Journal of Central Banking Law and Institutions, Vol. 4 No. 3, 2025, pp. 595 - 634
e-ISSN: 2809-9885 – p-ISSN: 2827-7775
https://doi.org/10.21098/jcli.v4i3.446

AI IN FATWA FORMULATION: TRANSFORMING SHARIA-COMPLIANT FINANCE

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Submitted: 3 March 2025 – Last revised: 10 June 2025 - Accepted: 6 July 2025

Abstract

Fatwas play a pivotal role in Islamic jurisprudence, serving as legal instruments to ensure that financial practices align with Shariah principles. For Islamic financial institutions, timely and accurate fatwas are essential to maintain compliance, operational clarity, and stakeholder trust. However, the fatwa development process is often time-intensive. This study examines how artificial intelligence (AI) can be leveraged to enhance the efficiency and responsiveness of fatwa formulation. Using the Analytic Network Process (ANP), Shariah advisors and members of the Shariah Supervisory Board of Islamic Financial Institutions assessed the benefits, costs, opportunities, and risks associated with AI adoption. AI's capacity for comprehensive data analysis is found to be the most weighted benefit. Key concerns include the cost of scientific verification, the risk of automating sacred decision-making, and the weakening of *istinbath* (legal reasoning) by scholars. To harness AI's potential while preserving the integrity of Islamic jurisprudence, it is essential to have appropriate tools, training, and governance frameworks in place. AI has the potential not only to streamline the issuance of fatwas but also to transform the responsiveness and scalability of Shariah-compliant financial services. This study contributes to the literature on AI and Islamic jurisprudence by presenting an evidence-based framework for the responsible integration of AI in Shariah governance.

Keywords: *artificial intelligence, fatwa formulation, islamic financial institutions, islamic jurisprudence, analytic network process (ANP)*

I. INTRODUCTION

Fatwa plays a significant role in safeguarding the Sharia compliance of Islamic financial institutions, both in their normal operations and in the use of financial technology.[1] The issuance of fatwa requires qualified scholars who meet specific criteria, including a comprehensive understanding of Islamic law and

[1] Ahmet Kilinç, "The Influence of the Ottoman State on Islamic Law," *Yıldırım Beyazıt Hukuk Law Review* 7, no. 2 (2022): 547–80, https://doi.org/10.33432/ybuhukuk.1090220.

proficiency in Arabic. A fatwa sets regulatory frameworks and maintains the ethical foundations of Islamic finance.[2] By validating the Sharia compatibility of financial products and operations, fatwas enhance credibility and foster greater trust among Muslim consumers and stakeholders.[3]

A fatwa not only establishes operational guidelines but also preserves Islamic financial ethics.[4] By this, the uniqueness of Islamic finance should be distinctive, as this industry should have a different set of regulations, stakeholder behaviour, and market performance. Additionally, Sharia opinions also contribute to Islamic financial literacy, educating both practitioners and consumers about Sharia-compliant practices and ethical obligations.[5] Fatwa also supports risk mitigation in financial transactions by clarifying permissible contracts, dispute resolution mechanisms, and investment strategies, thereby strengthening economic stability and investor confidence.[6]

As Islamic finance continues to grow and financial transactions become increasingly complex, the demand for more efficient mechanisms has intensified. The fatwa development process can be time-consuming. One emerging approach is the integration of artificial intelligence (AI), which offers modern solutions and new possibilities for improving efficiency.

AI holds significant potential in supporting the process of ijtihad, provided that it is designed to meet the essential requirements traditionally expected of a mujtahid. However, AI needs to be designed to meet the necessary requirements in an ijtihad. Ijtihad comes from an Arabic word which literally means "try hard and do whatever you can to accomplish a task or gain something". In general, there are two definitions of Ijtihad. The first, "Ijtihad in the general sense," is the utilisation of all efforts and endeavours to derive laws from Islamic sources, such as the Qur'an and hadith. This type of Ijtihad is claimed to be unanimously accepted by all Muslim scholars from various schools of Islam. Second, "Ijtihad in the special sense", involves the use and acceptance of "legitimate conjectures" as evidence of religious law in cases where there is no explicit textual evidence.[7] Furthermore, in its development, Islamic scholars

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[2] Auwal Salisu et al., "Sharia Board of Islamic Banks and the Attitude of Fatwa Shopping," *Ikonomika: Jurnal Ekonomi dan Bisnis Islam* 5, no. 2 (2020): 193–204, https://doi.org/10.24042/febi.v5i2.7665.

[3] Sofian Al Hakim, "Analytical Framework for Study of Fatwas on Sharia Economics," *Ahkam: Jurnal Ilmu Syariah* 19, no. 2 (2019): 315–30, https://doi.org/10.15408/ajis.v19i2.12219.

[4] Kilinç, "The Influence of the Ottoman State."

[5] Fadly Yashari Soumena, "A Critical Review of the Indonesian Council of Ulama (MUI) Fatwa towards Increasing Sharia Financial Literacy (Systematic Literature Review)," *Journal of Economics Research and Social Sciences* 8, no. 1 (2024): 133–51, https://doi.org/10.18196/jerss.v8i1.21498.

[6] Mohammad Hasan Bisyri, "Fatwa as a Tool of Social Engineering: The Study of Fatwa of Tarjih Muhammadiyah," *Jurnal Penelitian* 17, no. 2 (2020): 131–44.

[7] Hasan Latifi, "Challenges of Using Artificial Intelligence in the Process of Shi'i Ijtihad," *Religions* 15, no. 5 (2024), https://doi.org/10.3390/rel15050541.

and AI engineers must collaborate in designing an AI system that aligns with Islamic principles, which can be utilised in the formulation of fatwas.[8]

Artificial Intelligent (AI) offers multiple functions, including rapid data collection, categorisation, and analysis. In the context of fatwa issuance, the process could be enhanced, and the decision-making process could be expedited. AI also enables real-time data analysis, which can improve the whole process of fatwa development. AI can enhance the speed, accuracy, and accessibility of fatwa formulation and the discovery of Islamic law.[9]

The integration of artificial intelligence (AI) into both operational processes and fundamental domains such as fatwa development has the potential to transform the landscape of Sharia-compliant finance. Technological advancement through AI may improve and automate the compliance mechanisms, risk assessment models, and intelligent financial advisory services.[10] AI enhances financial operations, mitigates Sharia compliance risks, and enables automated contract validation in Islamic banking and capital markets.[11] The adoption of AI-powered platforms further expands the accessibility and outreach of Islamic finance, particularly among Gen Z and Gen Alpha, who are increasingly characterised by digital literacy and technological engagement.[12]

Despite its advantages, the integration of AI into Islamic jurisprudence presents both ethical and operational challenges. A major concern is preserving

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[8] Bashir Ahmed, "The Status of the Use of Artificial Intelligence in Ijtihad," *Karachi Islamicus* 1, no. 1 (2021): 1–14, http://www.karachiislamicus.com/index.php/ki/article/view/5.

[9] Amr Abdullah Munshi et al., "Automated Islamic Jurisprudential Legal Opinions Generation Using Artificial Intelligence," *Pertanika Journal of Science and Technology* 30, no. 2 (2022): 1135–56, https://doi.org/10.47836/pjst.30.2.16; Siti Farahiyah Ab Rahim et al., "Artificial Intelligence for Fatwa Issuance: Guidelines and Ethical Considerations," *Journal of Fatwa Management and Research* 30, no. 1 (2025): 77–100, https://doi.org.10.33102/jfatwa.vol30no1.654; Suud Sarim Karimullah, "The Application of Artificial Intelligence in Islamic Law Discovery," *Mutawasith* 6, no. 2 (2023): 109–21. https://jurnal.iailm.ac.id/index.php/mutawasith/article/view/748.

[10] Roni Andespa et al., "A Systematic Review of Customer Sharia Compliance Behaviour in Islamic Banks: Determinants and Behavioural Intention," *Journal of Islamic Marketing* 15, no. 4 (2023): 1013–34, https://doi.org/10.1108/jima-06-2023-0181; Muhammad Faseeh Ullah Khan et al., "A Theoretical Comparison of Interest-Free Banking and Interest-Based Banking: A Context of Pakistani Banking Industry," *Annals of Human and Social Sciences* 3, no. 2 (2022): 664–74, http://doi.org/10.35484/ahss.2022(3-II)63.

[11] H. Mbaidin et al., "The Role of AI Integration and Governance Standards: Enhancing Financial Reporting Quality in Islamic Banking," *Decision Science Letters* 13, no. 1 (2024): 83–98, https://doi.org/10.5267/j.dsl.2023.12.001; Hebah Shalhoob, "The Role of AI in Enhancing Shariah Compliance : Efficiency and Transparency in Islamic Finance," *Journal of Infrastructure, Policy and Development* 9, no. 1 (2025): 1–26, https://doi.org/https://doi.org/10.24294/jipd11239.

[12] Dwi Suhartanto et al., "Millennial Loyalty towards Artificial Intelligence-Enabled Mobile Banking: Evidence from Indonesian Islamic Banks," *Journal of Islamic Marketing* 13, no. 9 (2022): 1958–72, https://doi.org/10.1108/JIMA-12-2020-0380.

human authority and accountability in fatwa issuance, as AI lacks the contextual understanding, moral reasoning, and spiritual depth that Sharia advisors bring to jurisprudential decision-making.[13] Hakim et al.[14] warn against over-reliance on AI, highlighting risks such as misinterpretations of Islamic texts and the potential erosion of scholarly oversight. To mitigate these concerns, scholars and AI developers have explored hybrid models, where AI assists rather than replaces traditional juristic reasoning. Such models emphasise human-AI collaboration, where scholars provide interpretative oversight while AI enhances efficiency in research and data analysis.[15]

However, the acceptance of AI solutions by Islamic scholars in fatwa formulation and other Sharia aspects remains an open discussion.[16] This is due to the limited and unclear framework and research discussing the evaluation of Sharia compliance of AI-based tools. Financial and technical barriers pose implementation challenges, particularly for smaller Islamic institutions.[17] The risk of fatwa shopping, where individuals seek rulings that align with personal preferences, underscores the need for regulatory oversight to ensure AI remains a tool for scholarly assistance rather than an independent authority.[18] Referring to Tsourlaki,[19] AI is considered a propaganda tool and competitor for religious authorities in Dubai and Egypt. The scholars are sceptical about AI's ability to fulfil Sharia compliance, especially in formulating fatwas that indirectly replace the role of muftis.[20]

To maximise AI's potential while maintaining the integrity of Islamic jurisprudence, robust regulatory frameworks and ethical safeguards are essential. Rahim et al.[21] emphasise the importance of human oversight in sustaining trust and authenticity in AI-generated fatwas. Similarly, Setyowati & Rahayu[22] argue that AI should function as a Sharia advisory tool rather than

[13] Widhy Setyowati and Intan Sri Rahayu, "Sector Analysis of Islamic Capital Markets and Artificial Intelligence Functioning as Sharia Advisors," *International Transactions on Artificial Intelligence (ITALIC)* 1, no. 2 (2023): 236–344, https://doi.org/10.33050/italic.v1i2.334.

[14] Lukman Hakim and Muhamad Risqil Azizi, "Otoritas Fatwa Keagamaan dalam Konteks Era Kecerdasan Buatan (Artificial Intelligence/AI)," *Ar-Risalah Media Keislaman Pendidikan dan Hukum Islam* 21, no. 2 (2023): 164, https://doi.org/10.69552/ar-risalah.v21i2.2101.

[15] Ali Polat et al., "An Inquiry Into the Application of Artificial Intelligence on Fatwa," in *Digital Transformation in Islamic Finance*, eds. Yasushi Suzuki and Mohammad Dulal Miah, (Routledge, 2023), 274–87, https://doi.org/10.4324/9781003262169.

[16] Polat et al., "An Inquiry Into."

[17] Setyowati and Rahayu, "Sector Analysis."

[18] Salisu et al., "Sharia Board of Islamic Banks."

[19] Sofia Tsourlaki, "Artificial Intelligence on Sunni Islam's Fatwa Issuance in Dubai and Egypt," *Islamic Inquiries* 1, no. 2 (2022): 107–25, https://doi.org/10.22034/IS.2022.339182.1082.

[20] Tsourlaki, "Artificial Intelligence."

[21] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[22] Setyowati and Rahayu, "Sector Analysis."

a replacement for scholarly judgment. A collaborative approach, involving technologists, scholars, and regulators, is imperative to navigate the integration of AI while upholding Islamic principles. Meanwhile, Jamal and Zakaria[23] stated that to ensure that AI can be used to formulate fatwas, AI needs to be developed by expert AI engineers and supervised by procedures that comply with the qualifications of Sharia advisors and muftis.

Based on previous studies, the analysis of AI application integration in fatwa formulation and other Sharia-compliant evaluations is limited to the risk aspect, so it is not uncommon for AI to be perceived as a threat. Therefore, this study aims to analyse the priority of Benefits, Opportunities, Costs, and Risks of integrating AI into fatwa formulation and Sharia opinion, thereby filling a gap in previous research. If the benefits and opportunities outweigh the costs and risks, then the idea of integrating AI into fatwa development should be promoted and accelerated; conversely, if the costs and risks outweigh the benefits and opportunities, then the idea should be reconsidered.

II. LITERATURE REVIEW

II.A. Definition and Process of Fatwa Issuance

The concept of fatwa plays a crucial role in Islamic jurisprudence, serving as a formal legal ruling issued by a qualified Sharia advisor (mufti) in response to specific inquiries regarding Islamic law.[24] Derived from the Arabic root "fata", meaning to provide an answer, a fatwa offers authoritative guidance on diverse issues, from personal conduct to social and financial matters. This role is particularly significant today, as Muslims seek clarity on emerging challenges in a rapidly evolving world.

Far from being arbitrary opinions, fatwas are deeply rooted in Islamic legal principles, ensuring their relevance and applicability to contemporary concerns. They address a wide range of topics, including finance, trade, and technological advancements, demonstrating the dynamic nature of Islamic law.[25] Beyond individual guidance, fatwas shape institutional practices, particularly in Islamic finance, where compliance with Sharia depends on the legitimacy provided by such rulings.[26] Their influence extends further, affecting social behaviour and

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[23] Muhammad Haziq Nor Jamal and Mohamad Zaharuddin Zakaria, "Shariah Guideline on Artificial Intelligence (AI) in Fatwa Issuance," *Salam Digest: Syariah and Law Undergraduate Symposium* 1, no. 1 (2023): 61–70.

[24] Setiawan Bin Lahuri and Muhammad Rizal Pranoto, "Halal Cosmetics Products Used in Islamic Boarding School Analysis of the Halal Product Standard of Fatwa (MUI)," *AL-FALAH : Journal of Islamic Economics* 7, no. 1 (2022): 1, https://doi.org/10.29240/alfalah.v7i1.3631.

[25] Ahcene Lahsasna, "Fatwa and Its Shariah Methodology in Islamic Finance," *Journal of Fatwa Management and Research* 2, no. 1 (2011): 133–79, https://doi.org/10.33102/jfatwa.vol2no1.121.

[26] Hakim, "Analytical Framework for Study."

public policy, as seen in fatwas on public health issues, such as smoking bans issued by the Indonesian Ulama Council.[27]

Given their pivotal role in shaping Islamic legal thought and social behaviour, fatwas must be issued through a rigorous and methodical process to maintain credibility and consistency. This structured approach ensures that each fatwa is aligned with Sharia principles and effectively addresses the needs of contemporary Muslim communities.

The issuance of fatwas follows four key stages, each serving a distinct function. It begins with *al-taswir*, where the mufti carefully analyses the mustafti's inquiry, considering its social, economic, and cultural context to ensure a precise understanding of the issue at hand.[28] Next, in *al-takyif*, the mufti classifies the inquiry within the framework of Islamic jurisprudence, identifying relevant legal precedents and ensuring alignment with established Sharia rulings.[29] Once adaptation is complete, the process moves to al-hukm, where the legal reasoning is articulated, providing a clear and well-structured explanation of the ruling.[30] Finally, in *al-ifta*', the fatwa is formally issued, often disseminated through written documents, digital platforms, or public declarations to reach the relevant audience.[31] In complex cases, consultations with other Sharia advisors or Sharia boards may be required to enhance legitimacy and consistency.[32] While fatwas are non-binding, their authority is often shaped by the credibility of the issuing scholar and the community's acceptance of them.[33]

The duration of fatwa issuance varies depending on the complexity, urgency, and level of scholarly engagement. Routine matters may be resolved quickly, while intricate financial or ethical dilemmas may require extensive

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[27] Muthoifin et al., "Fatwa of the Indonesian Ulama Council Concerning the Prohibition of Smoking and the Implications on Small Traders," in *Proceedings of the 1st International Seminar on Sharia, Law and Muslim Society (ISSLAMS 2022)*, vol. 1 (Atlantis Press SARL, 2022), 57–65, https://doi.org/10.2991/978-2-494069-81-7.

[28] Shahir Akram Hassan and Wan Mohd Khairul Firdaus Wan Khairuldin, "Research Design Based on Fatwa Making Process: An Exploratory Study," *International Journal of Higher Education* 9, no. 6 (2020): 241–46, https://doi.org/10.5430/ijhe.v9n6p241.

[29] Hatta Syamsuddin et al., "Hai'ah As-Syar'iyyah Al-Wathoniyah Wa Dauruha Fi Ar-Riqobah Asy-Syar'iyyah 'Alal Mashorif Al-Islamiyah Fi Indunisiya Wa Manhajuha Fil Fatwa" (Universitas Muhammadiyah Surakarta, 2016).

[30] Mohd Harifadilah Rosidi et al., "Penerimaan Fatwa dalam Kalangan Masyarakat Muslim Malaysia:Satu Tinjauan Literatur," *Journal of Fatwa Management and Research* 24, no. 1 (2021): 45–62, https://doi.org/10.33102/jfatwa.vol24no1.335.

[31] Hassan and Khairuldin, "Research Design."

[32] Syamsuddin et al., "Hai'ah As-Syar'iyyah."

[33] Mohammad Syifa Amin Widigdo and Homaidi Hamid, "The Power of Fatwā in Indonesia: An Analysis of MUI's Controversial Fatwās," *Afkaruna* 14, no. 2 (2018): 146–66, https://doi.org/10.18196/aiijis.2018.0085.146-165.

deliberation. In times of crisis, such as during the COVID-19 pandemic, fatwa issuance can be expedited to address urgent community concerns.[34]

As the demand for timely and well-researched fatwas increases, advancements in artificial intelligence (AI) present new possibilities for enhancing the fatwa issuance process. AI-driven tools can assist in analysing vast amounts of legal texts, identifying relevant precedents, and improving efficiency in responding to complex inquiries. While AI cannot replace the scholarly judgment of a mufti, it can serve as a valuable tool in streamlining fatwa research, ensuring greater accuracy and accessibility while maintaining the intellectual and ethical rigor of Islamic jurisprudence.

II.B. AI and Fatwa Formulation: Insight into Benefits

One of the primary benefits of utilising AI in fatwa issuance is its potential for increased efficiency and accessibility. AI technologies can analyse vast amounts of data, providing insights that may not be readily apparent to human scholars.[35] This efficiency is particularly beneficial in contexts where traditional Sharia advisors are overwhelmed by the volume of inquiries, ensuring that religious guidance is delivered in a timely and consistent manner.[36] AI-integrated fatwa dissemination reduces geographical barriers, making religious rulings more accessible across different regions. Moreover, data collection and analysis on

[34] Mashuri et al., "Maqāṣid Sharī'ah Flexibility to Overcome COVID-19 in Indonesia: From Government Policies to Fatwā of Council of Indonesian Ulema (MUI), Nahdlatul Ulama (NU), and Muhammadiyah," *De Jure: Jurnal Hukum dan Syar'iah* 13, no. 2 (2021): 240–63, https://doi.org/10.18860/j-fsh.v13i2.13280.

[35] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[36] Tsourlaki, "Artificial Intelligence on Sunni Islam's Fatwa Issuance in Dubai and Egypt;" Ana Khoirunisa et al., "Islam in the Midst of AI (Artificial Intelligence) Struggles: Between Opportunities and Threats," *Suhuf* 35, no. 1 (2023): 45–52, https://doi.org/10.23917/suhuf.v35i1.22365; Munshi et al., "Automated Islamic Jurisprudential Legal Opinions;" Latifi, "Challenges of Using Artificial Intelligence;" Ahmad Bin Abdulaziz Alshithisri, "A Study of the Legal and Fiqhi Impact of AI on Issuing Fatwas," *Kurdish Studies* 12, no. 1 (2024): 2504–11, https://doi.org/10.58262/ks.v12i1.174; Jamal and Zakaria, "Shariah Guideline;" Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Ferdinand Salomo Leuwol et al., "Adaptive AI Framework for Dynamic Sharia Compliance in Indonesian Islamic Finance: An Ethical and Religious Perspective," *International Journal of Financial Economics* 1, no. 1 (2024): 8–25; Wael A. Farag, Muhammad Nadeem, and Magedy Helal, "Assessment Transformation in the Age of AI: Moving Beyond the Influence of Generative Tools," *Proceedings of the 2024 1st Edition of the Mediterranean Smart Cities Conference, MSCC 2024*, May (2024), https://doi.org/10.1109/MSCC62288.2024.10697011; Karimullah, "The Application of Artificial Intelligence;" Ahmed, "The Status of;" Mohammad Fattahun Niam, "Does Artificial Intelligence Go beyond the Limits of Religious Authority ? An Ethical Review on IslamGPT," *Al'Adalah: Journal of Islamic Studies* 27, no. 1 (2024): 71–84, https://doi.org/10.35719/aladalah.v27i1.477; Hero Gefthi Firnando and Muhammad Wahyudi, "The Role of Artificial Intelligence in Shaping Islamic Finance Services," *JIEP: Journal of Islamic Economics and Philanthropy* 6, no. 3 (2024): 53–61, https://ejournal.unida.gontor.ac.id/index.php/JIEP/index.

fatwas have become more comprehensive, improving the quality of religious rulings.[37]

Additionally, automation reduces costs by minimising the need for employed muftis while increasing the efficiency of fatwa processing. AI can categorise fatwas by subject, Sharia advisors' opinions, and references, making them easier to retrieve and analyse.[38] It also facilitates the translation and adaptation of fatwas into multiple languages, thereby improving accessibility for diverse Muslim communities.[39] AI ensures the standardisation of fatwas, reducing subjective interpretation across different regions.[40] Moreover, AI assists muftis in contextual analysis and supplements Ijtihad by providing an initial framework for fatwa formulation.[41] With real-time monitoring, AI ensures that fatwas are updated in accordance with Shariah principles, maintaining their relevance in contemporary contexts.[42] AI also simplifies Shariah compliance decision-making and aligns financial, educational, and humanitarian initiatives with Islamic tenets, further strengthening its role in modern Islamic governance.[43]

II.C. AI and Fatwa Formulation: Insight into Costs

The integration of AI in religious contexts presents significant ethical, regulatory, and technical challenges, particularly in the issuance of fatwas and Islamic finance. While AI can enhance efficiency and accessibility, concerns remain about its role as a Shariah advisor and its ability to operate within Islamic ethical standards.[44] One major challenge is the limited number of certified muftis and weak religious leadership, which can hinder the effective implementation of AI-assisted fatwa development.[45] Additionally, accessibility

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[37] Latifi, "Challenges of Using Artificial Intelligence in the Process of Shi'i Ijtihad"; Karimullah, "The Application of Artificial Intelligence."

[38] Alshithisri, "A Study of the Legal and Fiqhi Impact."

[39] Alshithisri, "A Study of the Legal and Fiqhi Impact;" Jamal and Zakaria, "Shariah Guideline."

[40] Soleh Hasan Wahid and Anjar Kususiyanah, "The Relevance of the Usage of Artificial Intelligence and Machine Learning in Legal Analysis (An Analysis of Legal Provisions in the National Sharia Council Fatwa and Financial Services Authority Regulation Using Plagiarism Checker and ATLAS. Ti)," *Proceedings of the 1st International Conference on Research in Social Sciences and Humanities (ICORSH 2020)* 584, no. Icorsh 2020 (2020): 926–36; Leuwol et al., "Adaptive AI Framework;" Saeed Ahmed Saleh Farag et al., "Using Maqasid Shariah to Utilize the Contemporary Waqf: Implementing Artificial Intelligence as an Example," *Kurdish Studies* 12, no. 1 (2024): 2905–23, https://kurdishstudies.net/menu-script/index.php/KS/article/view/1579; Firnando and Wahyudi, "The Role of Artificial Intelligence in Shaping Islamic Finance Services."

[41] Ahmed, "The Status of;" Niam, "Does Artificial Intelligence Go beyond the Limits."

[42] Leuwol et al., "Adaptive AI Framework."

[43] Firnando and Wahyudi, "The Role of Artificial Intelligence."

[44] Setyowati and Rahayu, "Sector Analysis."

[45] Tsourlaki, "Artificial Intelligence on Sunni Islam's Fatwa Issuancc;" Munshi et al., "Automated Islamic Jurisprudential Legal Opinions Generation;" Latifi, "Challenges of Using Artificial Intelligence;" Alshithisri, "A Study."

issues persist, particularly in rural and developing areas where infrastructure and resources for AI applications are inadequate.[46] AI systems also face bias risks due to generative models, imbalanced datasets, algorithmic design flaws, and cultural misinterpretations, further exacerbated by a lack of diversity in AI development teams.[47] The lack of transparency, accountability, and interpretability in AI-driven fatwa systems raises additional concerns about their reliability.[48] Furthermore, regulatory complexities across different jurisdictions challenge the authority of AI-generated fatwas, necessitating the development of stronger governance frameworks.[49]

Privacy concerns are another significant issue, as AI applications in Islamic finance and fatwa issuance handle sensitive personal and religious data, requiring strict safeguards against misuse.[50] Moreover, AI-generated fatwas raise concerns about their legal validity, as Sharia advisors must verify their accuracy and Shariah compliance, ensuring that AI does not replace human religious authority.[51] Cybersecurity risks also pose a threat to AI-driven Islamic finance and legal systems, necessitating robust security measures to prevent data breaches and manipulation.[52] One of the most pressing challenges is the high cost of AI development, requiring significant investment in infrastructure, specialised training, and adaptation to evolving Shariah interpretations.[53] Additionally, there remains a lack of standardised legal and governance frameworks to accommodate AI-driven Shariah compliance, making its widespread adoption difficult.[54] Lastly, ensuring AI applications consistently adhere to Shariah principles remains a critical concern, requiring continuous oversight and alignment with Islamic jurisprudence.[55] Despite these challenges,

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[46] Latifi, "Challenges of Using Artificial Intelligence."

[47] Latifi, "Challenges of Using Artificial Intelligence;" Jamal and Zakaria, "Shariah Guideline;" Karimullah, "The Application;" Niam, "Does Artificial Intelligence Go beyond the Limits;" Ahmed, "The Status of;" Alshithisri, "A Study."

[48] Latifi, "Challenges of Using Artificial Intelligence;" Karimullah, "The Application of Artificial Intelligence."

[49] Latifi, "Challenges of Using Artificial Intelligence."

[50] Tsourlaki, "Artificial Intelligence;" Latifi, "Challenges of Using Artificial Intelligence;" Karimullah, "The Application of."

[51] Karimullah, "The Application of;" Niam, "Does Artificial Intelligence Go beyond the Limits."

[52] Karimullah, "The Application of;" Leuwol et al., "Adaptive AI Framework."

[53] Hasan Wahid and Kususiyanah, "The Relevance of the Usage of Artificial Intelligence;" Farag et al., "Using Maqasid Shariah;" Setyowati and Rahayu, "Sector Analysis;" Mohammad Azam Hussain et al., "The Potential Prospect of Artificial Intelligence (AI) in Arbitration from the International, National and Islamic Perspectives," *Journal of International Studies* 19, no. 1 (2023): 92–122, https://doi.org/10.32890/jis2023.19.1.4; Leuwol et al., "Adaptive AI Framework;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[54] Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[55] Firnando and Wahyudi, "The Role of Artificial Intelligence."

AI has the potential to transform Islamic finance and the issuance of fatwas, provided that its implementation is ethically sound, legally structured, and technologically secure.

II.D. AI and Fatwa Formulation: Insights into Opportunities

The opportunity for AI to enhance the quality of fatwas is significant, as it can improve the formulation, accessibility, and inclusivity of fatwas within the Muslim community. AI-augmented analysis of e-fatwas enables advanced algorithms to identify recurring themes and concerns, providing Sharia advisors with a deeper understanding of their communities' needs.[56] This capacity to analyse large datasets enhances the comprehensiveness of fatwas, making them more relevant to contemporary societal challenges.[57] The rapid growth of the global Muslim population further necessitates the development of digital fatwas, ensuring that Islamic teachings remain accessible and preserved in the digital era[58] Automating data collection streamlines fatwa formulation, allowing scholars to process inquiries more efficiently.[59] Additionally, AI empowers scholars to guide dynamic Muslim communities through real-time religious advisory systems.[60] AI also plays a crucial role in developing decision-support tools for Islamic legal experts, enabling the issuance of structured and well-informed fatwas.[61]

Beyond the issuance of fatwas, AI presents transformative educational and financial applications in Islamic studies and Islamic finance. AI-driven tools expand access to Islamic legal services globally, offering scholars and students valuable resources for research and jurisprudence analysis.[62] Furthermore, AI facilitates international collaboration and knowledge exchange in fatwa formulation, allowing Sharia advisors from different regions to synchronise their interpretations and rulings.[63] In the financial sector, AI accelerates Shariah compliance evaluation in Islamic capital markets, providing AI-powered

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[56] Jonas Svensson, "Prayer, Dreams, and Sex: A Showcase of an Al-Augmented Distant Reading of 20 Thousand E-Fatwas," *CyberOrient* 18, no. 1 (2024): 4–39.

[57] Svensson,"Prayer, Dreams, and Sex;" Alshithisri, "A Study of;" Karimullah, "The Application of."

[58] Tsourlaki, "Artificial Intelligence;" Munshi et al., "Automated Islamic Jurisprudential Legal Opinions;" Alshithisri, "A Study of;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[59] Alshithisri, "A Study of;" Karimullah, "The Application of."

[60] Jamal and Zakaria, "Shariah Guideline."

[61] Karimullah, "The Application of."

[62] Karimullah, "The Application of;" Leuwol et al., "Adaptive AI Framework;" Farag at sl., "Assessment Transformation in the Age of AI;" Hasan Wahid and Kususiyanah, "The Relevance of the Usage of Artificial Intelligence"; Firnando and Wahyudi, "The Role of Artificial Intelligence in Shaping Islamic Finance Services."

[63] Karimullah, "The Application of;" Hussain et al., "The Potential Prospect;" Leuwol et al., "Adaptive AI Framework;" Farag et al., "Assessment Transformation in the Age of AI."

investment recommendations that align with Islamic ethical standards.[64] AI also provides innovative tools to address contemporary challenges in Islamic finance and jurisprudence, enhancing risk assessment, regulatory compliance, and ethical decision-making.[65] However, these advancements necessitate rigorous oversight to ensure AI remains aligned with Shariah principles, preventing the unintended promotion of practices that conflict with Islamic teachings.[66]

II.E. AI and Fatwa Formulation: Insight into Risks

The risks associated with AI in fatwa issuance extend beyond ethical concerns to misinterpretations, ideological dominance, and diminished human oversight. Given the complexity of Islamic jurisprudence, AI systems must be meticulously trained to prevent biases and errors that could result in misguided religious rulings.[67] Current AI models primarily identify lexical similarities between user queries and pre-registered fatwas. Still, they lack a deep comprehension of religious contexts, thereby increasing the risk of inaccurate or misleading responses.[68] Additionally, AI could standardise fatwas, inadvertently overlooking regional and contextual diversity in Islamic rulings.[69] A more alarming concern is the potential misuse of AI to propagate ideological biases, leading to the global dominance of specific interpretations and the exploitation of AI to spread radical ideologies that contradict Islamic teachings.[70] Furthermore, AI-generated fatwas may lack spiritual depth, reducing religious guidance to mere data-driven outputs without the holistic wisdom of traditional Islamic scholarship.[71]

Beyond these interpretative risks, AI's role in fatwa issuance raises questions of accountability, transparency, and authority. Who bears responsibility for AI-generated fatwas? This issue is crucial, as it directly affects trust in

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[64] Setyowati and Rahayu, "Sector Analysis;" Leuwol et al., "Adaptive AI Framework;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[65] Farag at al., "Assessment Transformation in the Age of AI."

[66] Setyowati and Rahayu, "Sector Analysis."

[67] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Tsourlaki, "Artificial Intelligence;" Latifi, "Challenges of Using Artificial Intelligence in the;" Alshithisri, "A Study of the Legal and Fiqhi Impact;" Niam, "Does Artificial Intelligence Go beyond the Limits;" Hussain et al., "The Potential Prospect;" Leuwol et al., "Adaptive AI Framework."

[68] Tsourlaki, "Artificial Intelligence;" Latifi, "Challenges of Using Artificial Intelligence;" Alshithisri, "A Study of the Legal and Fiqhi Impact;" Niam, "Does Artificial Intelligence Go beyond the Limits;" Hussain et al., "The Potential Prospect."

[69] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[70] Tsourlaki, "Artificial Intelligence;" Latifi, "Challenges of Using Artificial Intelligence;" Niam, "Does Artificial Intelligence Go beyond the Limits."

[71] Farag et al., "Using Maqasid Shariah."

Islamic jurisprudence and the role of Sharia advisors in overseeing AI-driven decisions[72] The increasing reliance on AI threatens to diminish the involvement of human scholars in fatwa formulation, potentially sidelining deductive reasoning (istinbat) and Ijtihad in Islamic legal processes.[73] This concern is particularly relevant in cases where fatwa shopping—seeking favourable religious rulings—can already complicate the integrity of Islamic guidance.[74] AI-based fatwa issuance also raises data security concerns, as sensitive religious information could be manipulated or misused, leading to violations of privacy and distortions of Islamic rulings.[75]

Additionally, bias within AI algorithms could impact the fairness of religious rulings, further challenging AI's credibility in Islamic jurisprudence.[76] Resistance from scholars skeptical of AI's ability to adhere to Shariah interpretations also poses a barrier to AI adoption in Islamic jurisprudence.[77] To address these risks, it is essential to develop ethical and regulatory frameworks that ensure AI remains a tool for scholarly assistance rather than a replacement for traditional Islamic legal reasoning, while also upholding data confidentiality and religious integrity.[78]

Table 1.
Previous Studies on AI in Fatwa Formulation: Benefits, Opportunities, Costs, and Risks

Benefits	References
AI-integrated fatwa dissemination is more efficient with fewer geographical barriers.	Tsourlaki (2022); Munshi et al. (2022); Latifi (2024); Alshithisri (2024); Jamal and Zakaria (2023); Khoirunnisa et al. (2023); Leuwol et al (2024); Farag et al. (2024); Karimullah (2023); Ahmed (2021); Niam (2024); Firnando and Wahyudi (2023)
Data collection and analysis on fatwas become more comprehensive.	Latifi (2024); Karimullah (2023)

[72] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[73] Latifi, "Challenges of Using Artificial Intelligence;" Alshithisri, "A Study of the Legal and Fiqhi Impact;" Khoirunisa et al., "Islam in the Midst of AI;" Niam, "Does Artificial Intelligence Go beyond the Limits"; Ahmed, "The Status of;" Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[74] Salisu et al., "Sharia Board of Islamic Banks."

[75] Alshithisri, "A Study of the Legal and Fiqhi Impact;" Hasan Wahid and Kususiyanah, "The Relevance of the Usage of Artificial Intelligence;" Khoirunisa et al., "Islam in the Midst of AI."

[76] Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence in Shaping Islamic Finance Services."

[77] Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[78] Firnando and Wahyudi, "The Role of Artificial Intelligence."

Table 1.
Previous Studies on AI in Fatwa Formulation: Benefits, Opportunities, Costs, and Risks (Continued)

Benefits	References
Automation reduces costs by minimising the need for employed muftis.	Alshithisri (2024); Karimullah (2024)
AI categorises fatwas by subject, Sharia advisor opinions, and references.	Alshithisri (2024)
AI translates and adapts fatwas into multiple languages.	Alshithisri (2024); Jamal & Zakarian(2023)
AI ensures fatwa standardisation by reducing subjective interpretation.	Wahid & Kususiyanah (2020); Leuwol et al. (2024); Farag et al (2024); Firnando and Wahyudi (2023)
AI assists muftis in contextual analysis and supplements Ijtihad.	Ahmed (2021); Niam (2024)
Real-time monitoring keeps fatwas updated per Shariah principles.	Leuwol et al. (2024)
AI simplifies Shariah compliance decision-making.	Firnando and Wahyudi 2023
Aligns financial, educational, and humanitarian initiatives with Islamic principles.	Firnando and Wahyudi 2023
Opportunities	
The rapid growth of the global Muslim population drives digital fatwa development and preserves Islamic heritage.	Tsourlaki (2022); Munshi et al. (2022); Alshithisri (2024); Firnando and Wahyudi (2024)
Automating data collection enhances fatwa formulation.	Alshithisri (2024); Karimullah (2023)
Empowers Sharia advisors to guide dynamic Muslim communities in the digital era.	Jamal and Zakarian(2023)
Develops decision-support tools for Islamic legal experts.	Karimullah (2023)
AI as a learning tool expands access to Islamic legal services globally.	Karimullah (2023); Leuwol et al. (2024); Farag et al. (2024); Wahid and Kususiyanah (2020); Firnando and Wahyudi (2024)
Facilitates international collaboration and knowledge exchange in fatwa formulation.	Karimullah (2023); Hussain et al. (2023); Leuwol et al. (2024); Farag et al. (2024)
AI integration with Islamic FinTech accelerates Shariah compliance evaluation and product development.	Setyowati and Rahayu (2023); Leuwol et al. (2024); Firnando and Wahyudi 2023
Provides innovative tools to address modern challenges in Islamic finance and jurisprudence.	Farag et al. (2024)
Costs	
Limited certified muftis and weak religious leadership hinder AI-assisted fatwa development.	Tsourlaki (2022); Munshi et al. (2022); Latifi (2024); Alshithisri (2024)
Accessibility issues due to inadequate infrastructure and resources in rural and developing areas.	Latifi (2024); Farag et al. (2024)
AI bias risks from generative models, imbalanced data, algorithm design, cultural context, and lack of diversity in AI development teams.	Latifi (2024); Jamal and Zakaria (2023); Karimullah (2023); Niam (2024); Ahmed (2021); Alshithisri (2024)
Lack of transparency, accountability, and interpretability in AI-driven fatwa systems.	Latifi (2024); Karimullah (2023)
Regulatory complexities create challenges in AI fatwa authority across different legal frameworks.	Latifi (2024)
Privacy concerns over personal data and religious sensitivities in AI applications.	Tsourlaki (2022); Latifi (2024); Latifi (2024); Karimullah (2023)
Legal validity of AI-generated fatwas requires scholars to verify accuracy and compliance.	Karimullah (2023); Niam (2024)

Table 1.
Previous Studies on AI in Fatwa Formulation: Benefits, Opportunities, Costs, and Risks (Continued)

Benefits	References
Cybersecurity risks pose threats to AI-based Islamic finance and legal systems.	Karimullah (2023); Leuwol et al. (2024)
High development costs for AI infrastructure, training, and adaptation to evolving Shariah interpretations.	Wahid and Kususiyanah (2020); Setyowati and Rahayu (2023); Hussain et al. (2023); Leuwol et al. (2024); Farag et al. (2024); Firnando and Wahyudi (2024)
Insufficient legal and governance frameworks to accommodate AI-driven Shariah compliance.	Leuwol et al. (2024); Farag et al. (2024); Firnando and Wahyudi (2024)
Ensuring AI applications consistently adhere to Shariah principles.	Firnando and Wahyudi (2024)
Risks	
AI only identifies lexical similarities between user-typed questions and previously registered fatwas (AI does not comprehend the deep meaning of the question or its references), making it prone to producing inaccurate responses to the issue being asked.	Tsourlaki (2022); Latifi (2024); Alshithisri (2024); Niam (2024); Hussain et al. (2023); Leuwol et al. (2024)
The dominance of a particular ideology in Islam on a global scale could emerge, leading to potential misuse and exploitation in spreading misinterpretations and radical ideologies that contradict Islamic teachings.	Tsourlaki (2022); Latifi (2024); Niam (2024)
The weakening of deductive reasoning (*istinbat*) in fatwa formulation and the marginalisation of Sharia advisors, as all matters related to fatwas may be entirely entrusted to AI.	Latifi (2024); Alshithisri (2024); Khoirunnisa et al. (2023); Niam (2024); Ahmed (2021); Luwol et al. (2024); Farag et al. (2024); Firnando and Wahyudi (2024)
AI-generated fatwas may be distorted or manipulated, posing risks of data breaches and the misuse of sensitive Islamic rulings.	Alshithisri (2024); Wahid and Kususiyanah (2020); Khoirunnisa et al. (2023); Wahid and Kususiyanah (2020)
Bias in AI algorithms can affect the fairness of fatwa issuance.	Leuwol et al. (2024); Farag et al. (2024); Firnando and Wahyudi (2024)
Rejection from scholars who are sceptical of AI's capacity to adhere to Shariah interpretations.	Leuwol et al (2024); Farag et al. (2024); Firnando and Wahyudi (2024)
Fatwas may lack spiritual depth if they are entirely generated by AI.	Farag et al. (2024)
Ensuring that AI respects confidentiality in handling religious matters.	Firnando and Wahyudi (2024)

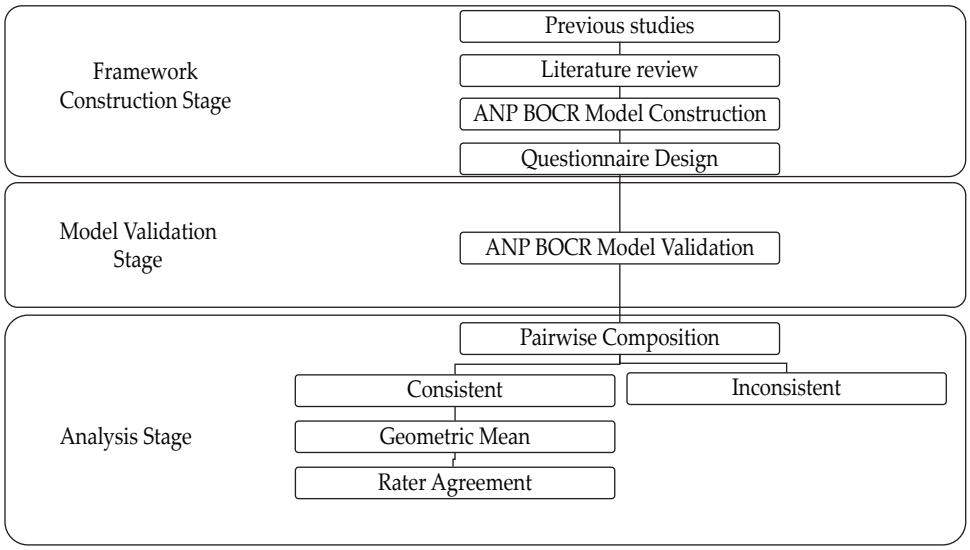
III. DATA AND METHODS

This research uses the Analytic Network Process (ANP) method and the Benefit, Opportunity, Cost, and Risk (BOCR) analysis approach. Ascarya[79] explains that the Analytic Network Process (ANP) method is a new approach to qualitative methods, which is non-parametric and non-Bayesian, for

[79] Ascarya, *Analytic Network Process (ANP) Pendekatan Baru dalam Penelitian Kualitatif* (Pusat Pendidikan dan Studi Kebanksentralan Bank Indonesia, 2005).

use in decision-making processes. Jharkharia and Shankar[80] state that the Analytic Network Process is a comprehensive decision-making technique that encompasses all relevant and interrelated criteria to facilitate a decision. ANP can also be explained as a calculation theory typically used in the analysis of influence dominance, in which case ANP creates a comparison between variables related to the attributes possessed or the fulfilment of a criterion.[81] In other words, the ANP method is utilised to solve problems with consideration of adjusting the complexity through synthetic decomposition, accompanied by a priority scale that produces the greatest priority influence. Decision-making in ANP applications is by considering and validating empirical experience. The network structure used makes this method possible to identify, classify, and organise all factors that affect the output or the resulting decision.[82]

Figure 1.
ANP BOCR Research Stage



Then, BOCR analysis is employed in this research to determine a priority decision that has consequences that must be considered, both positive and negative. Additionally, the BOCR approach can be utilised to make decisions

[80] Sanjay Jharkharia and Ravi Shankar, "Selection of Logistics Service Provider: An Analytic Network Process (ANP) Approach," *Omega* 35, no. 3 (2007): 274–89, https://doi.org/10.1016/j.omega.2005.06.005.

[81] Thomas L Saaty and Luis G Vargas, *Decision Making With the Economic, Political, Social and Technological Applications with Benefits, Opportunities, Costs and Risks*, *Manufacturing Systems*, vol. 95, 2006, http://www.amazon.com/dp/0387338594.

[82] Saaty and Vargas.

that can be implemented both in the short and long term.[83] The ANP research method consists of three phases, as illustrated in the figure below.

In the first stage, namely the frame construction stage, we conducted a literature review based on relevant previous research. The analysis aims to collect benefits, opportunities, problems/costs, and risks that have been described and analysed by previous researchers. Next, form a BOCR model based on the results of the literature review analysis, which then designs a research questionnaire to determine and analyse the priority aspects of the BOCR criteria and sub-criteria. This research questionnaire presents a pairwise comparison of the benefits, opportunities, costs, and risks associated with the use of AI in fatwa formulation. The pairwise comparison assessment of this questionnaire uses a scale of 1-9, where 1 indicates "not important/needed/affected" and nine indicates "absolutely important/needed/affected". In the second stage, the BOCR model was validated in greater depth based on the model construction obtained from the literature review analysis. After that, the research questionnaire was handed over to the respondents, who were asked to complete it, which would be used in the next stage. The third stage is data analysis to calculate the priority value of each aspect of BOCR, formulated using Microsoft Excel and Super Decisions software.

At the data analysis stage, the geometric mean of each respondent was calculated, along with Kendall's Coefficient of Concordance (Kendall's W), to determine the level of agreement among raters or respondents. The Kendall's Coefficient (W) value indicates perfect or strong agreement among respondents if $W = 1$. If $W = 0$, it indicates disagreement or a weak level of agreement among respondents, and if $0 < W < 1$, it indicates a greater or lesser level of agreement among raters or respondents, where higher values indicate a higher level of agreement.[84] Legendre[85] explains the calculation for Kendall's coefficient (W) such that, for example, object i is rated r_{ij} by rater number j, where there are a total of n objects and m raters, the total rating given to object i is as follows:

[83] Tika Widiastuti et al., "Integrating Sustainable Islamic Social Finance: An Analytical Network Process Using the Benefit Opportunity Cost Risk (ANP BOCR) Framework: The Case of Indonesia," *PLOS One* 17, no. 5 May (2022): 1–20, https://doi.org/10.1371/journal.pone.0269039.

[84] Mohammad Mahbubi Ali et al., "Islamic Financial Inclusion Determinants in Indonesia: An ANP Approach," *International Journal of Islamic and Middle Eastern Finance and Management* 13, no. 4 (2020): 727–47, https://doi.org/10.1108/IMEFM-01-2019-0007.

[85] Pierre Legendre, "Species Associations: The Kendall Coefficient of Concordance Revisited," *Journal of Agricultural, Biological, and Environmental Statistics* 10, no. 2 (2005): 226–45, https://doi.org/10.1198/108571105X46642.

$$R_i = \sum_j^m = 1r_{i,j}$$

The average of the total ratings follows the following formula:

$$R = \frac{1}{2}m(n+1)$$

The sum of squared deviations (S) is calculated by the formula:

$$S = \sum_i^n = 1(R_1 - \bar{R})^2$$

Kendall's W coefficient is formulated as follows:

$$W = \frac{13S}{m^2(n^3 - n)}$$

W is Kendall's coefficient, n is the total objects, m is the total raters, and S is the sum of squared deviations.

Furthermore, the data used in this research is primary data obtained through in-depth interviews and discussions, as well as ANP questionnaires filled out by respondents. Data sources were collected from 20 expert respondents, including academics, practitioners, and regulators. The purposive sampling technique was employed to select expert respondents who met the specified criteria. The criteria for respondents in this study are: (1) Respondents are experts in the fields of technology, artificial intelligence, Islamic finance, Islamic economics, and Islamic fatwa from academics, practitioners, and regulators, (2) have more than two publications of journal articles in related fields for academics and have important positions and are relevant to the topic of this research, for example as a Sharia Supervisory Board (DPS) for practitioners and regulators.

Ultimately, this study recruited 13 experts, comprising both practitioners and academics, as respondents. In Analytic Network Process (ANP) research, the justification for the number of respondents prioritises expertise over quantity, as this method relies on the mature judgment of individuals with specialised knowledge in the subject area and is carefully selected following specific criteria: expertise relevant to the research question, diversity of

expertise, and dedication to the research inquiry.[86] In other words, this method is specifically designed for expert judgment rather than statistical inference. Nevertheless, according to empirical guidelines, an expert panel should consist of at least 10 participants to ensure validity in ANP studies.[87] Saaty[88] also stated that, in the ANP method, assessment can be done by one expert; however, in practice, 2-10 experts are typically used to ensure the results are more representative and reliable. Unlike quantitative research, which requires large samples for statistical power, ANP focuses on capturing nuanced interdependencies through structured pairwise comparisons, where the validity of the results depends on respondents' ability to evaluate complex criterion relationships.[89] As such, this methodological approach allows researchers to break down unstructured problems into rational hierarchical decision elements and elicit prioritised decisions from experts through focused questionnaires.[90] The following is information related to research respondent data.

Table 2.
ANP Respondent Profile

No	Representative	Years of Experience	Position
1	Academics/Sharia Advisor	8	Assistant Professor
2	Academics/Sharia Advisor	18	Lecturer, Member of National and International Ulema Council
3	Practitioner/Academics/Sharia Advisor	10	Sharia Supervisory Board & Lecturer
4	Academics/Sharia Advisor	14	Lecturer
5	Practitioner/Academics/Sharia Advisor	22	Sharia Supervisory Board & Lecturer
6	Academics/Sharia Advisor	3	Dean of the Faculty of Sharia, Sharia Supervisory Board
7	Academics	12	Professor in Islamic Finance
8	Academics	23	Professor in Islamic Accounting
9	Academics/Sharia Advisor	16	Head of Islamic Economics Post Graduate Program

[86] Thomas L Saaty and Luis G Vargas, *Decision Making with The Economic, Political, Social, and Technological Applications with Benefits, Opportunities, Costs, and Risks*, *Manufacturing Systems*, vol. 95, 2006; Widiastuti et al., "Integrating Sustainable Islamic Social Finance;" Hien Ngoc Nguyen et al., "Datasets of Skills-Rating Questionnaires for Advanced Service Design through Expert Knowledge Elicitation," *Scientific Data* 9, no. 1 (2022): 1–7, https://doi.org/10.1038/s41597-022-01421-3.

[87] Nguyen et al., "Datasets of Skills-Rating Questionnaires"

[88] Thomas L Saaty, *Decision Making with Dependence and Feedback: The Analytic Network Process* (USA: RWS Publications, 1996).

[89] Widiastuti et al., "Integrating Sustainable Islamic Social Finance."

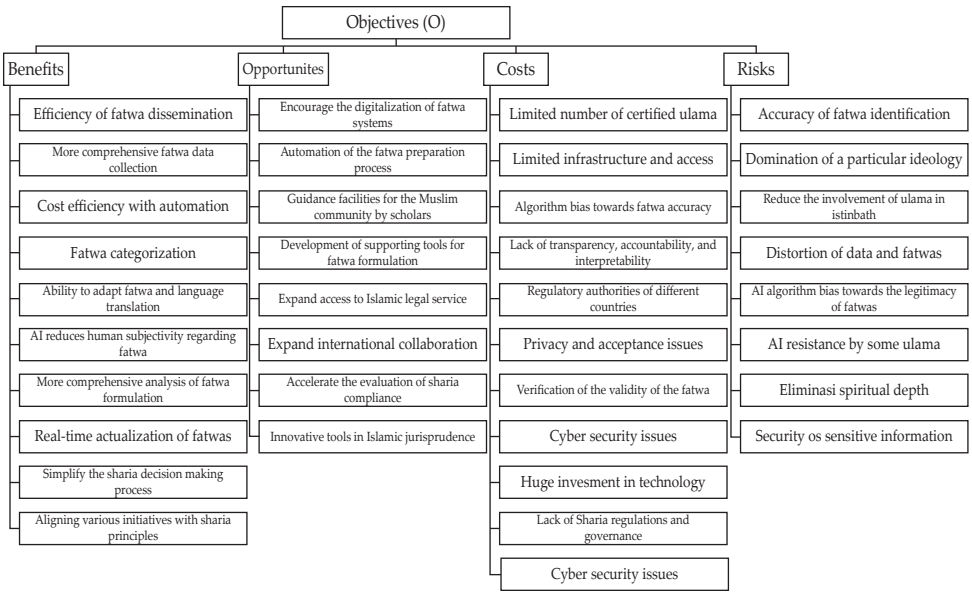
[90] Nguyen et al., "Datasets of Skills-Rating Questionnaires."

Table 2.
ANP Respondent Profile (Continued)

No	Representative	Years of Experience	Position
10	Academics/Sharia Advisor	18	Lecturer, former Head of Islamic Law Department
11	Academics/Sharia Advisor	3	Lecturer
12	Academics/Sharia Advisor	19	Head of Islamic Law Department
13	Academics/Sharia Advisor	32	Professor in Islamic Finance

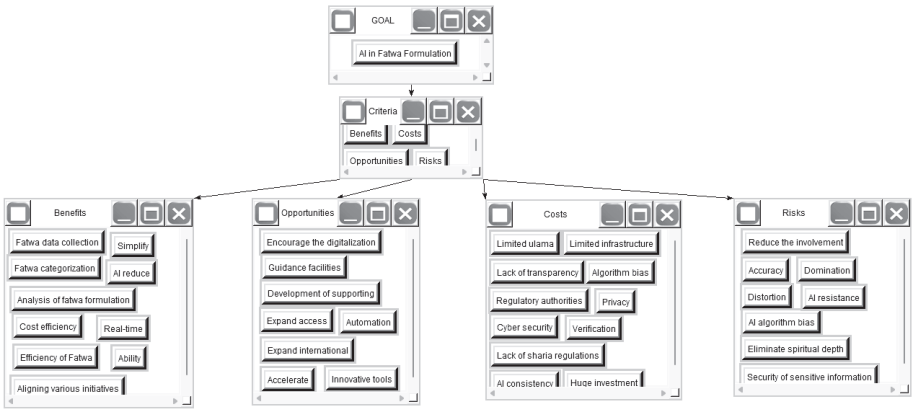
The following figure illustrates the ANP BOCR framework for AI utilisation in the Islamic decision-making process.

Figure 2.
ANP BOCR Framework



Based on the ANP framework above, Figure 3 shows the ANP network regarding the utilisation of AI in the Sharia decision-making process.

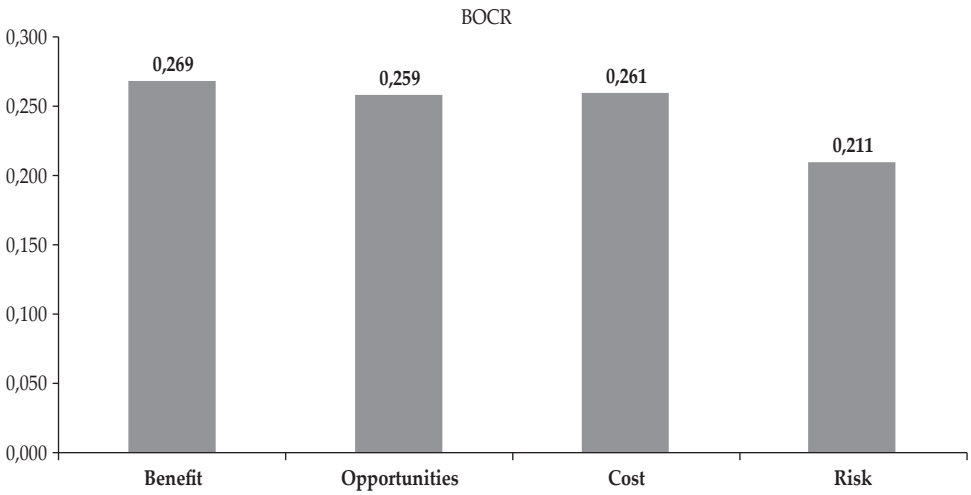
Figure 3.
ANP Network of AI and Fatwa Formulation



IV. FINDING AND DISCUSSION

This study aims to analyse the use of AI in the fatwa formulation process using the Analytic Network Process (ANP) BOCR model. Based on the ANP analysis of the four criteria—Benefits, Opportunities, Costs, and Risks (BOCR)—the results indicate that the Benefits criterion holds the highest priority, with an average weight of 0.269. This is followed by Costs (0.261), Opportunities (0.259), and Risks (0.211). Additionally, the rater agreement value was found to be 0.02, indicating a weak level of agreement among respondents.

Figure 4.
ANP BOCR Analysis Results



Further analysis of the BOCR results per respondent is presented in the following table:

Table 3.
BOCR Priority: Respondents Insight

Respondents	Benefits	Opportunities	Cost	Risk
R1	0.095	0.160	0.467	0.277
R2	0.424	0.122	0.227	0.227
R3	0.224	0.097	0.617	0.062
R4	0.333	0.333	0.167	0.167
R5	0.122	0.227	0.424	0.227
R6	0.467	0.277	0.095	0.160
R7	0.277	0.467	0.160	0.095
R8	0.200	0.400	0.200	0.200
R9	0.351	0.351	0.109	0.189
R10	0.200	0.400	0.200	0.200
R11	0.122	0.227	0.227	0.424
R12	0.200	0.200	0.200	0.400
R13	0.485	0.109	0.297	0.109
Mean	**0.269**	**0.259**	**0.261**	**0.211**

The results indicate that, overall, respondents perceived **Benefits** as the most significant criterion, followed by Costs, Opportunities, and Risks. This suggests that stakeholders recognise the potential advantages of AI in fatwa formulation while also acknowledging the financial, technical, and operational investments required for its implementation—particularly within the Sharia-compliant Islamic finance industry. Although the Opportunities criterion ranks slightly lower than Benefits and Costs, it remains an important factor. This suggests that respondents see potential future benefits from integrating AI into the fatwa formulation process. Risks, on the other hand, have the lowest average weight, indicating that respondents consider them less influential than other criteria.

The table also shows individual variations in respondents' views. Based on their opinion and weight on BOCR, three categories could be made: optimistic, cautious, and balanced. Respondents R5, R8, and R10 assigned relatively equal weights across all BOCR criteria, suggesting a more neutral or balanced perspective on AI adoption. Respondents R2, R4, R6, R7, R8, R9, R10, and R13 prioritised Benefits or Opportunities, suggesting optimism about AI's potential. R13 assigned the highest weight to Benefits (0.485), reflecting strong confidence in AI's advantages. R7, R8, and R10 placed significant emphasis on Opportunities (0.467 and 0.400, respectively), indicating their belief in AI's future potential. Respondents R1, R3, R5, R11, and R12 assigned higher weights to Costs and/or Risks, indicating a more cautious stance toward AI adoption.

R3 assigned the highest weight to Costs (0.617), reflecting concerns about the financial and operational burden of AI implementation in fatwa formulation. R11 (0.424) and R12 (0.400) gave higher importance to Risks, suggesting that they considered the potential threats to be the primary concern.

The table below presents the overall geometric mean analysis results from respondents for each element of the BOCR criteria.

Table 4.
Priority of Each Element inside BOCR Aspect

Criteria	Elements	Mean
Benefits	Efficiency of fatwa dissemination	0,109
	More comprehensive fatwa data collection	0,101
	Cost efficiency with automation	0,065
	Fatwa categorisation	0,101
	Ability to adapt fatwa and language translation	0,117
	AI reduces human subjectivity regarding fatwa	0,074
	More comprehensive analysis of fatwa formulation	0,130
	Real-time actualisation of fatwa	0,102
	Simplify the sharia decision making process	0,093
	Aligning various initiatives with sharia principles	0,107
Opportunities	Encourage the digitalisation of fatwa systems	0,137
	Automation of the fatwa preparation process	0,142
	Guidance facilities for the Muslim community by Sharia advisors	0,128
	Development of supporting tools for fatwa formulation	0,127
	Expand access to Islamic legal services	0,114
	Expand international collaboration	0,129
	Accelerate the evaluation of Sharia compliance	0,117
	Innovative tools in Islamic jurisprudence	0,106
Costs	Limited number of certified ulama	0,080
	Limited infrastructure and access	0,085
	Algorithm bias towards fatwa accuracy	0,094
	Lack of transparency, accountability, and interpretability	0,100
	Regulatory authorities of different countries	0,069
	Privacy and acceptance issues	0,058
	Verification of the validity of the fatwa	0,129
	Cyber security issues	0,097
	Huge investment in technology	0,092
	Lack of Sharia regulations and governance	0,100
	AI consistency towards Sharia principles	0,096
Risks	Accuracy of fatwa identification	0,123
	Domination of a particular ideology	0,130
	Reduce the involvement of ulama in istinbath	0,148
	Distortion of data and fatwas	0,136
	AI algorithm bias towards the legitimacy of fatwas	0,107
	AI resistance by some ulama	0,116
	Eliminate spiritual depth	0,126
	Security of sensitive information	0,115

The application of artificial intelligence (AI) in assisting Sharia advisors in formulating fatwas represents a significant technological advancement in Islamic jurisprudence, offering both opportunities and challenges. Natural Language Processing (NLP) is a specialised area in artificial intelligence (AI) that focuses on enabling computers to understand, interpret and generate human language in a meaningful and context-appropriate manner. Positioned at the intersection of linguistics, computer science, and AI, NLP seeks to bridge the communication gap between humans and machines, enabling more natural and intuitive interactions. Modern NLP employs advanced algorithms, including neural networks and transformer architectures, to process vast amounts of text and extract meaningful patterns. These methods are capable of handling linguistic nuances, idioms, and even cultural contexts, which were previously challenging for computational models. As a result, NLP has become an integral part of various applications, including search engines, content recommendation systems, virtual assistants, and automated customer service.[91] Recurrent Neural Networks (RNN) are a class of artificial neural networks designed to process sequential or temporal data by maintaining an internal "memory" of previous inputs through feedback loops. Unlike feed-forward networks, RNNs utilise sequential dependencies to inform predictions, which makes them highly effective for tasks such as language translation, speech recognition, and time series analysis. Their architecture incorporates hidden states that capture contextual information from previous time steps, allowing the network to model dynamic temporal behaviour.[92] AI systems, particularly those utilising Natural Language Processing (NLP) and machine learning models such as recurrent neural networks (RNNs) and transformers, can analyse large amounts of religious texts, historical fatwas, and legal precedents to identify patterns and generate contextually relevant responses.[93] For example, NLP algorithms are specifically designed to interpret the linguistic nuances

[91] Yanhan Chen et al., "Artificial Intelligence Methods in Natural Language Processing: A Comprehensive Review," *Highlights in Science, Engineering and Technology* 85 (2024): 545–50, https://doi.org/10.54097/vfwgas09; Mehmet Beyaz, "Natural Language Processing in Medicine: An Overview," *SCIREA Journal of Information Science and Systems Science* 7, no. 4 (2023): 75–88, https://doi.org/10.54647/isss120314; Nimrat Kaur Brar, "Natural Language Processing in Artificial Intelligence, NLPinAI 2021," *International Journal of Novel Research and Development (IJNRD)* 8, no. 8 (2023): 286–89.

[92] Ibomoiye Domor Mienye, Theo G. Swart, and George Obaido, "Recurrent Neural Networks: A Comprehensive Review of Architectures, Variants, and Applications," *Information* 15, no. 9 (2024): 517, https://doi.org/10.3390/info15090517; Susmita Das et al., "Recurrent Neural Networks (RNNs): Architectures, Training Tricks, and Introduction to Influential Research," in *Machine Learning for Brain Disorders*, ed. Olivier Colliot, Vol. 197 (Neuromethods, 2023); Alex Sherstinsky, "Fundamentals of Recurrent Neural Network (RNN) and Long Short-Term Memory (LSTM) Network," *Physica D: Nonlinear Phenomena* 404, (March 2020): 1–43, https://doi.org/10.1016/j.physd.2019.132306.

[93] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

of classical Islamic texts, allowing AI to extract deep meanings and support scholars in addressing modern ethical dilemmas. These capabilities enable AI to streamline the process of issuing fatwas by handling repetitive questions, reducing the workload on human scholars, and ensuring greater consistency in rulings across similar cases.[94]

However, the integration of AI raises both ethical and practical issues. While AI excels at processing large datasets and providing quick responses, it lacks the empathetic judgment and contextual awareness required for nuanced religious rulings.[95] Additionally, AI-generated fatwas may introduce bias into decision-making.[96] To mitigate these risks, scholars emphasise the importance of maintaining human oversight, where AI function as a supportive tool, rather than a replacement for the mufti. A collaborative framework involving Islamic jurists, AI developers, and ethicists is essential to ensure AI systems are aligned with Shariah principles, prioritise justice, and uphold accountability.[97] The study proposes a hybrid model in which AI handles the initial data analysis and drafting of fatwas, while Sharia advisors hold the final authority to review, contextualise, and approve the rulings.[98] Such an approach leverages AI's efficiency in information retrieval and pattern recognition while maintaining the irreplaceable role of human expertise in interpreting religious texts and dealing with moral complexities.[99]

IV.A. Benefits Cluster Analysis

The table explains that the benefit criterion with the highest weight is a more comprehensive analysis of fatwa formulation (0.130). This indicates that stakeholders perceive significant value in AI's ability to enhance the depth and accuracy of fatwa-related decision-making, ensuring its validity in accordance with Shariah principles. The most important opportunity criterion was the automation of the fatwa preparation process (0.142), which suggests that stakeholders have a strong belief in AI's potential to streamline and accelerate the fatwa preparation process, thereby improving efficiency in fatwa formulation. Furthermore, the Cost criterion found that the highest weighted element was associated with verifying the validity of fatwas (0.139). This raises concerns

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[94] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Jamal and Zakaria, "Shariah Guideline."

[95] Shoayb Ahmed, "Fatwā and AI: A Literature-Based Assessment on How AI Impacts the Role of the Muftī," *Journal for Islamic Studies* 1, no. 2 (2024): 1–19, https://doi.org/10.25159/2957-9163/14400; Alshithisri, "A Study of the Legal and Fiqhi Impact of AI on Issuing Fatwas."

[96] Ahmed, "Fatwā and AI;" Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[97] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Ahmed, "Fatwā and AI."

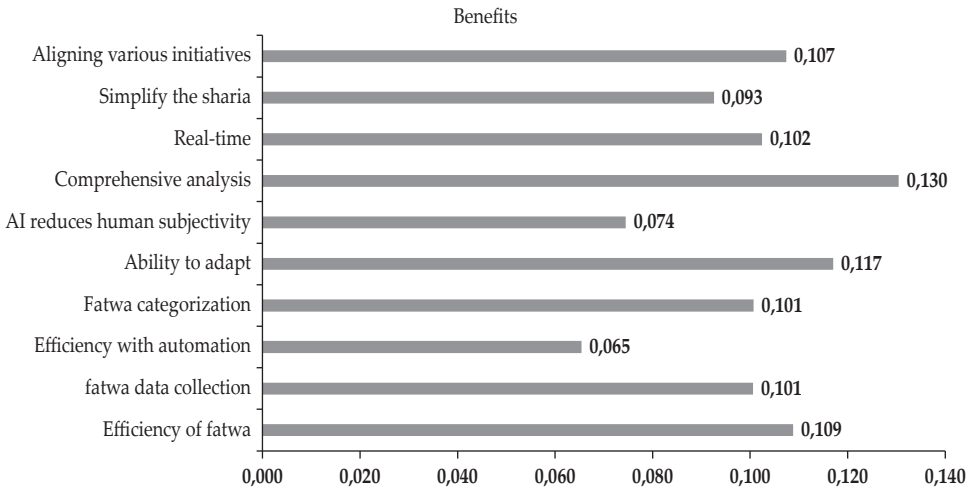
[98] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Jamal and Zakaria, "Shariah Guideline."

[99] Alshithisri, "A Study of the Legal and Fiqhi Impact of AI on Issuing Fatwas;" Jamal and Zakaria, "Shariah Guideline."

about the resources and effort required to ensure that fatwas generated from AI integration are accurate, reliable, and compliant with Shariah principles. Finally, the most critical risk criterion is data and fatwa distortion (0.156), which describes concerns about the potential for AI systems to misinterpret or misrepresent Shariah principles, potentially providing false or misleading information and undermining trust in the system.

The results of the ANP benefit analysis illustrating these findings are presented in the following figure:

Figure 5.
ANP Analysis Results: Benefits Criteria



Based on the analysis, it is evident that when utilising AI to formulate fatwas in a sharia-compliant manner, it is essential to consider both the benefits and the costs and risks. The benefits of AI in fatwa formulation can include various aspects, ranging from efficiency benefits and accessibility to the ability to collect data. It is also explained in the research of Leuwol et al.,[100] Farag et al., Polat et al.,[101] and Tsourlaki[102] that the benefits of AI integration in fatwa formulation or decision-making are more efficient in terms of analysis, fatwa dissemination, and more accessible to various parties. In addition, from a financial perspective, AI facilitates the automation of routine tasks, such as data entry and document processing, thereby minimising losses and enhancing

[100] Leuwol et al., "Adaptive AI Framework."
[101] Polat et al., "An Inquiry Into."
[102] Tsourlaki, "Artificial Intelligence on Sunni Islam's Fatwa Issuance in Dubai and Egypt."

overall operational efficiency.[103] Then, based on the top priority of the benefit criteria, it was also found that the use of AI provides a more comprehensive analysis. This is also reflected in the research of Latifi and Karimullah, which shows that data collection and analysis related to a fatwa can be enhanced through the use of AI. Ahmed[104] and Niam[105] also emphasised that AI can help Sharia advisors in contextual analysis and complement the previously designed Ijtihad. This is done because AI can categorise and organise fatwas and Sharia rulings based on subjects, jurist opinions, and references.[106] AI can also translate and adapt Sharia fatwas and rulings into other languages.[107]

Accordingly, AI can enhance the role of Shariah advisors by improving efficiency and accuracy in data-driven tasks while maintaining human authority over nuanced jurisprudential interpretations. AI systems excel at processing large amounts of classical texts, legal precedents, and fatwa databases, enabling scholars to quickly identify historical patterns and rulings relevant to contemporary cases.[108] For example, machine learning algorithms can analyse decades of inheritance disputes to suggest faraid-compliant asset distributions, reducing calculation errors and allowing scholars to focus on contextual ethical evaluations.[109] In Islamic finance, AI-powered blockchain systems provide real-time Sharia compliance monitoring for transactions, while robo-advisory tools generate initial screening reports-both of which function as decision support mechanisms rather than autonomous arbiters.[110] Crucially, AI lacks the capacity to interpret maqāṣid al-sharīʿah (the higher purpose of Islamic law) or balance competing ethical priorities in new situations, areas where human scholars remain indispensable.[111] By delegating repetitive analytical tasks to AI, the Shariah advisors can allocate more time to interdisciplinary consultations, public education, and the refinement of ethical frameworks for

[103] Nneka Adaobi Ochuba et al., "The Role of AI in Financial Market Development: Enhancing Efficiency and Accessibility in Emerging Economies," *Finance & Accounting Research Journal* 6, no. 3 (2024): 421–36, https://doi.org/10.51594/farj.v6i3.969.

[104] Ahmed, "The Status of."

[105] Niam, "Does Artificial Intelligence Go beyond the Limits."

[106] Alshithisri, "A Study of the Legal and Fiqhi Impact."

[107] Alshithisri, "A Study of the Legal and Fiqhi Impact;" Jamal and Zakaria, "Shariah Guideline."

[108] Mawaddah et al., "Artificial Intelligence as a Catalyst," *Al-Mujtahid: Journal of Islamic Family Law* 4, no. 2 (2024): 73–85, http://dx.doi.org/10.30984/ajifl.v4i2.3295.

[109] Karimullah, "The Application of Artificial Intelligence in Islamic Law Discovery;" Sukindar et al., "Legal Innovation in Religious Courts: The Potential Utilization of Artificial Intelligence (AI) in Resolving Contemporary Cases," *MILRev : Metro Islamic Law Review* 3, no. 2 (2024): 388–410, https://doi.org/10.32332/milrev.v3i2.8199hem.geol.1975.2.10.

[110] Nurfarahin Mohd Haridan et al., "What Do Shariah Boards Think About AI?," *Jurnal Bisnis Terapan* 7, no. 2 (2023): 115–27, https://doi.org/10.24123/jbt.v7i2.6061.

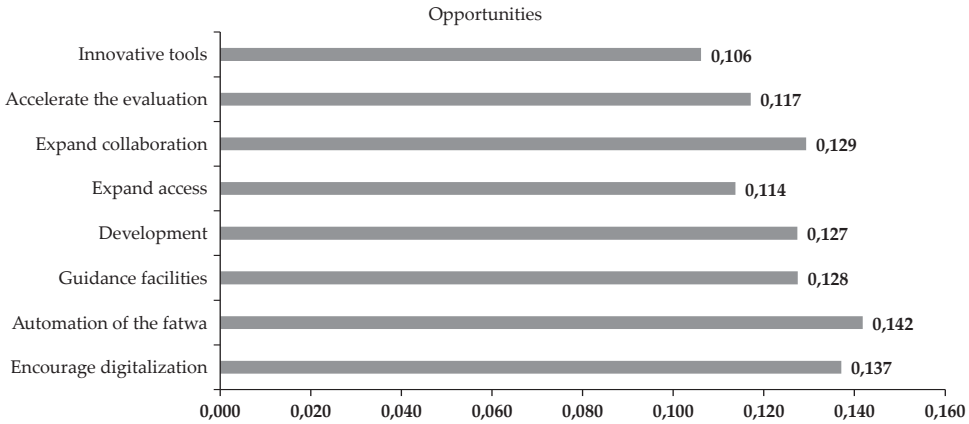
[111] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Mawaddah et al., "Artificial Intelligence as a Catalyst."

emerging technologies.[112] This symbiotic relationship ensures AI functions as a mukallaf al-asghar (subordinate tool) under scientific supervision, maintaining alignment with the principles of Islamic law while modernising administrative processes.[113]

IV.B. Opportunities Cluster Analysis

The opportunities criteria encompass eight key elements that highlight the potential advantages of AI integration in fatwa development. These elements include encouraging the digitalisation of fatwa systems, automation of the fatwa preparation process, guidance facilities for the Muslim community by Sharia advisors, development of supporting tools for fatwa formulation, expanding access to Islamic legal services, expanding international collaboration, accelerating the evaluation of Sharia compliance, and innovative tools in Islamic jurisprudence. The results of the ANP opportunity analysis can be seen in the figure below:

Figure 6.
ANP Analysis Results: Opportunities Criteria



Based on the figure, the highest-priority element is the automation of the fatwa preparation process, with a geometric mean value of 0.142. Additionally, the rater agreement value was found to be 0.03. This indicates a weak level of agreement between raters.

[112] Haridan et al., "What Do Shariah Boards Think About AI?"

[113] Karimullah, "The Application of Artificial Intelligence in Islamic Law Discovery;" Mawaddah et al., "Artificial Intelligence as a Catalyst."

This is also confirmed in the research of Alshithisri[114] and Karimullah,[115] which shows that process automation by AI can aid in fatwa formulation or Sharia decision-making, especially in the automation of data collection. AI, through natural language processing (NLP) techniques, can quickly process and analyse a large number of religious texts, including the Qur'an and Hadith, allowing Sharia advisors to issue fatwas that are contextually relevant to contemporary issues. Alshithisri[116] and Rahman et al[117] state that AI can identify patterns and relationships among various texts, facilitating a more informed interpretation of Islamic law. On the other hand when disagreements arise among scholars, AI can aggregate and analyse differing viewpoints to provide a comprehensive understanding of the discourse of a fatwa or Sharia compliance. This process enhances the quality of fatwas by ensuring they are grounded in extensive data analysis rather than isolated opinions.[118] In the financial aspect, AI can automate the process of credit scoring, customer service, and fraud detection, which is in line with research from Leuwol et al.[119], Setyowati & Rahayu,[120] and Firnando & Wahyudi[121] that the integration of AI with Islamic financial institutions can help accelerate the evaluation of Sharia compliance in the Islamic financial system and develop Islamic financial products. Similarly, research by Sa'ad et al[122]. explains that accepting Robo-advisors in the Islamic banking and financial system can simplify and facilitate Shariah supervision activities in Islamic financial services. In addition, the use of AI, such as Robo-advisors, can also facilitate research, generate data, analyse, and even execute fatwas in a significantly shorter time frame.[123]

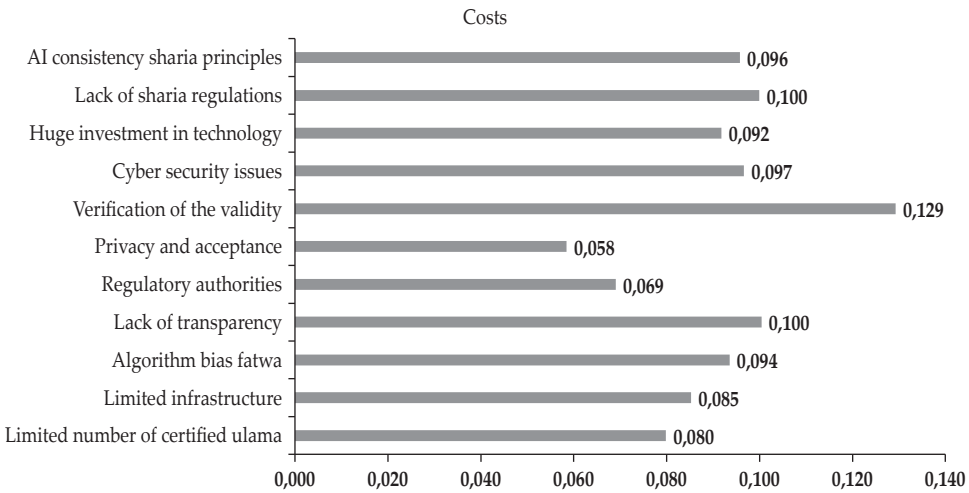
IV.C. Cost Cluster Analysis

The subsequent analysis focuses on the cost criteria, which consist of eleven key elements, including: a limited number of certified ulama, limited infrastructure and access, algorithm bias towards fatwa accuracy, lack of transparency, accountability, and interpretability, regulatory authorities of different countries,

[114] Alshithisri, "A Study of the Legal and Fiqhi Impact."
[115] Karimullah, "The Application of Artificial Intelligence."
[116] Alshithisri, "A Study of the Legal and Fiqhi Impact."
[117] Muhammad Edo Rahman et al., "Islamic Law in the Digital Era: Artificial Intelligence as a Revolutionary Legal Tool in the 21st Century," *Al-Hurriyah: Jurnal Hukum Islam* 9, no. 2 (2024): 102–15. http://dx.doi.org/10.30983/al-hurriyah.v9i2.8545.
[118] Alshithisri,, "A Study of the Legal and Fiqhi Impact;" Jamal and Zakaria, "Shariah Guideline."
[119] Leuwol et al., "Adaptive AI Framework."
[120] Setyowati and Rahayu, "Sector Analysis."
[121] Firnando and Wahyudi, "The Role of Artificial Intelligence."
[122] Auwal Adam Sa'ad et al., "Robo-Advisory for Islamic Financial Institutions: Shari'ah and Regulatory Issues," *European Journal of Islamic Finance*, 2020, 1–9.
[123] Sa'ad et al., "Robo-Advisory."

privacy and acceptance issues, verification of the validity of the fatwa, cyber security issues, massive investment in technology, lack of sharia regulations and governance, and AI consistency towards sharia principles. The results of the ANP analysis of the cost criteria can be seen in the figure below:

Figure 7.
ANP Analysis Results: Costs Criteria



Based on the figure, it can be seen that the top priority in these criteria is the verification of the fatwa's validity, with a geometric mean of 0.129. In addition, it is known that the rater agreement value is 0.15. This indicates a weak level of agreement between raters.

Karimullah[124] and Niam[125] explain that the legal validity of AI-generated fatwas requires Sharia advisors to verify accuracy and compliance. This creates a burden for scholars to validate AI-generated fatwas and ensure the accuracy of AI. On the other hand, the limited number of certified or qualified Sharia advisors, as well as the weak role of scholars and religious communities, further complicates the legal validity process, which in turn impacts the high operational costs. Similarly, Shalhoob's[126] research highlighted that while AI can improve operational efficiency, the initial setup and ongoing maintenance costs can be prohibitive for many Islamic Financial Institutions. In other words, the cost of developing and maintaining AI infrastructure, as well as training Sharia law experts and specialised resources to adapt to evolving interpretations and

[124] Karimullah, "The Application of Artificial Intelligence."
[125] Niam, "Does Artificial Intelligence Go beyond the Limits."
[126] Shalhoob, "The Role of AI in Enhancing Shariah Compliance."

rulings, requires substantial investment.[127] Therefore, it is essential to establish collaboration among scholars, technologists, lawyers, economists, and other relevant fields to address the unique challenges posed by AI in validating the Islamic legal framework.

On the other hand, the integration of artificial intelligence (AI) into fatwa issuance presents significant challenges regarding transparency, accountability, and interpretability. AI systems, particularly deep learning models, often operate as "black boxes", making it difficult for Sharia advisors and users to trace the reasoning behind the resulting fatwas.[128] This lack of transparency stems from the inherent complexity of algorithms such as transformers and recurrent neural networks (RNNs), which process massive amounts of textual data but obscure the decision-making path.[129] Without an explainable framework, stakeholders are unable to verify whether AI outputs align with the principles of the Qur'an, Sunnah, or scientific consensus, undermining trust in the system.[130] Although establishing such collaborative networks may be costly and time-consuming, it involves bringing together experts from different fields to create comprehensive fatwas that are relevant and applicable.[131]

IV.D. Risk Cluster Analysis

Finally, the risk criteria analysis focuses on eight key elements. Those are: accuracy of fatwa identification, domination of a particular ideology, reducing the involvement of ulama in the *istinbath* process, distortion of data and fatwas, AI algorithm bias towards the legitimacy of fatwas, AI resistance by some ulama, eliminating spiritual depth, and security of sensitive information. The results of the ANP analysis of risk criteria can be seen in the figure below:

[127] Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence;" Setyowati and Rahayu, "Sector Analysis;" Hussain et al., "The Potential Prospect;" Hasan Wahid and Kususiyanah, "The Relevance of the Usage of Artificial Intelligence and Machine Learning in Legal Analysis."

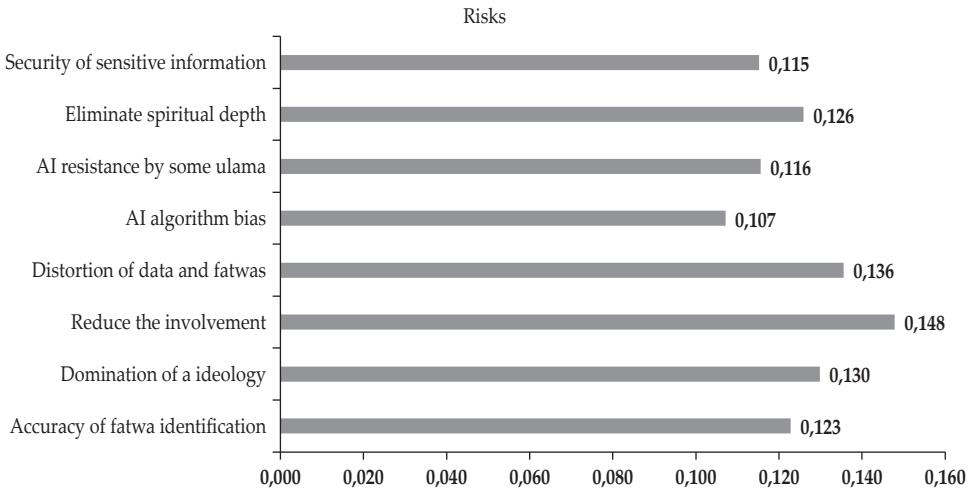
[128] Rahim et al., "Artificial Intelligence for Fatwa Issuance;" Israa Musa Al-momani, "Ethical Challenges for Using Artificial Intelligence in Understanding Islamic Jurisprudence," *Salud, Ciencia y Tecnología - Serie de Conferencias* 4, no. 1519 (2025): 1–9, https://doi.org/10.56294/sctconf20251519.

[129] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[130] Rahim et al., "Artificial Intelligence for Fatwa Issuance."

[131] Ridwan Malik et al., "Artificial Intelligence and Islamic Law : Ethical Implications and Fiqh Fatwas in the Digital Age," *Journal of Family Law and Islamic Court* 3, no. 2 (2024): 128–43, https://doi.org/10.26618/jflic.v3i2.16546; Polat et al., "An Inquiry Into."

Figure 8.
ANP Analysis Results: Risk Criteria



Based on the figure, the highest-priority element is the reduction of ulama involvement in the *istinbath* process, with a geometric mean of 0.148. The value of rater agreement is 0.02, indicating a weak level of agreement among raters.

The weakening of the deduction process (*istinbat*) in fatwa and the elimination of the involvement of ulama could occur when the formulation of fatwa or sharia-compliant decisions is fully entrusted to AI.[132] As a result, it may lead to fatwas lacking spiritual depth if AI entirely conducts them.[133] Another problem is that AI-generated data or fatwas can be distorted or twisted, leading to potential data breaches and misuse of sensitive Islamic rulings.[134] This also creates the potential for bias in the formulation of fatwas generated by AI. The risk of AI bias stems from generative models, unbalanced data, algorithm design, cultural context, and a lack of diversity in the AI development team, which can hinder the monitoring of data analysis performed by AI.[135] In addition, bias that occurs in AI algorithms can also

[132] Latifi, "Challenges of Using Artificial Intelligence;" Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence;" Alshithisri, "A Study of the Legal and Fiqhi Impact;" Niam, "Does Artificial Intelligence Go beyond the Limits;" Khoirunisa et al., "Islam in the Midst of AI;" Ahmed, "The Status of."

[133] Farag et al., "Using Maqasid Shariah."

[134] Alshithisri, "A Study of the Legal and Fiqhi Impact;" Hasan Wahid and Kususiyanah, "The Relevance of the Usage of Artificial Intelligence and Machine Learning in Legal Analysis."

[135] Latifi, "Challenges of Using Artificial Intelligence;" Jamal and Zakaria, "Shariah Guideline;" Karimullah, "The Application of Artificial Intelligence;" Niam, "Does Artificial Intelligence Go beyond the Limits;" Ahmed, "The Status of;" Alshithisri, "A Study of the Legal and Fiqhi Impact."

affect the credibility of fatwa issuance.[136] Research by Niam,[137] Latifi,[138] and Tsourlaki[139] also emphasised that AI can create the dominance of certain ideologies in Islam globally, so that it has the potential to be misused and exploited in spreading wrong interpretations and radical ideologies that are not in accordance with Islamic law. Thus, the role of the ulama is very important in the utilisation of AI for Sharia-compliant processes, especially as a supervisory actor and in determining the validity of fatwas, while still conducting *istinbath* and manual examination of a fatwa and decision to be issued.

V. CONCLUDING REMARKS

This study aims to analyse the priority of benefits, opportunities, costs, and risks associated with integrating AI into fatwa formulation. The result shows that the benefits cluster has the highest priority. The next priorities, in order, are costs, opportunities, and risks. Among the cluster of benefits, the AI's capability to enable comprehensive data collection and analysis is considered the most significant. The second most important benefit is AI's ability to provide multilingual translation, which allows the wider adaptation of the fatwas. As for the category of costs, the primary concern is the need for scholarly verification and validation of the AI-generated fatwas. The next major issue is transparency and accountability. In terms of opportunities, the potential for fatwa automation in the future and the development of a digital fatwa ecosystem rank the highest. However, the possible weakening of scholarly authority is the key risk identified. Additionally, potential manipulation, distortion, and cyber threats are the major issues to consider.

Given these findings, it is essential to develop proper implementation strategies and educational initiatives on AI's application in fatwa and Sharia opinions issuance, including for Muftis and Sharia Supervisory Board members. AI has the potential to enhance efficiency in the formulation and dissemination of fatwas, helping to bridge the gap between the supply and demand for Sharia opinions in the IFIs. However, considering the inequalities in AI advancements across different countries and regions, the involvement of Sharia authorities and adherence to ethical principles remains critical. Therefore, establishing a legal framework to regulate the role and utilisation of AI in fatwa formulation may be necessary in the near future. This would ensure that the benefits and

[136] Leuwol et al., "Adaptive AI Framework;" Farag et al., "Using Maqasid Shariah;" Firnando and Wahyudi, "The Role of Artificial Intelligence."

[137] Niam, "Does Artificial Intelligence Go beyond the Limits."

[138] Latifi, "Challenges of Using Artificial Intelligence."

[139] Tsourlaki, "Artificial Intelligence on Sunni Islam's Fatwa Issuance."

opportunities of AI are optimised while minimising the associated costs and risks.

Theoretically, this study contributes to the growing literature on digital transformation in Islamic jurisprudence by offering a structured prioritisation of AI-related implications in fatwa issuance. It advances previous work by mapping AI's integration not merely as a technological innovation but as a jurisprudential tool that supports rather than supplants ijtihad (independent reasoning). The study adds to Islamic legal discourse by proposing a decision-making framework that incorporates both technological and ethical dimensions, offering a reference model for future Islamic legal scholarship in the digital age.

For practical implementation, several strategies are proposed. First, capacity building is needed through structured training programs and AI literacy workshops for muftis and Sharia Supervisory Board members to enhance their understanding of AI tools. Second, institutions should adopt a hybrid fatwa model, where AI serves as a supportive system for preliminary analysis, while final rulings remain under the authority of human scholars. Third, pilot projects should be conducted within selected Islamic Financial Institutions (IFIs) to test AI-assisted fatwa issuance, allowing for controlled evaluation before broader application. Fourth, multi-stakeholder collaboration is critical—technologists, jurists, ethicists, and regulators must work together to design AI systems that respect the spiritual and ethical boundaries of Islamic law.

For future research, scholars are encouraged to investigate several key areas. First, empirical studies on community acceptance of AI-assisted fatwas can provide insight into trust, legitimacy, and adoption. Second, researchers should explore the development of AI-Sharia compliance algorithms, ensuring that machine learning models can be trained on authenticated sources with interpretative oversight. Third, longitudinal studies on the impact of AI on fatwa standardization and diversity across jurisdictions could offer valuable data for global harmonization efforts. Ultimately, legal scholars should examine the development of regulatory and fiqh-based frameworks that govern the use of AI in Islamic legal contexts, encompassing digital ethics and data governance. In conclusion, while the integration of AI into fatwa formulation offers transformative benefits in terms of efficiency, accessibility, and scalability, it must be approached with careful planning, scholarly guidance, and regulatory foresight. A balanced model—anchored in Islamic values and supported by technology—can serve to enrich Islamic jurisprudence while meeting the demands of contemporary Islamic finance and society.

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