Artificial Intelligence in Human Resource Management: A Systematic Literature Review on Recruitment Using People Analytics

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Abstract

The rapid development of digital technology has changed the way organizations manage human resources, especially in the employee recruitment and selection process. Artificial intelligence (AI) is now a key driver in enhancing efficiency, accuracy, and objectivity in human resource management (HRM) practices. This research aimed to analyze the concepts of AI and people analytics in the recruitment process and to identify the benefits and challenges of their implementation in Indonesia. Using a qualitative descriptive approach through a literature review of various international journals, this study discusses how AI technologies such as machine learning, natural language processing, and predictive analytics are applied in the recruitment process. The research results show that the use of AI can improve recruitment efficiency through candidate screening automation, data-based decision-making, and human bias reduction. However, this study also found challenges in the form of the risk of algorithmic bias, ethical issues, and the protection of candidate personal data. This research emphasizes the importance of balance between technological innovation and ethical hr practices. The results are expected to provide understanding for organizations in Indonesia in implementing AI and people analytics responsibly to support talent acquisition and sustainable organizational development.

Keywords: artificial intelligence; human resource management; recruitment; people analytics; ethics issue

1. Introduction

The rapid development of digital technology over the past decade has brought significant changes to various business sectors, including human resource management (HRM). One of the most prominent innovations is the use of Artificial Intelligence (AI) in various HR functions, particularly the employee recruitment and selection process. AI technology now enables organizations to automate various recruitment activities, such as CV screening, candidate competency analysis, and job success prediction (Koman et al., 2024).

As companies increasingly need to attract top talent amidst global competition, AI has become a strategic solution to overcome the time, cost, and human bias constraints of traditional recruitment processes. (Ore & Sposato, 2022). Through machine learning algorithms, AI can quickly screen thousands of job applications, assessing candidate suitability based on behavioral data, experience, and personality characteristics, thereby accelerating the decision-making process.

Furthermore, the concept of People Analytics, which involves using data and analytics to understand and improve employee performance, is increasingly being adopted by modern organizations. AI is at the heart of this practice due to its ability to process big data into relevant insights to support HR decisions. (Rai & Singh, 2023). For example, large companies like Google

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and Microsoft have leveraged AI in employee analytics to improve recruitment effectiveness, productivity, and retention of top talent.

However, the application of AI in HRM also poses a number of challenges. Several studies have shown the risk of algorithmic bias, where AI systems can make discriminatory decisions if their training data is not neutral. (Horodyski, 2023). The Amazon case in 2018 is a clear example, where an AI-based recruitment system rejected female candidates because historical data overrepresented male candidates. Furthermore, ethical concerns have arisen regarding data privacy, decision transparency, and the loss of the human touch in the selection process. (Charlwood & Guenole, 2022).

On the other hand, opportunities for AI development in HR remain wide open. Proper implementation can result in a more efficient, objective, and adaptive recruitment process that adapts to changing organizational needs. The use of AI also enables HR to shift from an administrative function to a strategic business partner focused on talent development and long-term planning. (Allal-Chérif et al., 2021).

1.1 Statement of Problem

Based on these phenomena, this research is crucial to understand more deeply how the use of Artificial Intelligence in the recruitment process can improve the effectiveness and efficiency of human resource management, as well as identify the challenges and ethical implications that need to be anticipated in its implementation. Therefore, the research findings are expected to provide theoretical and practical contributions to organizations in optimizing the use of AI in HRM through a sustainable and responsible People Analytics approach.

1.2 Research Objectives

Based on the above explanation, we can conclude several points that were the focus of this literature review, as follows:

1. What are the concepts of Artificial Intelligence (AI) and People Analytics in the recruitment process?
2. What are the trends and challenges emerging from the use of AI in the recruitment process and its implementation in Indonesia?

2. Methodology

In the process of conducting this research, the author collected data using bibliometric analysis techniques to collect articles from several journals using the tools Publish or Perish and VOSviewer to examine or observe ongoing trends in the theme chosen by the author. This research was then complemented by the PRISMA process to select the best articles according to the inclusion criteria that are correlated with this research. The author did this to conduct research in accordance with current trends or discussions broadly and sort out articles that are able to provide the best information from the discussion of this research.

The literature search was conducted using Publish or Perish, with Google Scholar as the search source. The retrieved records were subsequently screened based on predefined inclusion and exclusion criteria. The final articles were limited to scholarly journal publications indexed in Scopus. ScienceDirect was used only to access the full text of relevant articles when available.

The analysis method used was bibliometric analysis to analyze articles and literature related to the use of Artificial Intelligence in the recruitment process. Tools such as Publish or Perish and VOSviewer were also used to collect and visualize data, helping to identify trends, patterns, and

relationships between publications. This analysis was conducted to gain insight into the use of Artificial Intelligence in the recruitment process, specifically in People Analytics, from 2021 to 2025.

The inclusion and exclusion criteria are described in the following table:

Table 1 Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Language	English articles	Non-English articles
Publication Type	Scopus indexed scholarly journals.	Conferences, theses, blogs, or non-scholarly articles
Study Focus	Application of AI in HRM, Recruitment, or HR Analytics	AI studies without an HR context
Publication Year	2020 - 2025	Before 2020
Accessibility	Full-text articles available	Abstracts only, or limited access

Source: Data Processed (2025)

2.1 Search Strategy and Selection Criteria

Literature identification was conducted between November 7 and November 13, 2025, using Publish or Perish with Google Scholar as the search source. The search focused on peer-reviewed scholarly journal articles and reviews published in English between 2020 and 2025. The retrieved records were screened according to the predefined inclusion and exclusion criteria, including publication in Scopus-indexed journals. ScienceDirect was used only to access the full text of relevant publications. The search targeted publication titles, abstracts, and keywords using Boolean operators to combine terms across four primary domains:

1. *Artificial Intelligence* (“artificial intelligence”, “AI”, “kecerdasan buatan”, “business intelligence”);
2. *Human Resource Management* (“human resource management”, “HRM”, “human capital”);
3. *Recruitment* (“recruitment”, “hiring”, “selection process”, “talent acquisition”, “rekrutmen”, “akuisisi”); and
4. *People Analytics* (“people analytics”, “workforce analytics”, “HR analytics”).

Combined search queries (e.g., "artificial intelligence" AND "HRM" AND "recruitment" AND "people analytics") were utilized to pinpoint literature at the intersection of AI-driven tools, HR analytics, and talent acquisition processes

3. Publication and Analysis Activities

In this study, the researcher obtained 302 publications that passed the first filter, namely 302 articles related to the research conducted by the researcher.

Table 2 Total Publications

Year	Total Publications	Total Publications with Most Citations
2020	25	639
2021	34	415
2022	49	742
2023	79	1.524
2024	78	191
2025	42	46

Source: Number of Publications obtained from Publish or Perish (302 publications)

Based on the table above, it can be seen that there were 25 publications in 2020, 34 publications in 2021, 49 publications in 2022, 79 publications in 2023, and 78 publications in 2024. In 2025, 42 publications were published.

Overall, these data indicate that while research productivity peaked in 2023, the subsequent trend is likely to decline in both quantity and quality (as measured by citations). This trend is likely influenced by changes in research direction, institutional policies, or global dynamics affecting research activity.

4. High-Frequency Keywords Analysis

To gain a deeper understanding of key concepts in Artificial Intelligence research on recruitment processes using People Analytics, a keyword frequency analysis was conducted. This analysis aimed to identify the most frequently occurring keywords in publications related to Artificial Intelligence on recruitment processes using People Analytics, which could provide insight into the main focus and trends in this research. Prior to the calculation, two processes were carried out:

1. Irrelevant and meaningless keywords were removed to obtain more accurate analysis results.
2. Several keywords with similar academic meanings and relatively low frequency (no more than three occurrences) were combined and relabeled to avoid unexpected omissions in the high-frequency keyword summary and potential misunderstandings.

5. Co-occurrence of High-Frequency Keywords

Table 3 Co-Occurences

No.	Keywords	Total
1.	Artificial Intelligence	360
2.	Analytic	71
3.	AI Recruitment Tool	53
4.	HR Analytic	37
5.	Bias	37
6.	Human Resource	34
7.	Human Resource	34
8.	Recruitment Process	33
9.	Challenge	28
10.	Person	28
11.	Job	28

No.	Keywords	Total
12.	Adoption	28
13.	HRM	26
14.	Integration	26
15.	HRM	26
16.	Hiring Process	25
17.	Hiring Process	25
18.	Algorithm	24
19.	Machine Learning	23
20.	AI Recruitment System	22

Source: Data Processed (2025)

Visualizing a co-occurrence network provides an overview of how concepts in the literature are interrelated. For example, the keyword "Artificial Intelligence" may frequently appear together with "Recruitment" and "systematic literature review," indicating a strong relationship between these concepts. Furthermore, co-occurrence analysis can also help identify clusters of closely related keywords, reflecting the conceptual structure of research on Artificial Intelligence in the recruitment process with People Analytics. This can provide insight into how concepts in Artificial Intelligence in the recruitment process with People Analytics are grouped and how they relate to each other in a broader context.

6. Publication Distribution Analysis with Cluster Analysis

A cluster analysis of keywords in publications on Artificial Intelligence in the recruitment process with People Analytics revealed five main thematic groups: Artificial Intelligence in recruitment, AI-powered recruitment systems, tools used for AI-powered recruitment, recruitment processes, and HR Analytics. By understanding the research landscape above, along with the challenges and implementation, we can develop more effective strategies to address these challenges and maximize the application of AI in the recruitment process in Indonesia.

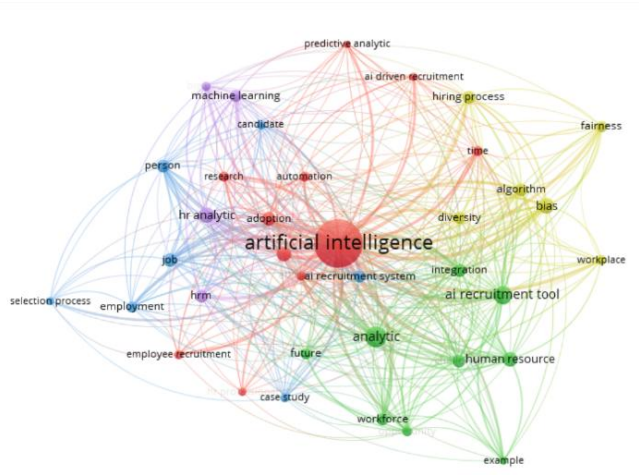


Figure 1 Vos Viewer Results

Source: Data Processed (2025)

The mapping results indicate five main clusters that illustrate the research focus related to Artificial Intelligence (AI) in Human Resource Management, particularly in the recruitment

process. Each cluster demonstrates the relationships between keywords, research directions, and major themes that can serve as the foundation for research objectives.

Based on the mapping results using VOS Viewer, it appears that research on the use of Artificial Intelligence in the recruitment process is divided into five main, interrelated clusters. The first cluster (red) represents research focused on the core role of artificial intelligence, encompassing automation, machine learning, predictive analytics, and how these technologies are adopted in modern recruitment processes. The second cluster (green) illustrates the broader integration of AI with Human Resources functions, including the use of various AI recruitment tools by HR to improve the efficiency of HR management and decision-making processes.

The third cluster (blue) shows the relationship between traditional recruitment concepts such as selection processes, job placements, and manual recruiting activities with AI-based approaches, providing a comparative overview of conventional methods and digital technology. Meanwhile, the fourth cluster (yellow) highlights ethical issues arising from the use of AI, particularly regarding fairness, algorithmic bias, diversity, and fairness in candidate assessment.

Finally, the fifth cluster (purple) shows the development of supporting technologies and future trends, including improvements in machine learning technology, data-driven candidate assessment, and future research opportunities related to the adoption of AI in recruitment. Taken together, these five clusters provide a comprehensive overview of how AI is impacting the recruitment process, the challenges it faces, and the direction of research developments in this field.

The SLR protocol in this study followed the PRISMA 2020 guidelines to ensure transparency and systematic article selection. Publish or Perish was used as the literature retrieval tool, with Google Scholar serving as the search source. The final selection was limited to scholarly journal publications indexed in Scopus. ScienceDirect was used only to access the full text of relevant articles.

The selected articles were assessed based on bibliometric and external indicators. Citation counts were used to classify the scholarly visibility of each article into high (>100 citations), moderate (50–100 citations), and low (<50 citations). The assessment was supplemented by examining the credibility and international recognition of the journal or publishing platform. These indicators were used as supporting criteria for article selection and assessment rather than as measures of methodological rigor.

Data sorting based on article title, publication year, document type, language, and article accessibility completed the screening stage. The topic, specifically Artificial Intelligence in Human Resource Management, specifically the recruitment process with People Analytics, had to align with the article title. Articles were selected for publication between 2020 and 2025 to capture relevant and up-to-date research. Financial journals, trade journals, magazines, books, conference papers, and newspapers were excluded. The authors identified 850 records from Publish or Perish with Google Scholar as the source, and the screening process yielded 548 articles containing duplicates and sourced from other journal databases found in the search results.

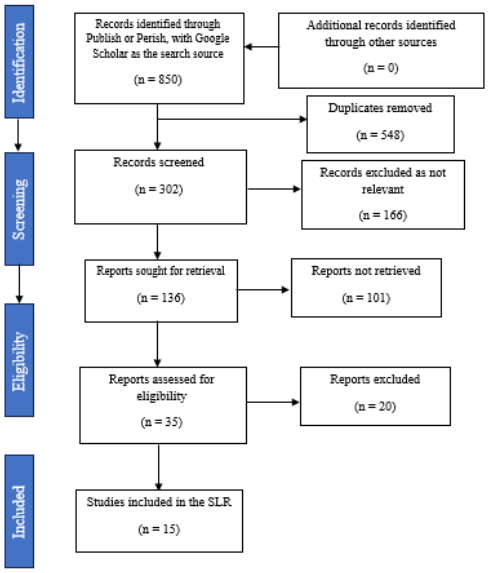


Figure 2 Flow Diagram PRISM

Source: Data Processed (2025)

From the PRISM flow diagram, it can be concluded that the author found a total of 850 records were initially retrieved using Publish or Perish with Google Scholar as the search source. After removing duplicates or articles with the same title, 548 articles were removed, leaving 302 articles, which were then screened based on the exclusion and inclusion criteria. In this case, the author found 136 articles that matched the inclusion criteria based on theme, title, article type, and language used, and excluded 166 irrelevant articles. As a result, 35 articles were identified as relevant to the research theme and title. Finally, the author re-sorted the full-text articles and identified 15 open-access articles relevant to this researc

Table 4 Quality Appraisal of the Articles

Sources	Sector or Country	Citations	External Validations
Intelligent recruitment: How to identify, select, and retain talent from around the world using artificial intelligence (O Allal-Chérif, AY Aránega, RC Sánchez, 2021), Elsevier 10.1016/j.techfore.2021.120822	Multinational	370	High Quality
Opportunities and risks of artificial intelligence in recruitment and selection (O Ore, M Sposato, 2022), Emerald 10.1108/IJOA-07-2020-2291	Multinational	291	High Quality
Algorithmic inclusion: Shaping the predictive algorithms of artificial intelligence in hiring (EK Kelan, 2023) Wiley 10.1111/1748-8583.12511	General/Theoretical	106	High Quality
Responsible Artificial Intelligence in Human Resources Technology: An innovative, inclusive, and fair by design matching algorithm for job recruitment (S Delecraz, L Eltarr, M Becuwe, H Bouxin, 2022) Elsevier, 10.1016/j.jrt.2022.100041	Switzerland/Tech	93	Moderate
The role of artificial intelligence in recruitment process decision-making (AI Al-Alawi, M Naureen, EI AlAlawi, 2021) IEEE, 10.1109/DASA53625.2021.9682320	Bahrain / Public & Private Sector	63	Moderate

Sources	Sector or Country	Citations	External Validations
E-recruitment using artificial intelligence as preventive measures (A Gusain, T Singh, S Pandey, 2023) IEEE 10.1109/ICSCDS56580.2023.10105102	India/Tech	43	Low Quality
Artificial intelligence enabled human resources recruitment functionalities: A scoping review (O Ali, L Kallach, 2024) Elsevier 10.1016/j.procs.2024.02.142	Iraq / Advertising Companies	42	Low Quality
AI adoption in the hiring process: important criteria and extent of AI adoption (P Bhatt, 2023) Emerald 10.1108/FS-07-2021-0144	India / MSMEs (UMKM)	38	Low Quality
Socially responsible artificial intelligence empowered people analytics: a novel framework towards sustainability (YL Chang, J Ke, 2023) Sagepub 10.1177/153448432312009	Global / Conceptual Review	107	High Quality
Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR (A Köchling, MC Wehner 2020) Springer 10.1007/s40685-020-00134-w	Global or General	597	High Quality
Personalized human resource management via HR analytics and artificial intelligence: Theory and implications (X Huang, F Yang, J Zheng, C Feng, L Zhang, 2023) Elsevier 10.1016/j.apmrv.2023.04.004	General	238	High Quality
How does AI-enabled HR analytics influence employee resilience: job crafting as a mediator and HRM system strength as a moderator (Q Xiao, J Yan, GJ Bamber, 2023) Emerald 10.1108/PR-03-2023-0198	China or Hotel Industry	46	Low Quality
Artificial intelligence in talent acquisition: exploring organisational and operational dimensions (D Paramita, S Okwir, C Nuur, 2023) Emerald 10.1108/IJOA-09-2023-3992	General	43	Low Quality
Technology adoption and human resource management practices: the use of artificial intelligence for recruitment in Bangladesh (M Islam, AA Mamun, S Afrin, 2022) Sagepub 10.1177/23220937221122329	Bangladesh or Mixed	69	Moderate
Artificial intelligence in employee recruitment (YS Balcioğlu, M Artar, 2024) Wiley 10.1002/joe.22248	Global / Systematic Review	34	Low Quality

Source: Data Processed (2025)

7. Results and Discussion

After selecting articles for use in the research, 15 articles were identified from 2020 to 2025, which will serve as references for this systematic literature review.

Table 5 Extraction Article Matrix

No.	Sources	Artificial Intelligence used / Tech Specifics	Context (People/HR Analytics)	Outcome or Related Matrix	Key Findings
1.	(O Allal-Chérif, AY Aránega, RC Sánchez, 2021), Elsevier 10.1016/j.techfore.2021.120822	Intelligent Agents & Big Data	Talent Acquisition	Retention Rate & Talent Identification	AI helps identify passive candidates that manual methods cannot find.

No.	Sources	Artificial Intelligence used / Tech Specifics	Context (People/HR Analytics)	Outcome or Related Matrix	Key Findings
2.	(O Ore, M Sposato, 2022), Emerald 10.1108/IJOA-07-2020-2291	AI Automation Tools	Selection	Recruiter Trust vs Efficiency	A paradox occurs: Efficiency increases, but recruiter confidence decreases (fear of being replaced).
3.	(EK Kelan, 2023) Wiley 10.1111/1748-8583.12511	Predictive Algorithms & Machine Learning (ML)	Algorithmic Hiring	Inequality Regimes & Inclusion Metrics	AI creates "Algorithmically-mediated inequality regimes" where gender/racial inequalities become invisible because they are hidden behind claims of mathematical objectivity.
4.	(S Delecraz, L Eltarr, M Becuwe, H Bouxin, 2022) Elsevier, 10.1016/j.jrt.2022.100041	Machine Learning (Fair-by-design)	Matching/Selection	Algorithmic Bias Reduction	Develop a matching model that cleans data bias before processing begins.
5.	(AI Al-Alawi, M Naureen, EI AlAlawi, 2021) IEEE, 10.1109/DASA53625.2021.9682320	Chatbots & Automated Screening Tools	Recruitment Decision Making	Efficiency vs. Bias Reduction	AI adoption is dominated by large companies. While AI is effective in reducing bias in the initial screening stage, human bias often resurfaces in the final interview stage.
6.	(A Gusain, T Singh, S Pandey, 2023) IEEE 10.1109/ICSCDS56580.2023.10105102	E-recruitment AI	E-Recruitment	Error Reduction	AI as a preventive measure to reduce human error in applicant data input.
7.	(O Ali, L Kallach, 2024) Elsevier 10.1016/j.procs.2024.02.142	AI-enabled Recruitment Functionalities	Strategic HR Planning	Organizational Culture & Talent Retention	Identifies five dimensions of successful AI implementation: Organizational Culture, Technical Talent Retention, System Design, Data Analytics, and Training. This model has been proven statistically valid.
8.	AI adoption in the hiring process: important criteria and extent of AI adoption (P Bhatt, 2023) Emerald 10.1108/FS-07-2021-0144	Sourcing & Screening Algorithms	Hiring Process Adoption	Criteria: Information Security & ROI	For MSMEs, the main barriers to AI adoption are cost (ROI) and data security. AI is considered best applied only in the initial (sourcing) stages of candidate search.

No.	Sources	Artificial Intelligence used / Tech Specifics	Context (People/HR Analytics)	Outcome or Related Matrix	Key Findings
9.	Socially responsible artificial intelligence empowered people analytics: a novel framework towards sustainability (YL Chang, J Ke, 2023) Sagepub 10.1177/153448432312009	Socially Responsible AI (SRAI)	Sustainable People Analytics	ESG (Environment, Social, Governance) Alignment	Proposing a new framework where People Analytics should not only pursue efficiency, but should meet CSR and sustainability standards.
10.	(A Köchling, MC Wehner 2020) Springer 10.1007/s40685-020-00134-w	Algorithmic Decision-Making (ADM)	Recruitment & Development	Fairness Perception & Discrimination	Algorithms increase efficiency but decrease applicants' perceptions of fairness if they are not transparent.
11.	(X Huang, F Yang, J Zheng, C Feng, L Zhang, 2023) Elsevier 10.1016/j.apmrv.2023.04.004	HR Analytics & AI	Talent Management	Personalized HRM	Mass personalization of training and careers is made possible thanks to AI.
12.	(Q Xiao, J Yan, GJ Bamber, 2023) Emerald 10.1108/PR-03-2023-0198	AI-enabled HR Analytics	Employee Relations	Emplyee Resilience	The use of AI analytics actually increases employee mental resilience through Job Crafting.
13.	(D Paramita, S Okwir, C Nuur, 2023) Emerald 10.1108/IJOA-09-2023-3992	Chatbots & Screening Tools	Talent Acquisition	Operational vs Organizational	AI excels in operations (speed), but is weak in organizational (human relations).
14.	(M Islam, AA Mamun, S Afrin, 2022) Sagepub 10.1177/23220937221122329	AI-based Recruitment Tools	Recruitment Adoption	Adoption Rate (UTAUT Model)	In developing countries, infrastructure and costs are the main barriers, not culture.
15.	(YS Balcioğlu, M Artar, 2024) Wiley 10.1002/joe.22248	AI-driven Recruitment Tools (General)	Employee Recruitment	Recruitment Efficiency & Objectivity	AI is transforming recruitment from an intuition-based process to a data-driven one. While it increases productivity, transparency (black box) remains a major ethical issue.

Source: Data Processed (2025)

Based on the matrix extraction results from 15 selected articles, it can be concluded that the application of Artificial Intelligence (AI) and People Analytics plays a crucial role as enablers bridging talent acquisition strategies with various organizational outcomes such as operational efficiency, employee resilience, and candidate prediction accuracy.

This suggests that algorithmic bias and a lack of transparency (black-box phenomena) have the potential to become major risk factors that can distort procedural fairness and applicant trust if not managed and minimized through a Socially Responsible AI (SRAI) approach and human oversight (human-in-the-loop).

Furthermore, most of the primary reference articles come from the context of developed countries and multinational corporations, indicating the urgency to deepen research contexts in developing countries and the MSME sector, which face distinct infrastructure challenges. These findings inform the discussion of the following research questions.

7.1 RQ1: What are the concepts of Artificial Intelligence (AI) and People Analytics in the recruitment process?

Recent literature conceptualizes Artificial Intelligence (AI) and People Analytics not as mere administrative automation tools, but as a fundamental paradigm shift toward data-driven decision-making in talent acquisition. Functionally, AI leverages machine learning and predictive analytics to automate mass resume screening and proactively identify qualified "passive candidates" globally (Al-Alawi et al., 2021). Furthermore, People Analytics transforms traditional selection into Personalized HRM by evaluating bilateral candidate-organization fit and predicting retention potential.

From an operational and functional perspective, the concept of AI is manifested through predictive analytics capabilities that transform the talent acquisition process from reactive to proactive. (Allal-Chérif et al., 2021) conceptualize AI as a strategic tool that enables organizations to reach "passive candidates" worldwide who have not applied for jobs but possess the right qualifications. This is supported by (Bhatt, 2023), who explain that at the sourcing and screening stage, AI functions to simplify operational dimensions by automating the processing of massive volumes of applicant data, allowing recruiters to shift their focus from transactional tasks to more strategic, relational aspects.

Furthermore, the concept of People Analytics in recruitment has evolved into personalized human resource management (Personalized HRM). (Huang et al., 2023), using fair-by-design matching algorithms to evaluate candidate-fit and retention (Delecraz et al., 2022) through a fair-by-design approach that aims to eliminate inherent biases in historical data before making decisions.

Critically, however, this concept also carries a complex ethical dimension through the phenomenon of Algorithmic Decision-Making (ADM). (Köchling & Wehner, 2020) and Kelan (n.d.) warn that without oversight, the concept of AI efficiency can shift into a "black box" that perpetuates implicit discrimination. The concept of "algorithmic inclusion" is central to the debate, as AI has the potential to create new, invisible regimes of inequality hidden behind claims of mathematical objectivity. Therefore, the concept of AI in recruitment cannot be separated from discussions about data validity and algorithm transparency to ensure procedural fairness.

As a final synthesis, recent literature proposes a conceptual evolution towards Socially Responsible AI (SRAI). (Ore & Sposato, 2022) postulate that People Analytics must go beyond purely economic efficiency metrics by integrating social sustainability principles (CSR and ESG). In this view, AI is positioned not as a complete replacement for humans, but rather as a collaborative partner in a human-in-the-loop system. Ore & Sposato (2022) assert that while AI handles data processing, final judgments regarding emotional and ethical nuances remain the exclusive domain of humans, creating a balance between artificial intelligence and human wisdom.

7.2 RQ2: What are the benefits and challenges of using AI in the recruitment process and its implementation in Indonesia?

Globally, AI adoption offers substantial operational speed, cognitive load reduction, and input error prevention (Balcıoğlu & Artar, 2024; Gusain et al., 2023), alongside global passive candidate sourcing (Allal-Chérif et al., 2021). Analytics personalization also optimizes employee experiences (Huang et al., 2023) and improves employee resilience via job crafting (Xiao et al., 2023). Conversely, critical challenges include undetected algorithmic bias (Köchling & Wehner, 2020) and (Kelan, 2023) needing fair-by-design interventions (Delecraz et al., 2022). Moreover, practitioner trust declines due to job substitution fears (Ore & Sposato, 2022), as AI excels in operational functions but lacks relational depth (Paramita et al., 2023).

For implementation in Indonesia, adoption barriers diverge from Western ethical discourse. Studies in developing economies indicate that adoption is primarily governed by pragmatic ROI calculations (Bhatt, 2023) and digital infrastructure limits (Islam et al., 2022). Furthermore, successful adoption hinges on organizational culture and digital literacy (Ali & Kallach, 2024). Integrating Socially Responsible AI (Chang & Ke, 2023) via a hybrid human-in-the-loop approach allows Indonesian firms to maximize efficiency while managing ethical and infrastructural constraints

In summary, the use of AI in the recruitment process in Indonesia offers the opportunity for a significant productivity leap, but its success is not determined by technological sophistication alone. The key challenge is balancing efficiency ambitions with ethical risk mitigation and infrastructure readiness. Organizations in Indonesia need to adopt a hybrid approach (human-in-the-loop), where AI is used to process large volumes of data, while final qualitative and ethical decisions remain in the hands of humans, ensuring that technology serves as a strategic enabler and not simply an automation tool that dehumanizes the selection process.

7.3 Implementing Research Models and Discussion

This study makes a significant theoretical contribution by confirming that algorithmic transparency and operational efficiency are dual mechanisms that mediate the relationship between Artificial Intelligence (AI) adoption and strategic recruitment outcomes such as quality of hire and employee resilience. Furthermore, this study broadens understanding of the importance of Socially Responsible AI (SRAI) and Human-in-the-loop concepts as crucial moderating factors that strengthen applicant trust, an ethical perspective that is antithetical to the "black box" phenomenon that has dominated technical recruitment literature.

From a practical perspective, the synthesis results imply that organizations should not focus solely on acquisition speed but rather adopt a "Fair-by-Design" approach. The use of technologies such as predictive analytics and automated screening is crucial for handling data volumes (operational aspects), but human intervention is still essential to assess cultural and emotional nuances (relational aspects). This aligns with the finding that AI increases employee resilience only if the system is perceived as supporting job crafting, rather than oppressively supervising employees. Particularly in developing countries, infrastructure readiness and ROI calculations are essential prerequisites for technology adoption.

From all the articles reviewed, a clear relationship pattern can be drawn: AI-Enabled Recruitment Tools -> Process Efficiency & Perceived Fairness -> Talent Retention & Employee Resilience, with the SRAI Framework and Contextual Infrastructure acting as moderators that strengthen or weaken this relationship. Without a socially responsible framework (SRAI), the efficiency generated by AI risks undermining candidate trust due to undetected bias.

Thus, AI and People Analytics no longer function simply as selection tools, but as strategic enablers that bridge global talent needs with human resource availability. HR leaders who are able to integrate machine intelligence (for data) with human wisdom (for ethics) can create a recruitment system that is not only agile, but also inclusive and sustainable. This integration is key to mitigating the risk of algorithmic bias while increasing organizational competitiveness in the digital labor market.

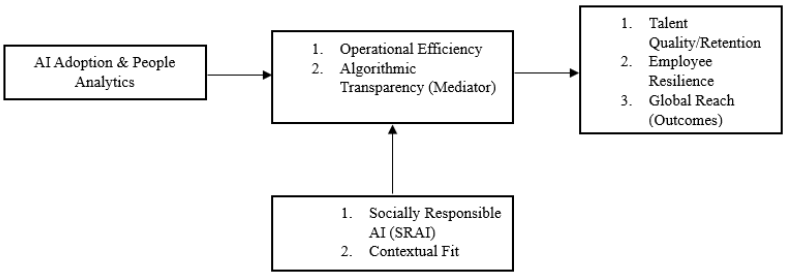


Figure 3 Conceptual Model of Relationship Patterns from SLR Synthesis Results
Source: Data Processed (2025)

Based on the conceptual model of the relationship patterns between variables from the synthesis of the 15 articles above, the following can be explained:

1. AI Adoption & People Analytics act as antecedents (primary drivers) that directly influence the speed and accuracy of the recruitment process. However, their impact on the final outcome is not independent, but rather occurs through a mediating process.
2. Operational Efficiency and Algorithmic Transparency act as dual mediators. Efficiency (speed/cost) is the technical pathway, while Transparency (process clarity) is the psychological pathway. If AI is efficient but not transparent (biased), then positive outcomes will not be achieved optimally.
3. Socially Responsible AI (SRAI) and Contextual Fit moderate the relationship between mediators and outcomes. The stronger the implementation of ethical principles (SRAI) and the more prepared the local country's infrastructure (contextual fit), the stronger the impact of AI on talent retention and quality (minimizing the risk of rejection or distrust).
4. The resulting outcomes are not only limited to "who is recruited" (Talent Quality), but also have a long-term impact on the psychology of internal employees, such as increasing Employee Resilience through data personalization mechanisms.

8. Conclusion, Limitations, and Future Research

Conceptually, this study concludes that the integration of Artificial Intelligence (AI) and People Analytics in recruitment represents a paradigmatic transformation from intuitive selection to precise, data-driven decision-making. The literature synthesis suggests a dual impact: while AI has proven to be a catalyst for operational efficiency and personalized talent management (Personalized HRM), its implementation carries inherent risks in the form of algorithmic bias and transparency deficits (black boxes) that can distort procedural fairness. Therefore, the successful adoption of this technology does not depend on the sophistication of the algorithm alone, but rather on the integration of an ethical framework of Socially Responsible AI (SRAI) and human-in-the-loop mechanisms to mitigate the dehumanization of the selection process.

However, the generalizability of these findings is limited by the dominance of Western-centric literature and the prevalence of conceptual studies over longitudinal empirical evidence. These limitations leave a knowledge gap regarding the effectiveness of AI adoption models in developing countries like Indonesia, which face unique challenges related to infrastructure maturity and data privacy regulations. Therefore, a future research agenda urges empirical validation through long-term field studies, particularly in the MSME sector and labor-intensive industries in developing countries, to test whether the improvements in employee resilience and talent quality promised by AI are sustainable or whether they decline over time due to local sociocultural complexities.

Another limitation is the limited primary literature directly from the Indonesian context in this SLR matrix. The analysis of implications for Indonesia is largely based on logical inference and comparisons with comparable developing countries. Therefore, further empirical studies focusing specifically on Indonesian companies are highly recommended to validate these findings.

References

Al-Alawi, A. I., Naureen, M., AlAlawi, E. I., & Naser Al-Hadad, A. A. (2021). The role of artificial intelligence in recruitment process decision-making. In *2021 International Conference on Decision Aid Sciences and Application (DASA)* (pp. 197–203). IEEE. https://doi.org/10.1109/DASA53625.2021.9682320

Allal-Chérif, O., Yela Aránega, A., & Castaño Sánchez, R. (2021). Intelligent recruitment: How to identify, select, and retain talents from around the world using artificial intelligence. *Technological Forecasting and Social Change*, *169*, 120822. https://doi.org/10.1016/j.techfore.2021.120822

Bhatt, P. (2023). AI adoption in the hiring process: Important criteria and extent of AI adoption. *Foresight*, *25*(1), 144–163. https://doi.org/10.1108/FS-07-2021-0144

Charlwood, A., & Guenole, N. (2022). Can HR adapt to the paradoxes of artificial intelligence? *Human Resource Management Journal*, *32*(4), 729–742. https://doi.org/10.1111/1748-8583.12433

Delecraz, S., Eltarr, L., Becuwe, M., Bouxin, H., Boutin, N., & Oullier, O. (2022). Responsible artificial intelligence in human resources technology: An innovative inclusive and fair by design matching algorithm for job recruitment purposes. *Journal of Responsible Technology*, *11*, 100041. https://doi.org/10.1016/j.jrt.2022.100041

Horodyski, P. (2023). Applicants' perception of artificial intelligence in the recruitment process. *Computers in Human Behavior Reports*, *11*, 100303. https://doi.org/10.1016/j.chbr.2023.100303

Huang, X., Yang, F., Zheng, J., Feng, C., & Zhang, L. (2023). Personalized human resource management via HR analytics and artificial intelligence: Theory and implications. *Asia Pacific Management Review*, *28*(4), 598–610. https://doi.org/10.1016/j.apmrv.2023.04.004

Köchling, A., & Wehner, M. C. (2020). Discriminated by an algorithm: A systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR development. *Business Research*, *13*(3), 795–848. https://doi.org/10.1007/s40685-020-00134-w

Koman, G., Boršoš, P., & Kubina, M. (2024). The possibilities of using artificial intelligence as a key technology in the current employee recruitment process. *Administrative Sciences*, *14*(7), 157. https://doi.org/10.3390/admsci14070157

Ore, O., & Sposato, M. (2022). Opportunities and risks of artificial intelligence in recruitment and selection. *International Journal of Organizational Analysis*, *30*(6), 1771–1782. https://doi.org/10.1108/IJOA-07-2020-2291

Rai, A., & Singh, L. B. (2023). Artificial intelligence-based people analytics transforming human resource management practices. In P. Tyagi, N. Chilamkurti, S. Grima, K. Sood, & B.

Balusamy (Eds.), *The adoption and effect of artificial intelligence on human resources management, Part A* (pp. 229–244). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80382-027-920231012