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A model for integrating artificial intelligence into dispute resolution in the religious courts of Malang: opportunities and challenges for SDG 16

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Abstract: This study examines the opportunities and challenges of integrating artificial intelligence (AI) into dispute resolution in the Religious Courts of Malang City and Malang Regency, Indonesia, and considers its potential relevance to Sustainable Development Goal (SDG) 16. Using a qualitative case study design, the research draws on interviews with three judges from the two courts, supported by observations and a review of relevant literature and documents. The findings indicate that existing judicial digitalisation provides a foundation for exploring AI-assisted services, but digital systems should not automatically be classified as AI. Potential applications include document management, information retrieval, administrative support, and assistance in preparing dispute resolution processes. However, their development raises concerns about data privacy, algorithmic bias, transparency, digital literacy, infrastructure, and institutional readiness. The study argues that AI integration should be approached cautiously, with appropriate legal and ethical safeguards and human oversight. Its potential contribution to SDG 16 depends not merely on technological efficiency but also on whether its use can support accessible, accountable, and fair justice.
Keywords: Artificial Intelligence, Dispute Resolution, Religious Court, Integration, SDGS.

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Introduction

Religious courts play an important role in resolving family-related disputes and providing access to justice in Indonesia. Recent studies on judicial digitalisation have examined both the potential benefits and implementation challenges of electronic court services, including case administration, procedural efficiency, and access to justice (Alam et al., 2024; Supriadi et al., 2025). Nevertheless, digitalisation does not necessarily constitute the adoption of artificial intelligence (AI). Recent research has begun to explore the potential integration of AI into judicial case management, raising questions about institutional readiness and the conditions required for responsible implementation (Mufidah et al., 2025). Against this background, this study examines the opportunities and challenges of potential AI integration in dispute resolution at the Religious Courts of Malang City and Malang Regency, with particular attention to its relevance to Sustainable Development Goal (SDG) 16, both in Indonesia and in other countries. Ali & Razzaque (2023) argue that court proceedings can be complicated, costly, and time-consuming. Access to justice remains an important concern when court users face financial constraints, procedural complexity, and lengthy proceedings. These barriers may affect the ability of individuals to pursue legal remedies, particularly those with limited economic resources. However, the existence of a high caseload does not, by itself, demonstrate that the judicial system is malfunctioning or that public confidence in the courts is declining. Rather, these issues highlight the need to examine whether judicial institutions can provide accessible, timely, and effective dispute resolution. In this context, digitalisation and the potential integration of artificial intelligence (AI) warrant consideration as possible means of

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supporting court administration and improving access to procedural information, provided that their effectiveness and inclusiveness are empirically assessed (Irvita & Asriani, 2025; Pandia, 2025). For those who can afford it, there are many ways to resolve disputes, but for those who are less well-off, litigation in court is the only option and it takes a long time. A high number of cases does not necessarily indicate that the legal system is malfunctioning. Hemrajani & Agarwal, (2019) demonstrate that case counts alone are insufficient to draw conclusions about judicial congestion, capacity, or efficiency. A more comprehensive assessment should consider additional indicators, such as the number of resolved and pending cases, clearance rates, and the time required to resolve cases. Accordingly, the challenges faced by judicial institutions should be assessed using multiple indicators rather than caseload figures alone. Friedman's legal system theory conceptualizes the legal system through three interrelated components: legal structure, legal substance, and legal culture. Neo, (2021) discusses the challenges faced by Religious Courts in addressing family-related disputes, particularly divorce. The volume of cases handled by Religious Courts reflects the demand for judicial services in resolving family-related disputes. However, the factors contributing to this caseload require further examination, including the availability of alternative dispute-resolution mechanisms and the capacity of judicial institutions to process cases efficiently (Baihaki & Handayani, 2026). Since the public is often perceived as lacking the ability to resolve disputes through alternative means, they should understand and utilize these alternative dispute resolution methods so that, should a problem arise, they do not immediately turn to the judicial system but can resolve it in a way that benefits both parties. To address concerns about case backlogs and delays in judicial proceedings, this study examines the potential integration of artificial intelligence (AI) into dispute resolution, with particular attention to its opportunities and challenges in the Religious Courts of Malang City and Malang Regency. Artificial Intelligence (AI) can significantly enhance the efficiency and effectiveness of dispute resolution by offering innovative solutions such as Online Dispute Resolution (ODR) (Sayyaf & Afkarina, 2022), AI-driven decision support systems, and smart resolution mechanisms. ODR platforms can leverage AI features to enhance virtual decision-making and mediation, streamline the dispute resolution process, and prioritize flexibility, for instance, when one party cannot attend mediation in person, AI can provide a solution (Novitasari & Abbas, 2025; Rediasa et al., 2026). Recent developments in digital dispute resolution include Online Dispute Resolution (ODR) platforms that facilitate remote communication, document exchange, and online mediation. Artificial intelligence (AI) may extend these capabilities through functions such as document classification, information retrieval, and decision-support tools. However, the application of these technologies in judicial settings requires assessment of their legal validity, reliability, data protection implications, and compatibility with procedural safeguards. Virtual reality (VR) is a technology that creates immersive, computer-generated environments in which users can interact with a simulated setting. VR is distinct from artificial intelligence (AI), although AI can be integrated into VR applications to support specific functions. In dispute resolution, VR may provide a virtual environment for remote participation in mediation or other dispute-resolution proceedings. When combined with appropriate AI applications, it may offer additional capabilities; however, its practical implementation must consider accessibility, procedural fairness, data protection, and the legal requirements governing dispute resolution (Oktavia, 2024), enabling mediators or judges to make the right decision regarding a disputed case. In this context, AI offers significant and revolutionary potential to transform the way disputes are resolved (Susilo, 2025). The relationship between artificial intelligence (AI) and Sustainable Development Goal (SDG) 16 should be assessed in terms of the quality, accessibility, and accountability of justice institutions rather than technological efficiency alone. Under Target 16.3, AI may contribute to access to justice by improving access to legal information, facilitating the retrieval of relevant case documents, and supporting administrative processes that enable users to navigate judicial services. In relation to Target 16.6, AI-assisted tools may strengthen institutional effectiveness and accountability by supporting case management, identifying administrative delays, and improving the

consistency of information processing. AI may also contribute to Target 16.7 when its application supports responsive and inclusive services without disadvantaging users who have limited digital literacy or access to technology. These contributions, however, are conditional rather than automatic. Algorithmic bias, inaccurate outputs, inadequate transparency, privacy violations, and unequal access may undermine the very objectives that SDG 16 seeks to advance. Therefore, AI integration in the Religious Courts should be evaluated according to whether it improves access to justice, institutional accountability, procedural fairness, and inclusiveness while preserving judicial independence and human responsibility (Küfeoğlu, 2022). However, in addition to the potential it offers, the application of AI in the dispute resolution process also faces a number of obstacles and challenges. These include issues surrounding data privacy, data breaches, and cybercrime, as well as the need to ensure that AI is integrated into the legal system without compromising the quality and integrity of the dispute resolution process (Shafik, 2025).

Research on alternative dispute resolution (ADR) has examined mediation, non-litigation mechanisms, and the use of digital technologies to facilitate dispute settlement. (Sayyaf, 2023) examined mediation and sulh in Islamic family law disputes, concluding that both approaches share a substantive orientation toward achieving peaceful settlements and may offer constructive alternatives when properly implemented. (Sayyaf & Afkarina, 2022) examined Online Dispute Resolution (ODR), particularly online mediation during the COVID-19 pandemic in Religious Courts. Their study identified online mediation as a potential alternative for facilitating dispute resolution when conventional face-to-face processes are constrained. Meanwhile, (Fawaiq Sayyaf, 2024) examined the role of government in promoting non-litigation dispute resolution in Indonesia, highlighting the importance of institutional initiatives in encouraging peaceful approaches to family disputes. Collectively, these studies contribute to understanding the normative foundations, digital possibilities, and institutional promotion of ADR. However, their primary focus is on ADR mechanisms and their implementation rather than the integration of artificial intelligence into judicial processes.

Research on judicial digitalization and AI-assisted case management has addressed a different set of questions. Alam et al., (2024) using the Delphi method and Analytic Network Process, identified infrastructure, human resources, system-related issues, and regulation as key challenges to implementing e-Court in Indonesian Religious Courts. Their findings emphasized infrastructure and human-resource capacity as important implementation concerns. Supriadi et al., (2025) through an empirical juridical study of e-Litigation at the Malang City Religious Court, found that electronic proceedings could simplify procedures, improve time efficiency, reduce litigation costs, and enhance transparency, although public understanding, infrastructure, and legal-cultural barriers remained challenges. In contrast, Mufidah et al., (2025) proposed integrating AI into a Differentiated Case Management model to classify cases according to their characteristics and support more proportionate case management. These studies therefore differ in their analytical emphasis: implementation barriers, the effectiveness of existing electronic proceedings, and the proposed application of AI to case management, respectively.

Despite these contributions, several issues remain insufficiently addressed. First, the distinction between existing digital judicial services and AI-enabled functions requires careful examination, since digitalization alone does not establish that AI has been implemented. Second, the institutional conditions and practical requirements for moving from digital court services toward AI-assisted dispute resolution require further empirical investigation in specific judicial settings. Third, the potential contribution of AI to Sustainable Development Goal (SDG) 16 needs to be assessed beyond procedural speed and cost reduction. Relevant considerations include access to justice, institutional effectiveness, transparency, accountability, inclusiveness, procedural fairness, and the protection of personal data and the rights of litigants. These concerns are particularly important in Religious Courts, where cases may involve sensitive family and personal information.

In response to these gaps, this study examines the opportunities and challenges of integrating AI into dispute resolution at the Religious Courts of Malang City and Malang Regency. Based on a qualitative case study involving interviews with three judges, it investigates the existing digital foundations of judicial services, identifies institutional and technological conditions that may enable or constrain AI integration, and develops a preliminary framework for responsible AI-assisted dispute resolution. Unlike studies that focus primarily on ADR implementation, the effectiveness of electronic proceedings, or a proposed AI-based case-management model, this research connects empirical insights from two Religious Courts with the substantive objectives of SDG 16. Its proposed contribution is a context-specific approach to AI integration that treats technology as a tool to support judicial work while maintaining human oversight, judicial independence, procedural fairness, and accountability.

Method

This study employed a qualitative case study design to examine the opportunities and challenges associated with integrating artificial intelligence (AI) into dispute resolution at the Religious Courts of Malang City and Malang Regency, Indonesia. A qualitative approach was selected to obtain an in-depth understanding of judicial perspectives, institutional practices, and the conditions that may influence the potential integration of AI into dispute resolution (Creswell, 2002). The study aimed to obtain an in-depth understanding of dispute resolution practices at the Religious Courts of Malang City and Malang Regency. The findings were used to examine the opportunities and challenges of integrating artificial intelligence (AI) into dispute resolution and to formulate recommendations for its potential development in the judicial context. The study was conducted at the Religious Courts of Malang City and Malang Regency. These locations were selected to examine judicial practices and institutional conditions relevant to the potential integration of artificial intelligence (AI) into dispute resolution. The study focused on understanding the opportunities and challenges of technological integration within the specific institutional contexts of the two courts.

Three judges participated as research informants. They consisted of the Chief Judge and Deputy Chief Judge of the Religious Court of Malang City and the Deputy Chief Judge of the Religious Court of Malang Regency. The selection of informants was facilitated by the administrative staff of the respective courts. During the research permission process, the researcher requested assistance in identifying judges with relevant knowledge of case handling and technological development in judicial institutions. At the Religious Court of Malang Regency, the researcher was granted an interview opportunity with the Deputy Chief Judge, H. A. Zahri, S.H., M.H.I., due to the limited interview time made available by the court. Consequently, the Chief Judge of the Religious Court of Malang Regency was not interviewed.

Data management involved organizing the interview recordings and preparing written transcripts for examination. The researcher then analyzed the transcripts qualitatively by identifying and examining information relevant to the research questions. Particular attention was given to judicial perspectives on existing digital services, institutional readiness, and the opportunities and challenges associated with the potential integration of artificial intelligence (AI) into dispute resolution. The relevant findings were interpreted in relation to the research questions and the applicable literature and regulatory framework.

The first stage involved preliminary observations, a literature review, and an examination of previous studies conducted by the researcher and other scholars. This stage aimed to identify and synthesize previous findings concerning dispute resolution and the institutional context of the Religious Courts in Malang City and Malang Regency. The findings from this stage informed the formulation of the research problem and provided the initial basis for the subsequent stages of the study.

The second stage involved formulating the research concept and developing the conceptual framework. The framework drew on the concept of Alternative Dispute Resolution (ADR) and was informed by the findings of previous studies reviewed in the first stage. It provided an initial foundation

for examining dispute resolution practices and exploring the potential integration of artificial intelligence (AI) into judicial processes. The conceptual framework also guided the formulation of the research questions and the preparation of the interview guide.

The third stage involved developing the research design and preparing the instruments for data collection. The researcher established the procedures for gathering information relevant to the research questions and prepared an interview guide containing questions about dispute resolution practices, the use of digital technologies in judicial institutions, and the opportunities and challenges associated with the potential integration of AI. The interview questions were designed to elicit relevant and in-depth responses from the judicial informants. The interview guide was included in the research permission documents.

The fourth stage involved collecting the research data. The primary data were obtained through individual interviews with three judges from the Religious Courts of Malang City and Malang Regency. The interviews were conducted on 3 December 2024 with the Deputy Chief Judge of the Religious Court of Malang Regency and on 6 December 2024 with the Chief Judge and Deputy Chief Judge of the Religious Court of Malang City. The interviews were guided by questions prepared in advance and were audio-recorded before being transcribed. The interview transcripts were then organized and reviewed to identify information relevant to the research questions. Any observational data used in the study were also organized and examined in relation to the research focus.

The fifth stage involved qualitative data analysis. The researcher examined the interview transcripts to identify findings relevant to the research questions, particularly those concerning existing digital services, institutional conditions, and the opportunities and challenges associated with the potential integration of AI into dispute resolution. The relevant findings were interpreted in relation to the conceptual framework, previous studies, and the applicable regulatory framework. The analysis was subsequently used to develop a context-specific discussion of the potential integration of AI into dispute resolution at the Religious Courts of Malang City and Malang Regency, with reference to the objectives of Sustainable Development Goal (SDG) 16.

The sixth stage involved writing the research report. At this stage, the researcher presented the research findings and their interpretation in a structured academic format. The report was organized to demonstrate the relationship between the research questions, the empirical findings, the conceptual framework, and the conclusions drawn from the analysis.

The trustworthiness of the research data was addressed through careful documentation of the interview process, transcription of the recorded interviews, and repeated examination of the transcripts in relation to the research questions. The researcher reviewed the interview data to ensure that the findings discussed in the article were grounded in the information provided by the judicial informants. The interpretation of the findings was also considered in relation to relevant literature and the applicable regulatory framework. These procedures were intended to support the credibility and traceability of the qualitative interpretation.

Results and Discussion

The findings from interviews with three judges at the Religious Courts of Malang City and Malang Regency indicate that the integration of artificial intelligence (AI) into dispute resolution should be approached as a gradual transition from existing judicial digitalisation toward AI-assisted justice. The study identifies existing digital systems, including the Case Tracking Information System (SIPP), e-Court, and e-Litigation, as part of the institutional foundation for further technological development. However, the availability of digital services does not, by itself, demonstrate that AI has already been integrated into judicial decision-making. The findings therefore highlight the need to distinguish existing digital practices from potential AI applications and to examine the institutional conditions,

opportunities, and challenges associated with their responsible integration. These findings are discussed in relation to previous research and the objectives of Sustainable Development Goal (SDG) 16.

Digitalisation and the Potential Integration of AI in Religious Court Dispute Resolution

The findings from the Religious Courts of Malang City and Malang Regency indicate that judicial digitalisation provides an important institutional context for examining the potential integration of artificial intelligence (AI) into dispute resolution. Existing digital systems, including the Case Tracking Information System (SIPP), e-Court, and e-Litigation, support aspects of case administration and court proceedings. However, the availability of these systems does not necessarily indicate that AI has been integrated into judicial decision-making. This distinction is important for assessing the current technological conditions of the Religious Courts and identifying the opportunities and institutional requirements for future AI-assisted judicial services.

Artificial intelligence (AI) refers broadly to computational systems capable of performing tasks associated with human cognitive functions, such as processing information, identifying patterns, and generating outputs. UNESCO's framework for AI ethics also emphasizes human rights, transparency, fairness, privacy, and human oversight (Unesco, 2022). In the context of the Religious Courts, this distinction provides an analytical basis for examining which judicial tasks could potentially be supported by AI and which decisions must remain under human authority. For example, AI may be explored for document classification, information retrieval, or administrative assistance, whereas judicial determinations require independent legal assessment and accountability. The relevance of these applications depends on the actual needs of the courts, the reliability of the technology, and the safeguards governing its use. Previous studies have examined the potential use of AI in negotiation, mediation, and Online Dispute Resolution (ODR), including applications for information processing and decision support. This literature provides a basis for assessing possible applications of AI in judicial settings, but it does not establish that such applications are already implemented in the Religious Courts examined in this study. Accordingly, the present analysis distinguishes between existing digital judicial services identified in the research and prospective AI applications. This distinction allows the institutional conditions observed in the two Religious Courts to be assessed against the opportunities and limitations discussed in previous studies.

In this study, dispute resolution refers primarily to the handling of cases within the Religious Courts of Malang City and Malang Regency. The conceptual scope therefore includes court administration, electronic court services, judicial proceedings, and mediation conducted within the court process. These activities should be distinguished from out-of-court alternative dispute resolution (ADR), which is addressed in Indonesian Law No. 30 of 1999 on Arbitration and Alternative Dispute Resolution. Although ADR provides a useful comparative perspective on consensual dispute settlement, the main focus of this research is not the general development of out-of-court ADR mechanisms but the potential integration of AI into dispute-resolution processes within the Religious Courts.

Mediation remains relevant to this study because it forms part of the court-based dispute-resolution process. Under Supreme Court Regulation No. 1 of 2016 on Mediation Procedures in Court, mediation involves the assistance of a mediator who facilitates communication and helps the parties explore possible settlement options without imposing a resolution. This principle is relevant when considering the use of AI in mediation-related activities. AI may potentially assist with administrative tasks or the organisation of information, but its use should preserve party autonomy, the mediator's role, confidentiality, and the applicable procedural safeguards. The extent to which these applications would be appropriate in the Religious Courts must be assessed in light of the empirical findings and the relevant legal framework.

The relationship between AI and ADR is primarily evident in the area of information management efficiency. Legal disputes often involve large volumes of documents, complex

chronologies, various legal provisions, and the interests of the parties, which are not always presented systematically. In such situations, AI can assist with document classification, summarizing information, identifying issues, discovering patterns in data, aiding in the search for legal sources, and drafting initial alternatives that are subsequently verified by humans. In other words, AI has the potential to reduce repetitive administrative and cognitive tasks so that mediators, attorneys, arbitrators, or legal professionals can focus their attention on aspects requiring human judgment.

The interview findings provide a basis for considering how technology could support communication and information exchange in dispute resolution, although they do not establish that AI-based communication tools are currently used in the Religious Courts examined. One informant, Dr. Hj. Nurul Maulidah, discussed the potential of technology in mediation and online dispute resolution (ODR), drawing on developments reported in the international literature. Meanwhile, Ibrahim Ahmad Harun discussed the use of electronic court services to facilitate the submission of procedural documents and reduce the need for physical attendance at certain stages of proceedings. These findings suggest that technology may support dispute resolution in several ways, including improving access to procedural information, assisting with document and legal-source retrieval, and facilitating communication between parties and relevant professionals. AI-based tools, such as chatbots or systems that help organise information and generate possible settlement options, may represent further possibilities for development; however, their suitability for the Religious Courts requires further assessment. Importantly, digital communication and AI-assisted communication are not the same, and neither should replace the mediator's role or the parties' autonomy in reaching a settlement. Any future application should therefore complement human judgment, preserve confidentiality, and remain consistent with the applicable procedural safeguards.

Although it offers various benefits, the use of AI in ADR cannot be separated from legal and ethical issues. One of the main risks is algorithmic bias. AI systems operate based on specific data and models. If the data used contains bias, the system’s output has the potential to reproduce or even reinforce that bias. In the context of dispute resolution, this issue is particularly serious because AI recommendations can influence the parties’ perceptions of their legal positions, the strength of their arguments, and the likely outcome of a case.

The next issue is transparency and the ability to explain AI outcomes. In dispute resolution, the parties have an interest in understanding the basis for a recommendation or output that may influence the resolution process**.** (Carneiro & Veloso, 2022; Hamon et al., 2020) emphasize that transparency and explainability are essential conditions for ensuring the protection of rights and freedoms, and even states that a lack of transparency can hinder an individual’s ability to challenge decisions generated by AI.

Bedewy, (2024); Bertino, (2016); Medaglia & Serbanati, (2010) emphasized that privacy and data security are also fundamental concerns. Legal disputes may involve personal data, financial information, trade secrets, private communications, and in family law cases even information regarding marital relationships, children, family circumstances, and other sensitive matters. If such data is fed into an AI system without adequate safeguards, the risk of data breaches or misuse beyond the original purpose becomes very high. Therefore, the integration of AI into the ADR must be accompanied by policies (Dahraj, 2026; Davies, 2025; Nicuesa & Saldaña, 2025) regarding the types of data that may be processed, who can access it, how data is stored, how data is deleted, and how system security is audited.

An equally important issue is the human dimension of conflict resolution. Not all disputes can be reduced to data or statistical patterns. Family disputes, for example, often involve emotions, power dynamics, life experiences, cultural values, the best interests of children, a sense of justice, and the need for recognition from others. In such situations, AI can help provide information, but it lacks the same capacity as humans to build trust, read emotional dynamics, fully understand social context, and demonstrate genuine empathy. Therefore, the use of AI must preserve the central role of humans in the dispute resolution process (Alessa, 2022).

The interview findings indicate that the potential integration of artificial intelligence (AI) into dispute resolution at the Religious Courts of Malang City and Malang Regency should be considered in light of existing technological practices and the limits identified by the informants. Ibrahim Ahmad Harun described how electronic court services facilitate the submission of procedural documents and reduce the need for physical attendance at certain stages of proceedings. H. A. Zahri, meanwhile, discussed the use of AI-assisted tools to retrieve legal references and support the preparation of judicial documents, while noting that further integration into official court systems remained a potential development. Dr. Hj. Nurul Maulidah emphasised the importance of technological innovation in accelerating case administration without interfering with judicial independence. Taken together, these accounts suggest that the perceived value of technology lies primarily in supporting administrative processes, access to information, and the work of judicial personnel, rather than replacing human legal judgment.

These findings provide a basis for interpreting AI integration beyond the assumption that technology necessarily makes dispute resolution faster or less costly. Such benefits require empirical evaluation and should be assessed alongside accuracy, transparency, privacy, fairness, and the protection of the parties' procedural rights. In the context of the Religious Courts, a responsible AI-assisted system could potentially support legal research, document preparation, procedural information, and the organisation of relevant case materials. However, these functions should remain subject to human verification and institutional accountability. AI should not independently determine the merits of a case or displace the judicial responsibility to assess evidence, interpret applicable law, and issue decisions. Accordingly, the success of AI integration should be assessed not by the extent to which technology replaces human involvement, but by whether it demonstrably improves judicial services while preserving fairness, dignity, security, and judicial independence.Integration of AI into the dispute resolution process

The integration of Artificial Intelligence (AI) into the dispute resolution process is part of a broader trend toward the digital transformation of the judiciary (Alessa, 2022; Kumar & Singh, 2024; Zeleznikow, 2021). In the Indonesian context, this change did not occur suddenly when the term “AI” became popular, but rather is a continuation of the process of digitizing judicial administration and services that the Supreme Court (Mahkamah Agung) has been developing for several years. Therefore, to understand the integration of AI into dispute resolution at the Malang Regency Religious Court, it is necessary to distinguish between judicial digitalization, process automation, and AI. All three are interrelated but are not conceptually identical. Digitalization (Reis et al., 2020) means converting conventional processes and documents into electronic systems; automation (Nof, 2023) means enabling certain tasks to be performed by systems with minimal human intervention; whereas AI (Wang, 2008) refers to computational systems that possess specific capabilities to perform tasks that typically require human cognitive abilities, such as recognizing patterns, processing language, performing classifications, or generating predictions. This distinction is important so that advancements in judicial technology are not unduly claimed to be AI implementations before their technological characteristics can be definitively proven.

The Supreme Court of Indonesia has established an electronic judicial infrastructure through systems such as the Case Tracking Information System (SIPP) and e-Court. The official e-Court platform provides services for electronic case filing, payment of court fees, summons, and litigation, while the regulatory framework for electronic case administration and proceedings is set out in Supreme Court Regulation (PERMA) No. 1 of 2019, as amended by PERMA No. 7 of 2022. These regulations provide the legal basis for conducting specified aspects of case administration and court proceedings electronically.

The interviews illustrate the practical relevance of this infrastructure. Ibrahim Ahmad Harun explained that electronic submission of procedural documents allows parties to complete certain stages

of proceedings without attending court in person, potentially reducing travel and administrative burdens. H. A. Zahri also described the use of existing information systems and the potential for further technological development to support judicial work. These accounts suggest that electronic court services provide an institutional foundation upon which additional digital capabilities could be considered. However, SIPP and e-Court should not themselves be classified as artificial intelligence applications merely because they process information electronically. The distinction is important: digitalisation provides the infrastructure for electronic administration and proceedings, whereas AI integration would require separate consideration of the tasks to be supported, system reliability, data protection, human oversight, and judicial accountability. Consequently, the existence of SIPP and e-Court demonstrates progress in electronic judicial services, but does not by itself establish that AI has been formally integrated into the official dispute-resolution system.

This principle demonstrates that judicial technology is not developed solely to keep pace with technological advancements, but to address the fundamental needs of the judicial system (Donoghue, 2017; Setiawan et al., 2024). Article 2, paragraph (4) of Law No. 48 of 2009 stipulates that judicial proceedings must be conducted in a simple, expeditious, and cost-effective manner. The explanatory notes to this provision clarify that "simple" refers to the efficient and effective examination and resolution of cases, while "affordable" means that the costs of litigation are within the reach of the public. It must not be forgotten that such efficiency must not come at the expense of thoroughness and precision in uncovering the truth and ensuring justice. Thus, technology must not be treated as an end in itself. Technology is justified only if its use helps the courts perform their judicial functions more effectively without compromising the quality of proceedings or the protection of the parties' rights.

The Malang Regency Religious Court is one example of a judicial unit that has developed various technology-based innovations. The Malang Regency Religious Court's official strategic planning document notes that SIPP is used to streamline case administration both offline and online, while e-Court is used in the litigation process. The same document also indicates that technological innovations have been developed to assist members of the public seeking justice. However, the document also identifies issues such as the high number of cases relative to the number of staff, as well as a lack of understanding among some parties to the litigation regarding information technology and e-litigation. This finding is important because it shows that the success of digital transformation is determined not only by the availability of applications but also by human resource capacity and users' ability to operate the technology.

In the latest development, the Malang Regency Religious Court has also continued to strengthen the competencies of its staff. In January 2025, the Deputy Court Clerks of the Malang Regency Religious Court participated in technical training on SIPP and e-Court. The training covered the workflow for using SIPP, case data management, and the identification of technical issues with the e-Court service. This activity was explicitly aimed at improving the efficiency of case administration and the professionalism of the Deputy Court Clerk. This demonstrates that the integration of technology into the judicial system requires an organizational adaptation process. In other words, digital transformation cannot be achieved simply by installing an application; court staff must understand the technology, procedures, data security, and the resulting changes in work patterns.

In the context of this study, one relevant innovation to examine is the use of ATR (Audio Text to Recording) at the Malang Regency Religious Court. The 2025 activity implementation report notes that ATR (Hidayat, 2023; Solikin & Nasrullah, 2026) is used as a means of ensuring trial transparency, capable of recording trial proceedings in real time both audio and video into text and digital formats. If this technology utilizes speech recognition or speech-to-text, it incorporates computational elements characteristic of AI. However, from an academic standpoint, it is safer to refer to it as voice automation/recognition technology that may potentially utilize AI components, unless official technical documentation from the developer proves that the system indeed employs a specific AI model. This

distinction actually strengthens the research by demonstrating that the researcher is not making exaggerated claims about the technology used.

The benefits of ATR in the trial process are particularly evident in the reduction of the administrative workload. In conventional trials, the Deputy Court Clerk must meticulously document the proceedings and prepare the trial minutes. Automatic recording and transcription technology has the potential to help produce preliminary documentation more quickly, allowing court staff to allocate more time to verification, corrections, and other substantive tasks. From a judicial management perspective, this type of technology can be categorized as decision-support and administrative-support technology, rather than a replacement for judicial functions. AI or automation can help handle repetitive tasks, but transcription results must still be verified by humans because speech recognition technology can make errors due to accents, sound quality, legal terminology, simultaneous speech, or conversational context.

Meanwhile, SIPP serves a different function. SIPP is a case management and tracking system that enables the integrated management of case information. The Supreme Court periodically updates SIPP, , including the addition of early case detection features, data integration with other systems, and the strengthening of the link between SIPP and e-Court. In the SIPP version 5.6.0 update, the Supreme Court noted the optimization of data integration with various systems, including e-Court. Therefore, SIPP is best understood as a data and case management infrastructure that can serve as the foundation for the implementation of AI in the next phase. Structured case data is a key prerequisite should the courts ever wish to develop AI for document classification, case pattern recognition, statistical analysis, or decision support systems.

Further developments are evident in e-Court and e-Litigation. The Supreme Court's e-Court system officially encompasses online case filing, advance payment of court fees, electronic summonses, electronic hearings, submission of court documents, and access to electronic copies of rulings. In fact, the Supreme Court explained that e-Litigation was developed by integrating SIPP as a case management application at the first-instance level. This has had a tangible impact on process efficiency, as some stages that previously required physical presence can now be conducted through the electronic system. However, the claim that e-Court enables hearings "anywhere and anytime" needs to be corrected. While the electronic system does reduce the need for physical presence at certain stages, the use of these services remains subject to the provisions of procedural law, court schedules, authorizations, and mechanisms established by the court. In fact, the official e-Court website explains that transactions on the application follow the court's official business days and hours.

From the perspective of the principles of simplicity, speed, and affordability, this digitization is highly relevant. Simplicity can be achieved through the reduction of unnecessary administrative procedures and data integration. Speed can be facilitated through the exchange of electronic documents and the reduction of travel time and waiting times. Affordability can be supported by reducing the need for physical presence at certain stages. However, the causal relationship should not be overstated. Technology has the potential to support these principles, but it does not automatically guarantee that all cases will be simple, fast, and inexpensive. The complexity of cases, the number of hearings, the presentation of evidence, the preparedness of the parties, internet connectivity, user proficiency, and substantive legal issues can still cause the process to take a long time.

This is clearly evident from the experience of the Malang Regency Religious Court itself. The court's strategic document notes that the high caseload, which is disproportionate to the number of staff, can result in judicial proceedings taking longer. The document also acknowledges that some parties' understanding of information technology and e-litigation is not yet optimal. This means that technology does not eliminate structural problems. In fact, technology can create new problems if users lack adequate digital literacy. Therefore, the integration of AI must be carried out in tandem with efforts to improve staff competencies and provide support to those seeking justice.

Furthermore, AI can be developed on top of this digital infrastructure to perform more complex functions. For example, AI can be used for speech-to-text conversion, document classification, extracting information from case files, searching for relevant rulings, identifying legal issues, drafting case summaries, or helping mediators map out the parties' interests. However, the use of AI to predict rulings or provide legal recommendations must be approached with a much higher degree of caution. Such systems have the potential to introduce algorithmic bias, produce errors, or give the impression that machine recommendations constitute legal truth. Therefore, AI within the judiciary should be developed as a "human-in-the-loop" system that is, a system that continues to place judges and legal officials as the decision-makers and the parties responsible for legal actions.

AI integration must also prioritize the protection of personal data. The religious court system handles highly sensitive data, particularly in cases involving divorce, child custody, alimony, inheritance, and other family disputes. This data must not be treated merely as raw material for algorithms. Any AI development must adhere to the principles of data security, access restrictions, processing purposes, data accuracy, and oversight mechanisms. These risks become even greater if court officials use public AI services to upload case documents without verifying how the data is processed and stored. Therefore, AI development for the courts should ideally employ an architecture that incorporates institutional controls, security measures, audit trails, and clear accountability mechanisms.

Thus, the integration of AI at the Malang Regency Religious Court should be understood as a gradual evolution from digitization toward an artificial intelligence-assisted judicial system. SIPP and e-Court form the foundation of a digital ATR and transcription technology represent forms of automation that may incorporate AI components; while generative AI, predictive analytics, document classification, and decision support systems constitute further stages of integration. This structure provides a stronger analytical framework than simply asserting that all digital court applications constitute AI.

Finally, the goal of AI integration is not to replace judges, mediators, court clerks, or deputy court clerks, but rather to enhance their capacity to provide judicial services that are effective, accurate, transparent, and focused on justice. Technology can reduce repetitive tasks, speed up information management, facilitate access to documents, and expand services to the public. However, the core values of the judiciary remain rooted in human elements: judicial independence, impartiality, legal deliberation, the protection of parties' rights, and moral and legal accountability for decisions made. From this perspective, the success of AI integration should not be measured by how much human work has been automated, but by the extent to which technology improves access to justice without compromising independence, accountability, transparency, and human dignity in the dispute resolution process.

SWOT Analysis of the Opportunities and Challenges of AI Integration in Religious Court Dispute Resolution

Based on the interview findings and the preceding analysis, a SWOT framework can be used to identify the internal strengths and weaknesses, as well as the external opportunities and threats, associated with the potential integration of artificial intelligence (AI) into dispute resolution at the Religious Courts of Malang City and Malang Regency. The framework distinguishes the benefits of existing digital judicial services from the prospective benefits of AI, while also considering institutional capacity, regulatory requirements, and potential risks. The resulting analysis is presented in Table 1.

Table 1. SWOT Analysis of Potential AI Integration in Religious Court Dispute Resolution

SWOT component	Key factors
Strengths	1. Existing electronic court services support the principles of simple, speedy, and low-cost justice. 2. Established digital infrastructure, including SIPP and e-Court, provides a foundation for further technological development. 3. Technology-assisted administrative processes may improve the efficiency of judges and court personnel. 4. Responsible technological development could support SDG 16, particularly access to justice and effective institutions.
Weaknesses	1. Limited availability of personnel with specialised IT and AI expertise. 2. The need for clearer institutional guidance and ethical safeguards for AI use. 3. Uneven technological infrastructure and institutional readiness. 4. Limited public and legal-sector understanding of AI capabilities, limitations, and risks.
Opportunities	1. Potential contribution to SDG 16 through improved access to justice and institutional accountability. 2. 2. Further development of AI-assisted legal research, document preparation, and administrative support. 3. 3. Potential exploration of AI-assisted communication and online dispute resolution, subject to empirical evaluation and appropriate safeguards. 4. Opportunities to improve service accessibility and procedural efficiency.
Threats	1. Cybersecurity risks and potential breaches of confidential or personal data. 2. Algorithmic bias, inaccurate outputs, or misleading legal information. 3. Resistance to technological change among court personnel or members of the public. 4. Financial constraints associated with developing, implementing, maintaining, and securing AI systems.

The use of Artificial Intelligence (AI) in dispute resolution is part of the digital transformation in the legal field (Alessa, 2022; Zeleznikow, 2021), which has the potential to change the way judicial institutions, mediators, lawyers, and those seeking justice obtain and use legal information. A SWOT analysis indicates that the use of AI offers significant strengths, particularly in promoting efficiency, access to justice, and the modernization of dispute resolution administration. However, these opportunities cannot be separated from a number of weaknesses and threats, particularly regarding human resource readiness, data security, algorithmic bias, transparency, and the legitimacy of using technology in legal proceedings. Therefore, AI should be positioned as a tool to support the dispute resolution process, not as a substitute for the authority of judges, mediators, or legal professionals.

In terms of strengths, one of the key advantages of AI technology is its ability to make legal processes more efficient. AI-based systems can be used to search for documents, classify cases, analyze legal documents, identify patterns of argumentation, draft summaries, and provide informational support to mediators and disputing parties. In the Indonesian context, the development of judicial digitization is not entirely new. The Supreme Court has established a legal framework regarding electronic case administration and court proceedings through PERMA No. 1 of 2019, which was subsequently amended by PERMA No. 7 of 2022. PERMA No. 7 of 2022 explicitly addresses "Electronic Case Administration and Court Proceedings" and was enacted to improve the implementation of the electronic system based on an evaluation of various obstacles that have arisen.

This digitization is closely linked to the principles of simple, expeditious, and cost-effective adjudication. The preamble to PERMA No. 7 of 2022 emphasizes that Article 2(4) of Law No. 48 of 2009 mandates the administration of justice that is simple, swift, and cost-effective; therefore, administrative and trial procedures must be modernized to address various obstacles in the administration of justice. Thus, AI can be viewed as a further development of this digitization process, particularly when used to reduce repetitive administrative tasks and assist legal professionals in

processing large volumes of information. However, a distinction must be made between e-Court as an electronic administrative and trial system and AI as a computational technology capable of performing analyses or generating predictions and recommendations. Both are related to digital transformation, but they are not the same technology.

Another strength is the potential of AI in Alternative Dispute Resolution (ADR) such as mediation. PERMA No. 1 of 2016 describes mediation as a negotiating process to establish an agreement among the parties with the assistance of a mediator. The mediator is a neutral party who assists the parties to explore many possible settlements but does not impose a particular option. Within this framework, artificial intelligence can be used as a decision-support tool to help mediators map the parties' interests, to flag out topics that could become points of conflict, to give important legal knowledge, or to simulate multiple different outcomes. However, AI should not replace the job of the mediator, because the essence of the mediation is precisely in communication, discussion, trust and mutual agreement between the parties..

The use of this technology is also linked to SDG 16: Peace, Justice, and Strong Institutions. The United Nations has established SDG 16 with the goals of building peaceful and inclusive societies, ensuring access to justice for all, and fostering effective, accountable, and inclusive institutions (Damanik et al., 2023). Therefore, AI technology can serve as a tool to expand access to information and justice services, improve the efficiency of legal institutions, and support faster dispute resolution. However, this contribution can only be considered supportive of SDG 16 if the technology's truly enhances access, justice, accountability, and inclusivity—rather than merely speeding up administrative processes.

On the weaknesses side, the first factor that requires attention is the limited availability of human resources with interdisciplinary expertise in both law and technology. The use of AI in dispute resolution requires more than just providing software. Judges, mediators, attorneys, court clerks, and support staff need to understand how AI systems work, the limitations of data, the potential for "hallucinations" in generative AI, and how to verify the system's outputs. Consequently, low digital literacy can pose a serious obstacle, as legal practitioners may accept AI outputs without conducting critical scrutiny. The second weakness is the lack of specific regulations and ethical guidelines for the use of AI in dispute resolution (Khaliq et al., 2026; Nicuesa & Saldaña, 2025). The use of AI in a legal context has far more serious consequences than its use in routine administrative activities. If a system provides recommendations regarding a case or assists in the decision-making process, it must be clear who is responsible for those outcomes. This principle is particularly relevant in dispute resolution because legal decisions concern a person's rights, obligations, interests, and, under certain circumstances, their very life. Furthermore, the uneven distribution of technological infrastructure and the low level of understanding among the public and legal officials. Digitization does not automatically lead to broader access to justice. If communities in certain areas face limitations in internet connectivity, devices, or digital literacy, technology can actually create a digital divide. Therefore, the development of AI must continue to maintain non-digital service mechanisms and ensure that technology serves as a means to expand access, rather than creating new barriers.

And on the potential side, developments in AI open avenues for developing more adaptive conflict resolution processes. Tools such as virtual reality (VR), online dispute resolution (ODR), remote communication systems, natural language processing and generative artificial intelligence may be developed to facilitate remote mediation processes. These prospects have become much bigger as Indonesia's judicial ecology itself has been evolving toward electronic administration and trials. The Supreme Court has also developed the e-Court application that integrates with the Case Tracking Information System (SIPP) and adds numerous aspects of case administration.AI also has the potential to accelerate the identification of issues and reduce the administrative burden on dispute resolution institutions. For example, AI can assist with document review, compiling a chronology of the case,

locating relevant documents, categorizing legal issues, and helping mediators prepare for the mediation process. As a result, legal professionals can redirect their time from administrative tasks to work that requires human judgment, communication, and legal analysis. These opportunities can ultimately strengthen the quality of legal institutions while expanding public access to dispute resolution services. However, there are a number of threats that must be a primary concern. The first threat is data security and the leakage of personal information. Legal cases particularly family disputes, divorce, inheritance, child-related matters, and domestic violence may contain highly sensitive information. Therefore, case data cannot be carelessly fed into public AI platforms without due consideration of the legal basis, security, access controls, storage, and data processing (Al-Kasasbeh et al., 2025; Yadawa & Singh, 2024).

The second threat is algorithmic bias. AI learns from the data used in its development process. If that data contains historical disparities or biases, the system's output may reproduce or even reinforce those biases. In the context of dispute resolution, this risk is particularly serious because biased algorithmic recommendations can influence perceptions of the disputing parties (Calice et al., 2023; Kordzadeh & Ghasemaghaei, 2022). This means that the development of AI for dispute resolution must not be focused solely on efficiency. Systems must be designed using a risk-based governance approach that includes testing, auditing, documentation, human oversight, and correction mechanisms in the event of errors.

The final challenge is resistance from the public and the legal system, as well as limited funding. This resistance does not necessarily indicate an inability to accept technology; in a legal context, a critical stance is actually necessary because the use of technology involves legitimacy and the protection of rights. The issue is not whether humans should accept AI, but how to ensure that AI is used in a proportionate, transparent, safe, and accountable manner.

The findings of this study support a human-centred approach to the potential integration of artificial intelligence (AI) into dispute resolution. Rather than positioning AI as a substitute for judges, mediators, or other authorised legal professionals, the findings suggest that AI could be developed as a supporting tool that enhances human capacity while preserving professional responsibility and human oversight. This interpretation is consistent with the SWOT analysis, which identifies potential benefits in administrative efficiency and access to information alongside challenges relating to institutional readiness, regulation, data protection, and algorithmic reliability. Accordingly, the potential contribution of AI to dispute resolution depends not only on technological capabilities but also on the quality of its legal and institutional governance. Existing strengths could provide a foundation for exploring further applications, while identified weaknesses could be addressed through appropriate training, infrastructure development, and regulatory guidance. Potential threats, including data breaches, inaccurate outputs, and algorithmic bias, would require safeguards such as data protection measures, transparency, risk assessment, and meaningful human oversight. In relation to Sustainable Development Goal (SDG) 16, this approach frames AI as a possible means of supporting more accessible, accountable, and effective justice institutions, rather than as an end in itself. However, the extent to which these benefits can be achieved requires further empirical evaluation.

The Integration of Artificial Intelligence in the Religious Court System to Support the Achievement of Sustainable Development Goal (SDG) 16



Figure 1. Conceptual Framework of AI Integration in the Religious Court System and Its Contribution to SDG 16.

The integration of Artificial Intelligence (AI) in the legal system is an aspect of an institutional transformation that is becoming more and more importance for the achievement of sustainable development objectives, especially Sustainable Development objectives (SDGs) 16. SDGs 16 is specifically targeted at "promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels. In this respect, technology cannot just be regarded as an administrative tool but as a way to enhance the capacity of legal institutions to give access to justice. The United Nations targets 16.3 and 16.6 seek respectively to promote the rule of law and equal access to justice and to establish effective, accountable and transparent institutions. Target 16.7 further stresses responsive, inclusive, participatory and representative decision-making. The development of AI in religious courts is therefore directly linked to at least three components of SDG 16, namely access to justice, efficacy and accountability of institutions and responsive and inclusive decision-making processes.

In the Indonesian context, AI integration does not occur in a vacuum. The Supreme Court has laid the foundation for digital transformation through e-Court, e-Litigation, the Case Tracking Information System (SIPP), the Judgment Directory (Direktori Putusan Mahkamah Agung), and various other supporting applications. The e-Court system officially encompasses e-Filing, e-Payment, e-Summons, and e-Litigation, which enable case registration, payment of court fees, summons issuance, and the submission of court documents to be conducted through electronic systems. The Supreme Court states that e-Court is a tool for serving the public through online case filing, electronic advance fee payments, summonses via electronic channels, and electronic hearings. This development is highly relevant to SDG 16.3 because reducing geographical, administrative, and time-related barriers can expand the public's ability to access formal dispute resolution mechanisms.

The interview findings provide a local perspective on the significance of this broader digitalisation trend, although the three judges were not documented as having directly assessed the reported national utilisation rate of 99.63%. Ibrahim Ahmad Harun described how electronic court services facilitate the submission of procedural documents and reduce the need for parties to attend court physically at certain stages, indicating perceived benefits in procedural convenience and administrative efficiency. H. A. Zahri explained that existing systems, including SIPP and its supporting applications, help organise case information and facilitate the preparation of standardised procedural documents, while distinguishing these functions from AI integration. Dr. Hj. Nurul Maulidah emphasised that technological innovations can accelerate case administration while preserving judicial independence and avoiding interference with the substantive determination of cases. Taken together, these perspectives

support the relevance of digitalisation to judicial service delivery, but they do not establish that the 99.63% national utilisation rate reflects the same level of use, effectiveness, or user experience at the two courts studied. The interviews also indicate that progress in electronic court services should be distinguished from the further development of AI-assisted judicial tools. Accordingly, the national figure provides important institutional context, while conclusions about local implementation and its contribution to access to justice require court-specific data and evaluation of service quality, inclusiveness, and outcomes.

The interaction between AI and this transition has become more essential as the digital infrastructure of the judiciary has started producing vast data. A study on the AI implementation roadmap, the Directorate General of Religious Courts (Badilag) said the digital transformation of the religious court system has shifted from digitization of processes to ecosystem integration through Super Apps, Single Sign-On (SSO) and data integration. These innovations have led to a strategic asset, judicial Big Data, that provides prospects for a phase of AI-powered Smart Justice. This remark is particularly relevant for research on SDG 16 as it suggests that AI should not start with the usage of stand-alone applications but with the building of an interconnected, secure, accurate and accountable data ecosystem.

AI has the potential to contribute to SDG 16.3 by supporting access to justice. People seeking justice may face challenges such as limited access to legal information, complex procedures, geographical distance, financial costs, and difficulties understanding legal processes. AI-based tools could potentially serve as legal information assistants by helping users understand procedural steps, document requirements, schedules, and general information about court proceedings. They could also help translate complex legal terminology into language that is easier for the public to understand. If designed inclusively and supported by appropriate safeguards, such tools may help reduce information gaps between legal institutions and the public. However, these benefits remain potential contributions rather than empirically established outcomes of the present study, which did not measure the effects of AI on access to justice. In the context of the Religious Courts of Malang City and Malang Regency, the interviews provide insights into existing digital judicial services and the possibilities for further technological development, but the actual contribution of AI to accessibility, affordability, and equality of access requires further empirical evaluation. This potential contribution is relevant to SDG 16.3, which emphasises access to justice for all, regardless of economic circumstances or levels of legal literacy.

The function of this court is of significant relevance when the Religious Courts where the matters handled are closely related to family life, such as marriage, divorce, child custody, alimony, inheritance, gifts, waqf and Sharia-based economic conflicts. Many people who are looking for justice come from areas that sometimes don't have the resources to acquire professional legal assistance. So, a well-developed artificial intelligence can be a bridge to legal information, but not a substitute for lawyers or judges. Such a system can help the public comprehend procedures, but should not appear to be giving binding legal rulings or advise based on the outputs of AI.

Artificial intelligence may help improve institutional efficiency and accountability (Alessa, 2022; Davies, 2025; Zeleznikow, 2021), as pointed out in SDG 16.6. Artificial intelligence can be used for document classification, searching case information, workload analysis, anomaly detection, records management, summary production and monitoring of administrative procedures. The better the data is maintained, the greater the ability for courts to conduct data-driven supervision of their institutional performance. Artificial intelligence can also be used to detect trends of delays or irregularities in administrative processes so that leadership can take corrective action more rapidly. AI, therefore, is not simply a tool to speed up labor but an instrument of institutional intelligence that may help courts understand and improve their performance.

Beyond the empirical findings from the Religious Courts of Malang City and Malang Regency, developments at the national level provide a relevant comparative context for considering the potential role of AI in judicial administration. In its 2025 Annual Report, the Supreme Court of Indonesia described the use of "*Smart Majelis*," an AI-based decision support system intended to assist court presidents in appointing panels of judges by considering factors such as caseload distribution, professional certification, specialisation, and potential conflicts of interest (Pradana & Indrayanti, 2026). The system is intended to support greater objectivity and efficiency in the administrative assignment of judges, while leaving the appointment decision to authorised human officials. Although this example illustrates one possible application of AI in judicial administration, it was not identified as a system directly used or evaluated by the three judges interviewed in this study. Smart Majelis should therefore be understood as comparative evidence of national-level technological development, rather than as an empirical finding from the two Religious Courts examined. Its relevance lies in illustrating how AI may support administrative processes without necessarily replacing human authority or judicial responsibility. However, its effectiveness and suitability for other judicial functions would require separate assessment.

This model can be an important example in the development of AI in Religious Courts. Artificial intelligence can be used to assist with case distribution, mapping of abilities of judges, analysis of workload or detection of potential conflicts of interests. When well-designed, this technology can contribute to SDG 16.6 by making institutions more effective and improving internal accountability. But we still need transparency around algorithms. If authorities do not grasp the reasoning behind the recommendations generated by the system, then AI could inadvertently promote "black box" governance, contrary to the principle of accountability.

AI also has the ability to contribute to SDG 16.7, namely, responsive, inclusive, participative and representative decision-making. Technology can be utilized in the setting of religious courts to examine data on public services, user complaints, patterns of need among those seeking justice and impediments faced by certain groups (Doni & Hanani, n.d.; Raymond & Shackelford, 2013; Susanto & Supriyatna, 2020). This data can be used to provide better responsive services. Therefore, AI does not need to immediately go into the judges' deliberation chamber for justice to be served. It can be used at an institutional level to help judges understand the communities they serve. The AI-SDG 16 nexus is not necessarily a beneficial one. The use of AI without sufficient governance can also undermine the attainment of SDG 16.

One of the major risks associated with the potential integration of artificial intelligence (AI) into dispute resolution is algorithmic bias. If historical case data contain patterns of inequality or bias, an AI system may reproduce or reinforce those patterns in its outputs or recommendations. In family law proceedings, this risk is particularly important because gender relations, economic circumstances, the best interests of the child, and cultural and social contexts may not be adequately represented in quantitative data alone. Therefore, AI-generated outputs should not be presumed to be objective or neutral merely because they are produced computationally. Instead, the AI systems and the processes governing their use should be subject to appropriate validation, independent or institutional auditing, bias testing, and periodic performance evaluation. Such assessments should examine the quality and reliability of system outputs, the possibility of discriminatory effects, and the extent to which the outputs are appropriate for the legal context in which they are used. In the Religious Courts, these safeguards would be particularly important if AI were developed to support legal analysis, document preparation, or other tasks that could influence the handling of family disputes. Human oversight and professional accountability should remain integral to any such application.

Beyond the bias, safeguarding of personal data is a basic concern. Religious courts deal with very delicate information, particularly in divorce, children, alimony, domestic violence and family issues cases. Therefore, the use of AI in the Religious Courts must be supported by policies on data

classification, data access, data storage, security, auditing, and accountability measures.The dimension of human integrity is also inseparable from the achievement of SDG 16. During a training session organized by the Directorate General of Religious Courts in June 2026, the Director General of Religious Courts emphasized that the sophistication of digital systems such as e-Court, SIPP, and supporting applications would be meaningless without the integrity of public officials. This official statement positions technology as a tool, while humans remain the decisive factor in the quality of justice. This view aligns with UNESCO's principle that AI must remain under human oversight and not replace human responsibility. Thus, the integration of AI into the Religious Courts system can be viewed as one of the institutional strategies to support the achievement of SDG 16, but not as an end in itself. AI's contribution to SDG 16.3 can be realized through expanded access to information and justice services; to SDG 16.6 through improved institutional effectiveness, transparency, accountability, and efficiency; and to SDG 16.7 through more responsive and data-driven institutional services and decision-making. At the same time, AI must be developed with due regard for SDG 16.10, particularly public access to information and the protection of fundamental rights, as well as SDG 16.B regarding non-discriminatory policies and laws.

Finally, the success of AI in the Religious Courts should not be measured by the number of applications generated, the percentage of e-Court use, or the number of successfully automated tasks. The more meaningful metric is whether the technology lowers the barriers for the public to get justice, improves the quality and speed of service, increases transparency and accountability, reduces the potential for administrative error, expands inclusiveness and maintains the independence of the judges and the rights of the parties. Thus, the use of artificial intelligence may be placed within the paradigm of "smart justice", a judicial model that combines data and technology to improve the quality of the institution, without extinguishing the human part of justice.

Here, the Religious Courts have a strategic chance to become one of the judicial sectors that develops AI-assisted justice models in accordance with the nature of family law matters and Islamic economics. The basis of a digital court that has been developed through the SIPP, e-Court, data integration and the Badilag digital ecosystem provides the prerequisites to move toward this stage. However, the transition to AI should be gradual and based on the development of the data governance, better AI literacy of judges and court staff, algorithm audits, protection of personal data, system transparency, impact assessments on vulnerable groups and the affirmation of "human-in-the-loop" principle. This strategy guaranties that AI is not simply a symbol of judicial modernization but a concrete instrument to promote access to justice, institutional effectiveness, accountability, openness, inclusivity and the rule of law, all of which are central to SDG 16.

Conclusion

This study concludes that the potential integration of artificial intelligence (AI) into dispute resolution at the Religious Courts of Malang City and Malang Regency offers opportunities to support judicial administration and contribute to Sustainable Development Goal (SDG) 16. The findings from interviews with three judges indicate that existing digital court services can facilitate procedural activities, including the electronic submission of documents, access to case information, and the preparation of standardised procedural documents. One informant also described the individual use of AI-assisted tools to retrieve legal references and support document preparation. However, the findings do not establish that AI has been formally integrated into the official dispute-resolution systems of the two courts. The distinction between existing digitalisation, individual use of AI-assisted tools, and prospective institutional integration is therefore essential when assessing the current state and future direction of technological development in the Religious Courts.

The study identifies potential applications of AI in legal information retrieval, document preparation, case administration, and other supporting functions. If appropriately designed and

implemented, these applications could help improve administrative efficiency and access to procedural information. Nevertheless, their contribution to access to justice, transparency, accountability, and institutional effectiveness cannot be assumed without further evaluation. The findings also highlight challenges relating to technological capacity, institutional readiness, information security, and the need for appropriate regulatory and ethical safeguards. Moreover, the benefits of digital transformation depend on whether judicial personnel and justice seekers can access and use the available technologies effectively.

Accordingly, this study proposes a human-in-the-loop approach as a guiding principle for the potential integration of AI into dispute resolution. Under this approach, AI may assist authorised judicial personnel, but legal and judicial decisions remain under human authority and responsibility. This principle is particularly important in family disputes, where decision-making requires the interpretation of law, assessment of evidence, and consideration of individual circumstances and the interests of the parties, including children where relevant. Any future use of AI should therefore incorporate appropriate human oversight, system validation, performance evaluation, data protection, and safeguards against inaccurate or discriminatory outputs. AI-generated recommendations should not be treated as inherently objective or allowed to replace independent judicial assessment.

In relation to SDG 16, the potential value of AI lies not merely in accelerating judicial processes but in supporting justice institutions that are accessible, effective, accountable, and responsive to the needs of justice seekers. The findings provide an empirical basis for considering the opportunities and constraints associated with further technological development in the two Religious Courts examined. However, the proposed approach remains a guiding model rather than a tested implementation model. Further research involving a wider range of judicial institutions, judicial personnel, and justice seekers is needed to assess the feasibility, reliability, fairness, and actual effects of AI-assisted tools in the Indonesian justice system.

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