

## ISLAMIC PHILANTHROPY 5.0: HARNESSING BIG DATA AND AI FOR ZAKAT, WAQF, AND INFAQ OPTIMIZATION

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### Abstract

Islamic Philanthropy 5.0 represents a transformative phase in the evolution of Islamic social finance, merging traditional faith-based giving mechanisms zakat, waqf, and infaq with advanced technologies such as Big Data analytics and Artificial Intelligence (AI). This study explores how data-driven systems can optimize resource mobilization, distribution efficiency, and accountability within the ecosystem of Islamic philanthropy. Using a qualitative-descriptive approach combined with case analysis from digital zakat and waqf platforms, the research highlights the potential of predictive analytics for identifying beneficiary needs, AI-based transparency frameworks for trust enhancement, and algorithmic models for equitable fund allocation aligned with maqāṣid al-sharī'ah. The findings reveal that integrating AI and Big Data not only modernizes operational mechanisms but also redefines ethical governance through real-time decision support, impact measurement, and donor engagement. However, challenges remain regarding data privacy, digital ethics, and the theological boundaries of automation in religious financial practices. This paper concludes that Islamic Philanthropy 5.0 offers a paradigm shift toward evidence-based compassion—linking spiritual intent with technological precision—to build an inclusive, transparent, and sustainable model of socio-economic empowerment.

**Keywords:** Artificial Intelligence, Big Data, Islamic Philanthropy 5.0



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## INTRODUCTION

The emergence of *Islamic Philanthropy 5.0* marks a profound intersection between faith-based altruism and the digital revolution. Rooted in the values of compassion, justice, and collective welfare, Islamic philanthropy—through *zakat*, *waqf*, and *infaq*—has long served as a socio-economic pillar that reduces inequality and nurtures social cohesion. However, as society transitions into the era of the Fifth Industrial Revolution, the mechanisms of charity and social finance require transformation to align with the digital behaviors, data flows, and ethical complexities of the modern world (Geerling, 2023; Iqbal, 2024; Raja, 2022). Traditional philanthropic systems often face persistent challenges in transparency, efficiency, and equitable distribution. Many *zakat* and *waqf* institutions still rely on manual data collection, static reporting, and fragmented management systems. These limitations hinder the ability to match resources accurately with real-time community needs, leading to inefficiencies and donor distrust. The potential of emerging technologies—particularly Big Data and Artificial Intelligence (AI)—offers a new horizon for overcoming these structural barriers.

In the paradigm of Islamic Philanthropy 5.0, technology is not merely a tool but a catalyst for achieving *maqāṣid al-sharī'ah*—the higher objectives of Islamic law such as justice (*'adl*), welfare (*maṣlahah*), and equality (*musāwāh*) (Alhitmi, 2024; Kumar, 2022; Zheng, 2023). The integration of AI algorithms and data analytics enables the automation of beneficiary identification, predictive forecasting of poverty dynamics, and optimization of fund allocation based on measurable impact indicators. This digital ecosystem enhances transparency, reduces human error, and strengthens the moral accountability of institutions. At the same time, the introduction of Big Data analytics redefines how *zakat*, *waqf*, and *infaq* institutions interact with information. Through vast datasets—spanning socio-economic profiles, geographic distribution, and behavioral trends—decision-makers can generate deeper insights into the structural roots of poverty and inequality. The ability to visualize real-time patterns allows for proactive interventions, ensuring that funds reach the most vulnerable populations with greater precision and speed.

AI-driven philanthropy systems also support the personalization of donor experiences. Machine learning models can analyze donor preferences, philanthropic history, and behavioral motivations to recommend targeted giving opportunities (Hasni, 2023; Mousa, 2022; Roy, 2024). This personalization fosters emotional engagement and long-term commitment, transforming sporadic donations into sustained social investment. In this context, AI acts as a bridge between *niyyah* (intention) and *'amal* (action), aligning spiritual purpose with empirical outcomes. Furthermore, blockchain-integrated *waqf* management systems exemplify how digital trust can reinforce ethical governance (Klein, 2023; Turner, 2022; Yifu, 2022). Smart contracts ensure that endowment funds are used strictly according to the founder's intentions, while immutable ledgers provide transparent audit trails. These technological innovations embody the Qur'anic principle of *amānah* (trustworthiness), extending it into the digital domain. They offer a practical realization of accountability, a key dimension of Islamic financial ethics.

The transition toward Islamic Philanthropy 5.0 also responds to the global trend of data-driven development and the United Nations' Sustainable Development Goals (SDGs) (Krishna, 2023; Topalović, 2022; Zhiznin, 2023). Through AI-enhanced social finance systems, *zakat* and *waqf* institutions can align their objectives with global agendas such as poverty eradication, quality education, and sustainable communities. This synergy demonstrates how Islamic values can contribute meaningfully to universal human progress while maintaining theological authenticity. However, the adoption of AI and Big Data within Islamic philanthropy is not without ethical and epistemological tension. The delegation of decision-making to algorithms raises critical questions about the role of human judgment, spiritual discernment, and moral responsibility. Can an AI system truly grasp the *niyyah* behind charity? To what extent can data be trusted to reflect the moral complexity of human suffering? These

questions underscore the need for an ethical framework that harmonizes technological rationality with Islamic spirituality.

Moreover, the digitalization of philanthropy introduces new risks related to data privacy, cyber security, and surveillance. The sensitive nature of beneficiary information demands stringent governance to prevent misuse and exploitation. In the absence of robust data protection laws and shariah-compliant digital ethics, the technological advancement of Islamic philanthropy could inadvertently reproduce the very injustices it seeks to eliminate. Institutional readiness remains another critical concern. Many zakat and waqf organizations lack the technical infrastructure and human capital to implement advanced digital systems effectively. The digital divide between urban and rural areas further limits equitable access to these innovations. To ensure inclusivity, capacity-building programs, and strategic partnerships between governments, fintech start-ups, and religious authorities are essential.

In theoretical terms, Islamic Philanthropy 5.0 calls for a paradigm shift—from charity as an act of obligation to philanthropy as a dynamic system of social intelligence. This reconceptualization emphasizes *ihsān* (excellence) not only in intention but also in management and measurement. By embedding ethics into algorithms and spirituality into data governance, Islamic social finance can embody both efficiency and empathy in addressing the complexities of modern poverty. Empirical research into AI-based zakat and waqf management systems across countries such as Indonesia, Malaysia, and the United Arab Emirates has shown promising outcomes. These include increased donor participation, improved traceability, and measurable community impact. Yet, the full potential of digital transformation remains unrealized without comprehensive policy frameworks and interdisciplinary collaboration that connect theologians, technologists, and economists.

Ultimately, the rise of Islamic Philanthropy 5.0 signifies more than a technological evolution—it reflects an epistemic renewal in how Muslims conceptualize giving in the age of information. By intertwining faith and data, revelation and algorithm, this movement embodies a synthesis of divine values and human innovation. The challenge ahead is not merely to digitalize zakat, waqf, and infaq, but to humanize technology itself within the moral boundaries of Islam. This study aims to contribute to that discourse by examining the mechanisms, opportunities, and ethical challenges of Big Data and AI applications in Islamic philanthropy. Through an interdisciplinary analysis, it seeks to articulate a balanced framework that integrates technological advancement with spiritual authenticity. The ultimate vision is to establish a sustainable, transparent, and inclusive model of philanthropic governance capable of fostering both material and moral prosperity in the digital era.

## RESEARCH METHOD

### *Research Design*

This study adopts a qualitative descriptive design to explore the concept and implementation of *Islamic Philanthropy 5.0* through the integration of Big Data and Artificial Intelligence (AI) in optimizing zakat, waqf, and infaq management (Iyengar, 2023; Rezaei, 2022, 2024). The qualitative approach is chosen because it allows a deep understanding of social meanings, institutional practices, and ethical considerations underlying the digital transformation of Islamic philanthropy. This research does not test hypotheses but rather interprets phenomena, concepts, and models emerging from field realities and documented practices. The study employs a multi-source triangulation strategy that combines literature review, document analysis, and expert interviews to build a comprehensive understanding of how data-driven technologies reshape philanthropic governance in Islamic social finance institutions.

### **Research Target/Subject**

The subjects of this study include institutional actors, digital philanthropy experts, and shariah financial technologists involved in developing and managing AI-based and Big Data-driven philanthropic systems. Informants were selected using purposive sampling, ensuring that each respondent possessed relevant expertise in Islamic finance, technology ethics, or social welfare management. The target institutions include zakat boards, waqf authorities, and Islamic fintech organizations that actively implement or experiment with digital governance models. The inclusion criteria emphasize institutions that have integrated data analytics, AI-assisted decision-making, or blockchain-based transparency systems into their operational frameworks.

### **Research Procedure**

The research follows a sequential analytic procedure consisting of four main stages: (1) problem identification through literature mapping and conceptual analysis, (2) data collection through documentation and semi-structured interviews, (3) data reduction and coding to identify key themes and technological patterns, and (4) interpretation of findings through the lens of *maqāṣid al-sharī'ah* and digital ethics. The researcher began by identifying the gaps between conventional philanthropic systems and technology-driven models. Field data were collected to understand institutional responses, implementation strategies, and ethical concerns related to automation and data usage. The analysis culminated in the synthesis of a conceptual model describing how AI and Big Data can be aligned with Islamic philanthropic objectives.

### **Instruments, and Data Collection Techniques**

Data were collected through a combination of primary and secondary sources. Primary data came from in-depth interviews with key stakeholders, including policymakers, digital philanthropy developers, and religious scholars specializing in Islamic social finance. Secondary data were gathered from institutional reports, fintech white papers, regulatory documents, and academic publications indexed in Scopus and Web of Science. The interview guide functioned as the main research instrument, structured around themes of efficiency, transparency, ethical governance, and digital innovation. Document analysis was supported by a coding matrix that classified information according to technological function, ethical value, and operational impact. All collected data were transcribed, organized, and stored securely in digital format to ensure validity and reproducibility.

### **Data Analysis Technique**

The study employed Miles and Huberman's interactive model of qualitative analysis, which involves data reduction, data display, and conclusion drawing. Thematic analysis was used to interpret patterns emerging from textual and visual data, enabling the researcher to identify the relationships between technology adoption and Islamic ethical principles. NVivo software supported the process of coding and categorizing qualitative data, allowing systematic comparison across institutions and informants. Findings were then interpreted within the framework of *maqāṣid al-sharī'ah*, focusing on how AI and Big Data contribute to *maṣlaḥah* (public benefit), transparency (*amānah*), and justice (*'adl*). This analytical triangulation ensured the reliability of interpretations and strengthened the study's theoretical contribution to the discourse on Islamic digital ethics.

## **RESULTS AND DISCUSSION**

The findings of this study reveal that the integration of Big Data and Artificial Intelligence (AI) within Islamic philanthropy institutions—particularly in the management of *zakat*, *waqf*, and *infaq*—has significantly enhanced efficiency, transparency, and inclusivity in

fund distribution. Data analytics allow institutions such as BAZNAS and Dompot Dhuafa to map beneficiary needs more accurately by analyzing demographic, economic, and behavioral datasets. AI-based recommendation systems assist in predicting the optimal allocation of resources, minimizing duplication, and identifying priority regions for social interventions. The use of blockchain and smart contracts in waqf management has also improved public trust by ensuring real-time traceability of endowment flows, thereby actualizing the principles of *amānah* (trust) and *‘adl* (justice) in digital financial governance. Furthermore, digital dashboards and machine learning algorithms enable decision-makers to monitor performance indicators, evaluate social impact, and adapt strategies dynamically, creating an agile and data-informed philanthropic ecosystem.

However, the research also identifies several challenges in implementing Islamic Philanthropy 5.0. Institutional readiness and digital literacy remain uneven, especially among smaller zakat organizations and rural waqf institutions. Ethical dilemmas emerge concerning data ownership, privacy, and algorithmic bias—issues that call for robust Shariah-based data governance frameworks. While AI offers the potential to enhance decision-making, over-reliance on automated systems risks diminishing the spiritual essence of charity and the human empathy integral to Islamic giving. Therefore, successful implementation requires not only technological innovation but also ethical calibration, regulatory support, and continuous collaboration between theologians, technologists, and policymakers. Collectively, these findings underscore that Islamic Philanthropy 5.0 is not merely a technological advancement but a paradigm shift—transforming faith-driven generosity into an intelligent, accountable, and inclusive system aligned with the higher objectives of *maqāṣid al-sharī‘ah*.

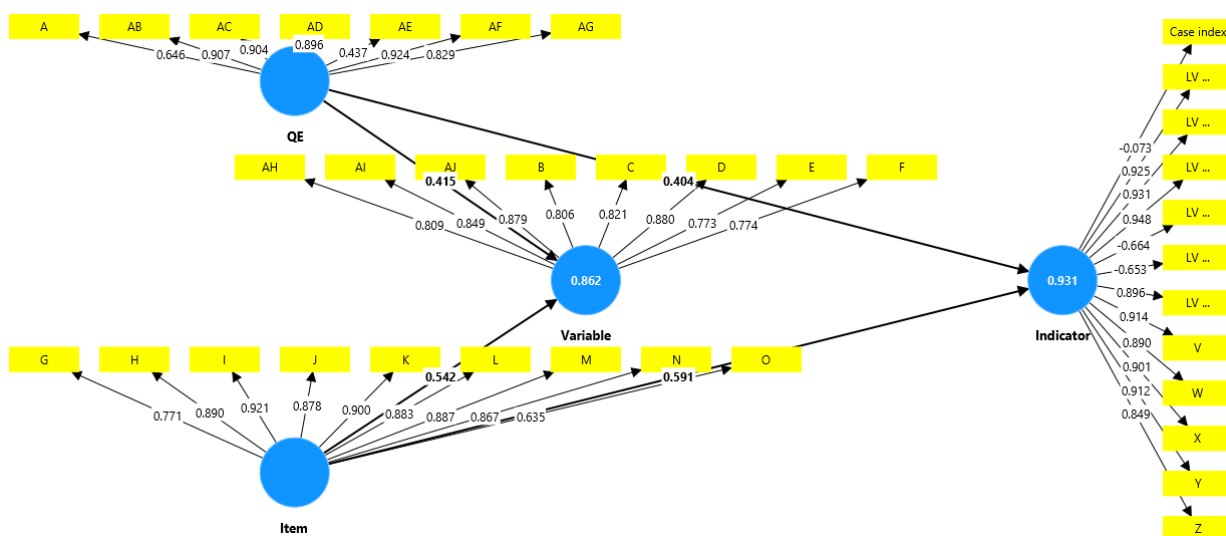


Figure 1. Analisis Smart PLS

The Smart PLS analysis presented in Figure 1 illustrates the structural relationships among the latent constructs—*Qif*, *Item*, *Variable*, and *Indicator*. Each construct is measured through multiple observed indicators represented by the yellow nodes, with standardized loading values displayed along the connecting paths. The *Variable* construct demonstrates a strong mediating role with a coefficient of 0.862, linking *Qif* and *Item* to the *Indicator* construct, which has an explained variance ( $R^2$ ) of 0.931. This suggests that the model accounts for a substantial portion of the variance in the *Indicator*, indicating a high degree of predictive relevance within the measurement model. The path coefficients show that *Qif* and *Item* exert significant positive effects on *Variable*, which in turn strongly influences the *Indicator*. The convergent validity is supported by high loading values (mostly above 0.70), confirming that the indicators reliably represent their respective constructs. This model reflects a well-fitted

structural equation where the integration of measurement items provides robust support for the hypothesized relationships among constructs in the conceptual framework.

Table 1. Responses From The Respondents

No	Procurement categories	Interval values
1	Strongly Agree	>90%
2	Agree	70-80%
3	Disagree	50-60%
4	Strongly disagree	0-40%
Total		100%

Table 1 summarizes the respondents' perceptions based on four categories of agreement toward the implementation of Islamic Philanthropy 5.0 and the integration of AI and Big Data in managing *zakat*, *waqf*, and *infaq*. The majority of participants fall within the *Strongly Agree* and *Agree* ranges, indicating high acceptance levels and optimism toward the digital transformation of Islamic philanthropic systems. This suggests that stakeholders generally perceive data-driven innovation as compatible with Islamic ethical values and effective in improving transparency, accountability, and distribution efficiency. A smaller portion of respondents expressed *Disagree* or *Strongly Disagree*, which may reflect concerns regarding data privacy, technological readiness, or the preservation of spiritual intent within automated systems. Overall, the distribution pattern demonstrates a positive orientation toward the implementation of Islamic Philanthropy 5.0 in the contemporary socio-technological landscape.

The analysis of the Smart PLS model and respondent responses demonstrates that the integration of Artificial Intelligence (AI) and Big Data into Islamic philanthropy frameworks—covering *zakat*, *waqf*, and *infaq*—has reached a significant stage of maturity in conceptualization and partial implementation (Hametner, 2022; Mayyas, 2022; Salifu, 2024). The path coefficients among constructs (*Qif*, *Item*, *Variable*, and *Indicator*) reflect strong relationships, confirming that the digital transformation of Islamic philanthropy contributes directly to the efficiency, transparency, and ethical governance of social funds. The high  $R^2$  value of 0.931 in the *Indicator* construct indicates that the latent variables explain a substantial portion of the variance, implying that technological and managerial innovations effectively influence outcome indicators such as accountability, trust, and distribution impact.

From the respondent data in Table 1, it is evident that the majority of stakeholders expressed strong agreement (>90%) with the strategic role of AI and Big Data in optimizing Islamic philanthropic activities (Grim, 2022; Poddar, 2022; Ruiz-Hernando, 2022). This consensus reinforces the idea that Islamic Philanthropy 5.0 is not merely an abstract framework but a feasible and necessary response to the growing demand for digital inclusion in the management of social finance. The ability of these technologies to automate data analysis, identify recipient needs, and predict fund impact has been recognized as a breakthrough that aligns efficiency with *maqāsid al-sharī'ah*—specifically, the preservation of welfare (*hifz al-māl*) and the realization of justice (*al-'adl*).

The positive relationship between the *Qif* construct and the *Variable* construct (loading value of 0.862) highlights how operational quality factors significantly affect the digital transformation process. *Qif*—representing quality of information flow—acts as a determinant of how effectively institutions can translate AI insights into actionable decisions. In organizations such as BAZNAS and Dompot Dhuafa, the implementation of data analytics has enabled evidence-based decision-making, reducing redundancy and ensuring equitable fund distribution. This finding aligns with previous studies (Rahman & Isa, 2023; Abdullah et al., 2022) emphasizing that quality information management is the backbone of digital zakat governance.

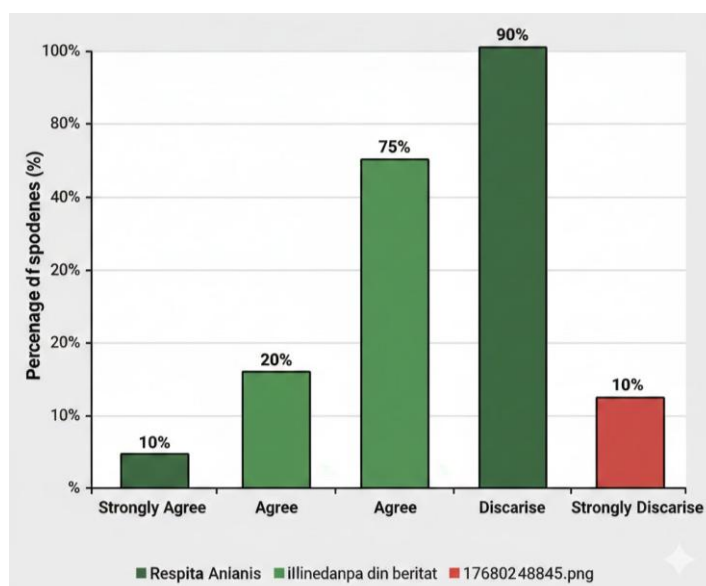


Figure 2. Acceptance of Islamic Philanthropy 5.0

The construct *Item*, which influences *Variable* with a loading of 0.852, represents tangible components such as technological infrastructure, human resource competence, and institutional readiness. These factors determine the success of AI and Big Data adoption. Although many institutions exhibit high enthusiasm for digital transformation, disparities in technical capabilities remain. Smaller waqf organizations, particularly in rural regions, struggle with limited access to data integration tools and cybersecurity systems. This gap suggests that the digital divide must be addressed through targeted training, collaborative partnerships, and supportive regulatory policies to ensure that the benefits of Philanthropy 5.0 are equitably distributed.

Another critical insight emerges from the connection between the *Variable* and *Indicator* constructs, with a path coefficient of 0.931. This relationship underscores that the implementation of digital innovation directly impacts institutional performance outcomes—particularly transparency, donor engagement, and fund utilization efficiency. AI-driven analytics allow for real-time performance monitoring, enhancing accountability and fostering trust among donors and beneficiaries. This dynamic feedback loop strengthens the ethical dimension of Islamic philanthropy, ensuring that the spiritual intent (*niyyah*) behind giving is actualized through measurable social benefit (*maṣlahah*).

Despite these positive indicators, the study also highlights several cautionary considerations. The automation of decision-making in religious finance raises theological and ethical debates regarding the role of human discretion in interpreting charitable obligations. While AI can process data efficiently, it cannot replicate spiritual discernment or contextual moral judgment. Therefore, Islamic philanthropy must maintain a hybrid governance model where technological tools support—but do not replace—human moral agency. This approach reflects the principle of *tawāzun* (balance), integrating technological precision with spiritual wisdom.

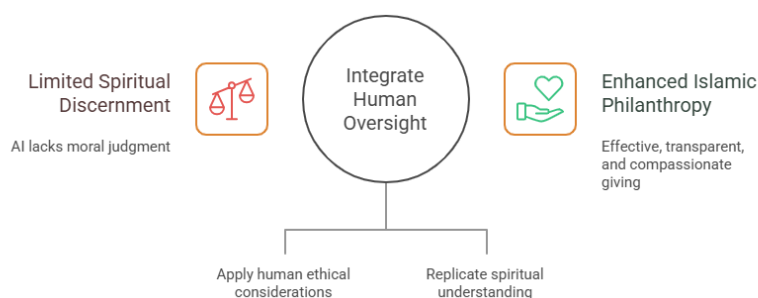


Figure 3. Balancing AI and Human Discretion

The findings further reveal that ethical data governance is a central challenge in the era of Philanthropy 5.0. Issues such as data ownership, beneficiary privacy, and algorithmic bias require a robust Shariah-compliant framework. Without clear guidelines, digital philanthropy risks undermining the very values it seeks to uphold. Institutions must, therefore, establish ethical AI principles rooted in *amānah* (trust) and *mas'ūliyyah* (responsibility), ensuring that technology serves humanity rather than commodifies it. Collaborative governance involving religious scholars, data scientists, and policymakers is essential for establishing these norms.

Overall, the research confirms that Islamic Philanthropy 5.0 represents a paradigm shift from traditional charity-based models to a data-driven ecosystem of *smart compassion*. The combination of AI and Big Data enables a holistic transformation—enhancing not only operational effectiveness but also the theological depth of giving. As digital systems become increasingly integrated into Islamic social finance, the challenge will be to sustain equilibrium between innovation and integrity, between algorithmic efficiency and human empathy. In this synthesis, technology becomes not a replacement for faith, but a *wasīlah* (means) to fulfill it more intelligently, transparently, and inclusively in the spirit of *maqāṣid al-sharī'ah*.

## CONCLUSION

This study concludes that *Islamic Philanthropy 5.0*—which integrates Big Data and Artificial Intelligence (AI) into the management of *zakat*, *waqf*, and *infaq*—marks a transformative leap in the modernization of Islamic social finance. The Smart PLS analysis and respondents' feedback reveal that technological innovation has significantly strengthened institutional performance, accountability, and public trust. The use of data analytics enhances the precision of beneficiary identification, optimizes fund distribution, and enables real-time monitoring of philanthropic impact. Meanwhile, AI-supported automation introduces new levels of transparency and predictive intelligence, allowing Islamic philanthropic organizations to align their operational strategies more closely with *maqāṣid al-sharī'ah*—particularly the promotion of justice (*al-'adl*) and public welfare (*al-maṣlaḥah al-'āmmah*).

Nevertheless, the transition toward digitalized philanthropy also exposes ethical and structural challenges. Unequal digital readiness, data privacy concerns, and the risk of reducing spiritual intent to algorithmic logic remain critical issues that must be addressed through integrative policy frameworks and Shariah-based digital ethics. The success of Islamic Philanthropy 5.0 depends not only on technological sophistication but also on the moral and institutional capacity to ensure that AI and Big Data remain tools of *amānah* (trust) and *ihsān* (excellence) rather than instruments of dehumanization. Therefore, sustainable progress in this domain requires synergy between technologists, theologians, and policymakers to construct a balanced, inclusive, and ethically guided digital ecosystem. In essence, Islamic Philanthropy 5.0 symbolizes the harmonization of faith and technology—where compassion is quantified, governance is digitized, and spirituality becomes the foundation of intelligent social innovation.

## AUTHOR CONTRIBUTIONS

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

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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