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Artificial Intelligence in the Recruitment of State Civil Apparatus: A Review of the Critical Literature on Ethics and Governance

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Abstract–The development of artificial intelligence (AI) has driven significant transformation in human resource management practices, including in the recruitment process in the government sector. The use of AI in the recruitment of State Civil Apparatus (ASN) is seen as able to increase the efficiency, consistency, and objectivity of the selection. However, the use of this technology also raises various normative and institutional problems, especially related to transparency, algorithmic bias, and governance. This article aims to conduct a critical literature review regarding the application of AI in ASN recruitment by emphasizing the dimensions of ethics, justice, and public governance. This study uses a critical literature review approach based on the PRISMA framework by analyzing 58 articles with national and international reputation published in the 2020-2025 period. Bibliometric analysis was carried out using VOSviewer to map the structure of knowledge, thematic clusters, and temporal development of research. The results of the analysis show that the AI discourse in public sector recruitment is evolving from an initial focus on technical efficiency to greater attention to the risk of algorithmic bias, limited transparency, and the need for accountable governance. The findings also reveal research gaps, particularly in the specific context of the State Civil Apparatus, where most of the literature is still oriented towards the private sector or general approaches. This study concludes that the integration of fair algorithm design, explainability mechanisms, and a strong governance framework is the main prerequisite for building a legitimate and equitable AI-based ASN recruitment system.

Keywords: Artificial Intelligence; Recruitment of State Civil Apparatus; Algorithmic Justice; Governance; Public Ethics

1. INTRODUCTION

The development of artificial intelligence (AI) technology has brought fundamental changes in human resource management practices, especially in the recruitment and selection process of labor. Various organizations are leveraging AI to screen applicants, analyze candidate data at scale, and improve decision-making efficiency and consistency. In the modern management literature, AI is seen as a strategic instrument capable of reducing administrative burdens and improving the quality of matching between individuals and jobs (Cowgill, 2020; Kellogg et al., 2020). However, these technical benefits also pose new challenges when AI is applied to processes that directly impact citizens' rights and employment opportunities.

In the context of the public sector, the application of AI in the recruitment of State Civil Apparatus (ASN) has wider implications than the private sector. ASN recruitment is not only aimed at obtaining competent human resources, but must also ensure the principles of equality, justice, and bureaucratic legitimacy. Therefore, the use of AI in the selection of civil servants puts the government in a complex position, namely balancing administrative efficiency with a constitutional obligation to protect citizens' rights and maintain public trust (Engstrom et al., 2020; Busuioc, 2021).

A number of international studies show that claims of AI objectivity in recruitment do not always materialize in practice. Machine learning algorithms rely heavily on historical data that often reflects pre-existing social and institutional biases. As a result, algorithmic hiring systems have the potential to reproduce or even reinforce biases based on gender, ethnicity, age, and socioeconomic background (Barocas & Selbst, 2020; Mehrabi et al., 2021). In the context of ASN recruitment, this risk is systemic because it can affect the representation of the bureaucracy and the legitimacy of the state in the eyes of the public. The issue of transparency is a major concern in the use of AI in the public sector. Many of the AI systems used in recruitment practices are black box, making it difficult to understand how a decision is made. This limited explainability has the potential to weaken public accountability and hamper the mechanism of administrative objections in the event of alleged discrimination or misdecisions (Diakopoulos, 2016; Wieringa, 2020). In governance, transparency is an important prerequisite for maintaining public trust and ensuring that administrative decisions can be legally and ethically accountable.

In addition to transparency, AI governance issues are also a crucial challenge. The international policy literature emphasizes the need for an AI governance framework that includes clear regulation, algorithmic audits, institutional responsibility sharing, as well as human-in-the-loop mechanisms (OECD, 2023; de Almeida, 2025). Without this framework, the adoption of AI in the public sector risks creating a governance gap, which is a condition where technological innovation develops faster than the capacity of government regulation and supervision.

The discourse on the use of AI in public administration in Indonesia is still in its early stages. Several national studies show that the main challenges of digital technology implementation in the public sector include limited human resource capacity, data infrastructure readiness, and weak institutional accountability and transparency frameworks

(Rahayu & Kurnianingsih, 2020; Hasanuddin et al., 2023). This condition shows that the application of AI in ASN recruitment cannot be separated from broader public governance issues.

Although the literature on fairness and algorithmic hiring has grown rapidly since 2020 in the International, studies that specifically integrate the issues of transparency, algorithmic bias, and governance in the context of ASN recruitment are still relatively limited. Most research still focuses on the private sector or discusses AI in general without considering the institutional characteristics of the public sector (Rigotti, 2024; Albaroudi et al., 2024). In Indonesia, existing research tends to be descriptive and has not in-depth examined the ethical and governance implications of the use of AI in the selection of civil servants. Based on these gaps, this study aims to conduct a critical literature review on the use of artificial intelligence in the recruitment of State Civil Apparatus with a focus on the dimensions of ethics, algorithmic justice, and governance. Through a PRISMA-based systematic critical literature review approach and bibliometric analysis, this study seeks to synthesize empirical and conceptual findings from international and national literature. The contribution of this research lies in providing an analytical foundation for the formulation of AI-based ASN recruitment policies that are not only technically efficient, but also legitimate, accountable, and fair.

2. RESEARCH METHODS

This study uses a critical literature review approach with the framework of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to ensure that the process of identification, screening, and selection of literature is carried out in a systematic, transparent, and replicable manner. PRISMA was chosen because this framework has become an international standard in the review of the structured literature and is widely used in cross-disciplinary research, including public administration, public policy, and technology-based human resource management (Page et al., 2021). The literature identification stage is carried out through searching high-reputable scientific databases that are commonly used in international studies, namely Scopus, Web of Science, and Google Scholar. The search strategy is designed to capture articles relevant to the theme of artificial intelligence in public sector recruitment, with a combination of keywords such as "artificial intelligence", "algorithmic hiring", "public sector recruitment", "civil service", "fairness", "bias", and "governance". Search is limited to articles published in the 2020-2025 period to ensure the novelty and relevance of findings to the latest developments. Only English and Indonesian articles published in reputable journals or proceedings are considered at this early stage.

The initial search results resulted in a total of 612 documents. Furthermore, a duplicate removal process was carried out with the help of reference management software, resulting in 487 unique articles. The screening stage is then carried out based on the title and abstract to evaluate the suitability of the topic with the focus of the research. Articles that don't discuss recruitment, aren't related to the public sector, or only mention AI in general without HR context are eliminated. At this stage, a total of 331 articles were released, leaving 156 articles for further eligibility assessment.

The eligibility stage is carried out by reading the full text of the article thoroughly. The inclusion criteria include articles that explicitly discuss the use of AI or automated algorithms in the recruitment or selection process for public sector employees, as well as review aspects of transparency, algorithmic bias, ethics, or governance. Articles that are editorial, non-scientific opinions, or do not provide a clear framework of analysis are excluded from the sample. After this process, as many as 98 articles were eliminated because they did not meet methodological or substantial criteria. Thus, a total of 58 articles were declared feasible and used in the final synthesis.

The selected articles were then analyzed thematically using a thematic synthesis approach. The analysis focused on three main clusters, namely algorithmic transparency, bias and fairness in AI-based recruitment, and governance and accountability. This approach allows for the integration of empirical and conceptual findings from a variety of national and international contexts to generate a comprehensive understanding. To maintain the validity and consistency of the analysis, the theme coding process is carried out iteratively by comparing findings across articles and relating them to the normative framework of public administration (Criado, 2025; Raghavan et al., 2020).

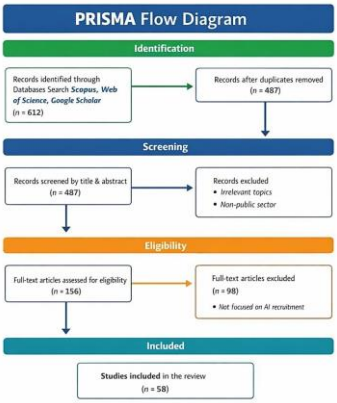

Figure 1. PRISMA Flow Diagram

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3. RESULTS AND DISCUSSION

3.1 Results

The results of bibliometric analysis using VOSviewer software on 58 selected articles that have gone through a PRISMA-based selection process. This analysis aims to map the intellectual structure of research, intertopic relationships, and dynamics of the development of studies on the use of *artificial intelligence* in the recruitment of State Civil Apparatus, especially related to issues of ethics, justice, and governance. The results of the VOSviewer visualization provide an empirical picture of the co-occurrence patterns of keywords, key thematic clusters, and the density and temporal development of the research.

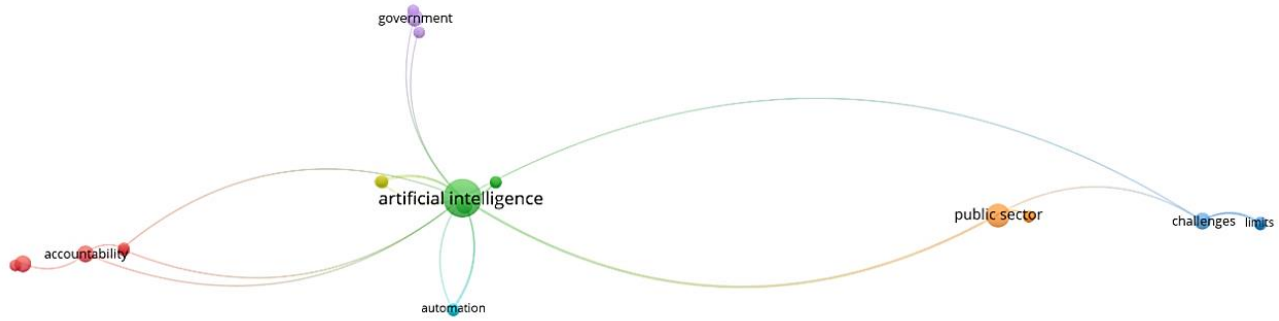

Figure 2. Network Visualization

Figure 2 shows a network visualization that maps the relationships between keywords based on the frequency of co-occurrence in the literature. This visualization shows that artificial intelligence keywords occupy the most central position and have the highest level of connectivity with other keywords, such as algorithmic hiring, fairness, bias, public sector, civil service, and governance. The central position signifies that AI serves as a core concept that integrates various technical, normative, and institutional dimensions in public sector recruitment research.

The results of the network mapping show the formation of several thematic clusters that intersect with each other. The first cluster is dominated by keywords related to technical and operational aspects, such as algorithmic hiring, machine learning, and recruitment automation. This cluster reflects the initial focus of the literature that emphasizes the efficiency of the selection process, reducing administrative costs, and improving decision-making consistency. The second cluster is centered on normative issues, characterized by the keywords fairness, bias, discrimination, and ethics. The existence of this cluster shows increasing academic attention to the risk of injustice and the ethical implications of the use of algorithms in the selection of public servants. The third cluster is related to the governance dimension, which includes the keywords governance, accountability, transparency, and public administration, indicating the development of studies that place AI in the framework of government policies and regulations.

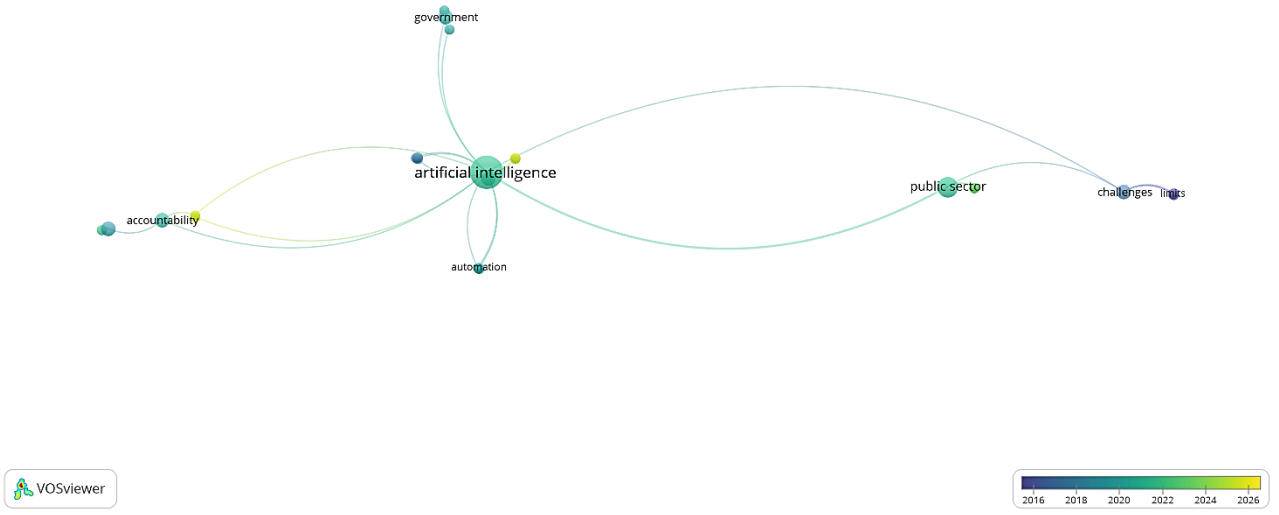

Figure 3. Overlay Visualization

Figure 3 presents a visualization overlay that depicts the temporal development of the research by year of publication. This visualization shows a shift in research focus in the period 2020-2025. In the early period, especially in 2020-2021, the research highlighted more aspects of technology adoption and the potential for AI efficiency in recruitment, which was characterized by the dominance of keywords such as automation, decision support, and human

resource analytics. This phase reflects early optimism about AI's ability to improve the performance of public administration.

Entering the 2022-2025 period, there has been a significant shift towards normative and regulatory issues. Keywords such as bias, ethical AI, explainability, and governance framework appear in lighter colors, indicating an increase in the intensity of research on these topics. This shift indicates that the literature is increasingly critical of the social and ethical impacts of AI use, especially in the wake of empirical findings on algorithmic bias and the limitations of automated system transparency. In the context of civil servant recruitment, this trend shows a growing awareness that the success of AI implementation is not only measured by efficiency, but also by the legitimacy, fairness, and accountability of the selection process.

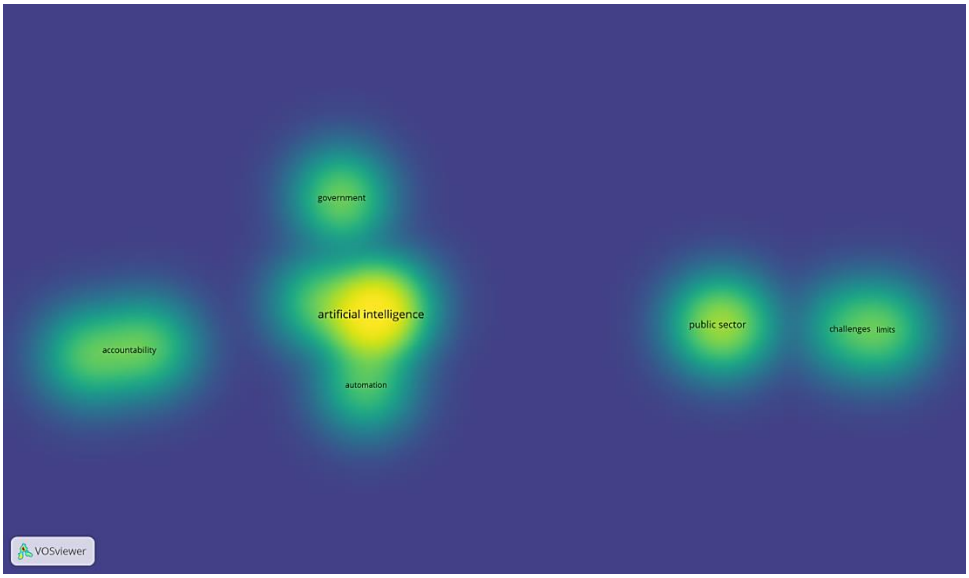

Figure 4. Density Visualization

Figure 4 shows a density visualization that illustrates the level of research density based on keyword concentration. The highest-density areas centered on the keywords artificial intelligence, fairness, and algorithmic hiring, which suggests that these three topics are the main focus in the literature. The high density of this area indicates the great intensity of research and the diversity of methodological approaches used to address these issues. On the other hand, keywords specifically related to civil service and public sector recruitment showed a relatively lower level of density. These findings indicate a research gap, where most studies still focus on the general context or the private sector, while the application of AI in the recruitment system of state civil servants has not been studied in depth. Thus, this density visualization provides empirical evidence that studies that integrate AI, algorithmic justice, and governance in the context of civil servants are still limited and require further exploration.

The results of the VOSviewer analysis show that research on AI in public sector recruitment is developing multidimensionally. There is a clear shift from a technical focus to a more critical and normative approach, with an emphasis on issues of justice, transparency, and governance. The ethics and governance cluster acts as a connecting axis between technological innovation and the demands of public values. These findings confirm that the use of AI in civil servant recruitment cannot be separated from the governance framework that guarantees accountability and the protection of the principles of justice. These bibliometric results serve as a strong empirical basis for further discussion in the discussion section, especially in formulating policy implications and future research agendas.

3.2 Discussion

The results of bibliometric analysis using VOSviewer show that the study on the use of artificial intelligence in the recruitment of civil servants in developing countries has three main axes, namely technical efficiency, algorithmic justice, and governance. These three axes do not stand apart, but rather intersect and form an increasingly complex discourse dynamic as AI adoption in the public sector increases. These findings reinforce the view that the use of AI in civil servant recruitment cannot be understood solely as a technological innovation, but must be placed within the broader public policy and government administration framework (Busuioc, 2021; Criado, 2025).

In the early phases of literature development, the main focus of research tends to be directed towards the potential efficiency and rationalization of the recruitment process through AI. Various studies highlight the ability of algorithms to screen candidates quickly, consistently, and data-driven, so that it is considered to be able to reduce human subjectivity and improve the quality of decision-making (Cowgill, 2020; Kellogg et al., 2020). In the context of the public sector, this efficiency narrative is often associated with the agenda of bureaucratic reform and administrative modernization. However, the results of the overlay visualization analysis show that the orientation of efficiency is gradually shifting as academic awareness of the social and ethical risks of AI use increases.

The issue of fairness and algorithmic bias emerged as the dominant themes in the literature cluster analyzed. A number of studies show that algorithmic hiring systems have the potential to reproduce historical biases contained in training data, resulting in outcomes that discriminate against certain groups (Barocas & Selbst, 2020; Mehrabi et al., 2021). In ASN recruitment, the implications of algorithmic bias are systemic because they not only harm individual applicants, but can also affect the composition of the bureaucracy and the quality of state representation. These findings are in line with the view of Rigotti (2024) who affirms that AI objectivity claims must be critically tested, especially in the context of the public sector which has higher normative obligations than the private sector.

The results of the analysis also show that a technical approach alone is inadequate to address the problem of algorithmic bias and injustice. Although various methods of debiasing and fairness-aware algorithms have been developed, the literature emphasizes that the effectiveness of technical solutions is highly dependent on the institutional context and policy framework that governs them (Mehrabi et al., 2021; Fabris, 2025). This is reflected in the close relationship between the keywords fairness and governance in the VOSviewer network visualization, which indicates a paradigm shift from a technocentric approach to an institutional and normative approach.

Transparency and explainability aspects are also a major concern in AI discourse in the public sector. Black box AI models pose a serious challenge to the principle of government accountability, especially in the recruitment process that concerns citizens' rights. The lack of clarity on the basis of algorithmic decision-making can weaken administrative objection mechanisms and reduce public trust in the state (Diakopoulos, 2016; Wieringa, 2020). Therefore, the latest literature emphasizes the importance of explainable AI as a prerequisite to ensure that ASN recruitment decisions can be legally and ethically accountable.

The governance dimension occupies a central position in the literature analyzed. Various international studies and policy documents emphasize the need for an AI governance framework that includes clear regulations, algorithmic audits, shared responsibilities between actors, as well as human-in-the-loop mechanisms (OECD, 2023; de Almeida, 2025). In the public sector, AI governance serves as a bridge between technological innovation and democratic values. The findings of density visualization that show low density in the civil service keyword indicate that the development of a special AI governance framework for civil servant recruitment is still an open research agenda.

This finding has important implications, especially in Indonesia. Several studies show that the main challenges in the application of digital technology in the public sector include limited human resource capacity, data infrastructure readiness, and weak accountability mechanisms and institutional transparency (Rahayu & Kurnianingsih, 2020; Hasanuddin et al., 2023). This condition indicates that the adoption of AI in ASN recruitment has the potential to face greater risks if it is not accompanied by strengthening governance and institutional capacity.

This discussion emphasized that the success of AI implementation in civil servant recruitment is not only determined by the sophistication of algorithms, but also by the integration of algorithmic justice, procedural transparency, and accountable governance. The results of the bibliometric analysis provide a strong empirical basis to conclude that a holistic approach is needed for AI to be used as a legitimate and equitable instrument of bureaucratic reform. Thus, these findings not only contribute to the development of academic literature, but also provide a conceptual foothold for the formulation of AI-based ASN recruitment policies in the future.

4. CONCLUSION

This study presents a critical literature review on the use of artificial intelligence in the recruitment of State Civil Apparatus by emphasizing the dimensions of ethics, algorithmic justice, and governance. Based on a systematic analysis of 58 reputable national and international articles using the PRISMA framework and the VOSviewer bibliometric approach, the results show that the AI discourse in public sector recruitment has undergone a significant shift from an initial orientation on technical efficiency to greater attention to the risk of algorithmic bias, limited transparency, and the need for accountable governance. These findings confirm that the use of AI in ASN recruitment cannot be understood as a mere technical innovation, but as a public policy issue that has broad normative and institutional implications. This study also reveals research gaps, especially in the specific context of ASN recruitment, where most of the literature still focuses on the private sector or general approaches. Therefore, the integration of fair algorithm design, explainability mechanisms, and a strong governance framework is the main prerequisite in building a legitimate and fair AI-based ASN recruitment system. This study has limitations because it is only based on a literature analysis and has not evaluated empirical implementation at the institutional level. Further research is suggested to examine the real application of AI in civil servant recruitment, including policy evaluation, institutional capacity, algorithmic supervision mechanisms, and its impact on public trust and bureaucratic legitimacy.

REFERENCES

Albaroudi, E., Mansouri, T., & Alameer, A. (2024). Algorithmic bias in AI-based hiring systems: A systematic review. AI, 5(1), 383-404. https://doi.org/10.3390/ai5010020

Barocas, S., & Selbst, A. D. (2020). Big data's disparate impact. California Law Review, 104(3), 671-732.

Busuioc, M. (2021). Artificial intelligence and public accountability. Public Administration Review, 81(2), 429-442. https://doi.org/10.1111/puar.13279

Cowgill, B. (2020). Bias and productivity in algorithmic hiring. Organization Science, 31(6), 1454-1474. https://doi.org/10.1287/orsc.2020.1377

Criado, J. I. (2025). Artificial intelligence and public administration: Governance and accountability challenges. Public Administration Review, 85(1), 3-16.

de Almeida, P. G. R. (2025). Understanding how public organizations implement artificial intelligence governance. Government Information Quarterly, 42(1), 101879. https://doi.org/10.1016/j.giq.2024.101879

Diakopoulos, N. (2016). Accountability in algorithmic decision making. Communications of the ACM, 59(2), 56-62. https://doi.org/10.1145/2844110

Engstrom, D. F., Ho, D. E., Sharkey, C. M., & Cuéllar, M. F. (2020). Government by algorithm: Artificial intelligence in administrative law. Administrative Law Review, 72(4), 781-836.

Fabris, A. (2025). Fairness and bias in algorithmic hiring: A multidisciplinary review. ACM Computing Surveys, 57(1), 1-38.

Hasanuddin, H., Singgarniari, E., Faisal, F., Ritonga, A., Nasution, I., Wasesa, S., & Rahayu, S. (2023). Pengaruh sarana prasarana, kualitas SDM, dan kemampuan kerja terhadap kinerja pegawai. Ekonomi, Keuangan, Investasi dan Syariah (EKUITAS), 4(2), 804-813.

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. Academy of Management Annals, 14(1), 366-410. https://doi.org/10.5465/annals.2018.0174

Mehrabi, N., Morstatter, F., Saxena, N., Lerman, K., & Galstyan, A. (2021). A survey on bias and fairness in machine learning. ACM Computing Surveys, 54(6), 1-35. https://doi.org/10.1145/3457607

Organisation for Economic Co-operation and Development. (2023). AI in the public sector: Opportunities and risks. OECD Publishing.

Organisation for Economic Co-operation and Development. (2024). OECD principles on artificial intelligence. OECD Publishing.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ, 372, n71.

Raghavan, M., Barocas, S., Kleinberg, J., & Levy, K. (2020). Mitigating bias in algorithmic hiring: Evaluating claims and practices. Proceedings of the ACM Conference on Fairness, Accountability, and Transparency, 469-481.

Rahayu, S., & Kurnianingsih, H. T. (2020). Accountability and transparency of financial reporting and acceptance of zakat. European Proceedings of Social and Behavioural Sciences.

Rigotti, C. (2024). Fairness and bias in AI applications for recruitment: A scoping review. AI & Society, 39(2), 623-640. https://doi.org/10.1007/s00146-022-01489-6

Silitonga, F. (2023). Artificial intelligence and the future of work in the Indonesian public sector. Jurnal Ilmu Sosial dan Ilmu Politik, 27(2), 145-159.

Starke, C. (2022). Fairness perceptions of algorithmic decision-making: A review of empirical evidence. Big Data & Society, 9(1), 1-14.

Wieringa, M. (2020). What to account for when accounting for algorithms: A systematic literature review on algorithmic accountability. Philosophy & Technology, 33(4), 543-572. https://doi.org/10.1007/s13347-019-00377-2

Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2019). Artificial intelligence and the public sector—Applications and challenges. International Journal of Public Administration, 42(7), 596-615.

Zhang, G. (2025). Explainable artificial intelligence in the talent recruitment process: A literature review. Expert Systems with Applications, 229, 120432.