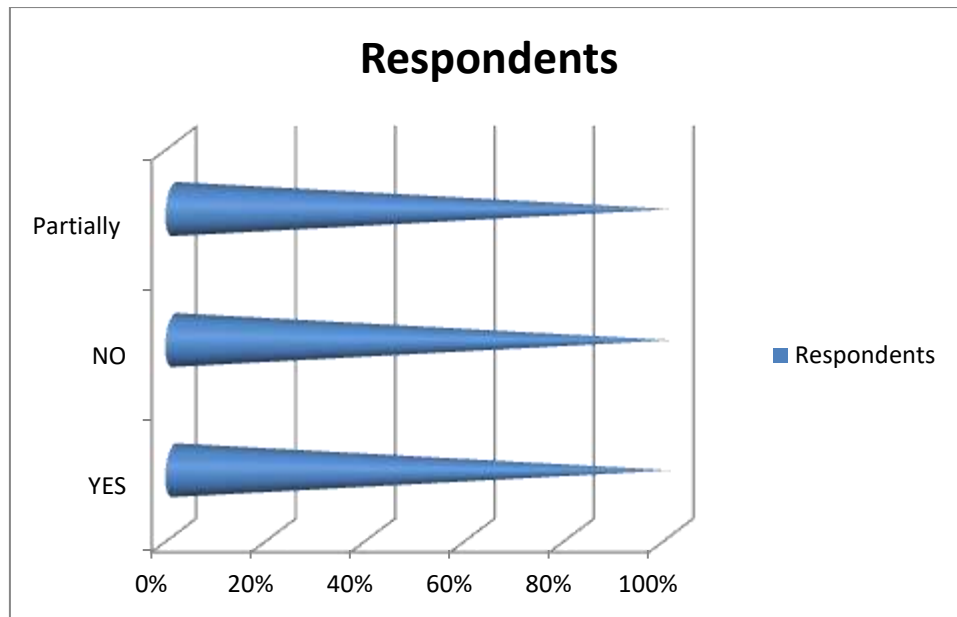


Figure No.15

Interpretation:- The data shows that 14 respondents (70%) believe AI will partially replace traditional recruitment methods, supporting a hybrid approach. 4 respondents (20%) expect AI to fully replace traditional methods, while 2 respondents (10%) believe AI will not replace them. Overall, human judgment remains essential alongside AI integration.

What improvements would you like to see in ai-driven recruitment systems?

Respondents highlighted AI's benefits in recruitment tasks like resume screening, scheduling, and communication, improving efficiency. However, lack of human judgment, transparency, bias, and contextual understanding remain concerns. Many support AI as a support tool rather than a replacement. The feedback emphasizes improving personalization, fairness, and usability to create balanced AI-driven recruitment strategies.

Would you recommend ai-enabled recruitment to other organizations?

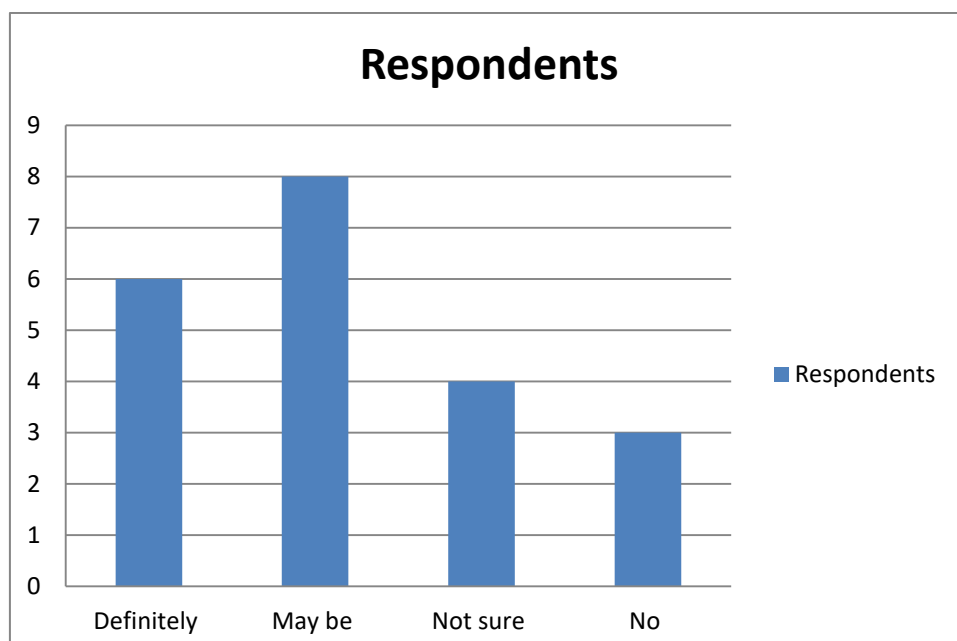


Figure no.16

Interpretation:-The data shows that 6 respondents (30%) would definitely recommend AI-enabled recruitment, while 8 respondents (40%) selected maybe. 4 respondents (20%) were unsure, and 3 respondents (15%) would not recommend it. Overall, responses indicate positive interest but highlight the need for greater trust, clarity, and proven effectiveness.

Results / findings & suggestions

- Industry Adoption: AI adoption is growing across sectors, especially IT/Tech, with participation from experienced HR professionals.
- AI Usage: Over half of organizations use or plan to use AI, mainly for resume screening, offer letters, and communication.
- Effectiveness: Most respondents find AI improves recruitment efficiency and hiring quality.
- Time Reduction: AI helps reduce time-to-hire without negative impact.
- Concerns: Transparency, bias, privacy, and human involvement remain key challenges.
- Future: AI is expected to support, not fully replace, human recruitment decisions.

Conclusion and limitations:-

The survey findings indicate a significant transformation in recruitment through AI and automation adoption, especially in IT/Tech sectors. Organizations are increasingly using AI for resume screening, offer letter generation, and candidate communication, improving efficiency and reducing time-to-hire. However, the impact on hiring quality remains uncertain for some respondents. AI enhances candidate experience but raises concerns related to transparency, bias, data privacy, and fairness. Most HR professionals prefer a balanced approach, combining AI capabilities with human judgment rather than complete automation. Challenges such as implementation costs, lack of understanding, and resistance from HR teams limit wider adoption. Overall, respondents believe AI will support rather than replace traditional recruitment methods. The future of AI-driven recruitment appears promising, but successful implementation requires ethical practices, human oversight, improved transparency, and gradual integration to ensure fair, effective, and sustainable hiring outcomes.

Suggestions and recommendations:-

Organizations should enhance AI transparency through regular audits and clear communication to ensure fairness. A human-AI hybrid approach should be adopted, where AI supports tasks while humans make final decisions. HR teams require continuous training to effectively use AI tools. Organizations should also strengthen data privacy measures and explore affordable AI solutions to overcome implementation challenges and promote wider adoption in recruitment.

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