

Artificial Intelligence Governance in Islamic Family Courts: Comparative Legal Analysis of Indonesia, Lithuania, and Türkiye

Rafi Arsyad Putra Ahyani,^{1*} Opik Rozikin,² Indrius Kuklys,³ Abdul Syatar,⁴ Ma'adul Yaqien Makkarateng⁵

¹ Research Institute of As-Syaeroji Foundation, Banjar City, Indonesia

² Faculty of Sharia and Law, UIN Sunan Gunung Djati Bandung, Indonesia

³ Klaipeda State University of Applied Sciences, Klaipeda, Lithuania

⁴ Universitas Islam Negeri Alauddin Makassar, Indonesia

⁵ Ankara Üniversitesi, Ankara, Türkiye

*Corresponding Author: Rafi Arsyad Putra Ahyani

E-mail: rafiarsyadputraahyani@gmail.com

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Abstract

Background: The rapid advancement of Artificial Intelligence (AI) has accelerated judicial digitalization worldwide, yet its governance within *Islamic Family Courts* remains insufficiently examined from a comparative legal perspective. Existing studies largely emphasize technological innovation while overlooking the integration of judicial ethics, legal pluralism, and *maqāṣid al-sharī'ah* across different legal systems.

Methods: This study employed a qualitative comparative legal approach through doctrinal analysis, comparative legal research, and documentary review. Legal instruments, judicial policies, AI governance frameworks, and academic literature from Indonesia, Lithuania, and Türkiye were analyzed using thematic interpretation based on Responsible Artificial Intelligence Governance, Judicial Decision-Making Theory, Legal Pluralism Theory, and *maqāṣid al-sharī'ah*.

Results: The findings identify three complementary governance models. Indonesia emphasizes normative adaptation within Islamic judicial institutions, Lithuania prioritizes transparency, explainability, and algorithmic accountability under European digital governance, while Türkiye integrates judicial digitalization with institutional modernization rooted in its legal traditions. Across all jurisdictions, AI functions as judicial decision support rather than replacing judges.

Discussion: Comparative analysis demonstrates that trustworthy AI governance requires transparent algorithms, meaningful human oversight, ethical accountability, data protection, and compatibility with Islamic legal principles to enhance judicial quality while preserving judicial independence.

Conclusion: AI governance should be institutionalized as a human-centered judicial support system that strengthens efficiency, consistency, and access to justice without compromising the normative objectives of *maqāṣid al-sharī'ah* or judicial discretion.

Novelty: This study develops an integrated comparative framework combining Responsible Artificial Intelligence Governance, Judicial Decision-Making Theory, Legal Pluralism, and *maqāṣid al-sharī'ah* to explain AI governance in Islamic Family Courts across Indonesia, Lithuania, and Türkiye.

Keywords: Artificial Intelligence governance; Islamic Family Courts; Responsible AI; comparative law; *maqāṣid al-sharī'ah*.

INTRODUCTION

The rapid advancement of *Artificial Intelligence* (AI) has fundamentally transformed public governance, including judicial administration, by enabling more efficient legal information management, predictive analytics, document automation, and decision-support systems. Across various jurisdictions, AI is increasingly regarded as a strategic instrument for improving judicial efficiency, transparency, consistency, and public access to justice while reducing procedural delays and administrative burdens. Nevertheless, the integration of AI into judicial institutions has also generated significant legal and ethical concerns relating to algorithmic transparency, explainability, accountability, data protection, and judicial independence. Recent studies emphasize that effective AI governance should not merely focus on technological capability but also establish regulatory safeguards that preserve human oversight, procedural fairness, and the rule of law within digital justice systems (Almarayeh & Aibar-Guzmán, 2024; Callais & Mkrtchian, 2024; Chen & Yu, 2024; Makmur, 2024; Biju P.R. & Gayathri, 2025; Borgesano et al., 2025; Cabrera et al., 2025; de Almeida & dos Santos Júnior, 2025; Kumar, 2025; Monteiro & Singh, 2025). Consequently, contemporary debates no longer question whether AI should be adopted within judicial institutions but rather how governance mechanisms can ensure that technological innovation remains compatible with legal legitimacy, judicial ethics, and democratic accountability.

Within the field of *Islamic family law*, the application of AI presents even more complex challenges because judicial reasoning extends beyond statutory interpretation to encompass religious doctrine, ethical values, and the normative objectives of *maqāṣid al-sharī'ah*. Although digital transformation has begun to influence court administration in several Muslim-majority countries, scholarly discussions remain fragmented, frequently concentrating on technological efficiency while giving insufficient attention to the governance structures required to regulate AI-assisted judicial decision-making. Existing literature has explored AI accountability, algorithmic discrimination, explainable AI, judicial digitalization, legal modernization, and responsible AI governance; however, relatively few studies have examined how these dimensions interact within *Islamic Family Courts*, where judicial discretion must balance legal certainty, religious legitimacy, and social justice (Sukindar et al., 2024; Kuttappan & Kaur Tiwana, 2025; Arbani, 2025; Anugrah et al., 2025; Hidayat & Muis, 2025; Herrera-Tapias et al., 2025; Nguyen, 2025; Qin & Chen, 2025; Stacey et al., 2025; Sukarni et al., 2025). This unresolved tension demonstrates the necessity of developing an integrated governance framework capable of aligning AI innovation with the ethical foundations of Islamic law while ensuring that judges retain ultimate authority over legal reasoning and judicial decision-making.

The comparative selection of Indonesia, Lithuania, and Türkiye offers a valuable analytical framework for examining the governance of *Artificial Intelligence* within distinct legal traditions and judicial modernization trajectories. Indonesia represents the world's largest Muslim-majority country, where *Islamic Family Courts* operate within a pluralistic legal system that combines Islamic law, national legislation, and customary norms. Judicial digitalization has accelerated through electronic litigation and integrated court information systems, creating opportunities for future AI-assisted judicial administration while simultaneously raising questions concerning religious legitimacy, judicial ethics, and the preservation of judges' interpretative authority. Lithuania, by contrast, reflects the European Union's regulatory orientation toward trustworthy AI, emphasizing explainability, accountability, data protection, and institutional transparency under emerging digital governance frameworks. Meanwhile, Türkiye provides an important comparative model because it has pursued extensive judicial modernization while maintaining a legal culture historically influenced by Islamic civilization, thereby illustrating how technological innovation can coexist with institutional legal reform. These diverse legal environments demonstrate that AI governance is not merely a technological issue but also a normative and institutional challenge shaped by legal culture, governance capacity, and societal expectations regarding justice (Bozos et al., 2025; Hicham et al., 2025; Khan et al., 2025; Rajah & Florén-Romero, 2025; Setinawati et al., 2025).

Despite the growing body of scholarship concerning AI governance and digital justice, significant theoretical and empirical gaps remain. Existing studies predominantly discuss algorithmic accountability, judicial digitalization, explainable AI, online dispute resolution, and legal modernization as separate research domains, whereas comprehensive analyses integrating these perspectives within the context of *Islamic Family Courts* remain scarce. Likewise, previous research has rarely examined how *Responsible Artificial Intelligence Governance* can be harmonized with *maqāṣid al-sharī'ah*, judicial reasoning, and legal pluralism through a cross-country comparative approach. Consequently, there is still limited understanding of how AI governance models should be designed to support judicial efficiency without weakening judicial independence, procedural fairness, ethical accountability,

or the substantive objectives of Islamic family law. Addressing this research gap is particularly important because future judicial modernization will increasingly depend on governance frameworks capable of balancing technological innovation with legal legitimacy and public trust (Abedi et al., 2025; Danziger, 2025; El-Khoury & Albarashdi, 2025; Hai, 2025; Matlin et al., 2025; Qin & Chen, 2025; Teo, 2025).

Accordingly, this study investigates the governance of *Artificial Intelligence* in *Islamic Family Courts* through a comparative legal analysis of Indonesia, Lithuania, and Türkiye. It aims to identify the legal, institutional, and ethical principles required for integrating AI into judicial administration while preserving judicial autonomy and compliance with the normative objectives of *maqāṣid al-sharī'ah*. By synthesizing *Responsible Artificial Intelligence Governance*, *Judicial Decision-Making Theory*, *Legal Pluralism*, and Islamic legal philosophy, this research proposes an integrated comparative governance framework capable of supporting transparent, accountable, explainable, and human-centered judicial modernization. The study therefore contributes not only to the expanding discourse on digital justice and AI governance but also to the contemporary development of Islamic family law by offering a comparative model that is adaptable to different legal systems while remaining grounded in universal principles of justice, accountability, and the rule of law.

LITERATURE REVIEW

The rapid advancement of *Artificial Intelligence* (AI) has fundamentally transformed contemporary legal systems, extending beyond administrative automation toward supporting judicial reasoning, legal research, and dispute resolution. Within legal scholarship, AI governance is understood not merely as the regulation of intelligent technologies but as a comprehensive framework ensuring that AI systems operate transparently, ethically, accountably, and consistently with the rule of law. Recent studies emphasize that trustworthy AI requires explainable algorithms, human oversight, institutional accountability, data protection, and mechanisms capable of preventing algorithmic discrimination or automated bias. These principles have become increasingly significant following the emergence of international regulatory initiatives, including the European Union's AI governance framework, which places legal certainty and human-centered justice at the core of digital transformation. Consequently, AI governance has evolved from a technical issue into a multidisciplinary field integrating law, ethics, public administration, and digital governance. Public institutions, including judicial organizations, are therefore expected to develop governance mechanisms that preserve public trust while enabling technological innovation to improve institutional effectiveness (Aliyu et al., 2025; Almeida & Santos Júnior, 2025; Monteiro & Singh, 2025; Stacey et al., 2025; Cabrera et al., 2025; Zheng, 2025; Teo, 2025).

Within judicial institutions, AI has increasingly been developed to support legal information retrieval, case classification, document analysis, workload management, predictive analytics, and decision-support systems. Nevertheless, scholars consistently distinguish between AI as an assistive technology and AI as an autonomous decision-maker. Judicial authority remains inseparable from human interpretation because legal reasoning requires contextual understanding, ethical judgment, proportionality assessment, and consideration of social justice beyond computational logic. Recent comparative studies demonstrate that algorithmic recommendations may improve consistency and procedural efficiency, yet they cannot replace judicial discretion due to limitations in contextual interpretation, legal reasoning, and normative balancing. Furthermore, concerns regarding algorithmic opacity, legal hallucinations, accountability, and explainability continue to challenge the adoption of AI within courts. These issues become even more complex in legal systems where judicial decisions involve religious interpretation, moral reasoning, and culturally embedded legal principles, such as those governing *Islamic Family Courts*. Accordingly, responsible AI implementation requires institutional safeguards that ensure transparency, explainability, judicial supervision, and meaningful human control throughout the adjudication process (Abraham et al., 2024; Jesrani & Garcia, 2025; Borgesano et al., 2025; Nguyen, 2025; Abedi et al., 2025; Siddiqi et al., 2025; Qin & Chen, 2025; Biju & Gayathri, 2025).

From the perspective of Islamic legal scholarship, the integration of AI into *Islamic Family Courts* cannot be separated from the theoretical foundations of *maqāṣid al-sharī'ah*, *Legal Pluralism*, and *Judicial Decision-Making Theory*. Islamic family law is characterized by interpretative flexibility that allows judges to reconcile statutory regulations, classical jurisprudence (*fiqh*), judicial precedents, and contemporary social realities while pursuing justice (*ʿadl*), public benefit (*maṣlaḥah*), and legal certainty. This pluralistic character distinguishes Islamic judicial reasoning from purely rule-based legal systems and necessitates governance models that preserve human interpretative authority even when digital technologies are introduced. *Legal Pluralism Theory* explains that judicial decisions frequently emerge through interaction among religious norms, state legislation, institutional

policies, and local socio-cultural values rather than from a single legal source. Simultaneously, *Judicial Decision-Making Theory* recognizes that judicial reasoning incorporates legal interpretation, ethical judgment, institutional responsibility, and contextual evaluation, dimensions that remain beyond the capacity of autonomous algorithms. Therefore, AI governance within Islamic judicial institutions should function as an assistive instrument supporting legal research, procedural administration, evidence organization, and consistency analysis without replacing judicial discretion. Such an approach aligns technological innovation with the normative objectives of *maqāṣid al-sharī'ah*, enabling judicial modernization while preserving religious legitimacy, ethical accountability, and human-centered justice across diverse legal systems (Setinawati et al., 2025; Rajah & Florén-Romero, 2025; Danziger, 2025; El-Khoury & Albarashdi, 2025; Hai, 2025; Kuklys et al., 2025; Matlin et al., 2025).

Although the literature concerning AI governance has expanded considerably, comparative studies integrating Islamic legal philosophy with judicial digital transformation remain relatively limited. Existing research predominantly examines AI from the perspectives of public administration, constitutional law, criminal justice, algorithmic regulation, or European digital governance, whereas Islamic family justice has received comparatively little scholarly attention. Studies on AI governance generally emphasize explainability, transparency, accountability, regulatory compliance, and institutional resilience, while investigations into digital courts mainly focus on procedural efficiency and access to justice. Similarly, comparative analyses often explore differences in national AI regulations without considering how religious legal systems shape judicial reasoning and ethical decision-making. Consequently, the intersection between *Responsible Artificial Intelligence Governance*, Islamic legal principles, and comparative judicial modernization remains theoretically underdeveloped. This limitation is particularly significant because AI implementation within *Islamic Family Courts* requires governance models capable of accommodating statutory law, judicial discretion, religious interpretation, and public accountability simultaneously. Addressing this gap therefore requires an interdisciplinary perspective that combines comparative law, judicial governance, digital ethics, and Islamic jurisprudence to produce governance principles applicable across different legal traditions (Monteiro & Singh, 2025; Almeida & Santos Júnior, 2025; Borgesano et al., 2025; Cabrera et al., 2025; Zheng, 2025; Nguyen, 2025; Abedi et al., 2025; Qin & Chen, 2025).

Building upon these scholarly developments, the present study conceptualizes AI governance in *Islamic Family Courts* as an integrated governance ecosystem rather than merely a technological innovation. The proposed framework synthesizes *Responsible Artificial Intelligence Governance*, *Legal Pluralism Theory*, *Judicial Decision-Making Theory*, and *maqāṣid al-sharī'ah* to explain how intelligent technologies may strengthen judicial administration while preserving judicial independence, ethical accountability, procedural fairness, and religious legitimacy. Unlike previous studies that primarily evaluate technical performance or regulatory compliance, this research places judges at the center of AI governance by positioning artificial intelligence as a decision-support instrument rather than an autonomous adjudicator. Through a comparative analysis of Indonesia, Lithuania, and Türkiye, the study further explores how different legal cultures, institutional arrangements, and governance traditions influence AI adoption within judicial systems. This comparative perspective contributes a novel conceptual model demonstrating that sustainable judicial digitalization depends not only on technological sophistication but also on governance structures that integrate transparency, explainability, accountability, human oversight, and the normative objectives of Islamic law. Accordingly, this literature review establishes the theoretical foundation for examining how AI governance can support judicial modernization without compromising the fundamental values of justice, legal certainty, and *maqāṣid al-sharī'ah* across diverse legal systems (Teo, 2025; Stacey et al., 2025; Herrera-Tapias et al., 2025; Hai, 2025; Danziger, 2025; El-Khoury & Albarashdi, 2025; Matlin et al., 2025).

METHODS

This study employs a qualitative comparative legal research design to examine the governance of *Artificial Intelligence* (AI) in *Islamic Family Courts* across Indonesia, Lithuania, and Türkiye. A comparative legal approach was selected because the research seeks to analyze similarities and differences in legal frameworks, institutional arrangements, judicial modernization strategies, and governance principles regulating the integration of AI within judicial systems. Rather than evaluating technological performance, the study focuses on how AI governance is constructed through legal norms, judicial ethics, institutional policies, and the normative objectives of *maqāṣid al-sharī'ah*. The research combines doctrinal legal analysis with comparative legal studies to explore statutory regulations, judicial policies, digital governance frameworks, and scholarly debates concerning responsible AI implementation in judicial institutions. Indonesia was selected because of its dual judicial system incorporating Religious Courts within the national judiciary; Lithuania represents the European model

emphasizing trustworthy AI governance, explainability, and regulatory accountability; while Türkiye provides an example of judicial modernization within a legal tradition historically influenced by Islamic civilization. This comparative design enables the identification of governance principles that transcend national legal differences while remaining sensitive to each jurisdiction's institutional and socio-legal context (Almeida & Santos Júnior, 2025; Monteiro & Singh, 2025; Cabrera et al., 2025; Zheng, 2025; Rajah & Florén-Romero, 2025).

Data collection relied exclusively on documentary research involving both primary and secondary legal materials. Primary sources included national legislation governing judicial administration, official judicial policies, digital court regulations, institutional AI governance documents, and internationally recognized principles relating to responsible AI and judicial ethics. Secondary materials consisted of peer-reviewed journal articles, comparative law studies, legal commentaries, review papers, and academic publications addressing AI governance, digital justice, judicial reasoning, legal pluralism, and Islamic family law. To ensure academic reliability, priority was given to recent international publications indexed in leading scholarly databases published between 2024 and 2025. Data selection followed three criteria: relevance to AI governance in judicial institutions, contribution to comparative legal analysis, and applicability to Islamic judicial administration. The collected materials were systematically organized according to thematic categories, including AI governance principles, algorithmic accountability, explainable AI, judicial independence, procedural fairness, digital justice, legal modernization, *maqāṣid al-sharī'ah*, and comparative judicial governance. This thematic organization facilitated consistent comparison among the three jurisdictions while minimizing interpretative bias and ensuring that each legal system was evaluated using equivalent analytical dimensions (Herrera-Tapias et al., 2025; Borgesano et al., 2025; Abedi et al., 2025; Qin & Chen, 2025; Teo, 2025; Hai, 2025; Nguyen, 2025).

The collected data were analyzed using qualitative thematic analysis integrated with comparative legal interpretation. The analytical process consisted of four sequential stages. First, legal sources and academic literature were classified according to governance themes and jurisdictional characteristics. Second, thematic coding identified recurring concepts relating to transparency, explainability, accountability, human oversight, judicial discretion, ethical governance, and compliance with *maqāṣid al-sharī'ah*. Third, cross-country comparison examined how Indonesia, Lithuania, and Türkiye differ in institutional design, legal regulation, and judicial modernization while identifying convergent governance principles applicable across jurisdictions. Finally, an integrative conceptual synthesis was undertaken by combining *Responsible Artificial Intelligence Governance*, *Legal Pluralism Theory*, *Judicial Decision-Making Theory*, and the normative framework of *maqāṣid al-sharī'ah* to develop a comprehensive model of AI governance for *Islamic Family Courts*. The credibility of the findings was strengthened through source triangulation, comparative interpretation, and doctrinal consistency analysis, allowing the proposed governance framework to be theoretically robust, legally coherent, and adaptable to diverse judicial systems. This methodological approach provides a systematic foundation for understanding how AI can support judicial modernization while preserving judicial independence, religious legitimacy, ethical accountability, and human-centered justice within contemporary Islamic family law (Danziger, 2025; El-Khoury & Albarashdi, 2025; Setinawati et al., 2025; Stacey et al., 2025; Matlin et al., 2025; Biju & Gayathri, 2025; Siddiqi et al., 2025).

RESULT AND DISCUSSION

Comparative Governance of Artificial Intelligence in Islamic Family Courts: Indonesia, Lithuania, and Türkiye

The governance of *Artificial Intelligence* (AI) within judicial institutions has become an increasingly important issue as governments seek to modernize court administration while preserving judicial independence, procedural fairness, and public confidence in the rule of law. Rather than functioning as an autonomous adjudicator, AI is progressively designed to assist judges through legal information retrieval, document management, case classification, workload optimization, and decision-support mechanisms. Recent scholarship emphasizes that successful judicial digitalization depends not solely on technological sophistication but also on governance arrangements capable of ensuring transparency, explainability, accountability, and effective human oversight throughout the judicial process. Consequently, AI governance has evolved into a multidisciplinary concept integrating legal regulation, public administration, institutional accountability, and digital ethics. International developments, particularly the emergence of regulatory frameworks for trustworthy AI, demonstrate that judicial modernization requires balanced governance capable of promoting innovation without undermining legal certainty or judicial legitimacy (de Almeida & dos Santos Júnior, 2025; Monteiro & Singh, 2025; Cabrera et al., 2025; Borgesano et al., 2025; Stacey et al., 2025; Kumar, 2025).

Indonesia demonstrates a distinctive model of AI governance because the administration of *Islamic Family Courts* operates within a pluralistic legal system integrating statutory law, Islamic legal principles, and institutional judicial regulations. The digital transformation initiated through *e-Court*, *e-Litigation*, and integrated judicial information systems illustrates the judiciary's commitment to improving procedural efficiency and public access to justice. Nevertheless, AI implementation remains primarily supportive rather than determinative, reflecting concerns regarding judicial independence, ethical responsibility, and the necessity of preserving judges' interpretative authority. Recent Indonesian scholarship consistently argues that AI should strengthen judicial administration without replacing human legal reasoning, particularly in family disputes involving religious interpretation and contextual justice. This approach corresponds with broader discussions concerning algorithmic accountability, ethical governance, and the limits of AI within judicial reasoning, where judges remain the final decision-makers responsible for balancing statutory provisions, Islamic jurisprudence, and social realities (Sukindar et al., 2024; Arbani, 2025; Hidayat & Muis, 2025; Anugrah et al., 2025; Sukarni et al., 2025; Biju & Gayathri, 2025).

Lithuania and Türkiye illustrate two complementary models of judicial modernization supported by different legal traditions. Lithuania benefits from the European Union's evolving regulatory environment, where AI governance emphasizes explainable algorithms, data protection, transparency, and institutional accountability. Judicial modernization is therefore closely aligned with European digital governance principles that require meaningful human oversight and legal compliance before AI can be integrated into judicial processes. Türkiye, meanwhile, has advanced judicial digitalization through comprehensive court modernization while maintaining institutional sensitivity to its legal traditions and administrative reforms. Although the two countries differ in constitutional structure and legal history, both recognize that AI should enhance judicial efficiency without diminishing judicial discretion or procedural fairness. Their experiences indicate that governance capacity, regulatory clarity, and institutional readiness are more influential than technological capability alone in determining the successful adoption of AI within courts (Herrera-Tapias et al., 2025; Qin & Chen, 2025; Khan et al., 2025; Hicham et al., 2025; Teo, 2025).

Table 1. Comparative Governance of Artificial Intelligence in Islamic Family Court Administration

Governance Dimension	Indonesia	Lithuania	Türkiye
Primary legal orientation	Islamic family law within a national judicial system	European digital governance and AI regulation	Judicial modernization with national legal reforms
AI implementation stage	Emerging decision-support system	Advanced governance-oriented implementation	Advanced judicial digitalization
Human oversight	Mandatory judicial supervision	Mandatory judicial supervision	Mandatory judicial supervision
Explainability	Developing	Strong	Strong
Judicial independence	Fully preserved	Fully preserved	Fully preserved
Primary governance focus	Ethical use of AI in Religious Courts	Transparency and accountability	Institutional modernization and efficiency
AI function	Judicial decision support	Judicial decision support	Judicial decision support

Source: Authors' analysis (2025).

The comparative findings reveal that the three jurisdictions share a common governance philosophy despite their different legal traditions. AI is consistently positioned as an instrument supporting judicial administration rather than replacing judicial authority, reflecting international consensus that human judges must remain accountable for legal interpretation and final adjudication. However, each jurisdiction emphasizes different governance priorities. Indonesia prioritizes normative compatibility between AI and Islamic family law; Lithuania focuses on regulatory compliance, explainability, and algorithmic accountability within the European legal framework; while Türkiye emphasizes institutional modernization and digital judicial services. These variations demonstrate that effective AI governance cannot rely on technological innovation alone but must also consider constitutional values, institutional capacity, legal culture, and ethical safeguards. Accordingly, comparative analysis confirms that sustainable AI governance in *Islamic Family Courts* requires an integrated framework combining responsible AI principles, judicial independence, transparency, accountability, and respect for the normative objectives of

maqāṣid al-sharī'ah, thereby providing the foundation for the theoretical model developed in the following sections.

Artificial Intelligence, Judicial Reasoning, and *Maqāṣid al-Sharī'ah*

The increasing adoption of *Artificial Intelligence* (AI) within judicial institutions has generated an important debate concerning the relationship between computational technologies and judicial reasoning. Although AI has demonstrated considerable capacity to process legal information, identify relevant precedents, and improve procedural efficiency, contemporary scholarship consistently emphasizes that judicial reasoning cannot be reduced to algorithmic prediction or automated legal interpretation. Judicial decisions involve normative evaluation, contextual interpretation, ethical reflection, and balancing competing legal interests, all of which remain fundamentally human functions. Accordingly, AI should be understood as a decision-support instrument that enhances judicial consistency and administrative effectiveness without replacing judicial discretion. Recent studies on AI governance and digital justice argue that explainable algorithms, transparency, accountability, and continuous human supervision constitute essential safeguards for ensuring that technological innovation remains compatible with constitutional values and the rule of law (Al Azri et al., 2025; Herrera-Tapias et al., 2025; Borgesano et al., 2025; de Almeida & dos Santos Júnior, 2025; Monteiro & Singh, 2025; Cabrera et al., 2025; Teo, 2025).

Within *Islamic Family Courts*, judicial reasoning possesses additional complexity because judges must reconcile statutory provisions, procedural requirements, Islamic jurisprudence, and diverse social realities. Family disputes involving marriage, divorce, child custody, inheritance, maintenance, and guardianship rarely depend solely upon literal legal interpretation; rather, judges evaluate evidence through the broader objectives of justice, social welfare, and legal proportionality. Consequently, AI applications in Islamic judicial administration should assist judges in legal research, document classification, precedent retrieval, and procedural management while leaving substantive legal interpretation entirely under judicial authority. Studies concerning AI accountability and virtual justice demonstrate that preserving judicial autonomy remains indispensable because legal interpretation requires moral judgment, contextual sensitivity, and institutional responsibility that cannot be delegated to algorithmic systems. Therefore, judicial reasoning within Islamic courts continues to rely upon human expertise supported—but never substituted—by intelligent digital technologies (Qin & Chen, 2025; Biju & Gayathri, 2025; Siddiqi et al., 2025; Abedi et al., 2025; Nguyen, 2025).

From the perspective of Islamic legal philosophy, AI governance should also be evaluated through the framework of *maqāṣid al-sharī'ah*, which seeks to preserve religion (*ḥifẓ al-dīn*), life (*ḥifẓ al-nafs*), intellect (*ḥifẓ al-'aql*), lineage (*ḥifẓ al-nasl*), and property (*ḥifẓ al-māl*). These normative objectives provide ethical standards for assessing whether technological innovation contributes to justice rather than merely improving administrative efficiency (Ahyani et al., 2021; Habib, 2025; Surahman et al., 2025). AI systems that promote transparency, reduce procedural delays, enhance equal access to justice, and strengthen accountability are consistent with these objectives, provided that human judges maintain ultimate authority over legal interpretation and final decisions. Conversely, opaque algorithms, discriminatory data practices, or automated judicial determinations without meaningful human oversight risk conflicting with the ethical foundations of Islamic law. Recent international discussions on responsible AI similarly recognize that technological governance must prioritize fairness, explainability, privacy protection, and institutional accountability as essential components of trustworthy legal systems (Hawkes et al., 2025; Stacey et al., 2025; Zheng, 2025; Shah et al., 2025; Montalbano, 2025; Gout & Lacroix, 2025).

Table 2. Integration of Artificial Intelligence Governance, Judicial Reasoning, and *Maqāṣid al-Sharī'ah*

AI Governance Principle	Judicial Function	<i>Maqāṣid al-Sharī'ah</i> Objective	Expected Outcome
Transparency	Improves legal reasoning	<i>Ḥifẓ al-dīn</i>	Public trust in judicial decisions
Explainability	Clarifies legal interpretation	<i>Ḥifẓ al-'aql</i>	Rational and accountable judgments
Human Oversight	Preserves judicial discretion	<i>Ḥifẓ al-nafs</i>	Human-centered justice
Accountability	Strengthens judicial responsibility	<i>Ḥifẓ al-māl</i>	Institutional integrity

AI Governance Principle	Judicial Function	<i>Maqāṣid al-Sharī'ah</i> Objective	Expected Outcome
Data Protection	Protects litigants' information	<i>Ḥifẓ al-nasl</i>	Privacy and procedural fairness
Ethical Governance	Aligns technology with Islamic values	Comprehensive <i>maqāṣid</i>	Sustainable AI governance

Source: Authors' analysis (2025).

The comparative experiences of Indonesia, Lithuania, and Türkiye demonstrate that AI governance achieves legitimacy only when technological capability is integrated with ethical responsibility and institutional safeguards. Lithuania contributes a regulatory perspective emphasizing explainability, transparency, and compliance with European AI governance standards. Türkiye illustrates how judicial modernization may successfully incorporate advanced digital infrastructure while maintaining judicial accountability. Indonesia contributes a distinctive normative dimension by integrating digital judicial innovation with Islamic legal principles and the objectives of *maqāṣid al-sharī'ah*. Together, these perspectives indicate that sustainable AI governance requires balancing technological efficiency with legal certainty, ethical accountability, judicial independence, and cultural legitimacy rather than privileging automation as an end in itself (Kuklys, 2024; Makkarateng, 2024; Syatar et al., 2024).

Overall, the findings demonstrate that AI should function as an enabling governance mechanism that strengthens judicial reasoning rather than replacing it. Judicial authority in Islamic Family Courts remains inseparable from human interpretation, ethical reflection, and contextual legal analysis, while AI contributes by improving access to legal information, enhancing procedural consistency, and supporting evidence-based judicial administration. The integration of responsible AI governance with *maqāṣid al-sharī'ah* therefore establishes a balanced conceptual model in which technological innovation serves the broader objectives of justice, legal certainty, institutional accountability, and public trust. This synthesis provides the theoretical foundation for developing the integrated AI governance framework proposed in the following subsection.

An Integrated Artificial Intelligence Governance Framework for Islamic Family Courts

The comparative analysis demonstrates that the future development of *Artificial Intelligence* (AI) in *Islamic Family Courts* should not merely focus on technological innovation but rather on establishing an integrated governance framework capable of balancing legal certainty, ethical responsibility, judicial independence, and institutional accountability. Existing international studies consistently conclude that AI adoption becomes sustainable only when supported by comprehensive governance mechanisms that regulate algorithmic transparency, explainability, accountability, human oversight, and data protection. Rather than positioning AI as an autonomous judicial actor, contemporary governance models increasingly conceptualize AI as an institutional instrument designed to strengthen judicial administration while preserving judges' authority in interpreting law and delivering justice. Consequently, governance becomes the central determinant of whether AI contributes positively to judicial modernization or instead creates new risks relating to algorithmic bias, opacity, discrimination, and diminished public trust (Monteiro & Singh, 2025; de Almeida & dos Santos Júnior, 2025; Borgesano et al., 2025; Cabrera et al., 2025; Zheng, 2025; Stacey et al., 2025). The comparative findings are consistent with UNESCO's Guidelines for the Use of AI Systems in Courts and Tribunals, which recommend that AI should support judicial decision-making without replacing judicial discretion or compromising judicial independence (Gutiérrez, 2025).

Building upon the comparative experiences of Indonesia, Lithuania, and Türkiye, this study proposes an integrated AI governance framework consisting of five mutually reinforcing pillars. First, Responsible Artificial Intelligence establishes normative standards for transparency, explainability, accountability, and fairness throughout judicial digitalization. Second, Human Judicial Oversight ensures that judges remain the ultimate legal decision-makers while AI functions exclusively as a decision-support mechanism. Third, Institutional Governance regulates organizational readiness through judicial policies, ethical guidelines, digital infrastructure, professional capacity building, and continuous monitoring. Fourth, Legal and Data Governance protects litigants' privacy, guarantees cybersecurity, and ensures compliance with national legislation and international AI regulatory standards. Finally, Islamic Ethical Governance, grounded in *maqāṣid al-sharī'ah*, provides normative legitimacy by ensuring that technological innovation consistently promotes justice (*'adl*), public welfare (*maṣlahah*), legal certainty, and social harmony. Collectively, these five pillars establish a governance architecture capable of integrating

technological advancement with the normative foundations of Islamic family law (Teo, 2025; Abedi et al., 2025; Siddiqi et al., 2025; Herrera-Tapias et al., 2025; Nguyen, 2025).

The proposed framework also advances theoretical understanding by integrating four complementary perspectives that have generally been examined separately in previous scholarship. Responsible Artificial Intelligence Governance contributes governance principles emphasizing transparency and accountability; Judicial Decision-Making Theory explains why legal interpretation and judicial discretion must remain human-centered; Legal Pluralism Theory recognizes the interaction between statutory law, religious norms, and institutional regulations; while *maqāṣid al-sharī'ah* provides an ethical foundation for evaluating whether AI supports the higher objectives of Islamic law. The integration of these perspectives produces a multidimensional governance model in which technological innovation is assessed not only according to operational efficiency but also according to legal legitimacy, institutional accountability, ethical responsibility, and public confidence. Accordingly, AI governance within Islamic Family Courts becomes a dynamic process involving continuous interaction among technology, legal institutions, judicial actors, and religious values rather than a purely technical exercise.

Table 3. Proposed Integrated Artificial Intelligence Governance Framework for Islamic Family Courts

Governance Component	Primary Objective	Practical Implementation	Expected Impact
Responsible AI Governance	Transparency and explainability	Explainable algorithms and audit mechanisms	Trustworthy AI-assisted judiciary
Human Judicial Oversight	Preserve judicial independence	Judges retain final authority over decisions	Human-centered justice
Institutional Governance	Strengthen judicial capacity	Digital infrastructure, ethics, and training	Efficient court administration
Legal and Data Governance	Protect legality and privacy	Data protection, cybersecurity, regulatory compliance	Legal certainty and accountability
<i>Maqāṣid al-Sharī'ah</i> Governance	Ensure ethical legitimacy	Alignment with justice, <i>maṣlaḥah</i> , and proportionality	Sustainable Islamic judicial governance

Source: Authors' analysis (2025).

The comparative findings further indicate that although Indonesia, Lithuania, and Türkiye differ substantially in legal tradition, constitutional structure, and judicial administration, they converge on several fundamental governance principles. All three jurisdictions acknowledge that AI should strengthen judicial efficiency without diminishing judicial independence or replacing human legal reasoning. Lithuania demonstrates the importance of robust regulatory oversight through European AI governance principles; Türkiye illustrates the benefits of institutional modernization supported by integrated digital judicial services; and Indonesia contributes a distinctive normative approach by harmonizing technological innovation with Islamic legal principles and *maqāṣid al-sharī'ah*. This convergence suggests that effective AI governance is not determined by technological sophistication alone but by the successful integration of legal regulation, ethical accountability, institutional readiness, and judicial professionalism. Such findings reinforce emerging international scholarship that sustainable judicial digitalization depends upon governance quality rather than automation itself (Qin & Chen, 2025; Hai, 2025; Biju & Gayathri, 2025; Kuklys, 2024; Syatar et al., 2024; Makkarateng, 2024).

Overall, this research proposes a novel conceptual contribution by developing an integrated governance framework specifically designed for *Islamic Family Courts*. Unlike previous studies that predominantly examine AI governance, judicial digitalization, or Islamic legal theory independently, this framework synthesizes Responsible Artificial Intelligence Governance, Judicial Decision-Making Theory, Legal Pluralism Theory, and *maqāṣid al-sharī'ah* into a unified analytical model. The framework demonstrates that AI should be institutionalized as an assistive governance instrument that enhances judicial quality, procedural efficiency, transparency, and access to justice while preserving judicial discretion, ethical accountability, and the normative objectives of Islamic family law. Accordingly, the study offers both theoretical and practical implications for policymakers, supreme courts, religious judicial institutions, and future researchers seeking to develop human-centered, ethically responsible, and legally legitimate AI governance within Islamic judicial systems.

CONCLUSION

This study concludes that the governance of *Artificial Intelligence* (AI) in *Islamic Family Courts* should be understood as a comprehensive institutional governance framework rather than merely the adoption of digital technologies. Addressing the first research objective, the comparative analysis demonstrates that Indonesia, Lithuania, and Türkiye have adopted different yet complementary approaches to AI governance in judicial administration. Indonesia emphasizes the integration of AI within the normative framework of Islamic family law while preserving judicial discretion and adherence to *maqāṣid al-sharī'ah*. Lithuania represents a governance model grounded in European regulatory standards, prioritizing transparency, explainability, accountability, and data protection as prerequisites for trustworthy AI. Türkiye illustrates how judicial digitalization can be successfully combined with institutional modernization while maintaining judicial independence and procedural fairness. Despite these differences, all three jurisdictions consistently position AI as a decision-support instrument rather than an autonomous decision-maker, reaffirming that judicial authority remains inseparable from human interpretation, ethical judgment, and legal responsibility.

Regarding the second research objective, the findings confirm that effective AI governance in *Islamic Family Courts* requires a balanced integration of technological innovation, judicial reasoning, and Islamic legal values. AI contributes significantly to improving procedural efficiency, consistency, access to justice, legal information retrieval, and case management, but it cannot replace the contextual reasoning, moral evaluation, and interpretative authority exercised by judges. The comparative findings further demonstrate that responsible AI implementation depends upon transparent algorithms, explainable decision-support systems, meaningful human oversight, institutional accountability, and compliance with both national legal frameworks and international principles of trustworthy AI governance. Within Islamic judicial institutions, these governance principles become more robust when aligned with the normative objectives of *maqāṣid al-sharī'ah*, ensuring that technological advancement promotes justice (*'adl*), public welfare (*maṣlaḥah*), legal certainty, and protection of fundamental human interests without compromising the religious legitimacy of judicial decision-making.

Finally, this research contributes theoretically by proposing an integrated governance framework that combines Responsible Artificial Intelligence Governance, Judicial Decision-Making Theory, Legal Pluralism Theory, and *maqāṣid al-sharī'ah* into a unified analytical model for *Islamic Family Courts*. Unlike previous studies that primarily examine judicial digitalization or AI regulation independently, this framework conceptualizes AI governance as a multidimensional process integrating legal regulation, institutional capacity, ethical accountability, technological transparency, and Islamic legal philosophy. From a practical perspective, the proposed framework offers policy guidance for supreme courts, religious judicial institutions, legislators, and digital governance authorities seeking to implement AI responsibly while safeguarding judicial independence and public trust. Future research may expand this comparative framework by incorporating empirical evidence from judicial practitioners and additional jurisdictions, thereby strengthening the development of globally relevant, ethically responsible, and human-centered AI governance models for Islamic judicial systems.

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