

ISLAM AND ARTIFICIAL INTELLIGENCE: Perspectives from Traditionalist and Modernist Muslim Communities in Indonesia

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Abstract: This study explores how traditionalist and modernist Muslim communities in Indonesia respond to the ethical, religious, and social implications of Artificial Intelligence (AI). Using a qualitative analysis of fatwas, religious texts, and scholarly discourse, the research identifies distinct approaches: traditionalists prioritize doctrinal continuity and exhibit caution, while modernists adopt more adaptive interpretations that seek to align AI with Islamic ethical principles. Despite methodological differences, both groups express shared concerns regarding AI's influence on human agency, moral responsibility, and religious authority, while also recognizing its potential benefits when guided by Islamic values. The findings reveal that theological orientation alone does not shape responses to AI; socio-cultural factors also significantly influence how religious communities interpret emerging technologies. This study offers a nuanced perspective on how Indonesian Muslims navigate the intersection of faith, ethics, and technological advancement, contributing to broader discussions on Islamic thought and digital transformation in contemporary society.

Keywords: Artificial Intelligence, religious discourse, human agency, Islam and technology, traditionalist and modernist Muslim communities

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Introduction

In alquran Surah Al-A'la (87) verse 8, Allah explains that He has made it easy for humans to achieve happiness in this world and the hereafter. Based on this verse, technology can be one form of this ease. The modern era is dominated by technological advances and the development of AI is a topic that increasingly dominates the conversation among the global community. However, amid the debate around the implications and impact of AI, questions have arisen about how religions, including Islam, view these technologies.¹ Artificial intelligence (AI) is changing the way humans live.² The Indonesian Muslim community is no exception to the impact of the ongoing 4.0 technological revolution and refers to the integration of advanced technologies.³ Some see AI as a potential tool to improve quality of life and provide solutions to complex problems.⁴ On the other hand, however, there are anxieties and tensions related to how AI can affect religious values, ethics, and identity.⁵ There is a significant international movement towards achieving this through ethical discourse and standard-setting to devise ethical guidelines and policies for the responsible design and use of AI technologies. However, Western ethical theories overwhelmingly dominate the global theoretical discussion on AI ethics.⁶

Indonesia as the world's most populous Muslim-majority country⁷, presents a unique context in which Islamic traditions and technological modernity intersect. The rise of AI adoption in Indonesia—ranging from facial recognition in digital banking to chatbot usage in religious education—raises theological and ethical questions among Muslim communities, particularly between traditionalist and modernist groups.⁸ According to data from Kominfo and the Indonesia AI Society (IAIS), more than 190 AI-based startups emerged by 2023, signaling rapid AI integration across sectors. However, little is known about how Indonesia's diverse Islamic groups, especially traditionalists (e.g., Nahdlatul Ulama) and modernists (e.g., Muhammadiyah), perceive and respond to such developments.⁹ There is a significant international movement towards achieving this through ethical discourse and standard-setting to devise ethical guidelines and policies for the responsible design and use of AI technologies.¹⁰ However, Western ethical theories overwhelmingly dominate the global theoretical discussion on AI ethics. While many global AI ethics initiatives are grounded in secular and Western liberal frameworks, Islamic ethics offers a distinct normative foundation rooted in divine command, maqashid sharia (objectives of Islamic law),¹¹ and communal responsibility. Previous research such as Ana Khoirunisa's research,¹² Kirkpatrick Boyd and Hmielowski's research,¹³ Amina Inloes' research¹⁴ have explored Islamic ethics and AI, but few have examined how these are interpreted differently by traditionalist and modernist Muslims in a national setting like Indonesia.

The development of artificial intelligence has raised various ethical and moral questions around the world, including among the Indonesian Muslim community. In

this context, this paper will discuss how Islam views the concept of artificial intelligence and whether these religious values contradict or support the development of such technology.¹⁵ The question of how artificial intelligence can be used in accordance with religious teachings will be the main focus of discussion. Today, many countries with Muslim-majority populations are actively developing and adopting artificial intelligence technologies.¹⁶ Despite the emerging scholarly interest, there remains a research gap in understanding how Islamic discourse in Indonesia—shaped by two major orientations, traditionalism and modernism—engages differently with AI-related technologies. This paper addresses this gap by comparing and analyzing the theological, ethical, and sociological responses of traditionalist and modernist Muslim communities to the development and application of AI. The central research problems are: First, to what extent do Islamic ethical teachings, as interpreted by traditionalist and modernist Muslim groups, align or conflict with the development and application of AI? And second, how do these communities adapt their religious practices, fatwas, and educational methods in response to AI technologies?

With recent advancements in AI, it can be said that some AI not only mimics elements of human intelligence, but even surpasses it.¹⁷ In the face of the development of artificial intelligence, Indonesian Muslim communities around the world may experience changes in their religious practices. The question of how these technologies can affect worship, fatwas, and religious traditions will be an integral part of the analysis in this paper.¹⁸ Thus, a discussion on the relationship between Islam and artificial intelligence and its impact on the Indonesian Muslim community globally. Related to artificial intelligence, issues also arise related to automated decision-making that can violate the principles of ethics and justice taught in Islam.¹⁹ The author will review how Islamic views on justice and ethics interact with the development of algorithms and artificial intelligence systems that can make decisions independently. In addition, it is also important to explore how artificial intelligence can be used in the context of Islamic education and da'wah.²⁰ Can this technology be an effective tool to spread Islamic teachings or can it cause distortions in religious understanding? This paper will consider the implications of the application of artificial intelligence in a religious context.²¹

This article presents an interesting perspective on how Islam interacts with modern technological advances such as artificial intelligence. In an era where technology is increasingly pervasive in various aspects of human life, it is important to explore how religious values such as Islam are linked to such developments. This paper aims to explore the complex dynamics between Islam and artificial intelligence, as well as highlight the anxieties and tensions that may arise in the Indonesian Muslim community related to this. Therefore, the main objective of this study is to explore how Indonesia's traditionalist and modernist Muslim communities understand, accept, or resist AI within their religious worldview, and how these responses shape broader Islamic engagement with technology.

Methodology

This study uses a qualitative approach,²² with a desk research method to explore the complex relationship between Islam and artificial intelligence (AI) in Indonesian Muslim society, particularly among traditionalists and modernists. Data sources consist of scholarly articles, academic books, religious fatwas, and relevant policy documents.²³ The data collection process was conducted through documentation techniques by systematically identifying and analyzing authoritative literature²⁴ related to Islamic ethical responses to AI. Data analysis followed three main steps:²⁵ data condensation to filter out relevant information aligned with the research questions, data presentation structured around key themes (such as religious interpretations, ethical issues, and societal adaptation), and conclusion drawing through descriptive-analytical interpretation.²⁶ This methodological approach enables a critical examination of how Islamic values are articulated and negotiated in the face of rapid technological advances, ensuring that any claims are based on documented evidence and making a meaningful contribution to the discourse on religion and AI.

Results and Discussion

Artificial Intelligence (AI) in Islam: A Definitive Study

The relationship between Islam and Artificial Intelligence (AI) can be understood through three main perspectives: theological, ethical, and socio-cultural. Theologically, the main concern is how AI aligns with Islamic principles regarding divine creativity and human moral responsibility. The Muslim community questions whether AI challenges the unique role of humans as God's creations or infringes upon the boundaries set by religious doctrines. This theological concern reflects deep anxieties about the potential for AI to disrupt the balance between human autonomy and divine will.

From an "ethical" point of view, there is a lot of discussion about how AI should be designed and used by Islamic moral norms. Principles such as justice (*'adl*), responsibility (*'amanah*), and benefit (*maslaha*) form the basis for the Muslim approach to the development and application of AI.²⁷ The discussion emphasizes the need to maintain ethical boundaries that prevent AI from becoming a tool for exploitation, injustice, or harm to society.²⁸ This raises critical questions about how AI systems should be designed to comply with Islamic ethics, particularly regarding fairness, transparency, and accountability.

The socio-cultural perspective highlights tensions within Indonesian Muslim communities arising from AI's potential to transform social and economic structures.²⁹ The findings show that acceptance or rejection of AI is often influenced by concerns over preserving traditional values, roles in the workforce, and the impact on family and community life.³⁰ While some perceive AI as a threat to religious and cultural authority,

others view it as an opportunity to reinforce and modernize Islamic roles in society. In Islam, technology—including AI—is seen as a divine gift that should be harnessed for the welfare of humanity.³¹ The research confirms that the Islamic approach to AI is rooted in strong ethical and moral principles,³² requiring technology to be used in ways consistent with justice, compassion, and truth.³³ The study's results indicate that the responsible use of AI in Muslim societies involves balancing innovation with adherence to religious teachings to avoid violating Islamic values.

As a tool, AI in Islam must be directed to improve the welfare of humanity and encourage sustainable development. The use of AI must prioritize the public interest and avoid practices that harm society or violate religious principles.³⁴ In the Islamic view, AI should also be used to reinforce human values. AI technology can be used to help solve social problems, such as poverty, inequality, and injustice. By utilizing AI wisely, Muslims can strengthen their commitment to the human values emphasized in Islamic teachings. In addition, AI in Islam also highlights the importance of transparency and accountability in the development and implementation of technology. Clarity on how AI is used and its impact on society should come first. This is in line with the principles of justice and truth which are core values in Islamic teachings.³⁵

Historically, Islam has a rich intellectual tradition of scientific and technological advancement, and this heritage supports the view that AI development aligns with Islam's encouragement of continuous learning and knowledge acquisition. This historical context provides a foundation for embracing AI as part of Islam's intellectual legacy, emphasizing that AI should serve public interest and promote sustainable development. AI in Islam is a complex concept and involves various aspects, including ethics, morals, and responsibility.³⁶ In developing and using AI, Muslims are expected to stick to religious values and humanitarian principles. Thus, AI can be a useful tool in realizing the welfare of mankind through Islamic teachings.

Implementation and Challenges of AI in Indonesian Muslim Communities

The evolution of AI technology has made it a platform that has great potential to improve analytics.³⁷ The application of artificial intelligence (AI) technology in the Indonesian Muslim Community offers great potential to improve various aspects of life but also presents several challenges that need to be overcome.³⁸ One of the areas where AI can be applied is education.³⁹ The importance of this technology in the field of education is becoming increasingly well-known as it develops. AI intelligence is commonly used in education and has been shown to have practical benefits that significantly impact the education process.⁴⁰ With the advent of the era of smart education, emerging technologies such as learning analytics, data mining, cloud computing, and artificial intelligence have been integrated into education.⁴¹ AI can be used to develop a more adaptive and personalized learning system, according to the needs and preferences of Indonesian

Muslim students. In the health sector, the application of AI can help improve health services with faster and more accurate diagnoses, as well as more efficient management of patient data. However, the challenges faced include concerns regarding the privacy of medical data and the need for strict regulations to protect sensitive patient information.⁴²

In economics, AI can help improve productivity and efficiency through the automation of business processes,⁴³ deeper data analysis, and more informed decision-making. However, there are challenges related to inequality of access and the digital divide among members of the Indonesian Muslim community, which can strengthen economic disparities.⁴⁴ In the field of religion, the application of AI can help facilitate religious studies, Qur'an research, and the development of Islamic applications that are relevant to the needs of the community. However, it is important to ensure that the use of AI in a religious context remains consistent with Islamic values and teachings, and avoids the possibility of misuse of this technology for purposes contrary to religious beliefs.⁴⁵

One of the main challenges in the application of AI in the Indonesian Muslim Community is the limited technological infrastructure and availability of skilled human resources, to create appropriate capabilities.⁴⁶ Significant investment is needed in the development of information technology infrastructure and workforce training to optimally utilize the potential of AI.⁴⁷ Another challenge is the awareness of ethics and morals in the development and use of AI technology. The Indonesian Muslim community needs to consider the ethical implications of using AI in various aspects of life, including its impact on social justice, privacy, and human dignity. In addition, there needs to be cooperation between the government, academic institutions, and the private sector to create an environment that supports the development and implementation of inclusive and sustainable AI. This includes the development of policies that promote innovation, the protection of digital rights,⁴⁸ and the building of technological capacity.⁴⁹

The adoption of AI in the Indonesian Muslim Community also requires a sensitive approach to cultural and religious values. It is important to ensure that the development of AI technology takes into account the special needs and religious beliefs of the Indonesian Muslim community, as well as respecting cultural diversity and beliefs. AI development efforts must also involve active participation from the Indonesian Muslim community, including scholars, academics, and community leaders.⁵⁰ By involving all stakeholders, more appropriate and sustainable solutions can be produced that can provide maximum benefits to the community.⁵¹ By addressing these challenges, the Indonesian Muslim Community has great potential to benefit from the application of AI that can improve the quality of life, promote sustainable development, and strengthen technological independence in the context of Islamic culture and values.

The Relationship of Islam and AI: Approaches, Dialogue, and Solutions

The development of artificial intelligence (AI) technology has created a deep

reflection in the Indonesian Muslim community. As a society rich in religious values, the question of how AI intersects with the teachings of Islam and how it affects Muslim society becomes very important. On the one hand, there is anxiety that the development of AI may conflict with Islamic values, especially in terms of ethics and morals. There are concerns that AI may be used for purposes contrary to religious teachings, such as generating inappropriate content or facilitating practices prohibited by Islam. However, on the other hand, there is also an awareness that AI can be a useful tool to advance Indonesian Muslim society.⁵² Artificial intelligence (AI) is already ubiquitous in the workplace and in everyday life: in the form of diverse technologies.⁵³ By using AI technology wisely, people can benefit in various fields, such as education, health, and economics.

One of the issues that is often the focus of debate is the legality of the use of AI in the context of religion. Some Muslim scholars and scholars have issued fatwas on the halal or forbidden use of AI in certain situations, such as in everyday life or in business. Tensions also arise in terms of the adoption of AI technology in the Islamic education and economic environment. How AI can affect the teaching of Islam in Islamic schools or educational institutions, as well as how AI can help improve the economic welfare of Muslims, is a major concern in this discussion. Another challenge is how to maintain fairness and diversity in the development and application of AI.⁵⁴ This includes ensuring that AI technology does not produce biases that harm certain groups, as well as ensuring that AI can be used by all segments of the Indonesian Muslim community without discrimination.⁵⁵

In addition, there are also concerns about the social and economic impacts of AI adoption on Indonesian Muslim communities. The use of AI can change the landscape of the job market, which may require adjustments for many Muslim workers.⁵⁶ This raises questions about how to address the economic and social inequality that may arise as a result of AI adoption. To overcome the anxiety and tension that may arise, the Indonesian Muslim community needs to be actively involved in the discussion and development of AI technology. By being part of this process, society can ensure that Islamic values are accommodated and that AI technology is used for the good of humanity by Islamic teachings.⁵⁷

Education and awareness about AI are also very important in dealing with anxiety and tension that may arise.⁵⁸ By better understanding the potential and risks of AI, Indonesian Muslim communities can make better decisions about its use and ensure that the technology is used wisely.⁵⁹ The relationship between Islam and artificial intelligence has not always been a source of anxiety and tension for the Indonesian Muslim community. With active involvement in discussions, a better understanding of AI, and a commitment to integrating Islamic values in the development and use of AI technology, Indonesian Muslim communities can face these challenges wisely and make valuable contributions to the advancement of AI technology as a whole.

The Islamic approach to Artificial Intelligence (AI) is based on strong ethical and moral principles. Islam teaches that technology, including AI, is a gift from God that must be utilized for the good of mankind. Therefore, the Islamic approach to AI emphasizes the importance of using technology by religious values, such as justice, compassion, and truth. The importance of interfaith dialogue on AI is key to understanding the implications of this technology in the context of multicultural societies. Islam encourages open dialogue and mutual understanding between religious people to achieve a better understanding of the impact and implications of AI. Through this dialogue, Muslims can share their views on the use of AI and learn from the perspectives of other religions. In developing and implementing AI, Muslims are expected to ensure that the technology does not contradict the teachings of Islam. Harmonization between technology and religious teachings is important so that the use of AI does not violate Islamic ethical and moral principles. This requires collaboration between scientists, religious thinkers, and technology practitioners.

The relationship between Islam and AI also highlights the importance of strengthening human values in technological development. Islam teaches the importance of prioritizing the interests of humanity in every action and decision. Therefore, the development of AI must prioritize human welfare and avoid practices that harm society. Facing the complex challenges of AI, an interdisciplinary approach is key to finding holistic solutions. Islam encourages to combine religious knowledge with science and technology to produce comprehensive solutions.⁶⁰ Such an approach enables the development of AI based on Islamic spiritual and moral values. The relationship between Islam and AI also emphasizes the importance of social and ethical responsibility in the use of technology. Islam teaches that humans have a moral responsibility for the impact of their actions, including in the development and use of AI. Therefore, the use of AI must be governed by ethical and moral principles that are by the teachings of Islam.

Islam encourages its people to have a high awareness of the social impact of technology, including AI. Uncontrolled use of AI can have serious social consequences, such as unemployment, inequality, and misuse of personal data.⁶¹ Therefore, Muslims need to play an active role in ensuring that the development and use of AI prioritizes social and humanitarian interests. Despite upholding religious values, Islam also encourages openness to innovation and technological advancement. Islam is not opposed to the development of technology, as long as it is used for the good of mankind. Therefore, Muslims are expected to be open to the development of AI that can bring benefits to society.

In facing AI challenges, education, and counseling are key in preparing Muslims to face technological changes. Islam encourages its people to continue to learn and develop knowledge in all fields, including technology. Through education and counseling, Muslims can better understand the implications of AI and take appropriate steps in dealing

with it.⁶² The relationship between Islam and AI also underscores the importance of international cooperation in overcoming the challenges faced by AI technology. Cooperation between countries and international institutions can facilitate the exchange of knowledge, the development of appropriate regulations, and the dissemination of best practices in the use of AI. Thus, Muslims can together with the global community develop AI responsibly by religious and humanitarian values.⁶³

Researching Islamic Relations AI: Between Traditionalist and Modernist Muslims

The approach between traditionalist and modernist Muslims to the relationship between Islam and AI also shows differences in views on technological advances and interpretations of religious teachings. Traditionalist Muslims generally adopt a cautious stance, emphasizing the preservation of long-established Islamic values and traditions.⁶⁴ Their perspective often involves careful consideration of religious criteria such as halal compliance and propriety in relation to AI usage. Conversely, modernist Muslims tend to embrace technological progress more openly, recognizing AI as a tool that can enhance religious understanding and improve the overall welfare of the Muslim community. This group is more inclined to integrate new technologies across various fields, focusing on the positive potentials AI can offer.⁶⁵

The context of the relationship between Islam and AI was found to be a complex ethical question that needed to be considered. For example, how to ensure that the algorithms used in artificial intelligence do not generate bias or discrimination against certain individuals or groups by the principles of justice in Islam? In addition, the development of AI can also raise questions about autonomy and responsibility. How Muslims should respond to the ethical implications of using AI in significant decision-making, including in the context of Islamic law or fatwas.⁶⁶ In facing this kind of challenge, Muslims need to engage scholars, religious scholars, scientists, and technologists to discuss and cooperate in formulating a balanced and holistic view of the relationship between Islam and AI. Thus, it can be expected that the development and application of artificial intelligence can support Islamic values and principles productively and responsibly.

The difference in approach between traditionalist and modernist Muslims is also reflected in the understanding of ethical and moral concepts in the context of AI. Traditionalist Muslims may pay more attention to aspects such as ethics in the use of technology, keeping it from contradicting existing Islamic principles. Meanwhile, modernist Muslims may be more likely to adopt a more dynamic approach to AI ethics, taking into account the social context and current needs. However, there is not always a strict separation between traditionalist and modernist Muslims in their view of AI. Many Muslims take a balanced approach, combining traditional values with an awareness of

the importance of adapting to technological developments. This approach may include critical thinking into the social, economic, and religious implications of using AI, as well as efforts to integrate these technologies harmoniously into everyday life.⁶⁷

Furthermore, the differing perspectives of traditionalist and modernist Muslims on AI reveal underlying tensions between preservation and innovation within Islamic thought. Traditionalists' cautious stance often stems from concerns that rapid technological changes might disrupt established religious practices and social norms, potentially leading to ethical dilemmas that are difficult to resolve within classical jurisprudence frameworks.⁶⁸ On the other hand, modernists argue that Islam's rich intellectual tradition encourages *ijtihad* (independent reasoning), which supports adapting new knowledge and technologies to contemporary contexts. This dynamic tension is reflected in ongoing debates within Indonesian Muslim communities, where the balance between maintaining religious authenticity and embracing modernity remains delicate. Studies indicate that communities successfully navigating this balance tend to have more inclusive dialogue platforms involving religious authorities, academics, and technology experts, which fosters mutual understanding and informed decision-making regarding AI's role in society.⁶⁹

In terms of practical implications, the coexistence of traditionalist and modernist views shapes how AI is perceived and utilized across different Muslim social contexts in Indonesia. For example, AI applications in Islamic education, such as digital Quranic learning tools or automated fatwa services, are welcomed by modernist communities for their efficiency and reach. However, traditionalists may question the reliability and authenticity of AI-generated religious guidance, emphasizing human oversight to ensure alignment with Sharia principles. This divergence underscores the need for transparent, accountable AI systems that incorporate Islamic ethical values, such as justice, compassion, and public benefit, to build trust across communities.⁷⁰ As this study highlights, recognizing and respecting these diverse viewpoints is crucial for the ethical development and implementation of AI technologies that serve Indonesian Muslims without compromising their religious identity or social cohesion.

To understand the relationship between Islam and AI, it is important to recognize the diversity of views among Muslims. While traditionalist Muslims may place more emphasis on maintaining existing religious values, modernist Muslims can be more open to technological innovation to strengthen religious understanding and improve the welfare of the people.⁷¹ Both viewpoints are crucial and complementary, and their collaboration can yield a holistic and integrated strategy to address the challenges and opportunities presented by AI.

Conclusion

This study delves into the fascinating intersection between Islam and Artificial Intelligence (AI), highlighting the contrasting yet complementary perspectives of traditionalist and modernist Muslim communities in Indonesia. The research questions, centered on how Islamic ethical teachings align with AI development and how these communities perceive and adapt to AI, were addressed through qualitative analysis of scholarly literature and discourse. The findings show that traditionalist Muslims tend to emphasize preserving established religious values and express caution toward AI's potential to challenge Islamic ethics and social norms. In contrast, modernist Muslims are generally more open to adopting AI as a tool to enhance religious understanding and social welfare, provided it complies with Islamic moral principles. Both groups, however, agree on the necessity of ethical safeguards such as justice, transparency, and accountability in AI applications.

These findings have significant practical implications for the development and governance of AI technologies in Indonesia's Muslim-majority society. To gain broader acceptance and ensure responsible use, AI systems must be designed in accordance with Islamic ethical frameworks, emphasizing fairness, non-discrimination, and social justice. Collaborative efforts among religious scholars, technologists, and policymakers are vital to create inclusive ethical guidelines that reconcile traditional and modern viewpoints. Future research should involve empirical studies engaging Muslim communities to understand their concerns and lived experiences with AI. Additionally, exploring how Islamic jurisprudence can evolve to address AI-related ethical challenges would enrich this discourse. Policy initiatives grounded in Islamic values, including educational programs on AI ethics, could effectively harmonize technological innovation with religious teachings, contributing positively to Indonesia's socio-religious context.

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