INTEGRATING GENERATIVE AI IN INDONESIAN ARBITRATION: APPLICATIONS, CHALLENGES, AND REGULATORY PATHWAYS

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Abstract *- Recent technological advancements, particularly in generative AI, have significantly impacted arbitration, presenting both opportunities and challenges. However, incorporating AI into Indonesian arbitration requires careful consideration of critical legal and ethical issues to ensure reliability and effectiveness. While substantial studies explore AI's role in international arbitration, limited research addresses the unique challenges and applications of generative AI within Indonesia's specific legal and regulatory framework. This article aims to fill this gap by examining the integration of AI in Indonesian arbitration, focusing on its practical applications alongside the ethical and legal issues that are relevant to Indonesia. By addressing these aspects, this study contributes to understanding how Indonesia's legal landscape can adapt to AI advancements, offering a model for responsibly harnessing AI's transformative potential in arbitration to ensure fair and effective outcomes.*

Keywords*: Artificial Intelligence, Arbitration, International Arbitration, Indonesian Arbitration, AI-Arbitrator.*

INTRODUCTION

The pervasive integration of artificial intelligence (AI) is profoundly reshaping various domains, with the area of arbitration being no exception. As one of the most anticipated disruptive technology of the 21st century,[1] AI has revolutionized wide range of sectors through automation, real-time data analysis and decision-making capabilities.[2] This tranformative power is driven by the relentless pursuit of speed and efficiency, making AI an invaluable tool in optimizing processes traditionally reliant on human-labor work.[3] In the legal arena, AI has already demonstrated its potential by streamlining tasks such as contract review, legal research, and case prediction[4], offering a level of precision and speed previously unattainable.[5–7] Similarly, there is growing belief that AI will bring about a comparable transformation on arbitral process, enhancing its efficiency and access to adjudication.[8,9]

Arbitration has traditionally been conducted by human adjudicators to resolve disputes between parties. Previously, human-powered arbitration was the only technologically feasible method available.[10] However, advancements in technology have disrupted this traditional paradigm, giving rise to AI-driven arbitral systems and marking a new era in technological evolution within the field. Current stakeholders in the arbitration sector are exploring the integration of AI tools and technologies to enhance both the efficiency, by increasing speed and reducing costs, and the overall quality of arbitration process.[10] These factors are critically assessed by stakeholders when opting for arbitration as a method of dispute resolution.[11] Intelligent machines, in particular, offer the promise of not only enhancing efficiency but also improving the accuracy and fairness of dispute resolution.[12] AI-infused tools and techniques have the potential to revolutionize the arbitration process in myriad ways, offering unprecedented support to arbitrators and parties alike.[13] One of AI's most significant contributions lies in its ability to analyze vast amounts of data with remarkable speed and accuracy[14], providing insights for more informed and strategic decision-making. This capability is particularly valuable in complex cases where the sheer volume of information can be overwhelming for human arbitrators. Furthermore, by automating routine and time-consuming tasks, AI allows for streamlining case management, reducing the time and costs associated with overall arbitration process.

However, the integration of advanced technology into the arbitration process is not without its challenges. The data-driven nature of AI, while powerful, raises critical concerns about data privacy and protection.[15] As AI systems require access to extensive datasets to function effectively, the potential for breaches of confidentiality or misuse of sensitive information becomes a pressing issue.[16]

Moreover, the rise of AI-generated introduces questions about liability and accountability.[16] If an AI system makes an erroneous or biased decision, who should be held responsible? These concerns underscore the need for robust ethical frameworks and regulatory oversight to ensure that the deployment of AI in arbitration is both fair and transparent.

As AI continues to thrive, its influence in arbitration is expected to expand, potentially leading to a paradigm shift in the way disputes are resolved. While AI is currently seen as an assistive tool, the prospect of fully autonomous arbitration systems is becoming increasingly plausible.[10,17] This possibility raises fundamental questions about the future of decision-making process in arbitration contexts, put it plainly, to replace human arbitrators with machine[18-20]: Are we prepared to entrust machines with the power to give counsel or make arbitral award, peculiarly in Indonesia? The answer to this question will shape the future of Indonesian arbitration and the broader legal landscape, as society grapples with the implications of AI's growing influence.

This article explores the integration of AI within Indonesian arbitral system, and is stuctured into three sections. The first section analyzes how AI is already emerge in the dispute resolution in Indonesia, offering insigth into its practical implications. The second section addresses the ethical and legal consideration that arises as AI become integrated into Indonesian legal framework, particularly in the context of arbitration.

The implementation of AI within the arbitration legal system must be approached with caution, ensuring the ethical considerations, fundamental principles of fairness and equal access to justice to be preserved. Given the fact that Indonesia has not yet enacted specific regulation about AI[21-23], adopting AI in general, and in arbitration specifically, presents a complex challenge. It is noteworthy to allign AI adoption with related and forthcoming regulations, as well as the fundamental principles of dispute resolution in Indonesia. By addressing these challenges, we can fully harness the potential of AI technologies while safeguarding essential societal values and interests.

1. Research Method

A normative qualitative methodology was employed, utilizing both case-based and conceptual approaches to examine the influence and potential implementation of AI within the Indonesian arbitral system. The research began with an in-depth analysis of relevant laws and regulations, serving as the primary data source. Secondary data were gathered from a variety of sources, including academic journals, legal documents, reports, news articles, and online media. The focus of the case studies and recent legal advancements explored was the integration of AI in arbitration, with particular attention given to the legal and ethical considerations necessary to establish a trustworthy AI-driven arbitral system in Indonesia. These considerations include data protection, transparency, accountability, and the mitigation of biases and hallucinations in AI outputs, all of which are essential for building a reliable and credible framework for AI in arbitration.

2. AI's Influence in Indonesian Dispute Resolution

As the influence of AI has expanded across the global landscape of dispute resolution, Indonesia is also undergoing profound trasnformation, both in litigation and non-litigation dispute resolution. The use of AI in litigation has remarkably influenced case management procedures, particularly with the integration of AI-driven systems into e-court platforms. This development is aligned with the mandate of Supreme Court Regulation Number 1 of 2019 on the Case Administration and Trials in Courts, which regulates the implementation of online systems, including AI technologies, for resolving cases within the court system.[24]

E-court, as established by this regulation, has become widely adopted in courts across Indonesia.[25] Central Jakarta District Court, for example, has adopted an AI-enhanced e-court system, which has significantly streamline judicial processes by speeding up scheduling, case analysis, and information management.[26]Its adoption cuts times, accelerate data analysis, and boosts productivity for judges and court officers. It also improves transparency by providing accessible information about case developments and trial schedules, thereby increasing public trust. Similarly, Religious Courts also experienced increased productivity with AI. AI-driven e-court system is seen as a solution for addressing case backlogs and expediting slow resolution processes.[27] In addition, AI-powered chatbots

is being explored specifically for resolving polygamy cases in Religious Courts. According to Maliki et al, the accuracy is regarded as promising due to its ability to offer comprehensive analyses.[28] Despite this, AI is not a definitive solution, it serves as a supplementary tool, with judges remaining crucial for addressing cognitive and psychological aspects in court proceedings.[28]

Integrating AI into e-court systems significantly boosts efficiency, accuracy, and fairness, leading to a more effective and trusted justice system.[26] In line with this, the Supreme Court is actively modernizing its services by incorporating AI technology. One of its current initiatives involves developing an AI-powered application to appoint panel judges, ensuring a more streamlined, precise, and transparent selection procedure.[29]

In the area of alternative dispute resolution, AI has also made significant inroads, particularly legal consultation, where platforms like “LIA”, Legal Intelligent Assistant, have emerged in 2016. LIA, developed by Hukumonline, is touted as the first chatbot designed to offer legal education to the public.[30] Leveraging natural language processing (NLP) technology, LIA specializes in providing consultations on three key areas of law: marriage, divorce, and inheritance.[30] Teman Legal has also developed an AI chatbot, named "Robot Lawyer," designed to assist with legal consultations. This chatbot not only offers advice on various legal matters but can also efficiently search for relevant legal precedents, statutes, and jurisprudence related to the specific issue at hand.[31] These AI-driven tools not only enhance accessibility to legal knowledge but also represent a pioneering step in integrating AI into the broader landscape of alternative dispute resolution in Indonesia.

While AI-driven tools have already made substantial strides in providing accessible legal consultation, its application in more complex areas of alternative dispute resolution, such as arbitration, is still developing, yet shows significant promise for transformation.[32]Although no comprehensive platform has been officially launched by the national arbitration bodies, there are notable advancements and discussions in the legal and arbitration sectors regarding the use of AI. This emerging synergy indicates a growing acknowledgment of AI’s potential to significantly enhance both the efficiency and fairness of arbitration.[33] As AI technologies continue to evolve, they are poised to play an increasingly central role in optimizing case management, refining decision-making accuracy, and minimizing the time and costs traditionally associated with arbitration. The trajectory of AI adoption in Indonesian arbitration reflects a broader movement towards modernizing legal processes and meeting the escalating demand for more innovative and accessible dispute resolution mechanisms. Nonetheless, it is important to recognize that this integration also presents significant ethical and legal challenges that must be addressed to preserve public trust.[34]

3. Implementing AI in Indonesian Arbitral System: Ethical Concerns and Legal Considerations

While AI offers significant promise to enhance efficiency and predictability in arbitration, its adoption also raises a series of challenges, ranging from technological hurdles and ethical issues to the development of comprehensive regulatory systems. These challenges are intrinsically linked to the foundational aspects of AI’s operation. AI, as a data-driven system, is fundamentally dependent on the '7Vs' framework: Volume, Variety, Velocity, Variability, Veracity, Vulnerability, and Value.[35]

First is the reliability and accuracy of AI models for arbitration. The performance of AI systems are intrinsically tied to the quality and extent of data used for training.[36] The more robust and comprehensive the data input, the more reliable and accurate the AI's output becomes.[37] However, a key challenge in arbitration is the limited availability and accessibility of the required data. Arbitration often involves sensitive and personally identifiable information, which is deliberately kept out of the public domain due to privacy concerns. While access to general legal knowledge through services like LEXIS and Westlaw is typically available[38],obtaining substantive information about specific arbitration proceedings remains problematic. Hearings are conducted in private, and transcripts, if exist, are confidential unless a party formally seeks to vacate them.[39,40] As a result, uncovering detailed insights into arbitration cases can be exceptionally difficult. Although leading arbitral institutions have made considerable strides towards increased transparency by partially publishing awards, arbitration especially in commercial disputes, remains predominantly confidential.[41]

The inherent scarcity of public data in arbitration has a significant impact on the first two 'Vs', volume and variety. Machine learning models depend on large, diverse datasets to operate effectively, and with limited data, their predictive accuracy diminishes. Although international arbitral institutions have made efforts to improve transparency, the volume of case data generated from commercial arbitration remains insufficient for AI to make reliable predictions.[42] For context, the case prediction experiments developed by ECHR and US Supreme Court article utilized substantial datasets, the European Court of Human Rights (ECHR) relied on 584 decisions, while the U.S. Supreme Court required over 28,000 cases to achieve satisfactory predictive outcomes.[42] The substantial data requirements of these courts highlight the challenges faced by arbitration systems, where the available datasets are significantly smaller, ultimately compromising the accuracy of AI-driven predictions.

From Indonesian perspective, the principle of confidentiality enshrined in Law No. 30 of 1999 on Arbitration and Alternative Dispute Resolution (Arbitration Law), intensifies this issue by further restricting data availability. This legal framework prioritizes the confidentiality of proceedings, limiting the publication of arbitral awards and related information. As a result, the potential for leveraging AI in arbitration is hampered, as the algorithms require extensive and varied datasets to learn from and improve their predictive capabilities.[43] Without access to a substantial body of arbitration cases and outcomes, the development and implementation of AI tools in this domain remain significantly constrained, hindering their capabilities.

Second, the safety and security of data privacy that cannot be overstated. For data is a cornerstone of AI's efficacy, especially in arbitration, the systems employed must also adhere to confidentiality standards to safeguard sensitive information. The dual priorities of leveraging data for AI and ensuring its privacy often find themselves at odds, presenting a complex challenge. This dilemma is illustrated by the '7Vs Framework of Vulnerability,' which underscores the potential risks associated with data exposure. Vulnerabilities to data breaches can manifest throughout the entire data lifecycle, including collection, storage, sharing, analysis, and transmission.[44]Such vulnerabilities heighten the urgency of addressing data privacy, positioning personal data protection as a paramount concern in the landscape of AI development.

With regard to the management of personal data protection, Indonesia has established a comprehensive legal framework through the Law No. 2 of 2022 on Personal Data Protection (PDP Law).[45] This regulation outlines several key principles that must be adhered by both data subjects and data controllers, including[46]: *Fairness, Transparency, Purpose Limitation, Data Minimization, Storage Limitation*, *Accuracy*, *Integrity and Confidentiality*. The law also prescribes a tiered structure of legal sanctions to enforce compliance and promote adherence to its provisions.

Managing personal data in AI requires the adoption of policies and practices to protect individual privacy. This entails securing informed consent from individuals for data collection and use, while rigorously upholding privacy principles such as minimizing data collection and limiting its use strictly to pre-approved purposes.[47,48] Considering the arbitration process's inherent reliance on confidential and sensitive data, the incorporation of AI into Indonesian arbitral system must rigorously adhere to the data privacy principles enshrined in PDP Law. All data processing within arbitration proceedings must be conducted transparently and with explicit, informed consent from the data subjects. Arbitration stakeholders have the right to receive comprehensive updates and provide consent for all data processing activities, including modifications, termination, deletion, or destruction of their personal data. Additionally, robust safeguards must be in place to prevent unauthorized access, ensuring the security and confidentiality of the data in arbitration process.

Recent studies indicate that implementing privacy-preserving technologies can enhance data protection and security in AI models.[49] For instance, advanced data anonymization techniques is developed to safeguard individual identities, ensuring that data is employed in an aggregated or de-identified format whenever feasible.[50] In addition, data encryption (access control) also hold promise to maintain the confidentiality and integrity of information, effectively preventing unauthorized access by third parties to sensitive data.[51] Furthermore, federated learning techniques offer a secure alternative by keeping data at its source, with only the updated models being shared, thereby

minimizing the exposure of sensitive information and enhancing overall data protection.[51] The methods employed can be effectively adapted for application in AI model for arbitration, thereby significantly strengthening data security. These approaches can be governed by a wide range of regulatory frameworks and compliance standards, ensuring a comprehensive approach to data protection while contributing to the development of a trustworthy AI-driven arbitral system in Indonesia.

Third is the issue related to bias and hallucination, which link to 'Veracity framework'. While AI tools might seem to function autonomously, their effectiveness is heavily influenced by the data and parameters provided by human programmers.[52] AI models, commonly employed in emerging decision-making systems, are often trained on large datasets using traditional methods. These systems make predictions or decisions based on historical practices, which can inadvertently reinforce existing biases and lead to outcomes that are challenging to explain.[53] Nevertheless, even when the data is devoid of biases, the model can still generate unfair outcomes.[54] Consequently, any biases or unfairness embedded in these inputs can be mirrored in the created AI systems.

A prominent example of AI bias in the field of criminal justice is COMPAS. Recent findings revealed that an algorithm used by parts of U.S. criminal justice incorrectly predicted future criminal behavior among African-Americans at twice the rate it did for white individuals.[55] While COMPAS does not incorporate ethnic background or skin color in its input data, a study by Angwin et al. found that the system displayed clear bias against Black people.[56] In another case involving a hiring application, it was recently revealed that Amazon discovered their machine learning hiring system was biased against female candidates, especially for software development and technical roles.[57] This bias is believed to stem from the fact that most historical data used to train the system involved male software developers.[58] This issue could also arise when AI is utilized in arbitration. For instance, if the case data used to train an AI arbitrator contain biased patterns, the decisions made by that AI could potentially reflect those same biases.[59] Unlike human biases, which are often easier to detect, such as through the way an arbitrator interacts with parties or witnesses, biases in AI systems can be more complex and harder to identify. Such occurrences can undermine the accuracy and reliability of the models, conceivably resulting in erroneous or discriminatory decisions.[60]

Certain AI models, such as large language models (LLMs), not only exhibit potential biases but also occasionally generate inaccurate or unreliable information, a phenomenon known as 'hallucination'.[61]Hallucinations are commonly described as instances where LLMs produce content that is either nonsensical or inaccurate, deviating from the source material or lacking a factual basis.[62] Hallucinations occur when AI models, driven by mathematical probabilities, lack sufficient data to accurately respond to a query.[63] As a result, they produce outputs that may appear plausible but are not grounded in fact.[64]

LLMs often struggle to verify the accuracy of their own responses, which can lead to misleading outcomes. A notable example of AI hallucination is *Mata v. Avianca* case, in which Mata's legal team cited three cases that could not be located by the opposing counsel or judge.[65] It was later discovered that these cases were entirely fictitious, generated by ChatGPT, which Mata's lawyers had used for legal research without verifying the accuracy of its output.[66] The AI tool had seemingly crafted a legal argument structure but filled it with names and details derived from a mix of existing cases, ultimately creating non-existent precedents. As a consequence of misleading the court, Mata's lawyers were fined USD 5,000 for improperly relying on and misusing ChatGPT as a legal research tool.[67] This incident highlights the need for caution and thorough verification when using AI tools in legal contexts, as these technologies can inadvertently lead to significant errors if not carefully monitored.

Issues surrounding bias and hallucinations in AI are closely tied to the 'Veracity Framework', which emphasizes the vital role of data quality in creating trustworthy and responsible AI models for arbitration. These challenges present not only technical obstacles but also raise question for liability. Given the multitude of stakeholders involved in an AI system, including data providers, developers, users, and the AI system itself, the potential liabilities of various parties are now under scrutiny. Liability may be assigned to engineers, users, or the AI itself as an autonomous entity.[68] AI developers

may face legal responsibility for creating systems that exhibit bias, while users could be held accountable for their use of AI in relation to infringement. Regarding autonomous AI, it may be possible to attribute responsibility if it is recognized as a separate legal entity.[69] Until such recognition occurs, it is typically regarded merely as a tool or engine that causes damage, thereby limiting accountability to its developers or users.[70] These focus underscores the complexity of managing integrity concern associated with AI.

Under the current legal framework, AI is categorized alongside electronic agents, as stipulated in Law No. 19 of 2016, which amends Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law) and Government Regulation Number 71 of 2019 regarding the Implementation of Electronic Systems and Transactions (GR 71/2019). Based on these regulations an electronic agent is defined as a device integrated within an electronic system, designed to autonomously execute actions pertaining to electronic information managed by individuals or corporations. Legal liability arising from the utilization of artificial intelligence is primarily attributed to the AI developer. However, in instances where the losses incurred are a direct result of user negligence in the operation of the AI, the responsibility for such liability shall shift to the user. From the perspective of Indonesian law, artificial intelligence is currently classified as a legal object rather than a legal subject.[71] Consequently, any errors or liabilities arising from the deployment of AI are attributed to the legal entities associated with the technology, specifically the developer or users of the AI system. This framework underscores the necessity for both AI engineers and users to exercise due diligence in their respective roles, ensuring a balanced approach to responsibility.

In order to increase the integrity of data used in AI systems, several techniques can be deployed. One key method involves employing data validation and cleansing techniques to ensure data quality and mitigate potential biases or errors.[72] Additionally, anomaly detection and pattern analysis can be applied to identify any manipulations or malicious activity affecting the training data.[51] The implementation of these techniques is expected to significantly reduce the occurrence of bias and hallucinations. Combining the methods with reliable legal framework is expected to build trusted AI-based arbitration systems in Indonesia. This, in turn, will enhance the credibility and fairness of arbitration process, fostering greater trust in AI-driven arbitration.

Fourth is the complexity of harnessing AI adjudication. AI adjudication involves AI systems aiding decision-makers, like arbitrators and judges, in evaluating cases (human in the loop) or operate independently to make decisions without human input (humans out of the loop).[73] AI models in decision-making systems are trained on large datasets to predict outcomes based on historical patterns. While they may achieve high accuracy, these models often reinforce existing biases and lack transparency, making it challenging to interpret or justify their decisions.[74] This trade-off between accuracy and explainability raises concerns about accountability and transparency in AI-driven decision-making.

Transparency in AI models refers to the capacity to access information and underlying process behind system outcomes, also known as explainablilty. Explanations are essential for users to grasp, trust, and effectively interact with advanced artificial intelligence systems. However, AI are opaque and typically does not provide an explanation for how and why its conslusion are drawn from the input, the so called black-box issue.[75] This lack of transparency poses a significant risk of prejudicial effects, as individuals are exposed solely to the outputs generated by the AI, without insight into the underlying processes or logic that produced them.

Computer scientists have designed AI models capable of generating explanations for their decisions, known as Explainable Artificial Intelligence (XAI). XAI techniques are employed to enhance the interpretability of complex 'black box' models, thereby increasing transparency and supporting more informed decision-making.[76] However, evaluating the accuracy of explainable methods, particularly how well the explanations reflect the model's decision-making processes, is often difficult and unclear.[77] As both the model and the task grow more intricate, providing clear, human-understandable explanations becomes increasingly challenging, leaving this issue unresolved and requiring further work.[78]

Arbitration awards typically contain reasons, both in commercial and investment disputes.[79] Reason outlines the tribunal's decision on the issues presented during the arbitration, providing a detailed explanation of the factual findings, legal principles applied, and the rationale behind the decision.[80] This reasoning is essential for transparency, ensuring that the parties understand how the conclusion was reached, and it can also be important if one party seeks to challenge the award in court.[81] However, the extent and depth of reasoning in the award can vary based on the arbitration rules, the agreement between the parties, and the legal jurisdiction. Thus, it is only reasonable that arbitration parties demand reasoned award in arbitration.

Indonesian arbitration law, specifically Article 54, states that an arbitration award must include legal considerations and the arbitrator's conclusions regarding the dispute. This requirement highlights the importance of providing a well-reasoned decision, as it directly impacts transparency and accountability. Although Indonesia is not currently using AI systems to resolve legal disputes, as the technology continues to evolve, it is possible, and perhaps inevitable, that such systems will be implemented in the future.[82,83] Consequently, the issue of ensuring that automated arbitration decision making include detailed reasoning is critical for the future development of AI systems. Without clear explanations of how conclusions are reached, the legitimacy and fairness of AI-driven arbitration may be called into question.

As we delve into the principle of transparency in decision-making, the GDPR offers a notable provision in Article 13(f), which outlines the data subject's right to receive explanations regarding automated decision-making processes:

"… the controller shall, at the time when personal data are obtained, provide the data subject with the following further information necessary to ensure fair and transparent processing … (f) the existence of automated decision-making, including profiling, referred to in Article 22 (1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject."

This article highlights the right to transparency by requiring data controllers to inform data subjects about automated decision-making, including profiling, and to provide meaningful information about its logic and consequences. Similarly, under Article 21 of the PDP Law, data controllers must ensure transparency in processing personal data, particularly regarding the purpose, use of automated decision-making, and its potential impacts. While the PDP Law may not precisely align with GDPR Article 13 (2)(f), it shares the objective of ensuring transparency in data processing. Both regulations aim to protect data subjects by promoting transparency and enabling them to challenge decisions related to automated processes. Incorporating AI into the Indonesian arbitral system requires adherence to these provisions to foster transparency and accountability, which are crucial for building trust and safeguarding the rights of arbitration parties.

Another critical issue related to AI adjudication is whether a party can appoint AI as an arbitrator. If AI is used as an arbitrator, the primary consideration is whether national law recognizes AI as an entity capable of making binding decisions in arbitration, and whether the decisions can be legally enforced. In many jurisdictions, like Scottland, Sweden, Netherland, Turkey, Taiwan, Brazil, only natural person are legally recognized as arbitrators. If an AI renders a decision without clear legal authority, it could raise significant concerns about the recognition and enforcement of the award, particularly due to public policy and due process of law.[84]

In the case of Indonesian Arbitration Law, although there is no explicit requirement that an arbitrator must be human, the criteria of arbitrator outlined in Article 12, like competence, age, impartiality, independence and expertise, inherently imply human qualities. Therefore, any decision made by an AI may be considered contrary to public policy if it is seen as a violation of established legal norms. It is also conceivable that, in the future, an international arbitration award issued by an AI could be submitted for recognition in Indonesia, as not all national arbitration laws explicitly require arbitrators to be human. How Indonesian courts would respond to such a scenario remains an open question.

Challenges to AI-made decisions could also arise on grounds of due process. Arbitration guarantees parties the opportunity to present their arguments and have them evaluated fairly. If AI is unable to

ensure the application of these principles, due to its limitations in understanding context and complexity, its reliability in judicial contexts is compromised. Inherent biases in data-driven decision-making further undermine AI's credibility[85], and the reasoning in AI-generated awards often lacks sufficiency, questioning their validity and acceptance. In essence, any failure on the part of AI to deliver a fair and thorough assessment could provide grounds for rejecting the award.

While AI-based decision-making systems continue to evolve, the efficacy and broader implications of utilizing AI as arbitrators remain uncertain.[52] The Permanent Representatives Committee (Part 1) to the Council of the European Union (EU) has classified AI systems intended for use by judicial authorities, or on their behalf, to interpret facts, apply legal principles, and render decisions based on specific case facts as 'high risk'.[86] Such system risks disrupting the balance of power, compromising fair and personalized justice, and turning the judicial process into a superficial version of real decision-making.[87] In this regard, SVAMC Guidelines 6 emphasize that arbitrators should not delegate key decision-making functions to AI, particularly the final decision and the reasoning behind the award, both of which should be determined solely by the arbitrator. Ultimately, while AI systems can assist in decision-making, it is crucial for individuals to balance their judgement with AI inputs.

To ensure the implementation of a robust AI-driven arbitral systems in Indonesia, establishing comprehensive regulatory frameworks is essential. These frameworks should offer clear guidelines for safeguarding data, mitigating security vulnerabilities, and protecting individual privacy rights, thus promoting responsible and transparent AI use, which fosters trust among stakeholders. By evaluating legal and ethical aspects and referencing existing guidelines, Indonesia can create regulations that align with global best practices while addressing local concerns. Key principles for building an effective AI-based arbitration system include transparency mechanisms that disclose algorithmic processes, accuracy standards through regular audits, accountability structures for AI-generated outcomes, robust security protocols to prevent data breaches, and stringent privacy protections compliant with data regulations. By focusing on these aspects, Indonesia can enhance operational efficiency while maintaining high standards of transparency, accuracy, accountability, security, and privacy in its arbitration processes.

CONCLUSION

The potential use of AI in arbitration presents transformative opportunities, particularly in enhancing efficiency, reducing costs, and streamlining decision-making processes. AI can significantly aid in evidence analysis, legal research, and drafting preliminary decisions, thereby expediting dispute resolution. In Indonesia, the integration of AI could modernize the arbitration system, making it more accessible and efficient. AI's influence could improve case management, facilitate more predictable outcomes, and provide support for complex legal issues, addressing the specific needs of the national context.

However, incorporating AI into Indonesian arbitration requires careful consideration of critical legal and ethical issues to ensure reliability and effectiveness. One major concern is the accuracy of AI decision-making, as biased or incomplete data can lead to erroneous outcomes, undermining the integrity of the arbitration process. Robust data protection frameworks are essential to safeguard sensitive information processed by AI, while also mitigating risks associated with AI-generated bias and hallucinations, which can result in unfair or discriminatory results. Transparency and accountability are vital, AI decision-making processes must be explainable and open to scrutiny to maintain public trust. Additionally, the complexities surrounding AI adjudication raise legal questions about the legitimacy of AI arbitrators and the enforceability of their awards, necessitating a comprehensive legal framework that aligns AI use with legal standards and public expectations. By addressing these issues, Indonesia can foster a fair, trustworthy, and efficient AI-driven arbitration system.

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