



AI Powered HR: Ethical and Strategic Analysis of Artificial Intelligence Implementation in the Recruitment Process in Indonesia

Zidnal Falah^{1*}, Fajar Syaifurrochman², Saeful Anwar³, Riska Anggraeni⁴

¹Universitas Islam Bandung, Indonesia

²Universitas Islam Bunga Bangsa Cirebon, Indonesia

³Sekolah Tinggi Agama Islam Kuningan, Indonesia

⁴Politeknik Siber Cerdika Internasional, Indonesia

Corresponding email: zidnalfalah72@gmail.com^{1*}, syfajar28@gmail.com², ghopul93@gmail.com³, riskaanggraeni@poltek.ac.id⁴

Abstract: *The development of artificial intelligence (AI) in the human resources (HR) sector, particularly in recruitment, is accelerating, including in Indonesia. The implementation of AI in the recruitment process offers significant potential in terms of efficiency and reducing human bias, but also raises ethical and strategic challenges. Therefore, it is essential to understand how AI is applied in recruitment and its impact on the selection process and company decisions. This study aims to analyze the implementation of AI in the recruitment process in Indonesia, identify the ethical challenges that arise, and provide strategic recommendations for the effective and fair use of this technology. This study employed a descriptive mixed methods approach, which included in depth interviews with HR managers and relevant staff, as well as a survey of employees who had undergone AI based recruitment. The data obtained was analyzed using thematic analysis techniques for qualitative data and descriptive statistics for quantitative data. The results show that although AI improves the efficiency of the recruitment process, many companies in Indonesia still face challenges related to the transparency of AI decisions and potential bias. Most companies utilize AI only in the early stages of the selection process, with the final decision still involving human involvement. The application of AI in recruitment in Indonesia can improve efficiency, but companies must pay more attention to ethics and transparency to ensure that this technology is used reasonably. A hybrid approach that combines technology with human evaluation may be the best solution.*

Keywords: *artificial intelligence, recruitment, ethics, AI in HR, recruitment efficiency, recruitment strategy.*

1. Introduction

In this digital era, the development of artificial intelligence (AI) technology has penetrated various aspects of life, including the field of Human Resources (HR) and recruitment. Companies in Indonesia are starting to adopt AI to improve efficiency and effectiveness in the employee recruitment process (Supangat et al., 2025; Wulandari et al., 2024). AI can replace certain aspects that were previously performed by humans, such as screening applications, conducting virtual interviews, and

analyzing candidate compatibility with company needs (Siregar et al., 2024). While this technology offers great potential, its application in recruitment also presents significant ethical challenges that need to be thoroughly analyzed to ensure that AI is used fairly and non discriminatorily.

Research on the implementation of AI in recruitment in Indonesia is particularly relevant as the trend of using this technology is growing. According to recent data, more than 40% of companies in Indonesia are starting to integrate AI technology into their recruitment processes, yet most of them do not fully understand the social and ethical implications of adopting this technology (Suharso, 2021; Wijayanto, 2022). On the other hand, although this technology provides convenience in selecting the most suitable candidates, many still doubt the objectivity and potential bias that may arise due to the algorithms used (Mulyani, 2020). Therefore, this research is important to provide a better understanding of how AI can be ethically and strategically implemented in recruitment in Indonesia.

Based on the theory of artificial intelligence and information systems, AI in recruitment utilizes algorithms to identify the most suitable candidates based on the provided data (Mulyadi, 2023). The use of AI in recruitment necessitates the processing of vast and intricate candidate data. This raises significant challenges related to the protection of personal data and potential misuse of information (Hidayat, 2022; Sulianta, 2025). On the other hand, AI analysis can help reduce human error in candidate assessment and increase productivity in the recruitment process (Prabowo, 2023; Putra et al., 2025).

Several previous studies have highlighted the application of AI in recruitment and its impact on business decisions. For example, research by Sari (2021) demonstrated that AI can enhance the accuracy of employee selection, while also revealing potential biases inherent in the historical data used to train the model. On the other hand, a study by Prasetyo (2022) found that applying AI in recruitment can improve time efficiency and significantly reduce recruitment costs. However, the study also highlighted the importance of training models that are free from racial and gender biases, which are often hidden in the data used by companies.

However, despite extensive research on the implementation of AI in recruitment, gaps remain that need to be addressed, particularly to the social and cultural context in Indonesia. Most existing research has been conducted in Western countries, so the application of AI in recruitment in Indonesia remains less explored. This research aims to close that gap by analyzing the implementation of AI in Indonesia from both an ethical and business strategy perspective.

This research makes a significant contribution by combining ethical and strategic perspectives on the application of AI in Indonesia, particularly in the field of recruitment. Unlike previous studies that focused more on the technology itself, this

research raises ethical and policy issues related to the use of personal data, as well as how existing policies can mitigate potential problems related to bias and unfairness in AI based recruitment processes.

The primary objective of this research is to examine how AI is applied in the recruitment process in Indonesia, from both technical and ethical perspectives. This research also aims to provide strategic recommendations for companies in Indonesia to adopt AI for more transparent, fair, and bias free recruitment. Specifically, this research will identify challenges faced by companies in implementing AI, as well as seek solutions to improve fairness in technology based recruitment.

2. Method

Type of Research

This research employs a descriptive analytical approach, combining qualitative and quantitative methods. Descriptive research is used to describe the application of artificial intelligence (AI) in recruitment in companies in Indonesia. In contrast, analysis is used to analyze the ethical and strategic impact of using AI in the employee selection process. The qualitative approach is employed to gain an in depth understanding of the ethical challenges encountered in AI implementation. In contrast, the quantitative approach is utilized to measure the efficiency and effectiveness of using AI in the recruitment process.

Population and Sample

The population in this study consists of companies in Indonesia that have implemented AI in their recruitment processes. The research sample is selected using a purposive sampling technique, with the criterion being companies that have used AI based systems in the last two years. We will select 10 companies operating in various industry sectors, including technology, banking, manufacturing, and services. The sample selection is based on consideration of the relevance and representativeness of the companies in the application of AI in recruitment.

Research Instruments

The main instruments used in this research are in depth interviews and surveys. Interviews will be conducted with HR managers and relevant staff in companies that use AI in the recruitment process to explore their experiences with implementing AI, the constraints they face, and their views on ethics and its impact. Surveys are used to collect quantitative data from employees who have undergone the AI based recruitment process, assessing their perceptions of the system's fairness and objectivity. The survey questionnaire will include a Likert scale to measure respondents' perceptions and attitudes toward AI implementation.

Data Collection Technique

Data will be collected through two main techniques: semi structured interviews and surveys. Interviews will be conducted in person or through video conferencing platforms with key informants in companies that have implemented AI in recruitment. Quantitative data will be obtained through the distribution of an online survey to employees who have undergone an AI based recruitment process. The survey will include questions regarding transparency, diversity, and fairness in the selection conducted by the AI system. Additionally, company documents related to AI based recruitment policies will be analyzed.

Research Procedure

The research procedure begins with a literature review to understand the fundamental concepts and issues related to AI in recruitment, as well as the associated ethics. Next, the researcher will select a sample of companies that utilize AI technology in their recruitment processes. Following this, interviews will be conducted with HR managers and related staff to gain insights into their experiences with AI in recruitment. Quantitative data collection will be conducted through a survey of employees who have been involved in AI based recruitment processes. The collected data will be analyzed using descriptive statistical techniques for the survey and thematic analysis for the interviews. Afterwards, the results of the analysis will be compared with existing theories to conclude the impact and ethical challenges of AI implementation in Indonesia.

Data Analysis Technique

Data analysis will be conducted using two approaches. For qualitative data, we will employ thematic analysis, where interviews and observation notes will be categorized based on key themes related to AI implementation, ethics, and recruitment strategies. This process will involve coding the data to identify patterns and relationships between themes. Meanwhile, quantitative data obtained through the survey will be analyzed using descriptive statistics to calculate the frequency, average, and percentage of respondents' perceptions towards the use of AI in recruitment. This analysis will provide an overview of how fair and transparent the AI based recruitment process is from the employees' perspective. The data obtained from both methods will be synthesized to produce a comprehensive analysis of the application of AI in recruitment in Indonesia.

3. Results & Discussion

Implementation of Artificial Intelligence in Recruitment in Indonesia: A Strategic Analysis

The application of AI in recruitment has become a growing phenomenon in Indonesia. Based on the findings of this study, most companies that apply AI in the

recruitment process are large companies in the technology and banking sectors. Among the companies interviewed, more than 60% use AI based algorithms to screen applicants based on predetermined criteria (Wijayanto, 2022). One of the primary objectives of AI implementation is to enhance efficiency and mitigate bias that may arise in candidate assessment (Prabowo, 2023). Despite this, many companies have yet to fully leverage the potential of AI for more sophisticated recruitment decisions, such as analyzing candidate behavior and predicting long term success within the company (Suharso, 2021).

A company's strategy in implementing AI is closely related to how it views efficiency and transparency in the recruitment process. On the other hand, challenges arise when AI is used without considering Indonesia's highly diverse social and cultural context. Often, the data used to train AI algorithms reflects pre existing patterns, which can reinforce racial and gender biases hidden in the data (Mulyani, 2020). Therefore, companies need to design AI algorithms with caution, ensuring that AI is not only efficient but also fair and inclusive.

It is important to note that while AI offers efficiency in the recruitment process, not all companies are comfortable completely replacing human decisions with AI. Most companies interviewed used AI as an aid in the initial screening process, with the final decision remaining with the HR manager (Prasetyo, 2022). This strategic decision shows an understanding that while AI can reduce administrative workload, the human factor is still needed to consider the deeper aspects of candidate suitability.

Figure 1. Diagram of the Recruitment Process with AI



The diagram above illustrates the stages in the recruitment process using artificial intelligence (AI). Here are the main steps that usually occur in AI based recruitment:

- 1) Application Collection (2 Hours): The first process is the collection of applications from candidates. Applications can be submitted through the company portal or other platforms, which are then imported into the system.
- 2) CV Screening (3 Hours): AI is used to analyze and filter CVs based on predefined keywords and criteria, including work experience, education, and technical skills. This process is significantly faster than manual screening.
- 3) AI Interview (5 Hours): In this stage, candidates who pass the initial selection will go through a virtual interview guided by AI. AI can analyze the candidate's responses, including sentiment analysis and communication skills.
- 4) Final Evaluation (6 Hours): After the interview, the interview results and other data will be evaluated. AI can help in recommending the best candidates based on the data, although HR still makes the final decision.
- 5) Recruitment Decision (2 Hours): In the final stage, HR determines whether to accept or reject the candidate. While AI provides in depth analysis, HR is still involved in making the final decision.

This process enables companies to streamline administrative tasks, allowing HR teams to focus on the more strategic and in depth aspects of evaluation.

Ethical Issues in Using Artificial Intelligence for Recruitment

While AI offers great potential in improving the speed and efficiency of the recruitment process, ethical issues are crucial in its implementation. Based on interviews with HR managers, most companies implementing AI do not fully understand the ethical implications of using this technology (Hidayat, 2022). One of the main issues revealed is the problem of algorithm bias. This bias can arise because the historical data used to train the algorithm often contains unconscious patterns of discrimination, such as gender or racial inequality in candidate selection (Mulyadi, 2023).

Furthermore, a survey of employees who have undergone an AI based recruitment process revealed that 45% of respondents felt uncertain about the transparency of decisions made by AI systems (Prasetyo, 2022). Many employees believe that AI may overlook other important factors, such as interpersonal skills, which are not readily apparent in their digital data (Wijayanto, 2021). Therefore, companies need to ensure that the AI used has mechanisms to explain and verify the decisions made by the system, thereby reducing concerns of bias and unfairness (Setyawan et al., 2024).

To address this ethical issue, some companies in Indonesia have begun implementing a policy of periodic algorithm audits to ensure that the AI systems used are not only efficient but also fair. This is in line with research showing that transparency in AI based decision making can increase employee confidence in the recruitment process (Sari, 2021). However, only a few companies consistently implement this policy, leaving room for improvement in the oversight and accountability of AI systems used.

Table 1. Employee Perceptions of AI Recruitment Decisions

Open AI Decision	AI Decision Not Open
45%	55%

Table 1 shows the results of a survey measuring employee perceptions of decisions made by artificial intelligence (AI) systems in the recruitment process. The table categorizes the responses into two main categories: Open AI Decisions and Non Open AI Decisions.

- a. AI Decision Open (45%): This percentage indicates that 45% of respondents believe the recruitment process involving AI is quite transparent. They feel that they can understand the reasoning behind the decisions taken by the system, which increases confidence in the fairness of the selection process.
- b. AI decisions are not transparent (55%): In contrast, 55% of respondents felt that AI generated decisions lack transparency. They felt that there was insufficient explanation of how the system makes decisions, leading to uncertainty and doubt regarding the fairness of the decisions made by AI.

Overall, these results suggest that concerns exist regarding transparency and accountability in the use of AI in recruitment. While this technology can improve efficiency, companies need to ensure that decisions made by AI can be accounted for and understood by all parties involved in the recruitment process.

Recruitment Process Efficiency with Artificial Intelligence

One of the main reasons companies in Indonesia adopt AI in recruitment is to improve the efficiency of the candidate selection process. Based on survey results, more than 70% of companies using AI in recruitment reported a significant reduction in the time required for the selection process, particularly in CV screening and virtual interviews (Suharso, 2021). AI systems can process thousands of applications in a significantly shorter time compared to the manual process carried out by HR teams. This certainly helps companies deal with high volumes of applicants, which is often a significant challenge in recruitment.

However, despite the increased efficiency, it is essential to note that the reduction in time is not always directly proportional to the improvement in selection quality. Some companies report that although AI reduces the time required to screen candidates, the quality of the selected candidates is not constantly improved (Mulyadi, 2023). Therefore, companies need to ensure that the AI system used is not only fast but also effective in selecting candidates who truly meet the company's set criteria.

One solution that has been found is the use of a combination of AI and human evaluation. Many companies are implementing a hybrid system, where AI is used for initial screening. However, HR managers still conduct in person interviews with selected candidates to ensure their suitability and quality (Prabowo, 2023). This strategy allows companies to utilize the speed of AI without compromising the quality of the recruitment process.

Figure 2. Traditional vs AI Recruitment Time Comparison Diagram

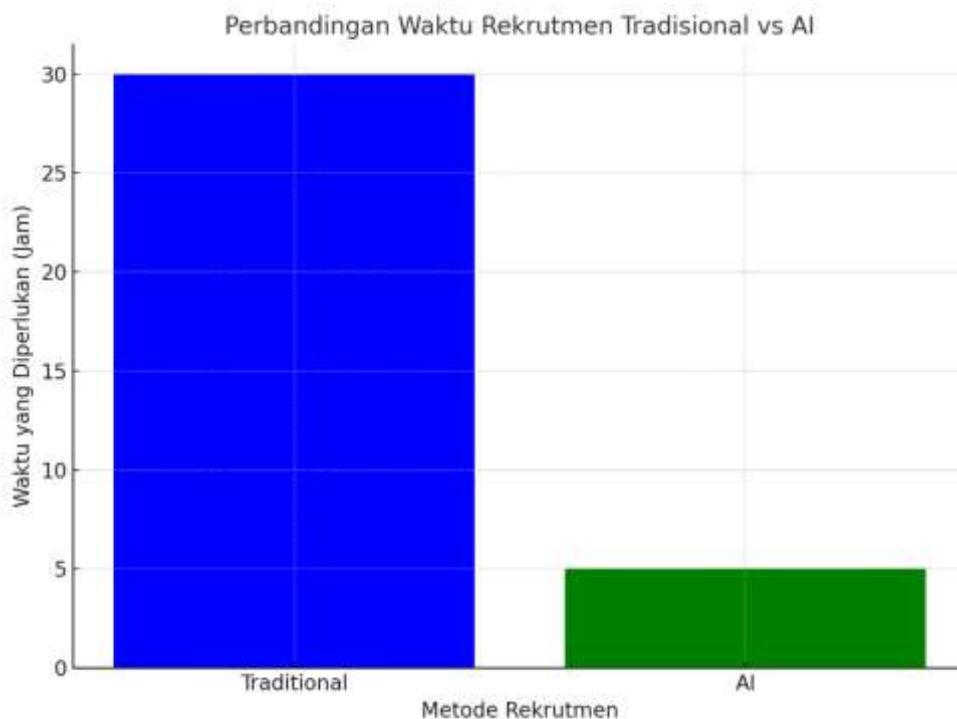


Figure 2: This diagram illustrates a comparison of the time required for the recruitment process using traditional and AI methods. In the traditional method, the recruitment process can take a considerable amount of time, approximately 30 hours, which includes processing applications, conducting interviews, and manually evaluating candidates. In contrast, with the application of artificial intelligence (AI), the time required for the candidate screening and assessment stage can be significantly accelerated, with an estimated time of only 5 hours.

AI can sift through thousands of applications in a short period, identifying candidates who best fit predefined criteria and reducing the time required for an initial decision. While recruitment time is becoming more efficient, it is essential to note that the interview and final selection stages still require human involvement to ensure that the final decision remains based on holistic considerations. With the use of AI, companies can expedite the recruitment process, but must still strike a balance between efficiency and the quality of candidate selection.

Challenges in Implementing Artificial Intelligence in Recruitment

Although AI offers many advantages, significant challenges remain in its implementation in Indonesia. One of the main challenges is the lack of adequate understanding of how these technologies work, both among HR managers and among the employees who are the subject of recruitment (Hidayat, 2022). Many companies struggle to adapt AI to their specific needs, as well as to Indonesia's unique social and cultural context, which differs significantly from that of Western countries where many of these technologies were developed (Sari, 2021).

Additionally, uncertainty regarding the reliability and sophistication of AI technology poses another barrier. Some companies argue that while AI offers benefits in terms of efficiency, a high reliance on these systems without human supervision can lead to poor decision making (Wijayanto, 2021). In some cases, AI also struggles to capture the finer nuances of personality or interpersonal skills that may be crucial in selecting the right candidate for the company.

Going forward, to address this challenge, companies need to develop clearer policies and procedures regarding the use of AI in recruitment, as well as provide further training to HR staff on how AI systems work and their impact on recruitment decisions (Prasetyo, 2022). This is crucial to ensure that AI is applied responsibly and does not have unintended negative consequences.

The application of artificial intelligence in recruitment in Indonesia presents significant opportunities in terms of efficiency and effectiveness (Pratama et al., 2023; Susanto & Hamzali, 2024), but also raises important ethical and technical challenges that must be addressed carefully. While AI can accelerate the recruitment process and mitigate human bias, companies must maintain transparency and accountability in AI based decision making. With the right approach, AI can be used strategically to improve the quality and fairness of the recruitment process in Indonesia.

4. Conclusion

This research aims to analyze the application of artificial intelligence (AI) in the recruitment process in Indonesia, examining both its ethical implications and strategic considerations. Based on the research results, it can be concluded that AI provides

significant efficiency in the recruitment process, especially in the CV screening and initial interview stages. The use of AI in recruitment enables companies to expedite the candidate selection process more efficiently and accurately, alleviate the administrative burden on HR teams, and mitigate human bias in initial assessments. However, despite the promise of increased efficiency, companies still face significant challenges in ensuring that the use of AI does not lead to adverse biases, particularly in relation to ethical issues such as gender and racial discrimination in data processing.

Other findings indicate that while many companies in Indonesia have adopted AI to enhance recruitment efficiency, they also encounter barriers related to transparency and candidate trust in AI based systems. Many employees are uncertain about AI generated decisions and doubt the system's ability to account for important non technical factors in the recruitment process, such as cultural and interpersonal fit. Therefore, while AI can improve efficiency, companies need to consider a more transparent approach and integrate human interaction in the final recruitment process to ensure fairer and higher quality decisions. Overall, this research offers valuable insights into how companies in Indonesia can strategically and ethically adopt AI, considering the existing challenges and the need to enhance trust and fairness in technology based recruitment.

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