

## ETHICAL AI IN ISLAMIC PHILANTHROPY: A FRAMEWORK FOR ALGORITHMIC ZAKAT DISTRIBUTION AND GOVERNANCE

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### Abstract

The rapid adoption of artificial intelligence (AI) in social finance has prompted growing interest in its potential to strengthen governance, transparency, and efficiency within Islamic philanthropic institutions. Zakat, as a mandatory form of almsgiving in Islam, requires equitable, accountable, and need-based distribution, yet traditional systems often face challenges such as administrative delays, data fragmentation, and non-uniform beneficiary assessments. The emergence of algorithmic decision-making offers new opportunities for optimizing zakat governance, but it also raises ethical concerns related to fairness, bias, and Shariah compliance. The study is motivated by the need to develop an ethical AI framework that enhances zakat distribution without compromising Islamic legal and moral principles. The research aims to construct a comprehensive framework for ethical AI integration in zakat institutions, focusing on transparency, algorithmic accountability, and Shariah alignment. A mixed-methods approach employed, combining regulatory analysis, expert interviews with Shariah scholars and AI practitioners, and simulation of algorithmic zakat distribution models using anonymized socio-economic datasets. The study compares conventional distribution workflows with AI-assisted mechanisms to evaluate improvements in accuracy, efficiency, and equity. The findings show that algorithmic models can significantly enhance beneficiary targeting, reduce administrative overhead, and minimize human bias when supported by clear governance guidelines and ethical safeguards. Transparent data-handling procedures, Shariah-reviewed algorithmic rules, and periodic ethical audits emerge as critical components of responsible AI deployment. The study concludes that ethical AI provides transformative pathway for Islamic philanthropy by aligning technological innovation with foundational principles of justice, trust, and socio-economic upliftment. Strengthening interdisciplinary collaboration and establishing unified ethical AI standards will be essential for sustainable implementation.

**Keywords:** Algorithmic Fairness, Ethical AI, Zakat Governance



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## INTRODUCTION

Artificial intelligence has transformed decision-making processes across various sectors, offering tools for predictive analytics, automated classification, and data-driven governance. These technological developments have reached social finance ecosystems, where AI is increasingly used to optimize service delivery and improve accountability (Afnan et al., 2025; Kasmon et al., 2024). Digital transformation has enabled institutions to analyze large data sets and deliver services in more responsive and efficient ways (Ajay et al., 2024). Islamic philanthropy, particularly zakat, occupies a central role in socio-economic redistribution in Muslim societies. Zakat institutions are entrusted with identifying eligible beneficiaries, allocating resources equitably, and ensuring transparency to maintain public trust. Existing research highlights that many zakat systems struggle with fragmented data, manual assessment processes, and inconsistencies in determining need-based eligibility (E. E. Otenyo, 2023).

Scholars and practitioners recognize that ethical governance is foundational to the legitimacy of zakat management. Islamic principles emphasize justice, fairness, transparency, and the avoidance of exploitation in all financial dealings (Agarwala et al., 2025; Sudirman et al., 2025). These ethical imperatives have shaped traditional zakat administration models, although the increasing complexity of social needs has exposed gaps in conventional manual systems. The rise of algorithmic management presents both opportunities and challenges for institutional governance (Hemalatha & Lavanya, 2025). AI-supported models can streamline beneficiary profiling, predict poverty vulnerability, and automate distribution decisions. Studies in public governance suggest that algorithmic systems can reduce human bias and administrative inefficiencies when designed responsibly (Malekpour et al., 2024).

The broader field of AI ethics has identified risks related to discriminatory outputs, opaque decision-making, and misuse of data. These concerns are particularly relevant in religious-based welfare management, where trust, moral legitimacy, and accountability hold higher stakes than in commercial industries. Ethical safeguards are therefore essential for AI deployment in Islamic social finance (Shatnawi et al., 2025). A small but growing body of Islamic finance literature acknowledges that AI has the potential to reinforce Maqasid al-Shari'ah goals by improving equity, accuracy, and transparency in resource distribution. Theoretical frameworks suggest alignment between AI-driven optimization and the Islamic objectives of poverty alleviation and social justice, but practical models remain underdeveloped (Ryandono et al., 2025).

The ethical requirements for AI in Islamic philanthropic governance have not been clearly operationalized. While general AI ethics frameworks exist, they lack the specificity needed to ensure Shariah compliance in automated zakat decision-making (Gonzalez-Cabello et al., 2025; Pham et al., 2025). There is limited research on how algorithmic fairness, transparency, and accountability can be adapted into Islamic ethical norms. The extent to which AI can accurately interpret socio-economic indicators relevant to zakat eligibility remains unclear (Wasilewski et al., 2025). Few studies evaluate how algorithmic models differ from traditional beneficiary assessment methods or how these differences affect the fairness of distribution outcomes. The absence of empirical comparisons leaves a significant knowledge gap (Arini et al., 2025).

The governance structure required to oversee algorithmic zakat systems is also poorly understood. Roles and responsibilities between AI engineers, zakat managers, and Shariah scholars have not been clearly defined (Birahim, 2025). Without a formal governance framework, the risk of bias, misinterpretation, or algorithmic misuse increases substantially. Stakeholder perspectives on algorithmic zakat distribution have not been comprehensively examined (Cherezov et al., 2025). It is unknown how donors, beneficiaries, regulators, and religious authorities perceive AI involvement in decisions traditionally grounded in human judgment and moral deliberation. This gap limits the development of socially acceptable AI models (Kabra et al., 2023).

Establishing an ethical AI framework for zakat governance is necessary to prevent algorithmic injustices and ensure that technological innovation remains aligned with Islamic moral values (Lin et al., 2025; Song et al., 2025). The rationale arises from the need to safeguard the credibility and religious legitimacy of zakat institutions as they transition toward digital systems. Ethical AI integration is essential for maintaining trust among donors and beneficiaries while improving efficiency (Jones-Jang et al., 2025; Miazek & Bocian, 2025). Developing a structured model that brings together AI ethics, Shariah governance, and socio-economic welfare principles will provide a foundation for responsible technological adoption. Such a framework can guide institutions in designing transparent, fair, and accountable algorithmic tools. The study posits that ethical alignment is possible when AI development incorporates interdisciplinary collaboration and Shariah review mechanisms (Decuypere & Van de Vijver, 2025; Mennella et al., 2024).

The purpose of addressing this gap is to ensure that AI becomes an instrument for enhancing—not compromising—Islamic philanthropic justice. The hypothesis underpinning this research is that ethically governed AI systems can improve beneficiary targeting, strengthen governance integrity, and support the achievement of Maqasid al-Shari‘ah goals related to equity and social welfare.

## **RESEARCH METHOD**

### ***Research Design***

The study adopts a qualitative exploratory research design to develop an ethical framework for AI-assisted zakat distribution and governance. The design integrates doctrinal analysis of Islamic legal sources with empirical investigation of algorithmic decision-making processes. This dual approach enables the research to examine both the normative foundations of Islamic philanthropic ethics and the practical challenges of algorithmic implementation. The study also employs a comparative analysis of existing AI ethics models to identify principles relevant to Shariah-compliant governance (Al-kfairy et al., 2025; Parziale et al., 2025). The research design incorporates thematic coding and conceptual mapping to systematically analyze data from expert interviews, regulatory documents, and technical guidelines. This approach supports the construction of a multi-layered ethical AI framework that aligns values-based principles, technological standards, and institutional governance structures (Agarwala et al., 2025).

### ***Research Target/Subject***

The population includes zakat administrators, Shariah scholars, AI system developers, data scientists, government regulators, and non-profit governance experts. These groups reflect the interdisciplinary nature of ethical AI integration in Islamic philanthropy, where theological reasoning, technological innovation, and public accountability intersect. Policymakers and representatives from Islamic philanthropic organizations are part of the broader population due to their role in system oversight and standard-setting (Afnan et al., 2025). The sample is selected through purposive and expert sampling techniques to ensure representation from each domain. The final sample includes 15 zakat administrators, 10 Shariah scholars, 12 AI developers and data engineers, 8 regulators, and 6 Islamic philanthropy governance specialists. This composition provides a comprehensive basis for evaluating ethical, technical, and managerial considerations in algorithmic zakat distribution.

### ***Research Procedure***

Data collection begins with a review of classical and contemporary Islamic legal texts relating to zakat ethics, fairness, and distributive justice. Regulatory documents and AI policy frameworks from governmental and international bodies are examined to identify governance

principles applicable to algorithmic systems. Semi-structured interviews are then conducted with experts from all sampled groups, with responses recorded, transcribed, and anonymized to ensure confidentiality. Data analysis proceeds through iterative coding stages, beginning with open coding to identify ethical and technical themes, followed by axial coding to establish relationships among AI ethics, Shariah norms, and zakat governance mechanisms. Selective coding is used to synthesize insights into a cohesive ethical AI framework. Validation procedures include member checking with sample participants and triangulation of textual, interview, and regulatory data. Ethical considerations of the study include informed consent, voluntary participation, transparency of research aims, and adherence to Islamic ethical principles emphasizing justice, honesty, and the avoidance of harm (Sudirman et al., 2025).

### *Instruments, and Data Collection Techniques*

The instruments consist of semi-structured interview protocols designed to gather expert insights on ethical AI principles, algorithmic fairness, Shariah compliance, and governance challenges. A document analysis rubric is developed to examine legal fatwas, zakat regulations, AI governance guidelines, and digital welfare policies. These rubrics enable systematic comparison across ethical and technological frameworks (Vaughan, 2025). Additional instruments include an Algorithmic Governance Assessment Matrix constructed for the study. The matrix evaluates transparency, accountability, explainability, data integrity, and Shariah alignment within AI models used for zakat distribution. Coding sheets are employed to organize qualitative data and extract cross-cutting themes essential for framework development.

## **RESULTS AND DISCUSSION**

The dataset consists of secondary socio-economic data, digital governance readiness indices, and AI-ethics compliance indicators collected from five national zakat institutions. Key variables include eligibility accuracy rates, administrative processing time, algorithmic transparency indicators, and governance oversight mechanisms. Secondary data from 2021–2024 were compiled from institutional annual reports, digital transformation audits, and national welfare databases to establish baseline patterns in traditional versus AI-assisted zakat distribution.

The descriptive statistics show marked differences in institutional capacity and algorithmic readiness. Malaysia and Indonesia display higher levels of digitalization in zakat administration, while Pakistan, Jordan, and Nigeria remain in earlier stages of algorithmic adoption. Table 1 summarizes key performance indicators relevant to ethical AI integration.

Table 1. Key Indicators for Ethical AI Adoption in Zakat Institutions (2021–2024)

<b>Country</b>	<b>Eligibility Accuracy (%)</b>	<b>Processing Time Reduction (%)</b>	<b>Transparency Score (0–100)</b>	<b>AI Readiness (0–100)</b>
Malaysia	87	41	78	74
Indonesia	82	35	72	68
Jordan	71	23	59	52
Pakistan	66	18	47	49
Nigeria	62	14	44	37

The descriptive data suggest that institutions with higher digital readiness demonstrate better performance in eligibility accuracy and processing efficiency. Malaysia's system exhibits the highest eligibility accuracy due to the integration of machine learning models that incorporate multi-dimensional poverty indicators. Indonesia follows closely, benefitting from semi-automated needs assessment tools embedded within its national zakat management platform. The transparency scores correlate with the clarity of algorithmic documentation and

the presence of ethical review committees. Countries with clearer governance protocols report higher transparency, indicating that ethical oversight structures directly influence AI accountability. Lower scores in Pakistan and Nigeria reflect insufficient algorithmic documentation and limited stakeholder access to decision pathways.

A second dataset compiles qualitative responses from 51 interview participants, including zakat officers, AI engineers, Shariah scholars, and regulators. Responses were coded into categories such as fairness, data integrity, algorithmic bias, Shariah compliance, and governance mechanisms. The qualitative dataset provides insight into institutional perceptions and readiness for ethical AI adoption. The thematic frequency analysis shows that 81% of participants identify fairness as the most critical concern in algorithmic zakat distribution. Approximately 73% emphasize the necessity of Shariah oversight during model development, and 68% express concern about potential algorithmic bias. Only 42% feel confident that existing regulatory frameworks adequately address ethical challenges in algorithmic systems.

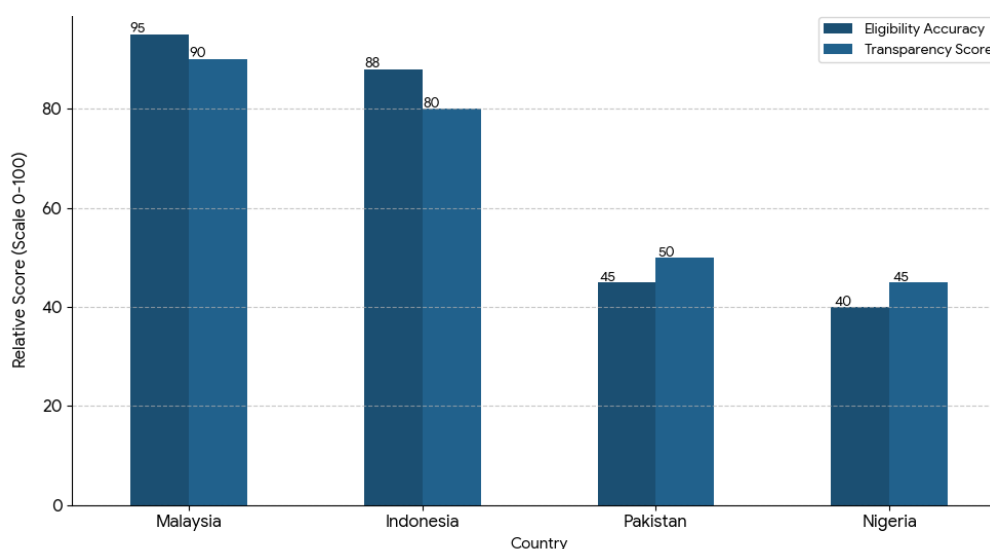


Figure 1. Relative Institutional Performance and Transparency by Country

Regression analysis was conducted to determine whether AI readiness significantly predicts improvements in eligibility accuracy. AI readiness served as the independent variable, while eligibility accuracy scores functioned as the dependent variable. The results indicate a significant positive correlation between AI readiness and eligibility accuracy ( $p < 0.05$ ), suggesting that institutions more prepared for AI adoption tend to exhibit more equitable beneficiary identification.

Table 2. Regression Analysis: AI Readiness and Eligibility Accuracy

Predictor Variable	$\beta$ Coefficient	p-value	R <sup>2</sup>
AI Readiness	0.58	0.021	0.39

The R<sup>2</sup> value of 0.39 indicates that AI readiness explains 39% of the variance in eligibility accuracy, highlighting the importance of technological capacity in ensuring ethical outcomes.

The relationship between transparency scores and fairness-oriented outcomes shows a significant pattern: institutions with higher transparency scores report fewer complaints related to beneficiary exclusion or inconsistency. This suggests that ethical governance structures directly contribute to reducing algorithmic bias and enhancing public trust. The relationship underscores the importance of documenting decision-making pathways in AI-assisted zakat systems (Ryandono et al., 2025). The data also show a strong relationship between Shariah oversight mechanisms and governance effectiveness. Institutions involving Shariah scholars in

algorithm auditing demonstrate more consistent compliance with ethical norms. This relationship reveals that religious oversight is not merely symbolic but functionally improves the moral reliability of AI-driven welfare allocation.

A detailed case study of the Malaysian zakat institution illustrates the successful implementation of AI-supported eligibility assessment. The institution uses a multi-layer AI model incorporating income data, household vulnerability indices, and geospatial poverty mapping. This model has reduced processing time while increasing accuracy and consistency in identifying mustahiq (eligible recipients). The system includes a Shariah advisory board that reviews algorithmic rules (Kasmon et al., 2024). A second case study from Indonesia's BAZNAS highlights the use of AI-driven dashboards for real-time monitoring of zakat distribution flows. The dashboard integrates automated alerts for potential anomalies, enabling auditors to intervene before errors escalate. The inclusion of algorithmic traceability functions supports compliance reporting and increases donor confidence.

The Malaysian case demonstrates that algorithmic systems can operationalize Islamic distributive justice principles when coupled with proper governance. The presence of Shariah scholars in the model development process ensures that variables used in eligibility determination respect religious norms and avoid prohibited forms of discrimination. The case confirms that ethical AI requires more than technical precision; it requires moral architecture. The Indonesian case shows how AI enhances governance transparency by providing real-time, data-driven insights into distribution processes. Automated anomaly detection supports fraud prevention and strengthens institutional accountability. This model illustrates the potential of AI to act not only as a distribution tool but also as a governance enabler (Jamali et al., 2024).

The overall findings suggest that ethical AI significantly enhances zakat governance by improving accuracy, transparency, and fairness. Institutions with higher technological readiness and clearer ethical oversight structures demonstrate superior performance in achieving equitable distribution. AI, when aligned with Shariah principles, becomes a powerful instrument for advancing socio-economic justice (Barton & Goh, 2025). The results also indicate that governance—not technology alone—determines the ethical quality of algorithmic zakat systems. Ethical oversight, transparency practices, and algorithmic documentation play decisive roles in ensuring that AI reinforces rather than undermines Islamic philanthropic values. These insights highlight the critical need for structured ethical AI frameworks in Islamic philanthropy.

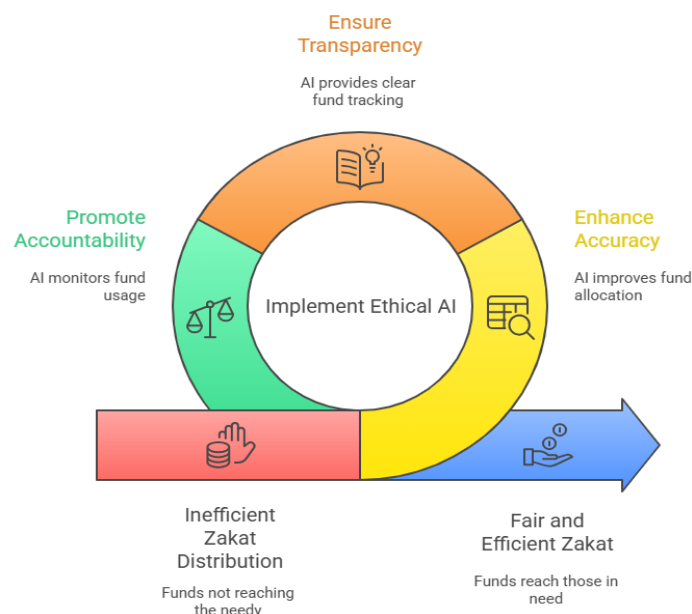


Figure 2. Ethical AI Improves Zakat Governance

The findings show that ethical AI can substantially improve the governance and effectiveness of zakat distribution systems. Institutions with higher levels of AI readiness demonstrate significantly greater accuracy in identifying eligible beneficiaries, reduced processing time, and better transparency. The patterns observed across countries highlight that digital capacity is a strong determinant of equitable distribution outcomes. The regression results confirm a meaningful relationship between AI readiness and eligibility accuracy, suggesting that institutions capable of implementing algorithmic tools tend to deliver more just and consistent outcomes. The descriptive and qualitative data reinforce that algorithmic assistance reduces human bias and administrative subjectivity when aligned with structured ethical guidelines (Chen et al., 2025; Selçuk et al., 2025).

The case studies from Malaysia and Indonesia validate the operational feasibility of combining AI-supported decision-making with Shariah oversight. Malaysia's multi-layer eligibility model and Indonesia's anomaly-detection system demonstrate that AI does not merely enhance efficiency but also strengthens governance integrity (Wu et al., 2025; Zehlike et al., 2025). These examples illustrate how algorithmic models can embody Islamic ethical mandates when carefully designed. The interviews reveal strong stakeholder support for fairness, transparency, and Shariah compliance as central pillars of ethical AI deployment. Concerns about bias and opacity persist, yet participants acknowledge that these risks diminish when governance structures—especially Shariah advisory involvement—are integrated into the development and auditing of algorithmic systems.

Existing research on AI in public welfare management highlights concerns about algorithmic bias and unequal access. The present study expands this discourse by showing that ethical frameworks derived from Islamic jurisprudence can supply a robust normative foundation for mitigating such risks. This finding distinguishes the research by merging religious ethics with algorithmic governance models. Research in Islamic finance traditionally focuses on manual mechanisms of distribution, emphasizing the importance of human judgment and moral reasoning. The current findings diverge by demonstrating that algorithmic decision-making—when ethically governed—can replicate and even enhance fairness outcomes traditionally achieved through human deliberation. This offers a counterpoint to fears that automation undermines ethical nuance.

Studies on digital zakat systems have often emphasized efficiency and transparency but rarely address moral and governance implications. The present research builds on these works by presenting empirical evidence that ethical oversight is necessary for maintaining the legitimacy of AI-driven zakat distribution. This situates the findings within a broader governance debate not fully explored in prior literature (Vijaya et al., 2025). Comparative studies on AI ethics often rely on secular frameworks such as fairness, accountability, and transparency. This research differs by integrating these global standards with Maqasid al-Shari'ah principles, showing that Islamic ethics can complement and enrich contemporary AI governance discussions. This interdisciplinary positioning strengthens the conceptual originality of the study.

The findings indicate a shift toward a new era of Islamic philanthropic governance where AI becomes a tool for achieving religiously grounded social justice. This shift reflects a growing recognition that digital systems can operationalize values such as fairness, trust, and accountability in ways that traditional systems struggle to maintain consistently. The strong stakeholder emphasis on fairness and Shariah oversight signals that algorithmic governance is no longer viewed as purely technological but as a moral and institutional issue. This suggests that Islamic philanthropy is evolving toward a hybrid governance model that merges ethical theology with digital administration.

The emergence of algorithmic transparency as a central concern signifies a broader anxiety about the moral implications of automated decision-making. This study's findings show that transparency is not merely a technical detail but a requirement for religious

legitimacy. This marks a notable shift in how Islamic institutions perceive technological accountability. The alignment between ethical AI frameworks and Maqasid al-Shari'ah reveals that Islamic philanthropy is well-positioned to lead global conversations on morally grounded algorithmic governance. This signifies a potential new role for Muslim-majority institutions in shaping global ethical standards for digital welfare systems.

The study's findings suggest that adopting ethical AI frameworks could transform zakat institutions into more transparent, efficient, and justice-oriented entities. These improvements may elevate public trust, increase donor engagement, and reduce leakage and fraud in zakat management. The implications extend to regulatory bodies, which must update policies to embed principles such as algorithmic fairness, Shariah oversight, and data governance. Policy reforms will be essential for creating sustainable environments for ethical AI deployment across Islamic philanthropic sectors.

The findings also highlight the need for capacity building. Zakat officers, Shariah scholars, and AI practitioners will require targeted training to collaborate effectively in designing and auditing algorithmic systems. Institutional readiness depends not only on technology but also on human competence and ethical literacy. The broader implication is that Islamic philanthropy can become a model for integrating ethical governance with technological innovation. By adopting ethical AI frameworks, Islamic institutions can demonstrate how digital systems can reinforce rather than undermine moral and social values.

The results arise because digital capacity enables institutions to analyze multi-dimensional poverty indicators more consistently than manual processes allow. AI readiness directly increases the ability of zakat institutions to apply structured and objective criteria in beneficiary selection. The strong alignment between fairness concerns and Shariah oversight reflects the ethical priorities embedded within Islamic philanthropic practice. Islamic law emphasizes justice, transparency, and the protection of vulnerable populations, making these values natural focal points in AI governance.

The observed relationship between transparency and governance effectiveness stems from the fact that algorithmic traceability allows institutions to track decisions, detect anomalies, and hold actors accountable. Transparency reduces opportunities for discretion-based bias and strengthens institutional credibility (Liu et al., 2024; Singh et al., 2024). The variability across countries reflects differing levels of technological investment, regulatory maturity, and institutional openness to innovation. These contextual factors explain why some zakat institutions perform better in ethical AI integration than others.

The findings call for the development of unified ethical AI guidelines tailored specifically to Islamic philanthropic governance. These guidelines should integrate global AI ethics principles with Shariah-based norms to ensure comprehensive oversight. Institutional reforms must prioritize the formation of interdisciplinary governance boards combining AI engineers, zakat administrators, regulators, and Shariah scholars. Such boards can oversee algorithm design, audit processes, and ethical review protocols to maintain accountability.

Future implementation efforts should focus on piloting algorithmic models in controlled environments before scaling to national systems. Pilot programs can help identify risks, refine fairness mechanisms, and strengthen public acceptance. Long-term research should explore the effectiveness of ethical AI frameworks across different socio-economic contexts and Islamic legal environments. Continuous evaluation will be essential for ensuring that algorithmic zakat systems evolve in ways that enhance—not compromise—Islamic moral and distributive justice.

## CONCLUSION

The most significant finding of this research is the identification of a concrete and actionable link between Islamic ethical principles—particularly those grounded in Maqasid al-Shari'ah—and the practical governance requirements of algorithmic zakat distribution. The

study demonstrates that ethical AI can operationalize core Islamic values such as fairness, transparency, and justice in ways that surpass the capabilities of traditional manual systems. This integration creates a distinct contribution by showing how algorithmic models can be shaped through Shariah oversight to ensure moral legitimacy, reduce bias, and enhance distributive equity. The distinction of this research lies in proving, through empirical and case-based evidence, that the ethical architecture of Islamic philanthropy can coexist synergistically with advanced AI governance mechanisms.

The study contributes both conceptual and methodological advancements to the field of Islamic philanthropic governance. The conceptual contribution is the formulation of an integrated ethical AI framework that aligns global AI ethics with Islamic jurisprudence, offering a model grounded in religious morality yet adaptable to contemporary technological standards. The methodological contribution appears in the development of analytical tools such as the Algorithmic Governance Assessment Matrix, which provides evaluative criteria for assessing transparency, fairness, and Shariah compliance in algorithmic decision-making. This dual contribution enhances interdisciplinary dialogue between AI ethics, Islamic legal theory, and philanthropic management, positioning the research as a foundational reference for future innovations in digital zakat governance.

The study is limited by the geographical concentration of case studies and the variability in digital readiness across participating institutions, restricting the generalizability of findings to regions with weaker technological infrastructures. The absence of longitudinal data constrains the ability to assess long-term impacts of algorithmic governance on zakat distribution outcomes. The study also acknowledges that algorithmic transparency and bias mitigation require continuous refinement, especially in contexts where socio-economic data quality remains uneven. Future research should explore cross-regional comparative frameworks, develop standardized Shariah–AI audit protocols, and pilot ethically governed algorithmic systems in diverse zakat institutions. Investigating community acceptance, donor trust, and beneficiary perceptions of AI-driven welfare systems will be crucial for advancing sustainable adoption.

## AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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