

Artificial Intelligence in the Indonesian Arbitration Regime: An Analysis of Legal Capacity and Regulatory Gaps

Ayu Atika Dewi*

Department of Law, National Taiwan University, Taipei, Taiwan

ABSTRACT

This article examined the the capacity of Indonesia's legal and institutional arbitration framework to accommodate the growing use of artificial intelligence and the regulatory gaps arising from the absence of arbitration specific governance. The study addressed the growing use of artificial intelligence in procedural management, evidentiary handling, and analytical support within arbitration, which has developed faster than corresponding legal regulation. Using a doctrinal approach, the article analysed arbitration law, electronic transactions regulations, data protection law, institutional arbitration rules, and relevant ethical guidance to assess their interaction and practical implications for artificial intelligence assisted arbitration. The analysis showed that Indonesia's framework provided partial compatibility through party autonomy, procedural flexibility, and recognition of electronic documents and signatures, as well as institutional capacity for digital proceedings. However, the framework did not expressly regulate artificial intelligence in arbitration, resulting in legal uncertainty concerning the formal validity of arbitral acts, procedural fairness, evidentiary integrity, confidentiality, data protection compliance, and allocation of responsibility for artificial intelligence reliance. The article further formulated principled regulatory directions aimed at closing these gaps without overregulating, emphasising targeted clarification, procedural governance, and reaffirmation of human responsibility in adjudication. It concluded that gradual legal and institutional reform could support the responsible integration of artificial intelligence into arbitration while preserving enforceability, procedural legitimacy, and alignment with established arbitration principles.

Keywords:

artificial intelligence, arbitration, Indonesia, legal reform

1. INTRODUCTION

The integration of Artificial Intelligence (AI) into legal systems is no longer a distant possibility but an emerging reality that is reshaping dispute resolution worldwide. Arbitration, recognized as its flexibility and adaptability, stands at the forefront of this transformation. Globally, a growing body of scholarship has examined the transformative potential associated with AI in arbitration field. Chan, et al. argues that AI could support arbitration by enabling technology-assisted document review, performing legal analysis and predictive outcome, and assisting in tasks such as document drafting and translation (Chan et al., 2023). This view is supported by other scholars, who emphasize that AI's ability to process vast amounts of data enables it to perform legal research, analyse cases, and generate predictive insights, which are capabilities that can significantly ease the workload of lawyers and arbitrators (Moreira & Zhang, 2025; Stefer & Fricke, 2025). However, despite AI's promising potential, the extent to which this technology can be harnessed depends not only on its technical capabilities but also on the readiness of legal systems and institutions to adopt them. For Indonesia, where arbitration plays a central role in resolving commercial and investment disputes outside the state court system (Gunawan, 2025), the growing integration of AI raises fundamental questions about the adequacy of the existing legal and institutional framework. Arbitration in Indonesia is valued for its flexibility, confidentiality, and party autonomy (Fidhayanti et al., 2025), yet these very features may be strained when procedural and proceeding processes become mediated by opaque, data driven technologies that were not envisaged when the current regulatory framework was designed.

*Corresponding author

E-mail addresses: d11a21006@ntu.edu.tw (Ayu Atika Dewi)

From a theoretical perspective, the accommodation of AI in arbitration sits at the intersection of legal pragmatism, procedural justice, and technology governance (Birkstedt et al., 2023). Arbitration law in Indonesia, particularly Law No. 30 of 1999, is grounded in party autonomy and minimal judicial intervention, reflecting a functionalist view that prioritises efficiency and contractual freedom (Soemartono et al., 2025). At the same time, arbitration must comply with core procedural justice principles, such as equality, the right to be heard, transparency of reasoning, and the integrity of evidence, which derive from both national legal doctrine and transnational arbitration norms (Maskun et al., 2019). AI challenges this balance. While it promises efficiency and consistency, it also introduces risks of algorithmic opacity, embedded bias, and accountability gaps (Alhasan, 2025; Fahad et al., 2025; Flórez Acero, 2025). Theoretically, this tension could be understood through the lens of technology neutral law versus technology sensitive regulation. In this case, whether existing legal principles are sufficient to govern new technological practices, or whether AI constitutes a qualitative shift that demands recalibration of normative standards in arbitration.

Against this backdrop, several problems emerge within Indonesia's current arbitration ecosystem. First, the statutory framework was drafted for a predominantly paper-based and human-centred process (Fachrurrozy et al., 2024), leaving uncertainty about the legal status of AI-assisted, or fully digital arbitration agreements, procedural communications, and arbitral awards. Second, there is no clear normative framework governing the use of AI in arbitral proceedings, particularly where tribunals rely on AI for case management, analytical support, or decision making assistance (Herliana & Widowati, 2025; Dewi, 2024). This absence creates uncertainty both during the proceedings, in relation to procedural fairness, transparency, and the parties' opportunity to present and challenge their case, and after the proceedings, with respect to accountability, disclosure obligations, and the risk of annulment or non enforcement of awards on procedural or public policy grounds. Third, the use of AI raises concerns regarding confidentiality, cybersecurity, and personal data protection throughout the arbitral lifecycle, particularly in cross border arbitrations where procedural data, submissions, and internal tribunal materials may be processed through foreign platforms or cloud based systems (Ferreira & Gromova, 2024). Collectively, these issues reveal a regulatory gap between the technological realities of contemporary arbitral practice and the normative principles embedded in Indonesia's existing legal instruments.

This research proceeds from the premise that outright resistance to AI is neither realistic nor desirable. Instead, the central challenge lies in designing a regulatory approach that enables responsible and transparent integration of AI while safeguarding the foundational values of arbitration. The problem-solving strategy adopted in this study is therefore not to propose a radical overhaul of Indonesia's arbitration regime, but to identify targeted points of normative intervention. These include clarifying the legal validity of AI-integrated arbitral processes, articulating due process standards for AI-assisted decision making, integrating data protection and cybersecurity obligations into arbitral practice, and developing governance principles that ensure human oversight and accountability in the use of AI by arbitrators and institutions. Accordingly, the study aims to (i) evaluate the compatibility of existing arbitration law and institutional rules with AI-enabled arbitral practices, (ii) analyse regulatory gaps and the risks posed by unregulated or under regulated use of AI in arbitral proceedings, and (iii) formulate principled regulatory directions that can guide future legal reform and institutional practice. In doing so, the research seeks to contribute to the broader discourse on technology governance in dispute resolution, while offering specific insights for the development of a resilient and future oriented arbitration framework in Indonesia.

2. METHOD

This study adopts a normative legal research methodology to examine the capacity of Indonesia's arbitration framework to accommodate the use of AI in arbitration and to identify the regulatory gaps that arise from such integration. The primary approach is doctrinal, focusing on the analysis of legal norms governing arbitration, electronic transactions, data protection, and related regulatory instruments. Doctrinal analysis is used to interpret statutory provisions, institutional arbitration rules, and general principles of arbitration law, particularly those relating to party autonomy, due process, confidentiality, and enforceability of arbitral awards.

Data for this research are collected through systematic librarybased research. The primary legal materials consist of Indonesian statutes and regulations relevant to arbitration, electronic transactions,

personal data protection, and digital governance, as well as institutional arbitration rules and soft law instruments applicable to arbitral proceedings. These primary sources are supplemented by secondary legal materials, including scholarly journal articles, books, commentaries, arbitral awards where publicly available, and policy papers addressing AI governance, digital dispute resolution, and arbitration reform.

The data analysis is conducted through qualitative legal reasoning. Statutory and regulatory texts are analysed using methods of legal interpretation to assess their applicability to AI-integrated arbitral processes. Institutional rules and soft law instruments are examined to identify emerging practices and implicit normative trends regarding technology use in arbitration. Throughout the analysis, identified legal norms are assessed against core arbitration principles, such as procedural fairness, transparency, efficiency, and legal certainty to evaluate whether existing rules can reasonably accommodate AI or whether normative recalibration is required. The findings of this analysis form the basis for formulating recommendations for regulatory and institutional development aimed at enabling responsible and legitimate integration of AI within Indonesia's arbitration system.

3. RESULT AND DISCUSSION

The Capacity of Indonesia's Arbitration Framework to Accommodate Artificial Intelligence

Indonesia's current legal and institutional arbitration framework demonstrates a measured, albeit uneven, capacity to accommodate the use of AI technologies (Herliana & Widowati, 2025). Certain foundational features of the framework, particularly its emphasis on party autonomy and procedural flexibility, provide a conceptual basis for the incorporation of technological tools into arbitral proceedings (Fitrianggraeni, 2025). At the same time, the framework was developed in a pre digital context and does not expressly address the procedural and legal implications of AI-integrated practices. As a result, the extent to which the framework can accommodate AI is contingent on interpretation, institutional practice, and the interaction between arbitration law and broader digital regulation.

At the statutory level, Indonesia's arbitration regime is governed primarily by Law No. 30 of 1999 on Arbitration and Alternative Dispute Resolution (Indonesian Arbitration Law). The law reflects a traditional arbitration model that prioritises party consent, finality of awards, and limited court involvement (Marilyn & Soemartono, 2024; Sidik, 2024). Procedural arrangements are largely left to the agreement of the parties or to applicable institutional rules, which allows for a degree of adaptability in procedural design (Roosdiono & Taqwa, 2024). From this perspective, the Arbitration Law does not preclude the use of AI technologies in arbitration. Parties may, in principle, agree to the use of digital platforms, automated document management, or other technology-assisted processes within the arbitral framework (Fitrianggraeni, 2025).

However, the Arbitration Law was drafted against the backdrop of a paper-based and human-centred dispute resolution process (Maskun et al., 2019). Provisions relating to arbitration agreements and arbitral awards emphasise written form and signatures, including references to notarial deeds in specific circumstances (Thalita, 2024; Widjaja, 2020). These provisions do not explicitly address electronic execution or the use of automated systems in drafting or managing arbitral documents. In the context of AI-enabled workflows, where agreements, submissions, and procedural communications may be generated, processed, or authenticated digitally, this legislative silence gives rise to interpretive questions concerning formal validity, authenticity, and evidentiary reliability.

Indonesia's electronic transactions regime provides a broader legal context for addressing some of these issues. Law No. 11 of 2008, and its amendments, on Electronic Information and Transactions (ITE Law) recognises the legal effect of electronic information, electronic documents, and electronic signatures, thereby establishing a general legal foundation for digital processes (Setyawan et al., 2025). These provisions are relevant to arbitration insofar as arbitral proceedings increasingly rely on electronic communications, digital submissions, and remote hearings (Dewanto et al., 2024). In functional terms, AI technologies operate through electronic systems that process digital information, placing them within the conceptual scope of the ITE Law. AI-generated or AI-assisted documents, communications, and procedural outputs may therefore benefit from the general recognition afforded to electronic acts under this regime.

The regulatory relevance of the ITE Law is further elaborated through Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions (GR 71/2019). As an implementing regulation, GR 71/2019 imposes operational obligations on electronic system operators,

including requirements relating to system reliability, security, accountability, and the protection of personal data (Anas & Cahyawati, 2023). Although GR 71/2019 does not specifically mention AI, its technology neutral formulation encompasses systems that automatically process, analyse, and manage electronic information. AI based tools used in arbitration, such as document review platforms, automated translation services, or analytical software, can therefore be characterised as electronic systems within the meaning of the regulation.

In the arbitral context, the significance of GR 71/2019 lies not in regulating adjudication itself, but in shaping the technical conditions under which AI tools may be deployed. Obligations concerning data security, system integrity, and internal governance apply to entities operating electronic systems (Rumbruren & Watofa, 2025), including arbitral institutions or third party service providers that supply AI-enabled platforms. This regulatory layer reinforces baseline standards for digital reliability and data handling, indirectly supporting the use of AI in arbitration. At the same time, GR 71/2019 is designed for general electronic transactions and services, not for confidential, consent based dispute resolution. It does not address arbitration specific concerns such as the confidentiality of tribunal deliberations, the procedural implications of algorithmic assistance, or the treatment of AI-processed materials within evidentiary assessment. As a result, its contribution to AI-assisted arbitration remains supportive but indirect.

The governance of AI use in arbitration is further influenced by Law No. 27 of 2022 on Personal Data Protection Law (PDP Law), which establishes a comprehensive framework for the lawful processing of personal data. AI-integrated arbitration inevitably involves personal data, including communications, employment records, financial information, and witness statements (Alkhayer et al., 2025). The PDP Law introduces principles of lawfulness, purpose limitation, proportionality, security, and accountability that are applicable whenever such data are processed through AI systems. In this respect, the PDP Law strengthens the normative environment for AI use by requiring safeguards against misuse, excessive processing, or inadequate security.

At the same time, the application of the PDP Law in arbitration presents practical complexities. Arbitration frequently involves cross border elements, including foreign parties, arbitrators, counsel, and technology providers, as well as cloud-based tools hosted outside Indonesia (Das & Sharma, 2025). The PDP Law does not provide arbitration specific guidance on issues such as the allocation of data controller responsibilities among arbitral actors, the management of cross border data transfers in dispute resolution, or the reconciliation of data protection obligations with procedural rights. Consequently, while the PDP Law establishes an important governance baseline, it may also introduce compliance uncertainty in AI-integrated arbitral practice absent further interpretive clarification.

Alongside these statutory instruments, institutional developments indicate a degree of procedural adaptation to digital technologies. Indonesia's principal arbitral institution, BANI, has adopted rules that allow for electronic submissions, online hearings, and digital case administration (Dewanto et al., 2024). These rules demonstrate institutional readiness to manage technology-assisted proceedings and provide a practical framework within which AI tools may be used for administrative and procedural support. From an operational standpoint, arbitral institutions in Indonesia appear capable of accommodating AI-related functionalities, particularly in case management and procedural coordination (Chandra, 2023). However, institutional rules operate within the limits of national arbitration law and cannot independently resolve questions of award validity or enforceability. While parties may consent to AI-assisted procedures under institutional rules, the recognition and enforcement of arbitral awards remain subject to statutory standards and judicial review. If the use of AI becomes relevant to assessments of procedural fairness, transparency, or public policy, institutional authorisation alone may not suffice to address such concerns.

Beyond binding law, Indonesia has also articulated non-binding ethical guidance on AI through the Ministry of Communication and Information Circular Letter No. 9 of 2023. This circular sets out ethical principles for AI development and use, including inclusivity, respect for privacy, transparency, accountability, and human oversight. Although it does not specifically address arbitration and lacks binding legal force, the circular reflects an emerging policy orientation toward responsible AI governance. In the arbitral context, these principles align with established arbitration values, such as confidentiality, fairness, and the central role of human decision makers. Their relevance, however, remains normative rather than mandatory, depending on voluntary adoption by institutions or arbitrators.

Overall, Indonesia's legal and institutional arbitration framework provides a foundational basis that can accommodate certain aspects of AI use, particularly through party autonomy, institutional procedural rules, and general digital regulation. At the same time, the framework does not yet provide comprehensive or explicit guidance on the integration of AI into arbitral practice. Its capacity to accommodate AI is therefore dependent and reliant on interpretation rather than express regulation. This suggests that the framework is neither resistant to nor fully prepared for AI-assisted arbitration, but occupies an intermediate position in which existing legal principles can be applied to new technologies, while leaving room for further clarification through legislative development, institutional practice, or interpretive guidance.

Regulatory Gaps and Emerging Risks at the Intersection of Arbitration and Artificial Intelligence

The absence of arbitration specific governance for AI use gives rise to a number of structural regulatory gaps, each of which presents corresponding legal and procedural risks. These gaps do not arise from the illegality of AI use as such, but from normative silence, where existing rules neither prohibit nor clearly regulate AI-driven arbitral practices. As a result, the increasing use of AI in arbitration, especially when unregulated, poses challenges to legal certainty, procedural fairness, and enforceability of awards.

The first regulatory gap concerns the legal validity of AI-enabled "writing," "signature," and fully digital arbitral acts. Indonesian Arbitration Law requires that disputes be resolved through arbitration on the basis of a written agreement signed by the parties (Thalita, 2024; Widjaja, 2020). Article 4 paragraph (3) of the Arbitration Law permits the use of electronic communications, such as email, telex, or facsimile, as a means of exchanging correspondence in arbitral proceedings, provided that there is agreement between the parties and evidence of receipt. This provision has been interpreted as allowing parties to conclude arbitration agreements through email correspondence in written form, with such communications treated as permissible evidence of consent (Nikam & Singh, 2022). In this respect, the Arbitration Law already accommodates online formation of arbitration agreements at the level of written form.

This interpretation is reinforced by Indonesia's electronic transactions regime. ITE Law recognises electronic information and electronic documents as legally valid, and Article 11 of this Law provides that electronic signatures have the same legal force and effect as manual signatures, subject to certain reliability requirements (Nikam & Singh, 2022). Read together, Article 4 paragraph (3) of the Arbitration Law and the ITE Law support the validity of arbitration agreements concluded through electronic communications and authenticated by electronic signatures. GR 71/2019 further complements this framework by regulating the operation, security, and accountability of electronic systems used to process and store such electronic information.

However, while this combined framework provides a basis for recognising electronically concluded arbitration agreements, it remains less clear when applied to AI-mediated arbitral acts beyond contract formation. The Arbitration Law does not expressly integrate the recognition of electronic documents and signatures into its provisions on procedural orders and arbitral awards. In AI-assisted arbitration, electronic systems may be used not only to exchange communications, but also to draft, structure, or process arbitral decisions and supporting documents. Although the ITE Law and GR 71/2019 establish the general validity and governance of electronic systems, they do not address whether arbitral awards prepared with AI assistance and executed electronically fully satisfy the formal requirements of arbitration law, particularly at the stage of recognition and enforcement.

Accordingly, the existing framework supports the validity of written arbitration agreements formed through email and authenticated by electronic signatures, but provides limited clarity on the legal status of AI-mediated procedural orders and fully digital arbitral awards. The regulatory gap thus lies not in the permissibility of electronic arbitration agreements, but in the absence of explicit arbitration specific rules governing the formal validity of arbitral acts generated and managed through advanced electronic and AI-based systems.

In the context of AI-assisted arbitration, this uncertainty becomes more pronounced. AI tools may be used to generate drafts of procedural orders, assist in structuring arbitral awards, or automate parts of document preparation (Fahad et al., 2025). Even where the final decision remains with human arbitrators, the role of AI in generating or processing the text of arbitral instruments raises questions about authorship, authenticity, and intent (Stefer & Fricke, 2025). If an award is prepared using AI-

assisted drafting tools and signed electronically, the absence of clear statutory recognition exposes the award to formal challenges at the enforcement stage. The risk is not merely theoretical, enforcement courts may be asked to assess whether such an award meets the 'written and signed' requirements under arbitration law, particularly where opposing parties seek to contest its validity.

The legal risk arising from this gap lies in post award vulnerability. Parties dissatisfied with the outcome may invoke formal defects as grounds for annulment or refusal of enforcement, framing AI involvement as undermining the authenticity or integrity of the arbitral act. In cross border arbitration, this risk is amplified by differences in how national courts interpret electronic form and signature requirements. Without explicit statutory integration of electronic and AI mediated processes into arbitration law, AI-assisted arbitration remains exposed to uncertainty at precisely the stage where finality and enforceability are most critical.

The second regulatory gap concerns due process standards for AI-integrated procedure and decisionmaking. Arbitration law is built on procedural justice principles, including equality, the right to be heard, and the parties' opportunity to present and challenge their case (Rigel & Soermartono, 2026; Soermartono et al., 2025). AI technologies have the potential to affect these principles in multiple ways, not only through evidence handling but across the broader procedural lifecycle. AI may be used for case management, scheduling, document review, translation, issue identification, and even analytical support that informs deliberation (Fahad et al., 2025). While these uses may enhance efficiency, they also introduce opacity and asymmetry if not properly governed (Alhasan, 2025; Fahad et al., 2025).

At present, Indonesian arbitration law does not articulate when AI use in proceedings is permissible, when it must be disclosed, or what procedural rights attach to AI-assisted outputs. This silence creates procedural risks during the arbitration itself (Dewi, 2024). Parties may be unaware of the extent to which AI influences procedural decisions or analytical framing. If one party has greater access to or understanding of AI tools than the other, this asymmetry may affect the perceived balance of the proceedings. Moreover, where AI tools influence analytical processes, such as identifying patterns in evidence or highlighting inconsistencies, questions arise as to whether parties have a meaningful opportunity to examine and challenge the basis of those assessments.

The due process risk becomes acute when AI use intersects with decision making. Even if AI is formally limited to "decision support," its influence on how issues are framed or weighted may be difficult to disentangle from the final outcome (Alhasan, 2025; Stefer & Fricke, 2025). Without clear standards distinguishing permissible administrative assistance from impermissible delegation of adjudicative judgment, tribunals face uncertainty as to how far AI may be relied upon (Mehboob et al., 2025). From the parties' perspective, the absence of disclosure requirements may undermine confidence in the fairness and transparency of the process (Alhasan, 2025). From an enforcement perspective, undisclosed or poorly understood AI reliance may later be characterised as a denial of due process or an excess of mandate (Moreira & Zhang, 2025). The issues of due process, disclosure, and post award challenge are closely connected to a broader accountability gap, namely the lack of professional and liability standards governing arbitrators' reliance on AI tools.

The third regulatory gap relates to evidence integrity, chain of custody, and the treatment of AI-generated or AI-processed material. Arbitration increasingly relies on large volumes of electronic evidence (Ferreira & Gromova, 2023, 2024; Łagiewska & Bhatia, 2024), and AI tools are commonly used to summarise documents, translate materials, extract entities, or cluster information. These tools do not merely organise evidence; they transform it. In addition, the proliferation of generative AI introduces the possibility of synthetic documents, manipulated audio or video (deepfakes), and AI-generated communications that may be difficult to distinguish from authentic materials (Han, 2025).

Indonesian arbitration practice lacks explicit standards governing the admissibility, reliability, and verification of AI-processed evidence. There is no clear guidance on whether AI-generated summaries or translations may be treated as substitutes for primary evidence, or on how tribunals should address disputes over the accuracy of such outputs. The absence of chain-of-custody requirements for digital and AI-processed materials increases the risk of evidentiary challenges. Parties may argue that they were denied a meaningful opportunity to test the evidence against them if AI-processed outputs are relied upon without access to originals, processing parameters, or error rates. The risk here is twofold. Procedurally, unregulated reliance on AI-processed evidence may undermine the parties' ability to contest the factual basis of the case. Substantively, it may affect the correctness of factual findings, particularly where AI tools introduce errors, biases, or distortions. Post-award, these risks translate into

potential challenges based on procedural unfairness or violation of public policy, especially if a court concludes that the evidentiary process was insufficiently transparent or reliable. In the absence of agreed standards, tribunals must navigate these issues on an ad hoc basis, increasing variability and uncertainty across cases.

The fourth regulatory gap concerns confidentiality, cybersecurity, and privilege in AI workflows. Confidentiality is a defining feature of arbitration and a key reason parties choose it over litigation (Teramura & Trakman, 2024). However, AI tools often operate through external platforms, cloud-based services, or third-party vendors, requiring the upload and processing of sensitive materials (Reddy & Vinita, 2024; Sharma, 2025). This creates new exposure points that are not fully addressed by traditional confidentiality obligations or institutional rules (Alnaber, 2025; Malekela, 2025).

Unregulated AI use raises specific confidentiality risks, including the possibility that uploaded data may be retained for model training, accessed by service providers, or exposed through security vulnerabilities (Malekela, 2025; Teramura & Trakman, 2024). Prompt leakage, insecure plugins, and insufficient access controls may compromise confidential information, including trade secrets, personal data, and privileged communications (Chen et al., 2025; Majeed & Hwang, 2023). While institutional rules may regulate recording of hearings or the conduct of participants, they typically do not address the technical and organisational safeguards required when AI tools are used. The legal risk associated with this gap is significant. Breaches of confidentiality may give rise to contractual claims, undermine trust in the arbitral process, and expose parties to regulatory liability under data protection law (Dirgantara et al., 2025; Hasan, 2024). In addition, the use of AI tools that store or reuse inputs may conflict with confidentiality obligations embedded in arbitration agreements or institutional rules. Without clear standards on whether and how external AI services may be used, parties and tribunals face uncertainty in balancing efficiency gains against confidentiality risks.

Taken together, these regulatory gaps illustrate the risks associated with the unregulated use of AI in arbitration. They do not suggest that AI is inherently incompatible with arbitral principles, but they demonstrate that existing legal instruments were not designed to address the procedural, evidentiary, and governance challenges posed by AI technologies. The risks are cumulative and interrelated. Uncertainty over formal validity amplifies enforcement risk, lack of due process standards undermines procedural legitimacy, weak evidentiary governance affects factual integrity, and confidentiality vulnerabilities threaten the foundational trust on which arbitration depends.

In the Indonesian context, these risks are heightened by the interaction between arbitration law and general digital regulation. While electronic transactions law and data protection law provide a governance baseline, their application to arbitration is indirect and not tailored to dispute resolution. Ethical guidance on AI use, though relevant in principle, remains non-binding and general. As a result, AI use in arbitration operates in a normative grey area, governed more by practice and discretion than by clear legal standards. Addressing these gaps does not necessarily require prohibiting AI use in arbitration. Rather, the analysis underscores the importance of recognising the specific risks associated with unregulated AI deployment in adjudicative contexts. Without clearer normative guidance, AI use may remain uneven, opaque, and vulnerable to challenge, affecting both the legitimacy and effectiveness of arbitration. The extent to which Indonesia's arbitration framework can accommodate AI therefore depends not only on its existing flexibility, but on its capacity to articulate rules and standards that align technological innovation with the core values of arbitral justice.

A Principled Framework for Governing AI In Arbitration

The increasing use of AI in arbitration highlights the need for a regulatory response that is principled rather than reactive. The objective is not to displace established arbitration doctrine, but to clarify how existing legal principles apply when arbitral processes are supported or mediated by AI systems. Indonesia's arbitration framework already contains elements that are structurally compatible with technological innovation, including party autonomy, procedural flexibility, and recognition of electronic transactions (Roosdiono & Taqwa, 2024). However, these elements are not yet integrated into a coherent governance framework for AI-assisted arbitration, resulting in normative uncertainty across multiple dimensions.

A principled regulatory framework must therefore begin by identifying common normative concerns across the identified gaps, rather than addressing each gap in isolation. Across issues of electronic validity, AI-assisted procedure, evidence handling, and confidentiality, a recurring concern

is legal certainty. Parties, tribunals, and enforcing courts require clarity on whether AI-mediated arbitral acts are legally valid and procedurally legitimate. Closely related is the principle of procedural fairness, particularly the parties' ability to understand, participate in, and challenge processes that affect the outcome of the dispute. A third unifying concern is accountability, ensuring that human actors, especially arbitrators, remain responsible for decisions, even where AI tools are used. Finally, confidentiality and data governance remain essential to preserving arbitration's distinctiveness as a dispute resolution mechanism (Malekela, 2025; Bhavsar et al., 2025).

From this perspective, the regulatory needs identified in the previous analysis point toward a framework grounded in four overarching principles. First, functional equivalence, whereby electronic and AI-mediated acts are recognised as legally valid if they fulfil the same substantive functions as their traditional counterparts, such as authenticity, integrity, and consent. Second, proportionality, requiring that regulatory obligations correspond to the degree of influence AI has on the proceedings and outcome. Third, transparency and contestability, ensuring that parties are able to identify, understand, and challenge AI-assisted processes that affect their procedural rights. Fourth, human oversight and responsibility, reaffirming that adjudicative authority rests with human arbitrators, not automated systems. Such a principled framework allows existing arbitration doctrine to be extended to AI-assisted contexts without redefining arbitration fundamentally. It also provides a coherent lens through which specific regulatory interventions can be assessed. Rather than asking whether AI should be permitted in arbitration, the framework asks whether its use satisfies the conditions of legal validity, procedural fairness, evidentiary reliability, and confidentiality already embedded in arbitration law. This approach accommodates technological evolution while maintaining continuity with established legal norms.

Within this framework, liability for AI reliance emerges as a cross-cutting concern that connects several regulatory gaps. The use of AI in arbitration raises questions not only about procedure and evidence, but also about responsibility when AI-assisted processes contribute to error, bias, or procedural irregularity (Aldmour, 2025; Nemeikšis, 2021). Existing arbitration law presumes human decision making and allocates responsibility accordingly (Baiquni, 2022). When AI tools are introduced, particularly in analytical or decision support roles, this presumption becomes strained unless responsibility is clearly reaffirmed (Aldmour, 2025; Nemeikšis, 2021).

From a regulatory perspective, the core need is to prevent a diffusion of responsibility in which errors are attributed to "the system" rather than to identifiable legal actors. A principled framework must therefore maintain the attribution of procedural and adjudicative responsibility to human actors, especially arbitrators, regardless of the use of AI tools. This does not imply strict liability for any AI-related error, but it does require clarity that AI does not operate as an autonomous legal subject within arbitration. The liability concern also relates to procedural legitimacy and enforceability (Mahdouri, 2025; Sienicki & Sienicki, 2025; Amro, 2021). If an arbitral award is challenged on the basis that AI reliance compromised due process, courts will inevitably seek to identify who bears responsibility for the relevant procedural choices. In the absence of clear standards, this creates uncertainty for arbitrators, institutions, and parties alike. A principled framework must therefore articulate not only how AI may be used, but also how responsibility for its use is allocated and assessed.

Reform Options: Closing Regulatory Gaps Without Overregulating

Translating general regulatory principles into concrete reform measures requires a calibrated approach that balances legal certainty with procedural flexibility. In the Indonesian context, reform does not necessarily entail the adoption of a comprehensive or standalone regulatory framework on artificial intelligence in arbitration. Rather, the existing legal and institutional architecture allows for incremental adjustments that integrate AI-related considerations into established arbitration norms and professional practices. The objective of reform, therefore, is to provide targeted clarity at points of legal and procedural vulnerability, rather than to introduce detailed technological regulation that may quickly become outdated.

One area where targeted clarification may be considered concerns the recognition of electronic arbitration agreements and arbitral awards under the Arbitration Law. While the interaction between the Arbitration Law and the electronic transactions regime already supports the validity of electronic instruments (Setyawan et al., 2025; Ferreira & Gromova, 2023), this recognition remains largely interpretive. Clarification, whether through statutory amendment, authoritative guidance, or explanatory materials, could confirm that electronically executed arbitration agreements and awards

are legally valid when requirements of integrity, authenticity, and consent are satisfied. Aligning such clarification with Indonesia's electronic certification ecosystem would promote coherence across legal regimes and may reduce uncertainty at the stage of recognition and enforcement. From an institutional perspective, clearer formal criteria may also assist arbitral institutions and tribunals in structuring digital procedures with greater confidence.

A further reform option involves the development of a model "AI in Arbitration Protocol," endorsed by arbitral institutions and relevant professional bodies. Such a protocol would function as a soft law instrument, complementing statutory provisions and institutional rules (Reddy & Vinita, 2024). Its role would be to articulate general expectations regarding the use of AI in arbitral proceedings, including matters of disclosure, contestability, reproducibility, and human oversight. Importantly, the protocol could clarify that AI tools may be used as procedural or analytical aids, while reaffirming that responsibility for procedural decisions and substantive determinations remains with the tribunal (Alhasan, 2025; Sienicki & Sienicki, 2025; Liu, 2024; Chan et al., 2023). This articulation may assist in managing expectations among parties and arbitrators regarding the permissible scope of AI use.

Within such a protocol, a distinction could be drawn between acceptable reliance on AI and impermissible delegation of adjudicative functions. Acceptable reliance may include the use of AI for information management, preliminary analysis, or organisational support, provided that the tribunal independently evaluates and verifies the outputs. Impermissible delegation would arise where AI outputs effectively substitute for human judgment in resolving disputed factual or legal issues. By framing these distinctions in terms of responsibility rather than fault, the protocol would provide guidance without introducing strict liability or discouraging legitimate innovation.

Another reform component relates to evidence governance standards in AI-assisted arbitration. Where tribunals rely on AI-processed evidence, such as translated documents or automated summaries, disputes may arise regarding the reliability and accuracy of those outputs (Han, 2025; Ferreira & Gromova, 2023). Rather than addressing these issues through outcome based liability, reform may focus on procedural safeguards that emphasise traceability and auditability. Standards requiring preservation of original materials, documentation of AI tools and processing parameters, and procedures for challenging AI-assisted outputs would allow responsibility to be assessed based on process. Such standards could be incorporated into institutional rules or adopted through procedural orders on a case by case basis.

Confidentiality and cybersecurity represent an additional area for calibrated reform. The use of AI platforms may introduce new exposure points for confidential information, including risks associated with external data processing or storage (Araluce, 2024; Majeed & Hwang, 2023). Reform efforts may therefore clarify expectations regarding due diligence in the selection and use of AI tools, including baseline security measures and limitations on data reuse. These expectations could be reflected in institutional rules or best practice guidelines, aligning arbitral practice with broader electronic system obligations under general digital regulation while recognising the heightened confidentiality expectations of arbitration. Where such baselines are observed, liability exposure may be confined to situations involving negligence or misconduct, rather than arising from the mere adoption of AI technologies.

Implementation guidance for the Personal Data Protection Law in arbitral settings constitutes another area of potential development. While the PDP Law provides a comprehensive framework for personal data governance, it does not address the specific configuration of roles in arbitration. Clarifying the allocation of controller and processor responsibilities among parties, tribunals, institutions, and service providers may facilitate compliance and reduce uncertainty in cases involving AI-assisted data processing. Such guidance would not alter substantive data protection obligations, but would assist arbitral actors in applying existing rules in a dispute resolution context.

In addition to formal and procedural measures, reform may also encompass the articulation of ethical competence standards for arbitrators in relation to AI use. These standards would not require technical expertise in AI development, but would emphasise awareness of the capabilities, limitations, and risks associated with AI tools used in connection with the merits of a case (Zheng, 2025). Embedding such expectations within codes of conduct or institutional guidance would reinforce the principle that arbitrators retain responsibility for adjudicative outcomes, even where AI tools are employed (Sienicki & Sienicki, 2025; Amro, 2021).

From a broader institutional perspective, the gradual incorporation of AI governance into arbitration practice may also influence judicial interaction with arbitral awards. Clearer standards on electronic validity, due process, and evidentiary integrity may assist courts in assessing challenges and enforcement applications involving AI-assisted proceedings. Over time, consistent application of such standards could contribute to the development of jurisprudence that recognises AI use as compatible with arbitration, provided that core procedural guarantees are respected.

Taken together, these reform options illustrate how Indonesia may address regulatory gaps and liability concerns associated with AI reliance through incremental and coordinated measures. By reaffirming human responsibility, clarifying procedural expectations, and embedding AI governance within existing arbitration norms, reform can enhance predictability while preserving the adaptability that characterises arbitration. In this manner, Indonesia's arbitration framework may evolve to accommodate AI in a way that remains consistent with domestic legal principles and prevailing international arbitration practice, without resorting to extensive or technology-specific regulation.

4. CONCLUSION

This study has examined the extent to which Indonesia's current legal and institutional arbitration framework is equipped to accommodate the use of AI, the regulatory gaps that arise from the absence of arbitration specific AI governance, and the principled regulatory directions that may guide future legal reform and institutional practice. The analysis demonstrates that Indonesia's arbitration framework is neither resistant to nor fully prepared for AI-assisted arbitration. Rather, it occupies an intermediate position in which existing legal principles, particularly party autonomy, procedural flexibility, and recognition of electronic transactions, provide a functional basis for accommodating AI, while leaving significant normative questions unresolved.

With respect to the first research question, the study finds that Indonesia's legal framework offers partial readiness for AI integration. The Arbitration Law, read together with the ITE Law, GR 71/2019, and the Personal Data Protection Law, supports electronic communication, electronic signatures, and digital system governance, thereby enabling online and technology assisted arbitration in practice. Institutional developments, particularly within arbitral rules, further demonstrate operational capacity to administer digital proceedings. However, this readiness remains indirect and interpretive. The framework does not expressly address AI-assisted procedural conduct, evidentiary transformation, or decision support functions, and thus does not provide comprehensive legal certainty, especially at the stage of recognition and enforcement of arbitral awards.

In addressing the second research question, the study identifies several core regulatory gaps that expose arbitration to legal and procedural risks when AI is used without clear governance. These gaps include uncertainty regarding the formal validity of AI-mediated arbitral acts, the absence of articulated due process standards for AI-assisted proceedings, insufficient evidentiary governance for AI-processed materials, and heightened confidentiality and data protection risks arising from the use of external AI platforms. The analysis further highlights that these gaps are interconnected and compounded by the lack of clarity concerning responsibility and liability for AI reliance, which may affect procedural legitimacy and post-award enforceability.

In response to these findings, the study formulates principled regulatory directions that emphasise integration rather than disruption of existing arbitration doctrine. It concludes that Indonesia does not require a standalone or comprehensive AI arbitration statute. Instead, targeted legal and institutional measures can address identified gaps while preserving the flexibility that characterises arbitration. These measures include clarification of electronic validity under the Arbitration Law, the development of softlaw instruments such as an AI in Arbitration Protocol, enhanced evidence governance standards, arbitration specific cybersecurity and confidentiality baselines, contextual implementation guidance for data protection obligations, and ethical competence expectations for arbitrators regarding AI use. Collectively, these measures reflect a regulatory approach grounded in functional equivalence, proportionality, transparency, and human responsibility.

Based on these conclusions, several practical suggestions may be advanced. For legislators and regulatory authorities, the study suggests prioritising clarification and alignment between arbitration law and existing digital regulation, particularly to ensure legal certainty for electronically executed and AI-assisted arbitral acts. For arbitral institutions, the findings indicate the value of developing

procedural guidance and model protocols that articulate best practices for AI use, including disclosure and oversight mechanisms. For arbitrators, the study underscores the importance of developing governance level competence regarding AI tools, so that their use is informed, transparent, and consistent with adjudicative responsibility. For parties and counsel, the analysis highlights the benefit of addressing AI use explicitly in arbitration agreements or procedural arrangements to manage expectations and reduce dispute over process.

Overall, the study concludes that Indonesia's arbitration framework can accommodate AI in a manner that is legally credible and institutionally workable, provided that reform focuses on clarification, coordination, and principled governance rather than extensive regulation. By situating AI within established arbitration norms and aligning it with broader digital and data protection law, Indonesia can support innovation in dispute resolution while maintaining procedural fairness, legal certainty, and confidence in arbitral outcomes.

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