Volume 5 Nomor 2, Halaman 221 - 243
Mu'amalah : Jurnal Hukum Ekonomi Syariah
ISSN : 2986-4712

A SHARIA ECONOMIC LAW ANALYSIS OF THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE-BASED CHATBOTS IN CUSTOMER SERVICES AT ISLAMIC BANKS

Muhammad Aziz Zakiruddin[1], Irma Syafriani Boru Simanjuntak[2]
[1.2.]Universitas Islam Negeri Fatmawati Sukarno Bengkulu
aziz23zaki@gmail.com

Abstract:

The development of Artificial Intelligence (AI) has driven the transformation of customer service in Islamic financial technology (fintech) through the provision of faster and more efficient services. However, its use also raises concerns regarding information accuracy, personal data protection, and legal liability for consumer losses. This study aims to analyze the legal status and permissibility of AI-based customer service in Islamic fintech from the perspective of Sharia Economic Law, as well as consumer protection under Indonesian positive law. This study employs a normative legal research method using conceptual and statutory approaches through a literature review. The legal materials are analyzed using content analysis techniques. The findings indicate that the use of AI as a customer service tool in Islamic fintech is fundamentally permissible (*mubāḥ*) as a means (*wasīlah*) of conducting *muamalah* activities, provided that it adheres to the principles of trustworthiness (*amānah*), honesty (*ṣidq*), justice (*'adl*), transparency (*bayān*), and freedom from elements of uncertainty (*gharar*) and harm (*ḍarar*). From the perspective of positive law, consumer protection and personal data protection are already supported by various statutory regulations. Nevertheless, regulatory gaps remain in AI governance, particularly concerning transparency in AI utilization, system output validation, supervision, and legal accountability for misinformation. Therefore, the use of AI does not absolve service providers of their responsibility; rather, they remain legally accountable for the services delivered to consumers.

Keywords: Artificial Intelligence; customer service; Islamic fintech; Sharia Economic Law.

Mu'amalah: Jurnal Hukum Ekonomi Syariah
Website : http://e-journal.metrouniv.ac.id/index.php/muamalah/index
Received : 2026-11-04 | Reviewed: 2026-11-25 | Published : 2026-11-27.
DOI: https://doi.org/10.32332/muamalah.9rxpme28

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Introduction

The development of information and communication technology has driven the transformation of the financial services sector through the digitalization of services, making them increasingly faster, more accessible, and more efficient. This transformation has given rise to financial technology (fintech), which integrates financial services with digital technology while expanding financial inclusion and public access to financing.[1] In Indonesia, the development of fintech has been supported by increasing internet penetration and the widespread adoption of smartphones. In this regard, the Financial Services Authority (Otoritas Jasa Keuangan/OJK) promotes financial technology innovation through a *responsible innovation* approach, which ensures that innovation continues to prioritize consumer protection, data security, risk management, and legal certainty.[2] These developments have also created opportunities for the Islamic financial industry to expand access to financial services that comply with Islamic principles. Unlike conventional fintech, Islamic fintech must conduct its operations in accordance with the principles of justice (*'adl*), transparency (*bayān*), public benefit (*maṣlaḥah*), and trustworthiness (*amānah*), while avoiding practices involving usury (*ribā*), excessive uncertainty (*gharar*), gambling (*maysir*), and fraudulent misrepresentation (*tadlīs*), as stipulated in DSN-MUI Fatwa No. 117/DSN-MUI/II/2018. [3]

Alongside these developments, the utilization of Artificial Intelligence (AI) has emerged as a form of innovation in the operational delivery of Islamic financial services.[4] AI can be utilized to support various activities, including financing eligibility assessments, fraud detection, user behavior analysis, product personalization, and customer service. The use of this technology has the potential to improve operational efficiency, accelerate response times, reduce costs, and enhance service quality. Research on the development of AI in the financial sector has also demonstrated its potential to increase the productivity and competitiveness of financial institutions, although its

[1] Mohammed Muneerali Thottoli et al., "Embracing Digital Transformation in Financial Services : From Past to Future," no. December (2023): 1–20, https://doi.org/10.1177/21582440231214590.

[2] Peraturan Otoritas Jasa Keuangan, "Peraturan Otorisasi Jasa Keuangan Republik Indonesia Nomor 3 Tahun 2024 Tentang Penyelenggaraan Inovasi Teknologi Sektor Keuangan," *Peraturan Otoritas Jasa Keuangan*, 2024.

[3] Dewan Syariah Nasional Majelis Ulama Indonesia, "Fatwa Dewan Syariah Nasional Majelis Ulama Indonesia No: 117/DSN-MUI/II/2018 Tentang Layanan Pembiayaan Berbasis Teknologi Informasi Berdasarkan Prinsip Syariah," 2018, 14.

[4] Nur Fitri Hidayanti, et al. "The Integration of Artificial Intelligence in Islamic Financial Services: A Review on Digital Innovation for Sharia Financial Inclusion", *Journal Ummat*, Vol.1 No.1, (April, 2025).

implementation continues to present challenges related to accuracy, security, and accountability. Accordingly, the utilization of AI in customer service within Islamic fintech should not be examined solely from the perspective of technological efficiency but should also be assessed in light of the principles of Sharia Economic Law and consumer protection. [5]

One of the rapidly developing applications of AI is the use of AI-powered chatbots as customer service tools. This technology enables companies to provide services around the clock (24/7) without relying entirely on human personnel. Through Natural Language Processing (NLP), chatbots can automatically respond to customer inquiries, provide product information, assist with service applications, and handle various customer complaints. For fintech companies, the implementation of AI in customer service offers several benefits, including reduced operational costs, faster resolution of customer requests, and improved customer experience.[6]

On the other hand, the utilization of AI in customer service also presents various legal and ethical challenges. AI systems essentially operate based on pre-programmed algorithms and data, which means they are not always capable of comprehensively understanding the context of a problem in the same way as humans. Misinterpretation of customer inquiries, the provision of inaccurate information, algorithmic bias, and system failures in responding to certain circumstances may result in losses for service users. Furthermore, questions arise regarding legal accountability when decisions or information generated by AI cause financial losses to customers. These issues become increasingly complex when AI is implemented in Islamic financial services, which are not only subject to positive law but must also comply with Sharia principles.[7]

From the perspective of Sharia Economic Law, customer service is not merely an administrative activity but also forms part of the implementation of contractual agreements (*akad*), which must adhere to Sharia values. Islam requires every transaction

[5] Carsten Maple et al., "The AI Revolution: Opportunities and Challenges for the Finance Sector," 2023, 1–50, http://arxiv.org/abs/2308.16538.

[6] Eka Sri Wahyuni, Ayu Yuningsih, and Yosy Arisandy, "Managing Customer Service through Artificial Intelligence-Driven Chatbot Systems in Islamic Banking Institutions," *Al-Uqud* 9, no. 1 (2025): 96–104, https://journal.unesa.ac.id/index.php/jie%0AManaging.

[7] Nadzif Ali Asyari et al., "Urgensi Regulasi Syariah Dalam Layanan Fintech Syariah Berbasis Artificial Intelligence Di Indonesia Urgensi Regulasi Syariah Dalam Layanan Fintech Syariah Berbasis Artificial Intelligence Di Indonesia Artikel Penelitian Perkembangan Teknologi Finansial D" 8, no. 12 (2025): 8773–83, https://doi.org/10.56338/jks.v8i12.9668.

to be conducted with clarity (*bayān*), honesty (*ṣidq*), trustworthiness (*amānah*), and without elements of fraud (*tadlīs*), uncertainty (*gharar*), or actions that cause harm to either party (*ḍarar*). These principles constitute the foundation of every legal relationship between business actors and consumers. Therefore, the use of AI as an intermediary in communication between Islamic fintech providers and customers must continue to ensure the fulfillment of the principles of information transparency, service accuracy, consumer rights protection, and legal accountability in the event of service-related errors.

Another equally important issue concerns the legal status of AI within the legal relationship between Islamic fintech providers and their customers. In essence, AI is not a legal subject capable of independently bearing legal responsibility. All actions performed by AI result from algorithms designed and operated by individuals or specific legal entities. Accordingly, when AI provides misleading information or causes losses to consumers, questions arise regarding which party should bear legal responsibility under both positive law and Sharia Economic Law. This issue has become increasingly relevant given that the development of AI is progressing considerably faster than the regulatory frameworks governing its use.[8]

From the perspective of national regulations, Indonesia has established several legal instruments governing the implementation of financial sector technological innovations, consumer protection, and personal data protection. Financial Services Authority Regulation (POJK) No. 3 of 2024 concerning the Implementation of Financial Sector Technological Innovation, particularly Article 3 paragraph (3), requires providers to implement the principles of governance, risk management, information system security and reliability, as well as consumer and personal data protection. Furthermore, POJK No. 22 of 2023 concerning Consumer and Public Protection in the Financial Services Sector, through Article 3 paragraph (2), establishes the principles of information disclosure and transparency, fair treatment, consumer privacy and data protection, and effective complaint handling. Meanwhile, Law No. 27 of 2022 concerning Personal Data Protection, through Articles 10 and 34, regulates the right to object to automated decisions that have legal or significant effects, as well as the obligation to conduct a personal data protection impact assessment for high-risk data processing activities. Specifically, for

[8] Dhiya Dwi Afifah, "Implementasi Hukum Ekonomi Syariah Dalam Startup Fintech Berbasis Artificial Intelligence Di Indonesia" 6, no. 1 (2026).

providers of Information Technology-Based Joint Funding Services (LPBBTI), POJK No. 40 of 2024 also regulates the obligation to provide information through electronic systems and the requirements governing funding agreements.

Nevertheless, these regulatory provisions remain relatively general and do not specifically address the characteristics of AI utilization as a customer service tool in Islamic fintech. There are no specific regulations establishing transparency standards concerning the limitations and reliability of AI-generated responses, mechanisms for validating the information produced, or accountability procedures when AI-generated misinformation causes losses to consumers. Similarly, although DSN-MUI Fatwa No. 117/DSN-MUI/II/2018 provides a foundation for Sharia principles governing technology-based financing services, no specific parameters have been established concerning the supervision of AI-generated information to ensure its compliance with Sharia principles. This situation indicates the existence of a regulatory gap in the governance and accountability aspects of AI utilization in customer services within Islamic fintech.

Research on the utilization of Artificial Intelligence (AI) in the Islamic financial sector has begun to develop in recent years. Nevertheless, existing studies have predominantly focused on the effectiveness of AI technology, the implementation of chatbots as customer service platforms, and the impact of AI on improving service quality and operational efficiency in Islamic financial institutions. For instance, a study by Wahyuni, Yuningsih, and Arisandy entitled *Managing Customer Service through Artificial Intelligence-Driven Chatbot Systems in Islamic Banking Institutions* explains that the use of AI-based chatbots can improve service efficiency, accelerate responses to customer inquiries, and provide continuous customer service around the clock. However, the study primarily emphasizes the operational effectiveness of chatbots in Islamic banking and does not examine the legal implications of AI utilization from the perspective of Sharia Economic Law, particularly in relation to contractual principles (*akad*), information transparency, trustworthiness (*amānah*), and legal accountability for service-related errors generated by AI systems.[9]

[9] Wahyuni, Yuningsih, and Arisandy, "Managing Customer Service through Artificial Intelligence-Driven Chatbot Systems in Islamic Banking Institutions."

Another study conducted by Afifah, Rinaldi, and Fateh, entitled *Implementasi Hukum Ekonomi Syariah dalam Startup Fintech Berbasis Artificial Intelligence di Indonesia*, examines the application of Sharia Economic Law principles to the development of AI-based fintech startups. The findings indicate that the development of AI in Islamic fintech requires stronger regulatory frameworks to ensure that technological innovation progresses in accordance with Sharia compliance principles. However, the study primarily discusses AI in the broader context of fintech startup management and does not specifically examine the use of AI as a customer service tool, including its legal relationship with consumers and the forms of provider accountability in cases of misinformation generated by AI systems.[10]

Furthermore, a study by Amanda and Fitri, entitled *AI Chatbot to Improve Customer Service and Financial Literacy in Sharia Internet Banking*, concludes that the use of AI-based chatbots can improve service quality while strengthening public awareness of Islamic financial literacy. The study primarily focuses on information technology and user experience in utilizing chatbots as a communication medium between Islamic banks and their customers. Consequently, it does not address the normative dimensions of Sharia Economic Law, particularly the conformity of AI utilization with the principles of justice (*'adl*), transparency (*bayān*), the prohibition of uncertainty (*gharar*), and the protection of consumer rights.[11]

A subsequent study by Maman and Susila, published in an article entitled *Artificial Intelligence and Machine Learning in Financial Industry Transformation: A Comparative Analysis of Conventional and Sharia Fintech in Indonesia*, analyzes the implementation of AI and machine learning in both conventional and Islamic fintech industries, with an emphasis on digital transformation, operational efficiency, service innovation, and the competitiveness of the financial industry. Although the study provides a comprehensive overview of AI development in the fintech industry, it does not

[10] Afifah, "Implementasi Hukum Ekonomi Syariah Dalam Startup Fintech Berbasis Artificial Intelligence Di Indonesia."

[11] Amanda Natasya and Anggun Okta Fitri, "AI Chatbot to Improve Customer Service and Financial Literacy in Sharia Internet Banking" 01, no. 02 (2025): 58–67.

specifically examine the use of AI as a customer service tool or its legal implications from the perspective of Sharia Economic Law.[12]

In addition, Isnaini and Tulasmi, in their study entitled *Analysis of Factors Affecting the Satisfaction of Using Aisyah BSI Chatbot Using UTAUT 2 Theory*, examine user satisfaction with Bank Syariah Indonesia's Aisyah chatbot using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) framework. The study indicates that user satisfaction is influenced by perceived ease of use, perceived benefits, and the quality of interactions between the chatbot and customers. Nevertheless, the study is limited to user behavior and technology acceptance and does not address the compliance of AI-based chatbot services with Sharia Economic Law principles or their legal implications for consumer protection.[13]

Based on the review of the aforementioned previous studies, it can be observed that research on Artificial Intelligence in the Islamic financial sector remains predominantly focused on technological, managerial, and user behavior approaches. No study has been identified that specifically examines AI-based customer service in Islamic fintech from the perspective of Sharia Economic Law, with particular emphasis on the analysis of contractual principles (*akad*), trustworthiness (*amānah*), transparency (*bayān*), the prohibition of uncertainty (*gharar*) and harm (*ḍarar*), as well as the legal accountability of service providers when AI systems generate inaccurate information that results in consumer losses. This gap in the existing literature indicates a research gap that warrants further investigation through the present study.

In response to this research gap, the present study offers an original contribution (*novelty*) through a normative analysis of the use of Artificial Intelligence-based customer service in Islamic fintech from the perspective of Sharia Economic Law. This study not only examines the implementation of AI technology as a medium for delivering customer services but also analyzes its compliance with Sharia principles, identifies potential legal risks arising from AI utilization, and examines the legal accountability of Islamic fintech providers for consumer losses resulting from inaccurate information or decisions

[12] Nurmansyah Extrasona, Wahyu Dwi, and Agung Priyo, "Artificial Intelligence and Machine Learning in Financial Industry Transformation : A Comparative Analysis of Conventional and Sharia Fintech in Indonesia" 8, no. 2 (2025): 141–58.

[13] Hasna Hanifah Isnaini and Tulasmi Tulasmi, "Analysis of Factors Affecting the Satisfaction of Using Aisyah BSI Chatbot Using UTAUT 2 Theory," *Journal of Islamic Economics Lariba* 10, no. 2 (2024): 1021–42, https://doi.org/10.20885/jielariba.vol10.iss2.art21.

generated by AI systems. Accordingly, this study is expected to contribute conceptually to the development of Sharia Economic Law scholarship in the era of digital transformation while providing recommendations for regulators and Islamic fintech providers in establishing AI service governance that remains aligned with Sharia principles, legal certainty, and consumer protection.

Method

This study employs normative legal research using a library research method. Normative legal research examines law as a set of norms or legal principles applicable within society through an analysis of relevant legal materials and scholarly literature. This approach was selected because the study focuses on a conceptual analysis of the use of Artificial Intelligence (AI)-based customer service in Islamic financial technology (fintech) from the perspective of Sharia Economic Law, without collecting empirical data through field observations or interviews.[14]

This study employs a conceptual approach and a statutory approach.[15] The conceptual approach is employed to analyze concepts of Sharia Economic Law relating to the principles of justice (*'adl*), trustworthiness (*amānah*), transparency (*bayān*), public benefit (*maṣlaḥah*), and the prohibition of elements of uncertainty (*gharar*) and harm (*ḍarar*) in Islamic financial transactions. Meanwhile, the statutory approach is used to examine various provisions of positive law governing the implementation of financial sector technological innovation, consumer protection, and personal data protection, and subsequently relate them to the applicable Sharia provisions governing the operation of Islamic fintech.

The data sources in this study consist of primary, secondary, and tertiary legal materials. Primary legal materials include the Qur'an and Hadith concerning the principles of *muamalah*; Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector; Law No. 27 of 2022 concerning Personal Data Protection; Financial Services Authority regulations governing Financial Sector Technological Innovation (ITSK); National Sharia Council–Indonesian Ulema Council (DSN-MUI) Fatwa No. 117/DSN-MUI/II/2018 concerning Information Technology-Based Financing Services Based on Sharia Principles; and other regulations relevant to the subject of this study.

[14] Peter Mahmud Marzuki, *Penelitian Hukum*, Revision (Jakarta: Kencana Prenada Media Group, 2017).

[15] Marzuki.

Secondary legal materials comprise books on Sharia Economic Law, national and international journal articles, previous research findings, official reports issued by the Financial Services Authority (OJK), Bank Indonesia (BI), and the National Committee for Sharia Economy and Finance (KNEKS), as well as literature discussing developments in Artificial Intelligence, fintech, and consumer protection. Meanwhile, tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources used to clarify the terminology and concepts employed in this study.

Data collection was conducted through documentary research by inventorying, identifying, classifying, and examining various documents relevant to the research focus. All literature was selected based on its substantive relevance, source credibility, and publication recency to ensure that the data used in this study met adequate academic validity standards.[16] The data analysis technique employed in this study is content analysis, which involves a systematic examination of documents, regulations, fatwas, and scholarly literature to identify themes, concepts, and legal norms related to the use of AI-based customer service in Islamic fintech. The analysis is conducted through several stages, including data reduction, thematic data classification, interpretation of Sharia Economic Law principles and positive legal provisions, and the formulation of conclusions using deductive reasoning. Through this technique, the study seeks to assess the conformity of AI utilization in Islamic fintech customer service with the principles of Sharia Economic Law, while also identifying the legal implications and forms of consumer protection arising from the use of this technology.[17]

The Concept of Artificial Intelligence (AI)-Based Chatbots in Islamic Banking Services

The development of digital technology has brought significant changes to various sectors of life, including the financial services industry. Digital transformation has encouraged financial institutions to provide faster, more efficient, and more accessible services to the public through the utilization of various information technologies. One of the innovations that has experienced rapid growth in recent years is financial technology (fintech), which refers to the use of digital technology to provide various financial services, including payments, financing, investment, asset management, and financial

[16] Sugiyono, *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, Dan R&D)* (Bandung: Alfabeta, 2013).

[17] Lexy J. Moleong, *Metodologi Penelitian Kualitatif* (Bandung: Remaja Rosdakarya, 2014).

advisory services.[18] In Indonesia, the development of fintech has taken place not only in the conventional financial sector but also in the Islamic financial sector, which integrates technological innovation with the principles of Sharia Economic Law. The emergence of Islamic fintech is expected to expand Islamic financial inclusion while providing alternative financial services that are consistent with Islamic values.[19]

Conceptually, Islamic fintech refers to the provision of information technology-based financial services in which all operational mechanisms, products, and legal relationships are conducted in accordance with Sharia principles as established in the Qur'an, Hadith, fatwas issued by the National Sharia Council–Indonesian Ulema Council (DSN-MUI),[20] and applicable laws and regulations. Accordingly, all business activities within Islamic fintech must not only be oriented toward economic efficiency but also uphold the values of justice (*'adl*), honesty (*ṣidq*), trustworthiness (*amānah*), transparency (*bayān*), and public benefit (*maṣlaḥah*), while avoiding elements of usury (*ribā*), excessive uncertainty (*gharar*), gambling (*maysir*), fraudulent misrepresentation (*tadlīs*), bribery (*risywah*), and other forms of transactions prohibited under Islamic law. Given these characteristics, the use of technology in Islamic fintech is not regarded as an end in itself but rather as a means (*wasīlah*) of realizing public welfare in accordance with the objectives of Islamic law (*maqāṣid al-sharī'ah*).

As digital services become increasingly complex, Islamic fintech providers have begun adopting Artificial Intelligence (AI) technology across various operational activities. According to the Organisation for Economic Co-operation and Development (OECD), Artificial Intelligence refers to machine-based systems designed to generate predictions, recommendations, or decisions that influence real or virtual environments based on specific objectives. These capabilities are developed through learning processes based on data (*machine learning*), pattern recognition, Natural Language Processing (NLP), and various other computational techniques. In the financial services industry, AI is utilized not only for financing risk analysis, fraud detection, consumer behavior

[18] Peter G. Knight, *Fintech Law in a Nutshell* (St. Paul: West Academic Publishing, 2023).
[19] Thottoli et al., "Embracing Digital Transformation in Financial Services : From Past to Future."
[20] Dewan Syariah Nasional Majelis Ulama Indonesia, "Fatwa Dewan Syariah Nasional Majelis Ulama Indonesia No: 117/DSN-MUI/II/2018 Tentang Layanan Pembiayaan Berbasis Teknologi Informasi Berdasarkan Prinsip Syariah."

analysis, and product personalization but also as a means of delivering customer services through AI chatbots and virtual assistants.[21]

The utilization of AI as a customer service tool in Islamic fintech aims to improve the quality of services provided to customers by offering fast, responsive, and round-the-clock assistance. AI systems are capable of providing information on financing products, transaction procedures, financing simulations, application statuses, and responding automatically to various general inquiries submitted by users. Compared with conventional customer service, which relies entirely on human personnel, the implementation of AI offers several advantages, including faster response times, greater service consistency, reduced workloads for customer service personnel, and lower operational costs. Furthermore, AI technology can process large volumes of data rapidly, enabling companies to deliver more personalized services tailored to the specific characteristics and needs of individual users.[22]

Artificial Intelligence-Based Customer Service: Implementation and Challenges

The development of Artificial Intelligence (AI) has driven the digitalization of customer service in the financial services industry, including Islamic fintech. Its implementation is realized through AI chatbots and virtual assistants supported by Natural Language Processing (NLP) technology to understand inquiries, process information, and generate automated responses. These services can be utilized to provide round-the-clock assistance, deliver product information, handle complaints, and offer recommendations based on users' needs. By processing transaction data and communication histories, AI also enables more personalized services while improving operational efficiency and the quality of services provided to consumers.[23]

The implementation of AI in Islamic financial institutions has become increasingly widespread in the Islamic banking industry as part of its digital transformation. One example frequently examined in academic research is the use of the Aisyah chatbot (Asisten Interaktif Mandiri Syariah), which subsequently became part of the digital services offered by Bank Syariah Indonesia (BSI). Various studies indicate that

[21] OECD, "Explanatory Memorandum on the Updated OECD Definition of an AI System," *OECD Artificial Intelligence Papers* 8, no. 8 (2024): 1–11.

[22] Natasya and Fitri, "AI Chatbot to Improve Customer Service and Financial Literacy in Sharia Internet Banking."

[23] OECD, "Explanatory Memorandum on the Updated OECD Definition of an AI System."

the use of chatbots enables financial institutions to respond promptly to customer inquiries, reduce the workload of customer service personnel, improve operational efficiency, and expand service accessibility beyond regular banking hours. Furthermore, chatbots facilitate the delivery of information concerning financial products, transaction procedures, service locations, and complaint handling more effectively than conventional service methods. The success of these implementations demonstrates the considerable potential of AI utilization for adaptation within the Islamic fintech ecosystem, which shares similar digital service characteristics.[24]

For Islamic fintech providers, the use of AI in customer service offers several strategic benefits. From an operational perspective, AI can reduce waiting times, accelerate the processing of user requests, and lower companies' operating costs, as most repetitive inquiries can be handled automatically. From the users' perspective, AI provides convenient access to information whenever needed, without requiring them to wait for customer service representatives to become available. Furthermore, AI's ability to analyze large volumes of data enables companies to provide service recommendations that are better tailored to users' needs, thereby enhancing the quality of the customer experience while strengthening customer loyalty to Islamic fintech platforms.[25]

Although AI implementation in customer service offers various benefits, it also presents several challenges that warrant serious attention. The first concerns the limitations of AI in understanding complex communication contexts. Although supported by Natural Language Processing (NLP) technology, AI systems fundamentally operate on the basis of training data and specific algorithms, which means they remain susceptible to generating responses that do not accurately reflect users' intended meaning. This limitation becomes particularly significant when inquiries concern financial transactions, dispute resolution, or explanations of Sharia contracts (*'uqūd shar'iyyah*), all of which require comprehensive interpretation. Inaccurate information provided by AI may lead to

[24] Wahyuni, Yuningsih, and Arisandy, "Managing Customer Service through Artificial Intelligence-Driven Chatbot Systems in Islamic Banking Institutions."

[25] Anom Garbo et al., "Syariah Indonesia Melalui Penggunaan," *Jurnal Masharif Al-Syariah: Jurnal Ekonomi Dan Perbankan Syariah* 9, no. 204 (2024): 846–62.

misunderstandings and even financial losses for users if they rely on such information as a basis for making financial decisions.[26]

The next challenge concerns personal data protection. AI systems require access to user data to deliver more personalized and accurate services. The collection, storage, and processing of such data entail risks if they are not accompanied by adequate information security measures. The threats of data breaches, misuse of personal information, and unauthorized access to customer data have become increasingly prominent concerns in the digital financial services industry. Therefore, Islamic fintech providers are not only obligated to safeguard their information systems but must also ensure that data management practices comply with applicable laws and regulations on personal data protection, as well as the principle of *amānah* under Sharia Economic Law.

Beyond technical considerations, the use of AI also raises ethical challenges in consumer services. Interactions between AI systems and users cannot fully replace the interpersonal communication that has traditionally characterized financial services. In certain transactions, particularly those involving complaint resolution, financing restructuring, or explanations of Sharia contracts, users often require empathy, moral judgment, and communication skills that AI systems are not yet fully capable of providing. Accordingly, AI should be positioned as a decision-support system for customer service personnel rather than as a complete replacement for human involvement. A collaborative approach between AI systems and human personnel is therefore more appropriate for maintaining service quality while upholding the ethical values of Islamic business practices.[27]

A Legal Analysis of Artificial Intelligence-Based Customer Service
Analysis from the Perspective of Sharia Economic Law

Sharia Economic Law generally provides considerable scope for technological development in *muʻāmalāt* activities. A well-established legal maxim in Islamic jurisprudence states that the default ruling governing all forms of *muʻāmalāt* is permissibility unless there is evidence indicating their prohibition (*al-aṣlu fī al-*

[26] 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 (2024): 131–44, https://doi.org/10.61351/mf.v2i1.116.

[27] Wahyuni, Yuningsih, and Arisandy, "Managing Customer Service through Artificial Intelligence-Driven Chatbot Systems in Islamic Banking Institutions."

mu'āmalāt al-ibāḥah illā an yadulla dalīlun 'alā taḥrīmihā). This maxim indicates that technological developments, including the use of Artificial Intelligence (AI) in customer service, are fundamentally compatible with Islamic law, provided that their application remains within the boundaries of Sharia principles and does not involve prohibited elements. Accordingly, the use of AI in Islamic fintech services should be regarded as a technological instrument (*wasīlah*) intended to facilitate service delivery to the public, rather than as the ultimate objective of Sharia-compliant business activities.[28]

From the perspective of Sharia Economic Law, all customer service activities constitute an inseparable part of the implementation of transactions (*mu'āmalāt*). The services provided by Islamic fintech providers are not merely administrative in nature; they also represent the fulfillment of obligations to communicate information accurately, explain financial products, and safeguard consumer rights throughout the legal relationship. Accordingly, the use of AI as a communication medium between Islamic fintech providers and their customers must continue to comply with the fundamental principles of Sharia Economic Law, namely honesty (*ṣidq*), trustworthiness (*amānah*), justice (*'adl*), transparency (*bayān*), and public benefit (*maṣlaḥah*), while avoiding elements of *gharar*, *tadlīs*, *maysir*, and *ḍarar*.

One of the principles most relevant to the use of AI in customer service is the principle of *amānah*. The application of this principle to AI-based customer service is grounded in Qur'an, Surah An-Nisā' [4]: 58, which commands that trusts be delivered to those entitled to receive them.[29] This verse demonstrates that *amānah* is an obligation incumbent upon every party entrusted with managing or conveying something to another party. In the context of digital financial services, Islamic fintech providers are entrusted by users with managing information, explaining financial products, and safeguarding consumers' personal data. Accordingly, the use of AI as a service delivery medium does not absolve providers of their obligation to ensure the accuracy of the information communicated and the responsible management of user data. This principle is also consistent with Qur'an, Surah Al-Isrā' [17]: 34, which emphasizes that every covenant

[28] Wahbah az-Zuhaili, *Al-Fiqh Al-Islāmī Wa Adillatuhu*.

[29] Kementerian Agama Republik Indonesia, *Al-Qur'an dan Terjemahannya: Edisi Penyempurnaan 2019* (Jakarta: Lajnah Pentashihan Mushaf Al-Qur'an, 2019), QS. An-Nisa' [4]: 58.

will be subject to accountability.[30] Accordingly, responsibility for AI-generated outputs must ultimately be attributed to the provider that operates and controls the system. If AI provides inaccurate, incomplete, or misleading information that results in consumer losses, the Islamic fintech provider remains legally accountable, since AI is merely a tool employed by the provider in fulfilling its obligations to customers.

In addition to *amānah*, the use of AI must also comply with the principle of *bayān*, or information transparency.[31] This principle requires that all information concerning products, contracts (*'uqūd*), fees, the rights and obligations of the parties, and transaction risks be communicated clearly to prevent misunderstandings. In the context of customer service, AI systems must be designed to provide accurate, comprehensible information that is consistent with both Sharia principles and positive law. If an AI system generates ambiguous or incomplete responses, or provides information that contradicts the actual terms of a product, such circumstances may give rise to an element of *gharar*, as consumers may enter into transactions on the basis of unclear information. Therefore, algorithmic accuracy, database updates, and oversight of AI outputs constitute integral components of implementing the principle of transparency under Sharia Economic Law.

From the perspective of legal relationships, the use of AI in customer service can be examined through the concept of *wakālah*. However, this does not mean that AI constitutes an agent (*wakīl*) possessing legal capacity equivalent to that of a human being. In Islamic commercial jurisprudence (*fiqh al-mu'āmalāt*), a *wakālah* contract is an authorization agreement whereby one person delegates authority to another party possessing legal capacity (*ahliyyah*) to perform an act on behalf of the authorizing party.[32] Meanwhile, AI does not possess will (*irādah*), consciousness, or the legal capacity to independently hold rights and obligations. Therefore, AI cannot be positioned as a legal subject under a *wakālah* contract. Its status is more appropriately understood as an instrument or means (*wasīlah*) employed by Islamic fintech providers to fulfill their obligations to consumers, while the legal relationship remains between the fintech provider, as the business operator, and the customer, as the service user. Accordingly, all

[30] Kementerian Agama Republik Indonesia, *Al-Qur'an dan Terjemahannya: Edisi Penyempurnaan 2019* (Jakarta: Lajnah Pentashihan Mushaf Al-Qur'an, 2019), QS. Al-Isra' [17]: 34.

[31] Wahbah az-Zuhaili.

[32] M.SI. Fiqh Akhmad Farroh Hasan, "Fiqh Muammalah Dari Klasik Hingga Kontemporer," *UIN-Maliki Malang Press*, no. 2 (2014): 226.

legal consequences arising from the use of AI remain the responsibility of the provider as the party operating the system.

This analysis is consistent with the concept of *maqāṣid al-sharī'ah*, particularly the objectives of preserving wealth (*ḥifẓ al-māl*) and protecting individual dignity and privacy (*ḥifẓ al-'irḍ*). Properly designed AI systems can help reduce human error, accelerate service delivery, improve information accuracy, and broaden public access to services. These benefits represent the realization of public interest (*jalb al-maṣāliḥ*). However, if AI instead causes personal data breaches, provides misleading information, or generates decisions that harm users, such technology may undermine the objectives of Sharia by causing harm (*daf' al-mafāsid*). Therefore, the development of AI in Islamic fintech must always be directed toward achieving benefits that outweigh the risks involved.

Furthermore, Islamic fintech providers are also obligated to implement the principle of accountability in their use of AI. Every decision or piece of information generated by an AI system must be auditable, verifiable, and subject to accountability. This principle is essential to ensuring that consumers retain legal certainty and access to remedies when service errors occur. From the perspective of Sharia Economic Law, such accountability constitutes a consequence of the principles of *amānah* and responsibility (*mas'ūliyyah*), which are incumbent upon every business operator. Accordingly, the use of AI must not be invoked as a justification for disclaiming legal responsibility for losses suffered by consumers.

Furthermore, the use of AI in customer service must also take into account the protection of users' personal data. AI systems rely on large volumes of data (*big data*) to generate more accurate responses. From a Sharia perspective, personal data forms part of the rights that must be safeguarded. Its use must therefore be based on the data subject's consent and must not be misappropriated for other purposes. This principle is consistent with the provisions on personal data protection under Indonesian positive law, which require electronic system providers to maintain the confidentiality, security, and integrity of user data. Thus, personal data protection constitutes not only a legal obligation but also an implementation of the value of *amānah* under Sharia Economic Law.

Based on the foregoing analysis, the use of Artificial Intelligence in customer service within Islamic fintech is fundamentally permissible (*mubāḥ*), as it constitutes part

of the development of instruments for *mu'āmalāt* intended to promote public welfare. However, this permissibility is conditional upon the use of AI complying with the principles of honesty (*ṣidq*), trustworthiness (*amānah*), transparency (*bayān*), justice (*'adl*), and public benefit (*maṣlaḥah*), while avoiding elements of *gharar*, *tadlīs*, and *ḍarar*. Furthermore, AI cannot be positioned as a legal subject independently bearing legal responsibility; rather, it serves solely as a technological instrument employed by Islamic fintech providers. Consequently, all legal consequences arising from the use of AI remain the responsibility of the providers as business operators delivering services to consumers. Accordingly, the success of AI implementation in Islamic fintech should be measured not merely by the sophistication of the technology employed, but also by the extent to which its use complies with the principles of Sharia Economic Law and provides adequate legal protection for service users.

Analysis from the Perspective of Positive Law

The use of Artificial Intelligence as a customer service tool in the financial services sector is inseparable from the providers' obligation to ensure consumer protection. In this regard, Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK Law) provides a normative legal foundation for consumer protection and the implementation of technological innovation in the financial sector. Article 215 paragraph (3) of the P2SK Law requires Financial Sector Technology Innovation (Inovasi Teknologi Sektor Keuangan or ITSK) providers to implement principles of governance, risk management, information system security and reliability, consumer and personal data protection, and compliance with applicable laws and regulations. Furthermore, Article 216 paragraph (2) stipulates that the regulation and supervision of ITSK must take into account the balance between innovation development and risk mitigation, efficiency, sound business practices, and consumer protection.[33] Meanwhile, Article 235 paragraph (2) subparagraphs d, e, h, and i grants consumers the right to obtain clear, accurate, and truthful information about products and/or services that is easily accessible and not potentially misleading; to express opinions and submit complaints; to receive proper services; and to obtain compensation if the products and/or

[33] Republik Indonesia, Undang-Undang Nomor 4 Tahun 2023 tentang Pengembangan dan Penguatan Sektor Keuangan, Lembaran Negara Republik Indonesia Tahun 2023 Nomor 4, Tambahan Lembaran Negara Republik Indonesia Nomor 6845, Pasal 215 ayat (3) dan Pasal 216 ayat (2). Naskah resmi: UU Nomor 4 Tahun 2023.

services received do not conform to the agreement or the provisions of applicable laws and regulations.[34] These provisions are relevant to the use of AI because information communicated through chatbots essentially forms part of the services provided by the service operator. Accordingly, the use of automated technology does not absolve providers of their obligation to ensure the truthfulness and accuracy of the information received by consumers.

These requirements are further reinforced by Financial Services Authority Regulation (POJK) Number 22 of 2023 concerning Consumer and Public Protection in the Financial Services Sector. Article 3 paragraphs (1) and (2) require Financial Services Business Operators (*Pelaku Usaha Jasa Keuangan* or PUJK) to implement consumer protection principles, including adequate consumer education; openness and transparency in information concerning products and/or services; fair treatment and responsible business conduct; protection of consumer assets, privacy, and personal data; and effective and efficient complaint handling and dispute resolution.[35] In the context of AI-based customer service, these provisions require that information communicated by AI systems must not cause misunderstandings, conceal material facts, or cause harm to consumers. Furthermore, Articles 69 to 74 regulate the obligation to provide complaint services, as well as the mechanisms for receiving, recording, handling, and resolving consumer complaints. Notably, Article 69 paragraph (3) requires PUJK that provide services on a 24-hour basis to make available, at a minimum, a complaint-receiving service operating 24 hours a day.[36] Therefore, providers cannot invoke the use of AI as a justification for denying consumers access to accountable complaint-handling and dispute resolution mechanisms.

From the perspective of personal data protection, Law Number 27 of 2022 concerning Personal Data Protection establishes limitations on data processing activities carried out by digital service providers. Article 9 grants personal data subjects the right to withdraw their consent to the processing of their personal data, while Article 10 grants

[34] Republik Indonesia, Undang-Undang Nomor 4 Tahun 2023 tentang Pengembangan dan Penguatan Sektor Keuangan, Pasal 235 ayat (2) huruf d, huruf e, huruf h, dan huruf i

[35] Otoritas Jasa Keuangan, Peraturan Otoritas Jasa Keuangan Nomor 22 Tahun 2023 tentang Pelindungan Konsumen dan Masyarakat di Sektor Jasa Keuangan, Pasal 3 ayat (1) dan ayat (2). Naskah regulasi: POJK Nomor 22 Tahun 2023 – OJK

[36] Otoritas Jasa Keuangan, Peraturan Otoritas Jasa Keuangan Nomor 22 Tahun 2023 tentang Pelindungan Konsumen dan Masyarakat di Sektor Jasa Keuangan, Pasal 69 sampai dengan Pasal 74, khususnya Pasal 69 ayat (1)–(3) dan Pasal 70 ayat (1)–(2)

them the right to object to decisions based solely on automated processing, including profiling, where such decisions produce legal consequences or have a significant impact on the personal data subject. Furthermore, Article 34 requires personal data controllers to conduct a data protection impact assessment when processing activities are likely to pose high risks, including automated decision-making that has significant effects, large-scale data processing, and the use of new technologies. These obligations are further complemented by Articles 35 to 39, which regulate the security and confidentiality of personal data, the supervision of parties involved in data processing, protection against unlawful processing, and the prevention of unauthorized access to personal data.[37] These provisions demonstrate that the use of AI in financial services must be accompanied by data processing governance that takes users' rights and security into account. However, Article 10 cannot be automatically applied to every chatbot response; rather, it primarily applies to automated decisions that meet the statutory criteria of producing legal consequences or having a significant impact on the personal data subject.

Furthermore, Financial Services Authority Regulation Number 3 of 2024 concerning the Implementation of Financial Sector Technology Innovation provides a regulatory basis for the governance of technological innovation in the financial sector. Article 3 paragraph (3) requires ITSK providers to implement principles of governance, risk management, information system security and reliability, including cyber resilience, consumer and personal data protection, and compliance with applicable laws and regulations. This provision may serve as a basis for assessing providers' responsibility for managing risks associated with the use of AI, including the risks of inaccurate information, system disruptions, and data misuse. In addition, Article 5 paragraphs (1) and (2) affirm that ITSK may be utilized to support economic and financial activities based on Sharia principles, while remaining subject to the Sharia principles established by institutions authorized to issue fatwas.[38] Nevertheless, these provisions do not establish specific technical standards for chatbot response validation, disclosure regarding the use of AI, or mechanisms for supervising AI system outputs. Accordingly, the existing

[37] Republik Indonesia, Undang-Undang Nomor 27 Tahun 2022 tentang Pelindungan Data Pribadi, Pasal 34 sampai dengan Pasal 39.

[38] Otoritas Jasa Keuangan, Peraturan Otoritas Jasa Keuangan Nomor 3 Tahun 2024 tentang Penyelenggaraan Inovasi Teknologi Sektor Keuangan, Pasal 5 ayat (1) dan ayat (2)

regulatory framework establishes general obligations for service providers but does not yet specifically formulate governance requirements for AI-based customer service.

When the aforementioned positive law provisions are examined in conjunction with the principles of Sharia Economic Law, a close relationship emerges between consumer protection obligations and the principles of *amānah*, *ṣidq*, and *bayān*, as well as the prohibition against causing harm (*ḍarar*). The obligation to provide truthful and non-misleading information, as stipulated in Article 235 paragraph (2) subparagraph d of the P2SK Law and Article 3 paragraph (2) of POJK Number 22 of 2023, is consistent with the principles of *ṣidq* and *bayān*. Meanwhile, the obligation to safeguard the security and confidentiality of personal data, as regulated under the Personal Data Protection Law and Article 3 paragraph (2) subparagraph d of POJK Number 22 of 2023, is consistent with the principle of *amānah* and the protection of individual rights. Furthermore, obligations concerning risk mitigation and complaint handling reflect the principles of accountability and harm prevention. Therefore, the use of AI in customer service may be assessed not only in terms of its compliance with positive law but also in terms of its conformity with the principles of Sharia Economic Law.

Based on these provisions, it can be concluded that Indonesian positive law has established a legal framework for consumer and personal data protection in the provision of digital financial services. However, based on the regulations examined, no specific and comprehensive provisions have been identified that address the particular characteristics of AI-based customer service, particularly with regard to the obligation to disclose AI-based interactions, standards for validating the accuracy of system outputs, mechanisms for escalating inquiries to human personnel, and procedures for auditing and establishing accountability for inaccurate information generated by AI. This condition is more appropriately understood as a regulatory gap in the governance of AI rather than a complete absence of law. Accordingly, providers' legal obligations remain ascertainable through the provisions governing consumer protection, personal data protection, and the principle of accountability in the provision of financial services.

Conclusion

The use of Artificial Intelligence (AI) in customer service within Islamic fintech is fundamentally permissible from the perspective of Sharia Economic Law, as it constitutes the utilization of technology as an instrument for improving service quality

and promoting public welfare. However, such permissibility is conditional upon adherence to the principles of trustworthiness (*amānah*), honesty (*ṣidq*), transparency (*bayān*), and justice (*'adl*), while avoiding elements of *gharar*, *tadlīs*, and *ḍarar*. AI also cannot be positioned as a legal subject or an agent (*wakīl*) possessing independent legal capacity; rather, it serves as an instrument employed by service providers to fulfill their obligations to consumers. Accordingly, responsibility for the information and services generated by AI remains with the providers operating the system.

From the perspective of positive law, consumer and personal data protection in the use of AI is supported by the legal framework established under the P2SK Law, POJK Number 22 of 2023, the Personal Data Protection Law, and POJK Number 3 of 2024, insofar as these regulations apply within their respective scopes. These provisions impose obligations on service providers to implement governance and risk management measures, communicate information accurately and transparently, safeguard personal data, and provide complaint-handling mechanisms and consumer protection. Thus, the use of AI technology does not absolve providers of their legal obligations to deliver services responsibly.

Nevertheless, the regulations examined do not yet specifically and comprehensively govern AI governance in customer service, particularly with regard to transparency in AI use, system output validation, mechanisms for transferring service interactions to human personnel, and auditing and accountability for inaccurate information. This situation indicates a regulatory gap in the area of AI governance rather than a complete absence of law. Therefore, more specific regulatory measures are needed to ensure that the use of AI in Islamic fintech services remains consistent with Sharia principles while safeguarding consumer rights.

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