

USING AI TO ELIMINATE BIAS FROM HIRING

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Abstract

Artificial Intelligence (AI) is becoming an important tool in human resource management, particularly in recruitment and hiring. Organizations are increasingly using AI, big data, and machine learning to improve efficiency, accuracy, and fairness in HR processes such as hiring, promotions, compensation, employee development, and talent acquisition. Rather than replacing recruiters, AI acts as a support system that strengthens recruitment activities while retaining human judgment in final decisions.

The study used primary research to explore AI's role in promoting diversity and inclusion, reducing unconscious bias, and optimizing hiring costs. The findings revealed a significant relationship between gender and factors contributing to unconscious bias during recruitment. Background verification emerged as a critical stage in the hiring process, and AI-powered tools were viewed as reliable solutions that enable faster and more informed decisions.

The research also showed that AI helps organizations manage HR budgets more effectively by lowering recruitment costs, reducing time and effort, and minimizing unconscious bias. Respondents emphasized that hiring managers should remain accountable for recruitment decisions and clearly justify candidate selections to ensure transparency and fairness. Furthermore, participants agreed that AI-driven automation of routine HR activities enables HR professionals to devote more attention to strategic workforce planning and talent management. AI-based facial analysis tools were also perceived as valuable in supporting candidate assessment and selection.

Overall, the study concluded that while gender influences unconscious bias in hiring, AI alone cannot guarantee diversity and inclusion outcomes. These goals also depend on manager training, inclusive organizational policies, and best practices. Nevertheless, AI significantly enhances efficiency, reduces administrative workloads, supports strategic HR functions, and contributes to more effective recruitment processes.

Keywords

Artificial Intelligence (AI) in Recruitment, Unconscious Bias, Strategic Workforce Planning

INTRODUCTION

Unconscious bias continues to represent a significant challenge within organizational practices, particularly in recruitment, background verification, performance appraisal, and diversity and inclusion initiatives. Such biases, often rooted in implicit stereotypes and prejudices, can adversely influence decision-making processes and hinder the development of equitable workplaces. In response, organizations are increasingly leveraging Artificial Intelligence (AI), machine learning, and data analytics to enhance the efficiency and effectiveness of human resource management functions.

The growing costs associated with talent acquisition and the increasing difficulty of attracting and retaining skilled employees have accelerated the adoption of AI-driven recruitment solutions. AI technologies facilitate the identification and assessment of suitable candidates in a timely and cost-effective manner while reducing the workload of recruiters. These systems can process large volumes of applications, map candidate qualifications to job requirements, predict future skill shortages, and support strategic workforce planning. Advanced applications, including chatbots, video interview analytics, facial recognition technologies, and automated skill assessments, further contribute to streamlining recruitment activities and improving candidate evaluation.

Despite these advantages, concerns remain regarding the potential for AI systems to replicate or amplify existing biases. AI models are heavily dependent on the quality and representativeness of training data. The widely cited example of Amazon's recruitment algorithm, which exhibited gender bias due to its reliance on historically male-dominated hiring data, underscores the risks associated with biased datasets. Consequently, organizations must ensure rigorous oversight of AI design, implementation, and monitoring processes to mitigate algorithmic bias.

AI contributes significantly across various stages of the recruitment lifecycle, including sourcing, screening, interviewing, hiring, onboarding, and background verification. By enabling objective evaluation and increasing process efficiency, AI can support organizational efforts to enhance workforce diversity. However, achieving sustainable diversity and inclusion outcomes requires complementary measures such as manager and recruiter training, inclusive organizational policies, and continuous awareness of unconscious bias. Overall, AI serves as a valuable enabler of efficient, data-driven, and strategic human resource management, while human oversight remains essential to ensuring fairness, accountability, and inclusivity.

LITERATURE REVIEW

The growing adoption of Artificial Intelligence (AI) in Human Resource Management (HRM) has transformed recruitment, talent acquisition, employee development, workforce planning, and diversity management. Existing literature largely portrays AI as a strategic enabler capable of improving efficiency, enhancing decision quality, and reducing administrative burdens. However, scholars also caution against overreliance on AI due to concerns surrounding algorithmic bias, transparency, accountability, and ethical implications. Research suggests that although AI has the potential to improve objectivity in hiring decisions, it may also reproduce biases embedded in historical data and organizational practices (Kodiyan, 2019; Roselli et al., 2019).

Feinzig (2020) argues that HR leaders must understand both the opportunities and risks associated with AI-enabled decision-making. While AI can improve candidate experiences, provide real-time recruitment insights, and generate measurable returns on investment, the author highlights the dangers of algorithmic decisions that may have long-term consequences for applicants. Similarly, Hussain (2020) contends that AI systems are not inherently objective because they reflect the biases embedded within their creators and training datasets. These studies challenge the common assumption that AI automatically eliminates human prejudice from recruitment processes. Supporting this argument, Lewis (2018) notes that AI can reduce certain forms of bias in hiring,

but its effectiveness depends on the quality of the data, algorithms, and governance mechanisms employed by organizations.

The literature consistently identifies recruitment and talent acquisition as the areas most significantly influenced by AI. Chamorro-Premuzic (2019) suggests that AI provides superior predictive capabilities by identifying patterns in candidate data that are often undetectable to human recruiters. Bilal (2019) further demonstrates the value of data mining, knowledge-based search systems, and predictive analytics in screening large applicant pools and forecasting employee performance and retention. Schmitt (2020) highlights the role of machine learning and natural language processing in developing intelligent recruitment chatbots capable of automating interactions and improving candidate engagement. Hmoud and Laszlo (2019) similarly argue that AI can significantly streamline recruitment and selection processes by automating repetitive tasks and improving candidate-job matching. While these studies emphasize operational efficiency, they generally focus on technological capabilities rather than evaluating the long-term impact of AI-assisted hiring decisions on employee performance and organizational outcomes.

A recurring theme across the literature is AI's potential contribution to diversity and inclusion. Florentine (2016) argues that machine learning tools can identify biased language in job descriptions and support diversity initiatives. Likewise, Britt (2020) discusses how IBM employs AI-driven HR systems to identify talent, support workforce diversity, and reduce attrition. Polli (2019) further contends that AI can help organizations minimize unconscious bias and improve fairness when recruitment algorithms are designed and monitored responsibly. Research by Chan and Wang (2018) found evidence of female hiring bias in online labor markets, highlighting the persistence of gender-based disparities in recruitment decisions and reinforcing the need for objective hiring tools. Similarly, Lucas et al. (2021) argue that expanding candidate shortlists can reduce gender bias and improve hiring outcomes.

However, contradictory evidence is provided by Jones (2020), who cites Amazon's AI recruitment tool as an example of how biased historical data can reinforce gender discrimination. Keck and Tang (2020) further demonstrate that hiring decisions can be influenced by contextual factors and gender bias embedded within candidate evaluation processes. This contradiction demonstrates that AI is neither inherently fair nor inherently biased; rather, its outcomes depend on data quality, model design, and governance mechanisms. Consequently, reducing bias through AI requires continuous human oversight, auditing procedures, algorithmic transparency, and ethical accountability (Kodiyan, 2019; Roselli et al., 2019).

Recent research also suggests that AI is redefining the strategic role of HR professionals. Elanor (2020) and Strong (2020) argue that automation of routine HR tasks enables practitioners to focus on strategic workforce planning, employee experience, talent development, and organizational effectiveness. Bernstein (2019) similarly emphasizes that recruiters must evolve into talent advisors who utilize analytics, business knowledge, and consulting capabilities to create organizational value. Gikopoulos (2019) supports this perspective by advocating a collaborative approach in which humans and intelligent systems work alongside one another rather than in competition. However, these studies predominantly present a future-oriented perspective and

provide limited empirical evidence regarding whether HR professionals possess the skills, digital literacy, and organizational support necessary to successfully transition into these expanded roles.

Furthermore, the COVID-19 pandemic accelerated AI adoption in workforce planning, reskilling initiatives, and predictive analytics (Jones, 2020). Although scholars acknowledge the rapid expansion of AI-based HR solutions, there remains insufficient understanding of employees' and recruiters' perceptions regarding AI-assisted decision-making. Existing studies primarily emphasize organizational benefits such as efficiency, cost reduction, and productivity enhancement, while comparatively neglecting user acceptance, trust, ethical concerns, and accountability mechanisms. Hardy et al. (2021) demonstrate that even small biases in hiring evaluations can accumulate over time and generate substantial disparities in employment outcomes, emphasizing the importance of examining whether AI systems truly mitigate bias or merely transfer it into algorithmic processes.

Research Gap

Despite extensive literature on AI applications in HRM, several important gaps remain. First, most studies focus on the technological capabilities and potential benefits of AI rather than empirically examining its effectiveness in reducing unconscious bias and improving diversity outcomes. Second, there is limited research investigating recruiters' and hiring managers' perceptions of AI-based recruitment systems, particularly within emerging economies and the IT sector. Third, while scholars acknowledge concerns related to algorithmic bias and transparency (Kodiyan, 2019; Roselli et al., 2019), few studies evaluate the governance practices organizations adopt to ensure fair and ethical AI implementation. Fourth, existing research largely examines recruitment efficiency, diversity, or talent acquisition independently, with limited attention to the combined impact of AI on unconscious bias reduction, diversity and inclusion objectives, hiring costs, and strategic HR outcomes. Finally, although previous studies have explored gender bias in hiring (Chan & Wang, 2018; Hardy et al., 2021; Lucas et al., 2021), limited empirical evidence exists regarding the extent to which AI-driven recruitment systems can mitigate such biases within the Indian IT industry. Therefore, further empirical investigation is required to understand how AI influences recruitment effectiveness while balancing fairness, accountability, diversity, and organizational performance.

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RESEARCH METHODOLOGY

Nature and Scope of the Study

This study investigates the role of Artificial Intelligence (AI) in reducing bias in recruitment within the Indian IT industry. Specifically, it examines how AI is being deployed to minimize unconscious bias, improve diversity and inclusion, optimize hiring costs, and enhance talent acquisition outcomes. Given the rapid digital transformation of the IT sector, AI-based recruitment tools have become increasingly important in supporting efficient and objective hiring decisions.

Problem Statement

The study is based on the problem statement, “Using AI to eliminate bias from hiring.” AI has emerged as a transformative technology in Human Resource Management, particularly in recruitment and talent acquisition. The research seeks to understand the extent to which AI helps organizations reduce unconscious bias, achieve diversity and inclusion goals, and optimize recruitment costs. Additionally, it explores the AI tools used across various recruitment stages, including sourcing, screening, interviewing, background verification, and onboarding.

Research Objectives

The study was conducted with the following objectives:

1. To analyse how AI helps organizations achieve diversity and inclusion goals.
2. To examine the tools and techniques used to reduce unconscious bias in recruitment.
3. To evaluate the impact of AI adoption on optimizing organizational hiring costs.

Research Hypotheses

H₀₁: There is no significant relationship between gender and factors influencing unconscious bias in hiring.

H₁₁: There is a significant relationship between gender and factors influencing unconscious bias in hiring.

H₀₂: There is no significant relationship between AI deployment and its contribution toward achieving diversity and inclusion goals.

H₁₂: There is a significant relationship between AI deployment and its contribution toward achieving diversity and inclusion goals.

Research Design and Data Collection

The study adopted a descriptive research design and utilized both primary and secondary data sources.

Primary data were collected through a structured questionnaire administered via Google Forms. The survey targeted individuals currently working or having prior work experience in the Indian IT industry. A total of 200 valid responses were obtained through online distribution channels such as WhatsApp and LinkedIn. Secondary data were gathered from journals, research articles,

industry reports, and other relevant publications to provide theoretical and contextual support for the study.

Questionnaire Design

The questionnaire consisted of 23 questions designed around the study objectives. It included Likert-scale items, ranking questions, and multiple-choice questions to capture respondents' perceptions of AI in recruitment and bias reduction.

Data Analysis Techniques

Data were analyzed using the Chi-Square Test of Independence to test the proposed hypotheses. Microsoft Excel was used for data tabulation, visualization, and descriptive analysis through charts and graphs.

Limitations of the Study

- The sample size was limited to 200 respondents.
- The study relied primarily on the Chi-Square Test of Independence.
- The research was confined to the Indian IT industry.
- Findings may not be generalizable to other countries or industries.
- Due to the COVID-19 pandemic, data collection was conducted entirely through online platforms.

This methodology provides a structured framework for examining the effectiveness of AI in reducing recruitment bias, supporting diversity initiatives, and enhancing recruitment efficiency within the Indian IT sector.

ANALYSIS & INTERPRETATION

The primary data collected has been analyzed using the Chi-Square test of Independence.

Null Hypothesis(H_0) There is no significant difference between the gender and factors influencing unconscious bias in hiring.

Alternate Hypothesis(H_1) There is a significant difference between the gender and factors influencing unconscious bias in hiring.

Observed values				$\alpha = 0.05$						
Gender	Factors Influencing unconscious bias in hiring									
	Age	Gender	Sexual orientation	Race	Ethnicity	Religion	Nationality	Caste	Language	TOTAL
Male	27	17	15	14	13	13	13	13	13	138
Female	52	36	40	24	52	45	28	25	52	354
Prefer Not to say	7	8	3	4	7	6	4	5	6	50
TOTAL	86	61	58	42	72	64	45	43	71	542

Expected Values									
Gender	Factors Influencing unconscious bias in hiring								
	Age	Gender	Sexual orientation	Race	Ethnicity	Religion	Nationality	Caste	Language
Male	21.90	15.53	14.77	10.69	18.33	16.30	11.46	10.95	18.08
Female	56.17	56.17	56.17	56.17	56.17	56.17	56.17	56.17	56.17
Prefer Not to say	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93

Calculating $X^2 = (\text{Observed} - \text{Expected})^2 / \text{Expected}$

Gender	Factors Influencing unconscious bias in hiring								
	Age	Gender	Sexual orientation	Race	Ethnicity	Religion	Nationality	Caste	Language
Male	1.19	0.14	0.00	1.02	1.55	0.67	0.21	0.38	1.43
Female	0.31	7.24	4.65	18.42	0.31	2.22	14.13	17.30	0.31
Prefer Not to say	0.11	0.00	3.07	1.95	0.11	0.47	1.95	1.08	0.47

Degrees of Freedom = (Columns - 1) x (Rows - 1) = (9-1) x (3-1) = 16.

Σ Chi Square $X^2 = 80.70$

From Chi Square table, $X^2(\text{critical}) = 26.3$

As Calculated $X^2 (80.70) > X^2 \text{ critical } (26.3)$, we can Reject the null hypothesis (H_0) and accept the Alternate Hypothesis (H_1). Thus, there is a significant difference between the gender and factors influencing unconscious bias in hiring and the factors include age, gender, caste, nationality, sexual orientation, race ethnicity, religion.

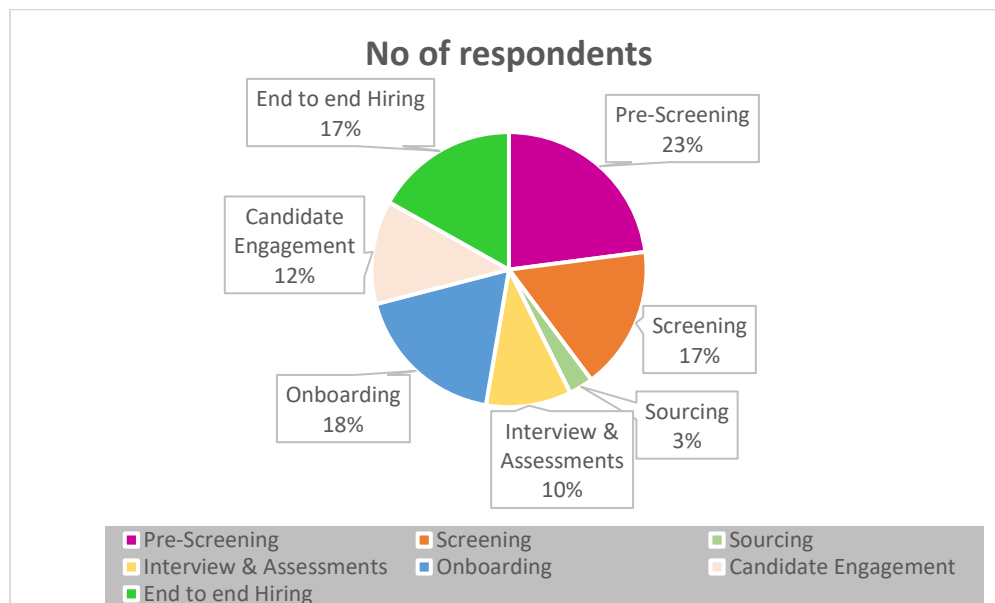


Figure 1

As shown in Figure 1, the findings indicate that the respondents perceive that AI is extremely imperative in the pre-screening process of hiring as it is one of the most tedious tasks and includes a range of activities like making phone calls, constant follow-ups and reviewing resumes.

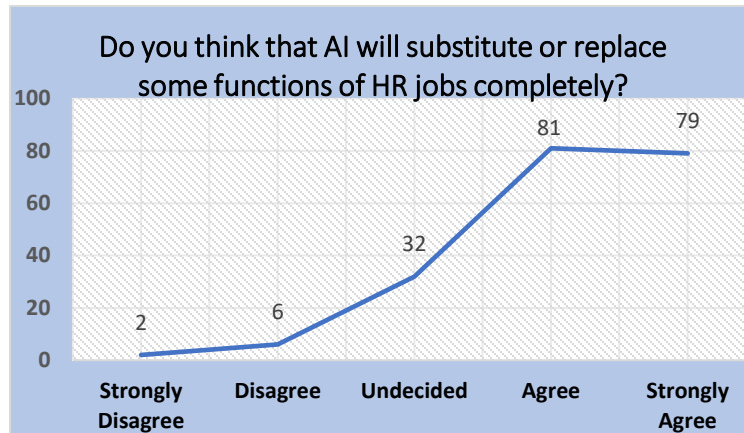


Figure 2

As shown in Figure 2, 79 respondents believed AI will substitute or replace some functions of HR jobs completely. Due to the onset of AI, the roles of the current HR professionals have changed and gradually in the following years, AI will take up the administrative tasks and HR will get to focus on more strategic and support functions.

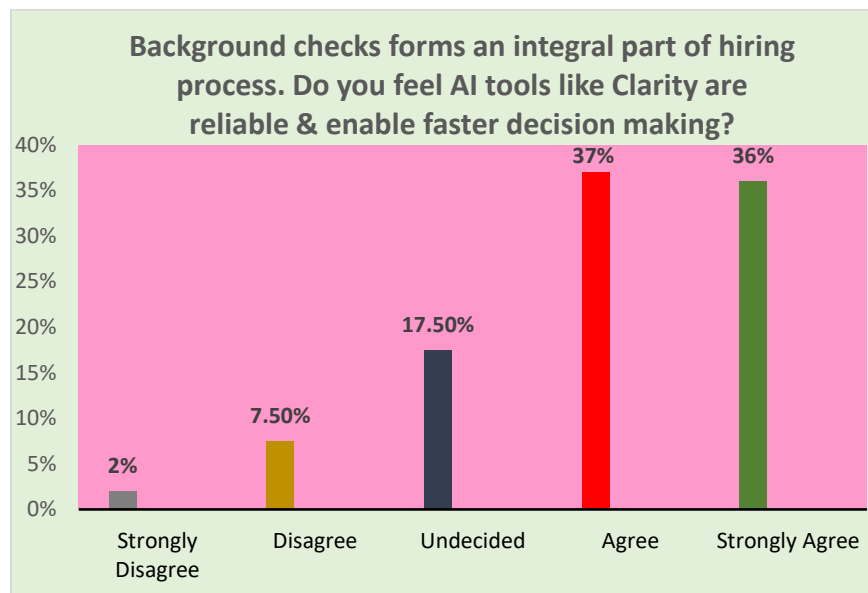


Figure 3

Figure 3 shows that 37% of respondents believed that Background checks form an integral part of hiring process and AI tools like Clarity are reliable & enable faster decision making.

Background screening is a time-consuming process as data needs to be extracted through different sources. AI will surely help in streamlining the background screening process

Null Hypothesis(H₀2) There is no significant difference between AI deployment and its impact in helping organization achieve their diversity goals.

Alternate Hypothesis(H₁2) There is a significant difference between AI deployment and its impact in helping organization achieve their diversity goals.

		$\alpha = 0.05$				
Observed data	Diversity & Inclusion goals achievement					
AI	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	TOTAL
AI deployed	3	8	44	46	50	151
AI not deployed	4	2	8	18	21	53
TOTAL	7	10	52	64	71	204

Expected data	Diversity & Inclusion goals achievement				
AI	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
AI deployed	5.18	7.40	38.49	47.37	52.55
AI not deployed	1.82	2.60	13.51	16.63	18.45

Calculating $X^2 = (\text{Observed} - \text{Expected})^2 / \text{Expected}$

	Diversity & Inclusion goals achievement				
AI	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
AI deployed	0.92	0.05	0.79	0.04	0.12
AI not deployed	2.62	0.14	2.25	0.11	0.35

Degrees of Freedom = (Columns - 1) x (Rows - 1) = (5-1) x (2-1) = 4

Σ Chi Square $X^2 = 7.39$

From Chi Square table, $X^2(\text{critical}) = 14.07$

As Calculated $X^2 (7.39) < X^2 \text{ critical } (14.07)$, we can accept the null hypothesis (H_0) and reject the Alternate Hypothesis (H_1). Hence, there is no significant difference between AI deployment and its impact in helping organization achieve their diversity goals. This shows that there are other

ways to achieve diversity goals of the organization by following some best practices in the industry, which help in fostering inclusion as well.

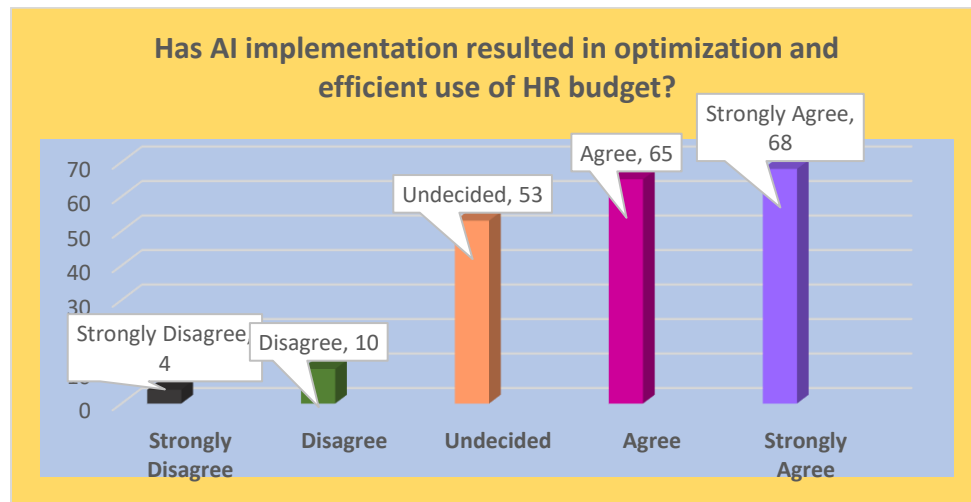


Figure 4

The survey revealed that 68 people strongly suggested that AI implementation resulted in optimization and efficient use of HR budget. AI tools help you allocate your budget on various interventions like engagement, training, recruiting etc. and also helps you define the amount for the interventions so that the benefit is achieved to the fullest (Figure 4)

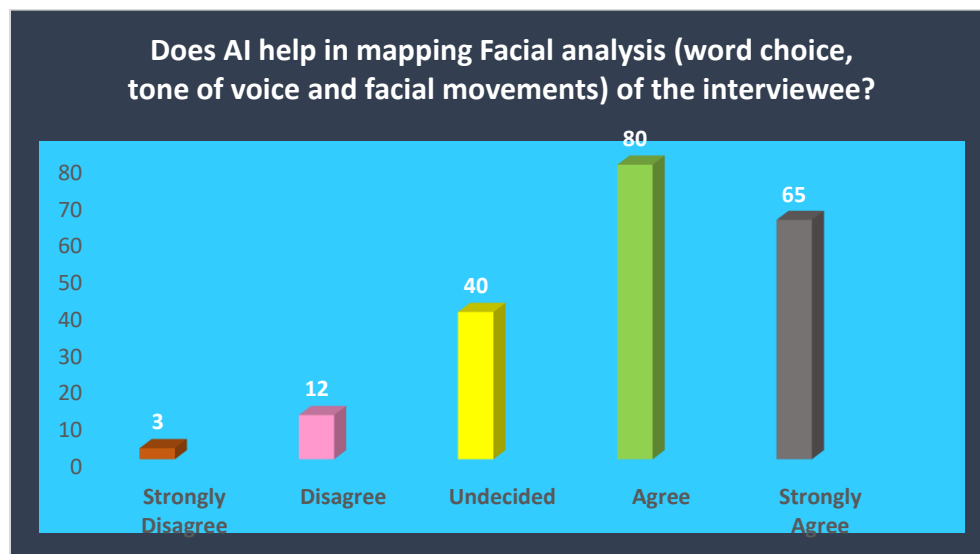


Figure 5

According to the research, 80 respondents believed that AI helps in mapping Facial analysis (word choice, tone of voice and facial movements) of the interviewee. Due to the onset of Covid, video

interviewing tools gained huge presence and to figure out the right hire, recruiters have begun analyzing the non-verbal cues of the candidates to make informed decisions. (Figure 5)

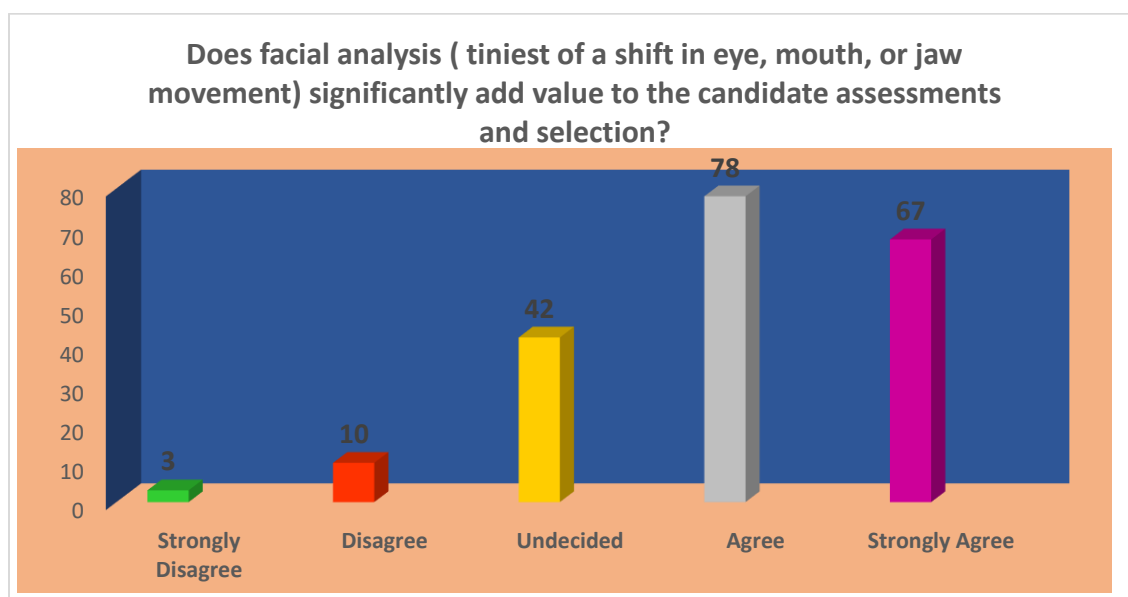


Figure 6

In the survey, it was seen that 78 people agreed that facial analysis significantly adds value to the candidate assessments and selection. Although there are ongoing debates on the sustainability of the facial analysis, it was seen that it helps recruiters make right decisions while hiring. (Figure 6)

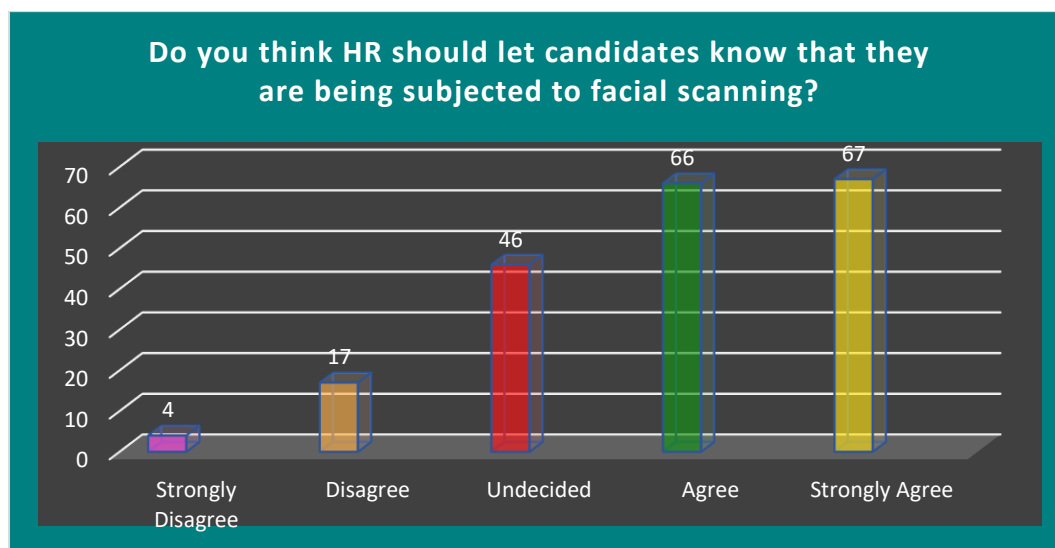


Figure 7

Figure 7 shows that 67 respondents firmly reported that HR should let candidates know that they are being subjected to facial scanning. Candidates expect the hiring process to be transparent so that they can be aware of their actions and reactions during the hiring process.

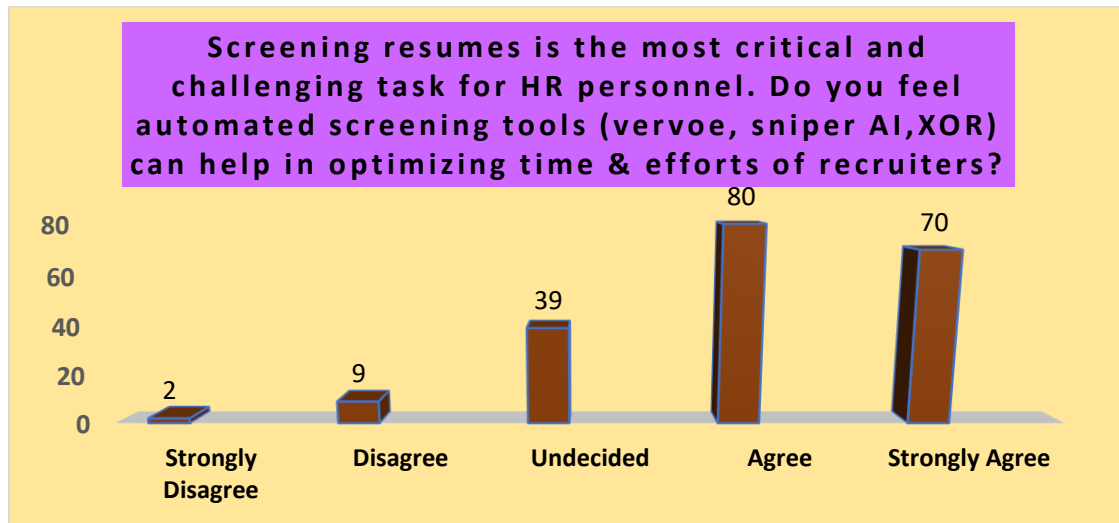


Figure 8

As per the research, 80 respondents said that Screening resumes is the most critical and challenging task for HR personnel & automated screening tools can help in optimizing time & efforts of recruiters. Screening is the first round of hiring wherein huge resumes take up a lot of time of the recruiters. AI in screening will make the process faster and more reliable. (Figure 8)

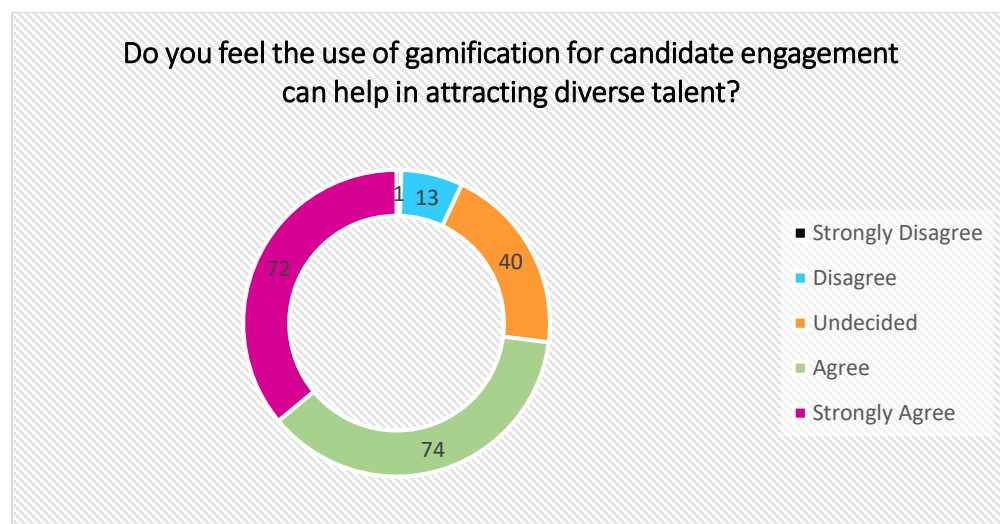


Figure 9

The research pointed out that 74 respondents agreed that use of gamification for candidate engagement can help in attracting diverse talent. Gamification includes the use of games in the hiring process which fosters candidate engagement and helps the companies in better employer branding. (Figure 9)

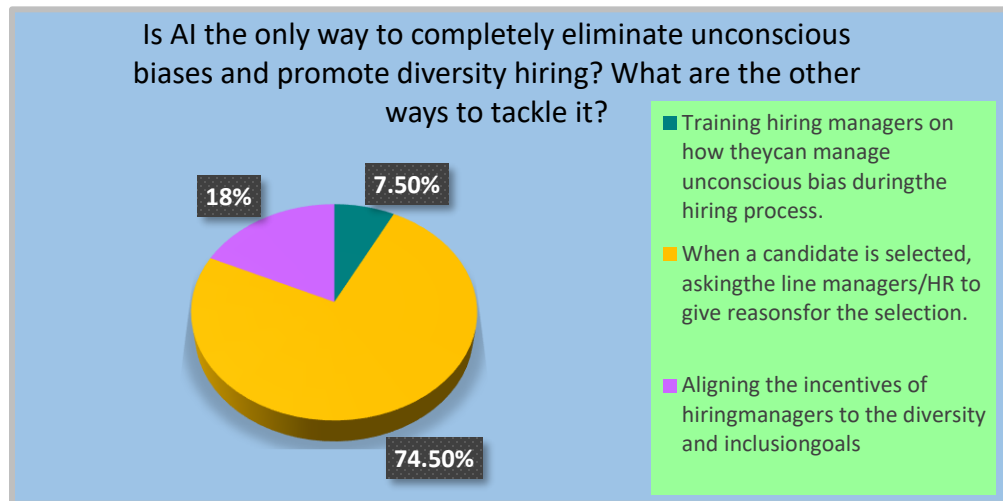


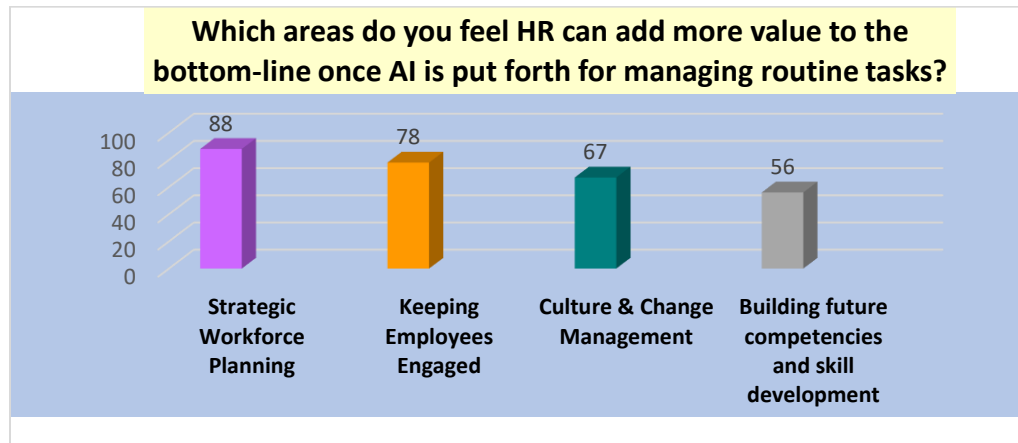
Figure 10

As shown in Figure 10, the research strongly points out that 74.5% believe that to eliminate unconscious biases, the managers should be held responsible and should give reasons for selection of candidate. This can be the most efficient way of rescuing unconscious biases as managers will make decisions based on facts and not on gut feelings.



Figure 11

Figure 11 shows that 89 respondents said that AI helps in saving time, energy and hiring costs while 84 people said that it further helps in reducing unconscious bias. Routine tasks take up a lot of time for the HR professionals. With the advent of AI, HR professionals will get a chance to focus more on other value-adding activities which contribute to the bottom line directly

**Figure 12**

As per the research, 88 respondents said if AI is put forth for managing routine tasks, HR can spend more time on strategic workforce planning. AI will also change the roles of HR in the near future and more unique roles and responsibilities will come up. (Figure 12)

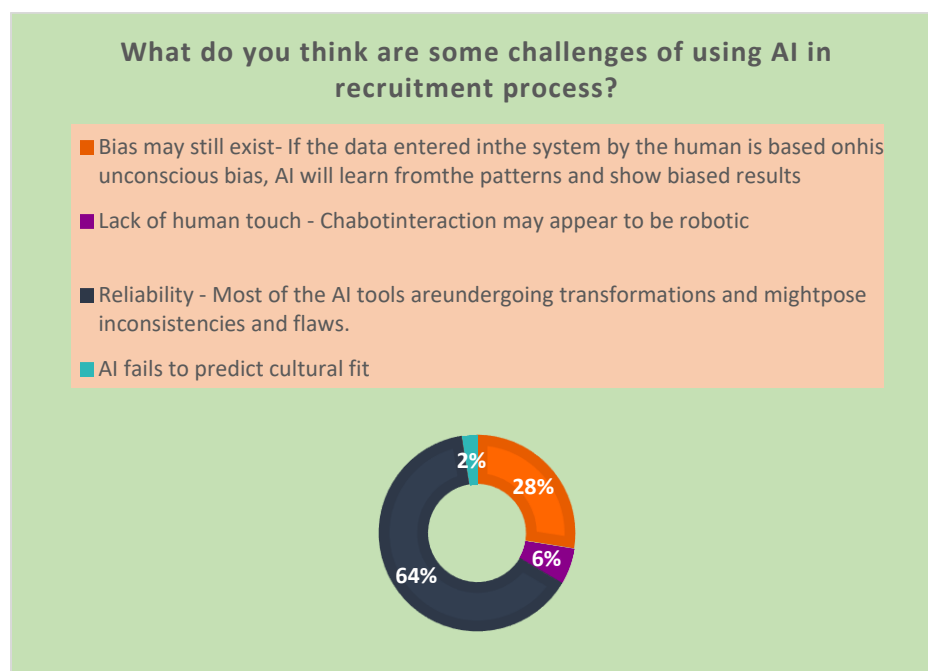


Figure 13

Figure 13 depicts that as per the research, 64% believed that Reliability is the biggest challenge of using AI in recruitment process because most of the AI tools are undergoing transformations which can impede the flow of activities. Therefore, HR needs to keep a close eye on the AI software to make sure it is free from flaws and inconsistencies.

CONCLUSION

The study reveals that gender significantly influences factors contributing to unconscious bias in hiring, highlighting the persistence of bias within recruitment and selection processes. While respondents acknowledged the extensive use of AI across recruitment activities, the findings indicate that AI deployment alone does not significantly contribute to achieving organizational diversity and inclusion goals. Instead, diversity outcomes may also be enhanced through manager training, inclusive policies, and accountability in hiring decisions. Respondents perceived AI as particularly valuable in resume screening, pre-screening, background verification, facial analysis, and routine administrative tasks, leading to significant savings in time, effort, and hiring costs. The findings further suggest that AI enables HR professionals to focus on more strategic workforce planning activities, while gamification and data-driven candidate assessment tools support talent attraction and engagement. However, concerns regarding the reliability of AI systems emerged as the most significant challenge. Overall, the study concludes that although AI is not a standalone solution for eliminating bias or achieving diversity goals, it serves as an effective tool for improving recruitment efficiency, reducing workloads, optimizing HR budgets, and supporting informed hiring decisions within the IT industry.

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