Scholars' Views on the Use of Robo-Advisors in Shariah Investment: A Study of Fatwa and Its Application

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Abstract: The integration of digital technology into the financial sector has given rise to robo-advisors—automated investment platforms that utilize artificial intelligence and algorithmic processing to offer personalized portfolio management. While these innovations offer efficiency and accessibility, their application in Islamic finance raises critical questions regarding Shariah compliance, particularly in avoiding elements such as *riba* (interest), *gharar* (excessive uncertainty), and *maysir* (gambling). This study investigates the views of contemporary Islamic scholars on the permissibility of robo-advisors in Shariah-compliant investment, using a conceptual and normative analysis of fatwas, scholarly literature, and regulatory guidelines from key institutions such as DSN-MUI and AAOIFI. The findings reveal that scholars generally allow the use of robo-advisors under specific conditions, including algorithmic transparency, compliance screening, and human oversight. However, the regulatory landscape—particularly in Indonesia—remains underdeveloped, lacking detailed standards tailored to robo-advisory services. This paper contributes to the field by proposing a Shariah-oriented framework for evaluating robo-advisors and identifying gaps in fatwa issuance and regulatory practice. The study underscores the need for enhanced collaboration between regulators, scholars, and fintech developers to ensure ethical and effective integration of artificial intelligence in Islamic finance. Future empirical research is recommended to assess user perceptions and practical applications in diverse socio-economic contexts.
Keywords: Robo-advisor; Islamic finance; Shariah compliance; fatwa; financial technology

Introduction

The development of digital technology has brought significant changes in the global financial services ecosystem, including the emergence of robo-advisors as one of the key innovations in investment management. A robo-advisor is an automated investment platform that uses algorithms and data to provide investment recommendations to users without the direct intervention of a human financial advisor.[1] The system relies on artificial intelligence and machine learning to analyze market data and provide investment advice tailored to the user's risk profile and financial goals.[2] In the conventional finance industry, the use of robo-advisors has grown rapidly thanks to their efficiency, data-driven personalization, and relatively low costs.[3] Along with this digitization trend, robo-advisors services are being adopted in various Muslim-majority countries, including Indonesia, by investors who seek convenience in investing online.

However, the emergence of robo-advisors in the context of Islamic finance raises fundamental questions regarding compliance with Shariah principles. While robo-advisors are designed to provide investment recommendations that match the user's risk profile, such mechanisms may lead to potential violations of Shariah principles such as *riba, gharar* and *maysir*. *Riba* is prohibited in Islam because it can exploit the weaker party in the transaction, while *gharar* and *maysir* are avoided because they contain high uncertainty and speculative elements that harm one of the parties.[4] Therefore, it is important to ensure that robo-advisors operating in the Islamic market are carefully designed so that the recommended products do not involve non-compliant transactions. This requires close monitoring of the portfolio composition, and the parameters of the algorithms used.

In this context, fatwas have a very important role to play in providing clear legal guidance regarding the use of technology in Islamic finance, including the application of robo-advisors. Fatwas not only serve as normative guidelines, but also as an applicative tool that ensures that innovations in the financial world remain within the corridors of Islamic law.[5] Relevant fatwas will help the public and financial institutions to determine whether the robo-advisor used meets Shariah standards, as well as provide a sense of security for investors who are concerned about the legal aspects of investing. For example, a fatwa can shed light on whether a robo-advisor offering automated investment services complies with

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[1] Muhammad Farhan Ariq Pramanda, "Teknologi Finansial Dalam Islam: Harmoni Antara Inovasi Dan Prinsip Keuangan Syariah," January 1, 2023, https://www.academia.edu/108533036/Teknologi_Finansial_dalam_Islam_Harmoni_Antara_Inovasi_dan_Prinsip_Keuangan_Syariah.

[2] Bambang Irawan et al., "TINJAUAN HUKUM EKONOMI SYARIAH TENTANG PENGGUNAAN ROBO ADVISOR DALAM ISLAMIC WEALTH MANAGEMENT (Studi Pustaka Robo Advisor Di Indonesia Tahun 2022)," *AL-MANHAJ: Jurnal Hukum Dan Pranata Sosial Islam* 5, no. 2 (July 27, 2023): 1157–74, https://doi.org/10.37680/ALMANHAJ.V5I2.3214.

[3] Nazma Aktatusyaniah and Rahmat Maulani Hidayat, "PENGARUH FINTECH SYARIAH TERHADAP PERKEMBANGAN INVESTASI DI PASAR MODAL SYARIAH (TINJAUAN TERHADAP REKSADANA SYARIAH)," *Jurnal Cahaya Mandalika ISSN 2721-4796 (Online)* 5, no. 3 (2024): 1170–81, https://doi.org/10.36312/JCM.V5I3.4154.

[4] Gunawan Widjaja, "MAQASID SYARIAH DALAM REGULASI FINTECH:," *Borneo : Journal of Islamic Studies* 5, no. 1 (December 21, 2024): 23–36, https://doi.org/10.37567/BORNEO.V5I1.3355.

[5] Auwal Adam Saad et al., "ROBO-ADVISORY FOR ISLAMIC FINANCIAL INSTITUTIONS: SHARI'AH AND REGULATORY ISSUES," *European Journal of Islamic Finance* 0, no. 0 (March 16, 2020), https://doi.org/10.13135/2421-2172/3992.

Shariah principles.[6]

The importance of this fatwa is also reflected in previous studies that discuss the use of technology in Islamic finance. Several studies have examined how technology, such as robo-advisors, can be applied in the Islamic finance ecosystem. These studies often emphasize the importance of avoiding Shariah-compliant practices, such as usury, speculation, and uncertainty that can harm investors. However, further studies on the legality of using robo-advisors in Islamic finance are limited. Therefore, in-depth research on the application of robo-advisors in the Islamic market is needed to produce more comprehensive fatwa guidance, which will support the development and implementation of financial technology in accordance with Islamic principles. This research is expected to make a practical contribution to the development of fatwas and policies of Islamic finance regulators as well as a theoretical contribution in building a scientific framework that is adaptive to financial technology innovation.

Although the integration of robo-advisors in Islamic finance continues to attract growing attention, scholarly discussions on their legal and ethical foundations remain relatively limited. Most existing studies focus on technical innovation and market adoption, while critical assessments rooted in Islamic legal theory and fatwa development are still scarce. This study aims to address this gap by analyzing the normative perspectives of contemporary shariah scholars regarding the permissibility of robo-advisors, along with the regulatory challenges surrounding their implementation. Through this approach, the research aims to contribute both theoretically by enriching Islamic financial jurisprudence and practically by informing regulators and industry players on how to align technological innovation with shariah principles.

Research Method

This study employs a qualitative research approach through an in-depth literature review to explore the perspectives of Islamic scholars on the use of robo-advisors in shariah-compliant investment practices. The analysis is normative and conceptual in nature, focusing on how shariah principles are interpreted and applied in the context of financial technology.

The selection of literature was conducted purposively, guided by three key criteria: relevance to the topic of Islamic financial technology, the credibility and authority of the sources, and their influence on the development of fatwas and regulatory standards within the Islamic finance ecosystem. Primary references include contemporary *fiqh* texts, scholarly journal articles, and official fatwa documents published by institutions such as DSN-MUI and AAOIFI.

Thematic analysis was applied to identify dominant legal perspectives, underlying principles of *mu'amalat* (Islamic commercial law), and the methodological approaches (*istinbat*) used by scholars in responding to the emergence of automated investment tools. This method allows for a systematic understanding of how normative Islamic legal thought engages with modern financial innovation.

It is important to acknowledge that this study is conceptual in nature and does not incorporate empirical data or field observations. As such, its findings are limited to theoretical insights derived from textual sources. This limitation is addressed in the

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[6] Raja Suzana, Raja Kasim, and Malaysia Kelantan, "A SMART SHARIAH-BASED DECISION-MAKING IN ISLAMIC FINTECH," *I-IECONS e-Proceedings*, October 20, 2023, 731–37, https://doi.org/10.33102/IIECONS.V10I1.77.

conclusion, where further empirical research is recommended to complement the conceptual framework presented.

Results

Based on an extensive literature review and analysis of scientific sources, this study reveals significant findings regarding scholars' perspectives on robo-advisors in the context of Islamic investment.

Key Findings on Scientific Articles

This research shows that Islamic scholars generally adopt a cautious but permissive attitude towards robo-advisors in Islamic finance, provided that special conditions are met. The analysis reveals that the use of robo-advisors in shariah wealth management can be considered permissible (mubah) as a means for retail and novice investors to protect wealth *(ḥifẓ al-mâl)* by applying filters for shariah-compliant investment instruments.

According to the World Bank, robo-advisors utilize algorithms and artificial intelligence (AI) to generate tailored investment recommendations for users. These platforms follow a systematic, technology-driven process aimed at delivering efficient and personalized portfolio management. The process begins with data collection, where investors complete a comprehensive questionnaire designed to capture key details such as risk tolerance, investment goals, financial experience, age, and personal preferences. This information serves as the foundation for constructing a clear and individualized financial profile. The system then moves to data analysis, where advanced algorithms process the gathered data to assess the investor's risk appetite and accurately determine their investment objectives.[7]

Based on this analysis, the robo-advisor system then moves to portfolio recommendations, generating tailored investment strategies that align with the investor's risk profile. These suggestions are developed using a combination of historical market data and real-time financial insights. Once the investor reviews and approves the recommended strategy, the system transitions to portfolio implementation, automatically executing the investment plan by purchasing and selling financial assets in accordance with the predefined allocations.

Subsequently, the robo-advisor engages in portfolio monitoring, continuously tracking investment performance and making necessary adjustments through a process known as rebalancing. Rebalancing ensures that the portfolio remains aligned with the investor's original risk profile and financial goals, even as market conditions fluctuate. Throughout this entire cycle, robo-advisors maintain transparency by providing users with ongoing access to portfolio performance data and updated investment recommendations via an intuitive digital platform. This enables investors to remain informed and engaged in their financial journey, while benefiting from automated yet Shariah-compliant wealth management services.

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[7] Bambang Irawan et al., "Tinjauan Hukum Ekonomi Syariah Tentang Penggunaan Robo Advisor Dalam Islamic Wealth Management (Studi Pustaka Robo Advisor Di Indonesia Tahun 2022)," *AL-MANHAJ: Jurnal Hukum Dan Pranata Sosial Islam* 5, no. 2 (July 27, 2023): 1157–74, https://doi.org/10.37680/ALMANHAJ.V5I2.3214.

Robo-advisor is a financial technology innovation that uses algorithms and artificial intelligence to provide automated investment management services. The system works through six main stages from data collection to ongoing monitoring, providing retail investors with efficient, transparent, and affordable investment solutions. Despite its limitations in personalization and in-depth counseling aspects, robo-advisors have proven to be successful in improving the accessibility of wealth management services in various countries, including Indonesia.

Scholarly Perspectives

Contemporary scholars generally accept the use of robo-advisors in Islamic investments under certain conditions. This view is based on the principle of *maslahah* (benefit) which allows the adoption of technology as long as it provides benefits and does not contradict shariah. The use of robo-advisors in Islamic wealth management can be considered halal as a means for retail and novice investors to safeguard wealth (*hifz al-mal*). However, scholars emphasize the importance of human supervision in complex decision-making. AI and robo-advisors can play a role in validating the basic requirements of Shariah compliance, but human scholars are still needed to provide judgment based on knowledge and wisdom derived from the Qur'an and Sunnah. This approach reflects a balance between technological innovation and the preservation of Islamic values.[8]

Nevertheless, it is important to highlight those scholarly perspectives on robo-advisory services are not entirely uniform. Some scholars adopt a more conservative stance, arguing that critical investment decisions should not be fully delegated to algorithms due to the ethical and jurisprudential complexities involved. They stress the need for human oversight, especially in interpreting compliance beyond automated filters.[9] On the other hand, more progressive scholars are open to broader use of automated systems, provided that transparency, shariah screening mechanisms, and auditability are maintained throughout the process.[10] These divergent views illustrate a dynamic and evolving discourse within Islamic jurisprudence as it encounters emerging financial technologies.

Regulatory Framework and Fatwa

The regulatory framework for shariah robo-advisors in Indonesia is still in the development stage. DSN-MUI Fatwa No. 117/DSN-MUI/II/2018 concerning information technology-based financing services based on shariah principles is the basis for regulations for shariah fintech, but it has not specifically regulated robo-advisors. The implementation of this fatwa still faces challenges, where some Islamic fintech companies have not fully implemented the stipulated provisions.[11]

AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions) also plays an important role in providing standards for Islamic financial institutions,

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[8] Issa Hamadou et al., "Unleashing the Power of Artificial Intelligence in Islamic Banking: A Case Study of Bank Syariah Indonesia (BSI)," *Modern Finance* 2, no. 1 (June 22, 2024): 131–44, https://doi.org/10.61351/mf.v2i1.116.

[9] Saad et al., "ROBO-ADVISORY FOR ISLAMIC FINANCIAL INSTITUTIONS: SHARI'AH AND REGULATORY ISSUES."

[10] Hamadou et al., "Unleashing the Power of Artificial Intelligence in Islamic Banking: A Case Study of Bank Syariah Indonesia (BSI)."

[11] Muhammad Hadrianto et al., "The Implementation of the National Sharia Council's Fatwa on Information Technology-Based Financing Services Based on Sharia Principles in Sharia Fintech Companies," TATOHI: Journal of Law 1, no. 12 (February 28, 2022): 1196–1214, https://doi.org/10.47268/tatohi.v1i12.876.

including in the context of financial technology. The organization has developed standards that are adopted in various countries, but still need specific adaptations for robo-advisory technology. Shariah audits play an important role in maintaining the compliance of Islamic financial institutions with shariah principles that prohibit *riba, gharar*, and *maysir*. International organizations such as the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Islamic Financial Services Board (IFSB) have played an important role in developing shariah auditing standards that are used globally. However, although these standards have been implemented in various countries, there are still variations in their adoption and implementation due to differences in local regulations and financial cultures. AAOIFI, as an international standards institution, has issued important standards related to shariah accounting and auditing, which aim to create uniformity in the implementation of shariah audits in various Islamic financial institutions (LKS) around the world. This standard provides guidelines for shariah auditors to ensure that every transaction and operation of a financial institution is in accordance with shariah principles.[12]

In addition to regulatory developments in Indonesia, several Muslim-majority countries have taken interesting approaches to support shariah-based financial innovation. In Malaysia, for example, the Securities Commission offers a regulatory sandbox where Islamic fintech Stratups can develop and test their products in a safe environment, with guidance from the Shariah Advisory Council. In the United Arab Emirates, similar initiatives exist such as the FinTech Hive in Dubai and the Innovation Testing License from the Dubai Financial Services Authority (DFSA) which allow fintech innovations to move forward while ensuring they remain aligned with shariah principles.

Discussion
Shariah Validity and Compliance of Trading Automation Instruments

In modern Islamic commercial practices (*muamalat*), the application of automated tools such as Robo-Advisors and trading bots—often referred to as Expert Advisors (EAs)—has become a significant area of discussion that warrants thorough examination from a *fiqh* (Islamic jurisprudence) perspective. Fundamentally, the use of automation in trading is considered permissible (*mubah*) under Islamic law, provided it complies with the essential principles governing Shariah-compliant financial transactions.

Several key conditions must be fulfilled for such systems to be deemed acceptable. First, the automated mechanism must undergo rigorous testing to ensure its validity and accuracy, thereby eliminating elements of *gharar* (excessive uncertainty) and *ghabn* (unfair advantage or deception). Second, the system must not involve *maysir* (gambling) or be used to gain unjust profits through prohibited means such as *riba* (interest) or *gharar*. Third, the automation employed should be either fully or semi-controlled, allowing the system's developers or providers to bear legal responsibility in the event of user losses (*dhamman al-fi'li*). Lastly, the tool must not operate in a vague or ambiguous manner (*jahalah*), and it should be accompanied by clear technical guidance to prevent harm or confusion for the end user.

From the perspective of classical (*salaf*) scholars, acquiring a strong foundation in religious knowledge is considered essential before engaging in commercial activities. This

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[12] Dewi Rizkiyanti et al., "The Role of AAOIFI, IFSB, and Sharia Supervisory Boards in Sharia Audits: Global Challenges and Implications," Pelita : Journal of Research, Applied and Applicative 1, no. 2 (June 28, 2024): 129–52, https://doi.org/10.70550/PELITA.V1I2.75.

principle is emphasized by Sayyidina Ali bin Abi Talib (RA), as cited in *Tanbihul Ghafilin*, Volume 1, page 364, where he states:

مَنْ اتَّجَرَ قَبْلَ أَنْ يَتَفَقَّهَ ارْتَطَمَ فِي الرِّبَا ثُمَّ ارْتَطَمَ ثُمَّ ارْتَطَم

"Whoever trades but does not understand religious knowledge, then he will definitely fall into usury, then he will fall into it and continue to fall."

Companion Umar bin Khathab RA also gave a similar warning:

لَا يَبِيعَنَّ فِي أَسْوَاقِنَا هَذِهِ قَوْمٌ لَمْ يَتَفَقَّهُوا فِي الدِّينِ، وَلَمْ يُوفُوا الْكَيْلَ وَالْمِيزَان

"Do not let there be in our markets people who do not understand religion, and do not pay the measurements and scales correctly."

In the context of trading automation, Islamic legal discourse emphasizes the importance of ensuring both the validity and Shariah compliance of Expert Advisors (EAs). These automated trading tools must be carefully evaluated to avoid elements prohibited in Islamic finance, such as *gharar* (excessive uncertainty), *maysir* (gambling), and *riba* (usury). While EAs can serve as helpful technical aids for executing transactions in financial markets, their legitimacy depends on being developed using clear and sound methodologies—primarily robust technical and fundamental analysis—rather than speculative or arbitrary responses to market fluctuations. A Shariah-compliant EA should generate recommendations based on observable price trends and real economic indicators. This ensures that trading decisions are made rationally and ethically, aligning with the objectives of Shariah (*maqāṣid al-sharī'ah*), particularly the protection of wealth (*ḥifẓ al-māl*).[13]

Furthermore, it is essential to distinguish between two types of participants in the futures market: trader-investors and trader-speculators. Trader-investors typically use EAs as strategic tools for informed and calculated decision-making. They apply risk management techniques such as stop-loss orders, take-profit levels, and precise margin calculations. On the other hand, trader-speculators often use EAs as gambling devices, relying on chance rather than informed analysis. Their approach tends to lack proper understanding of technical or fundamental market indicators, making their activities more speculative in nature.

A common error among traders is failing to recognize that trading, particularly in the context of Islamic finance, falls under the legal category of *tijārah* (commercial transactions). When the instruments traded are financial securities like stocks or sukuk, the transactions frequently involve a *ḥiwālah* (transfer of liability) mechanism. Therefore, the traded assets must meet the criteria of being *namma'* (productive or wealth-generating) and

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[13] Bakhrul Huda, "Transaksi Pasar Mata Uang (Foreign Exchange) Dalam Perspektif Fiqh Islam" Maraji: Jurnal Ilmu Keislaman 2, no. 1 (2015): 172–96

should not be acquired solely for speculative purposes. Ensuring that the traded instruments serve real economic functions is crucial to uphold Shariah principles in financial dealings.

In explaining from a legal point of view, the rules of fiqh explain:

للوسائل حكم المقاصد، فإن قصدت للإعانة على قربة كانت قربة، أو مباح فمباحة، أو مكروه فمكروهة، أو حرام فمحرمة

"Instruments occupy the law based on their purpose. If it is used to get closer to Allah, then the law becomes worship. If it is used for mubah things, then it becomes mubah. If it is used for makruh things, it becomes makruh. And if it is used for what is haram, then the law becomes haram." [14]

Based on all these descriptions, the legal is: it is permissible to use a trading robot when used as a means of assisting in investing legally and measurably. However, it should not be used without analysis and with the intention of gambling on speculative market movements.

Differences in Scholars Views on Robo-Advisors

While many contemporary scholars accept the use of robo-advisors in shariah-compliant investments under certain conditions, not all of them share the same view. Some scholars take a more cautious stance, arguing that important investment decisions should still involve human oversight. In their opinion, automated systems can't fully grasp the ethical and contextual nuances that are essential in Islamic law.[15]

On the other hand, there are scholars who are more open to technological innovation. They argue that as long as the system is designed to avoid non-compliant transactions and is subject to regular shariah audits, the use of robo-advisors is permissible[16]. This difference in opinion often comes from different approaches in ijtihad. More traditional scholars emphasize the importance of human accountability in financial decision-making. Meanwhile, scholars who follow a *maqasid shariah* perspective tend to see technology as a tool that can help promote fairness, transparency, and accessibility in finance.[17]

Comparing Sandbox Regulations Across Countries

From a regulatory perspective, Indonesia has taken initial steps through OJK's fintech sandbox program, but there are still no clear or detailed rules specifically governing robo-advisors.[18] Existing fatwas and guidelines provide a general foundation but haven't yet addressed the technical aspects of how these systems work in practice.

In contrast, Malaysia has made more progress with Islamic Fintech Sandbox, introduced by the Securities Commission. This initiative allows Islamic fintech startups to

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[14] Wahbah; Zuhaili, *Al Fiqh al Islami Wa Adillatuh : Juz 7 / Wahbah Zuhaili* (Dar al Fikr, 1997), //catalog.uinsa.ac.id%2Findex.php%3Fp%3Dshow_detail%26id%3D16470.

[15] Saad et al., "ROBO-ADVISORY FOR ISLAMIC FINANCIAL INSTITUTIONS: SHARI'AH AND REGULATORY ISSUES."

[16] Hamadou et al., "Unleashing the Power of Artificial Intelligence in Islamic Banking: A Case Study of Bank Syariah Indonesia (BSI)."

[17] Widjaja, "MAQASID SYARIAH DALAM REGULASI FINTECH:"

[18] Muhammad Hadrianto et al., "Pelaksanaan Fatwa Dewan Syariah Nasional Tentang Layanan Pembiayaan Berbasis Teknologi Informasi Berdasarkan Prinsip Syariah Pada Perusahaan Fintech Syariah," *TATOHI: Jurnal Ilmu Hukum* 1, no. 12 (February 28, 2022): 1196–1214, https://doi.org/10.47268/tatohi.v1i12.876.

test their products in a controlled environment with direct supervision from the Shariah Advisory Council. The United Arab Emirates has also developed supportive platforms, such as the FinTech Hive under the Dubai International Financial Centre (DIFC) and the Innovation Testing License from the DFSA. Additionally, the Dubai Fatwa Center has actively engaged with digital finance issues, including how artificial intelligence is being used in Islamic finance products.

These kinds of sandbox models provide space for innovation while keeping everything aligned with Islamic values. Indonesia could learn from these approaches to create a more tailored regulatory framework that encourages innovation but still ensures compliance with shariah principles.

Technology and Scholars Collaboration: Future Synergy

One of the important references in discussing the future of the Shariah advisory profession in the midst of technological developments is the view of Yousuf Sultan, an expert in the field of Islamic financial consulting and AAOIFI certified lead trainer.[19] In his article, the Sultan raised the concerns of young Shariah graduates about the possibility of their role being replaced by shariah robo-advisors, which are artificial intelligence-based systems that provide financial advice and automatic shariah compliance screening.

However, these developments have not eliminated the role of human Shariah advisors. Technology can indeed be used to verify basic elements in Shariah financial contracts such as the clarity of *ijab-qabul*, the object of the contract (*ma'qud 'alayh*), price (*thaman*), and profit sharing in partnership contracts such as *mudharabah* and *musyarakah*. In fact, AI can be used to assess product compliance with *maqasid al-shariah* and incorporate Environmental, Social, and Governance (ESG) criteria as part of the compliance assessment. However, technology still has limitations in terms of wisdom, contextualization, and reasoning of Islamic law that requires a deep understanding of the Qur'an, Hadith, and ijtihad of scholars. In this context, Allah Almighty says in Surah An-Nahl Verse 43:

$$وَمَآ أَرْسَلْنَا مِن قَبْلِكَ إِلَّا رِجَالًا نُّوحِىٓ إِلَيْهِمْ ۚ فَسْـَٔلُوٓاْ أَهْلَ ٱلذِّكْرِ إِن كُنتُمْ لَا تَعْلَمُونَ$$

"And We have not sent before you, except those men to whom We have revealed; then ask the one who has knowledge if you do not know,"

This verse emphasizes the importance of the role of humans, especially Shariah scholars, in the decision-making process of Islamic law. Thus, the role of human Shariah advisors will not be replaced but will be transformed to collaborate with technology. Shariah robo-advisors can be an initial tool in filtering and validating information, but final decisions and legal assessments still require the presence of Shariah scholars who have authority and deep understanding. Therefore, Shariah scholars are highly recommended to keep updating their competencies, especially in the fields of technology such as artificial intelligence, machine learning, big data, blockchain, and smart contracts. The development of technology is not to replace the ulama but to strengthen their role in responding to the needs of the people in the digital era.

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[19] Yousuf Sultan, "Will Shariah Robo-Advisors Replace the Human Shariah Advisors? - Adl Advisory," Adl Advisory, 2023, https://adladvisory.co/blog/will-shariah-robo-advisors-replace-the-human-shariah-advisors/.

Conclusion

This study concludes that robo-advisors can be used in shariah-compliant investment as long as several key conditions are met. These include system reliability, transparency in algorithmic processes, and human oversight to ensure the absence of prohibited elements such as *riba*, *gharar*, and *maysir*. For many Muslim investors, particularly beginners, robo-advisors offer a practical and efficient tool for managing wealth in accordance with Islamic values, provided that shariah experts remain actively involved in monitoring their use.

At the same time, the regulatory and fatwa landscape in Indonesia still lacks clarity and specificity when it comes to governing robo-advisory systems. Although general frameworks exist, such as those from DSN-MUI and AAOIFI, they are not yet detailed enough to address the technical and operational complexities of robo-advisors. This leaves a gap that must be addressed through more comprehensive policy development and stronger collaboration among scholars, regulators, and fintech developers.

Given the conceptual nature of this research, future empirical studies are needed to explore how these systems are perceived and used in practice. As artificial intelligence and blockchain continue to evolve, these technologies should not be seen as a threat but rather as an opportunity to strengthen the Islamic finance ecosystem, offering more inclusive, transparent, and ethical investment solutions for Muslim communities worldwide.

Since this study is conceptual and based on literature analysis, future research should focus more on empirical investigations. One promising direction would be to explore how Muslim investors perceive and trust robo-advisors in managing their shariah-compliant investments. It would also be valuable to examine their decision-making behavior, understanding of shariah compliance, and overall user experience to ensure these technologies align with the real needs of the community. In addition, comparative studies across different countries such as Indonesia, Malaysia, and the United Arab Emirates, could offer deeper insight. Each of these countries has a unique approach to shariah regulation, and learning from these differences can help shape more adaptive policies. The finding would be particularly useful for regulators and industry players who aim to develop robo-advisory services that are both innovative and grounded in Islamic values.[]

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