

Artificial Intelligence Disruption in Islamic Banking Financing Card Products: Regulatory Challenges and Legal Protection Construction in Indonesia

Disrupsi Kecerdasan Artifisial pada Produk Kartu Pembiayaan Perbankan Syariah: Tantangan Regulasi dan Rekonstruksi Perlindungan Hukum di Indonesia

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Abstract. The development of the digital economy and financial technology in Indonesia is driving the use of Artificial Intelligence in Islamic banking financing card products, particularly through credit scoring and auto-underwriting systems. The use of Artificial Intelligence provides efficiency in assessing credit eligibility and analyzing customer risk, but also raises legal issues related to algorithm transparency, potential discriminatory bias, personal data protection, and the accountability of Artificial Intelligence - based decision-making systems. This study aims to analyze the legal regulations regarding the use of Artificial Intelligence in Islamic banking financing card products in Indonesia, as well as to examine the legal challenges and the construction of ideal legal protection for banks and customers. This study uses a normative juridical method with a statutory approach. The legal materials consist of laws and regulations related to Islamic financing, information technology, and personal data protection, the Indonesian Ulema Council Fatwa on financing cards, and various relevant legal literature. The analysis was conducted systematically to construct legal norms related to the use of Artificial Intelligence in Islamic banking. The results indicate that Artificial Intelligence regulations in Islamic banking financing card products in Indonesia are still partial and do not specifically regulate algorithm transparency, Artificial Intelligence oversight, and legal accountability for Artificial Intelligence based financing decisions. Therefore, a hybrid governance model is needed that combines rules-based, principles-driven, and adaptive regulation approaches to create legal certainty, protect customers, and maintain the principles of fairness and sharia compliance in the use of Artificial Intelligence in Islamic banking in Indonesia.

Keywords: Artificial Intelligence, Financing Card Products, Islamic Banking, Legal Protection

Abstrak. Perkembangan ekonomi digital dan teknologi finansial di Indonesia mendorong penggunaan Artificial Intelligence dalam produk kartu pembiayaan perbankan Islam, khususnya melalui sistem penilaian kelayakan pembiayaan dan auto-underwriting. Penggunaan Artificial Intelligence memberikan efisiensi dalam penilaian kelayakan pembiayaan dan analisis risiko nasabah, namun juga menimbulkan berbagai persoalan hukum yang berkaitan dengan transparansi algoritma, potensi bias diskriminatif, perlindungan data pribadi, serta akuntabilitas sistem pengambilan keputusan berbasis Artificial Intelligence. Penelitian ini bertujuan untuk menganalisis pengaturan hukum mengenai penggunaan AI dalam produk kartu pembiayaan perbankan Islam di Indonesia, serta mengkaji tantangan hukum dan konstruksi perlindungan hukum yang ideal bagi bank dan nasabah. Penelitian ini menggunakan metode yuridis normatif dengan pendekatan perundang-undangan (statutory approach). Bahan hukum yang digunakan terdiri atas peraturan perundang-undangan yang berkaitan dengan pembiayaan berbasis nilai-nilai Islam, teknologi informasi, dan perlindungan data pribadi, Fatwa Majelis Ulama Indonesia tentang kartu pembiayaan, serta berbagai literatur hukum yang relevan. Analisis dilakukan secara sistematis untuk membangun norma hukum yang berkaitan dengan penggunaan AI dalam perbankan Islam. Hasil penelitian menunjukkan bahwa pengaturan AI dalam produk kartu pembiayaan perbankan Islam di Indonesia masih bersifat parsial dan belum secara khusus mengatur transparansi algoritma, pengawasan Artificial Intelligence, serta pertanggungjawaban hukum atas keputusan pembiayaan berbasis Artificial Intelligence. Oleh karena itu, diperlukan model hybrid governance yang mengombinasikan pendekatan rules-based regulation, principles-driven regulation, dan adaptive regulation guna menciptakan kepastian hukum, melindungi nasabah, serta menjaga prinsip keadilan dan kepatuhan syariah dalam penggunaan Artificial Intelligence pada perbankan syariah di Indonesia.

Kata Kunci: Artificial Intelligence, Perbankan Islam, Perlindungan Hukum, Produk Kartu Pembiayaan.

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INTRODUCTION

The development of the digital economy and finance in Indonesia is showing very rapid growth¹ and is projected to become one of the main pillars of national economic growth towards Indonesia Emas 2045.² The digital transformation supported by the government, Bank Indonesia, and the Financial Services Authority is reflected in the increasing use of digital payment systems. The continued growth of digital payment transactions indicates that digitalization has significantly changed transaction patterns, financial services, and economic activities.³ In this context, digital transformation is not only seen as the application of technology, but also as an effort to build an inclusive, efficient, secure, and trustworthy financial system. In line with this development, the government is also encouraging the development of Artificial Intelligence technology through the national digital economy strategy and the national Artificial Intelligence roadmap, including in the digital banking and financing sectors. However, the rapid use of digital technology and Artificial Intelligence also presents new challenges, particularly related to system security, consumer protection, technology governance, transparency, and risk mitigation in digital financial services.⁴

The development of financing cards in Indonesia is part of the digital-based transformation of the Islamic economy and finance. The digitalization of the Islamic economy is being carried out through the strengthening of the digital technology-based Islamic financial ecosystem. Financing cards are developing as a modern financing instrument that aligns Islamic principles with the principles of Islamic values in its transaction and financing systems, and is supported by the development of Islamic financial technology and digital-based financing services. The development

¹ Akhmad Kautsar Fattah dkk., Penggunaan Artificial Intelligence dalam Fintech Credit Scoring dan Pertanggungjawaban Hukum Terhadap Resiko Diskriminasi, *Jurnal Hukum Dan Kewarganegaraan*, 16, no. 1 (2025), 1-21 Prefix doi.org/10.3783/causa.v2i9.2461.

² Fardhal Virgiawan Ramadhan, “Transformasi Ekonomi Digital Indonesia Dalam Mewujudkan Indonesia Emas 2045: Pemikiran Prof. Nurcholish Madjid,” *Jurnal Ilmiah Ekonomi Islam* 10, no. 1 (Maret 2024): 1-9, <https://doi.org/10.29040/jiei.v1i1.11593>.

³ Zalma Niendya Pangestika dkk., “Systematic Literature Review: Persepsi Penggunaan QRIS Sebagai Peningkatan Efektivitas Alat Pembayaran dan Sistem Keuangan Digital,” *Jurnal Pendidikan Ekonomi (JUPE)* 13, no. 2 (Mei 2025): 103–15, <https://doi.org/10.26740/jupe.v13n2.p103-115>.

⁴ “FEKDI x IFSE 2025: Digitalisasi Ekonomi Keuangan Kunci Pertumbuhan Ekonomi Masa Depan,” diakses 25 Juni 2026, https://www.bi.go.id/id/publikasi/ruang-media/news-release/Pages/sp_2725725.aspx.

of digital financing services is currently supported by the use of Artificial Intelligence and machine learning, particularly in credit modeling and auto-underwriting processes.⁵ Credit modeling is the process of using data and analytical technology to assess an individual's ability and risk in obtaining financing or credit. This model typically uses financial data, transaction history, and customer payment behavior to generate a financing eligibility assessment. Meanwhile, auto-underwriting is the process of assessing and approving financing carried out automatically by a digital system or Artificial Intelligence without full manual review by bank officers. This system helps accelerate financing decisions by utilizing data analysis and credit scoring results.⁶

Creditworthiness assessment plays a crucial role in the financial industry, particularly in assessing the credit risk of credit card applicants. Traditional credit scoring methods face challenges in handling large datasets and data imbalances between creditworthy and non-creditworthy applicants.⁷ In the context of Islamic banking, credit is provided using the term "financing," while credit cards in Islamic banking are known as financing card products.⁸ In the other words, Banks earn a significant amount of their profit through credit lending in mortgage underwriting, providing auto loans, and issuing credit cards.⁹ The development of Artificial Intelligence technology is driving a shift in financing assessment mechanisms from conventional systems to systems based on algorithms and automated data analysis.¹⁰ Artificial Intelligence systems in credit assessment operate with highly complex processes and calculations, making it sometimes difficult for even the system's creators or developers to fully understand

⁵ Nurhania dkk., "Digitalisasi Berbasis Syariah: Transformasi Teknologi dalam Pengembangan Produk dan Pembiayaan Bank Syariah," *Journal of Economics and Business* 3, no. 2 (Desember 2025): 232–43, <https://doi.org/10.61994/econis.v3i2.1421>.

⁶ Mirza Yuniar Isnaeni Mara dkk., *Ekonomi dan Keuangan Digital: Konsep dan Implementasi di Indonesia* (BI Istitute, 2025).

⁷ Kejian Tong dkk., "An Integrated Machine Learning and Deep Learning Framework for Credit Card Approval Prediction," *2024 IEEE 6th International Conference on Power, Intelligent Computing and Systems (ICPICS)*, 26 Juli 2024, 853–58, <https://doi.org/10.1109/ICPICS62053.2024.10795883>.

⁸ Dana Berlian, Andri Andri, dan Agung Apriana, "Perbandingan Pemberian Kredit Antara Bank Konvensional dan Pembiayaan Bank Syariah Kepada Usaha Kecil Dan Menengah," *Jurnal Perbankan Syariah Indonesia (JPSI)* 2, no. 2 (September 2023): 62–72, <https://doi.org/10.57171/jpsi.v2i2.6>.

⁹ John Ratzan dan Noushi Rahman, "Measuring Responsible Artificial Intelligence (RAI) in Banking: A Valid and Reliable Instrument," *AI and Ethics* 4, no. 4 (November 2024): 1279–97, <https://doi.org/10.1007/s43681-023-00321-5>.

¹⁰ Natallios Peter Sipasulta dan Siti Nurafiah, "Penggunaan AI dalam Mendukung Proses Pengambilan Keputusan Pada Bank Atas Pengajuan Permohonan Pinjaman Baru Segmen Retail," *Jurnal Ekonomi dan Manajemen* 5, no. 2 (Mei 2026): 80–88, <https://doi.org/10.56127/jekma.v5i2.2744>.

how Artificial Intelligence makes decisions. As a result, there is a possibility that Artificial Intelligence may unintentionally make discriminatory decisions, for example, more frequently rejecting certain groups based on data patterns learned by the Artificial Intelligence, even though no explicit discriminatory elements are used. Furthermore, because the Artificial Intelligence decision-making process is complex and opaque (black box), credit applicants are often unaware of the exact reasons why their credit applications are rejected or deemed high-risk. Customers simply receive the decision results without an easily understood explanation.¹¹ Thus, the use of Artificial Intelligence in Islamic banking financing card products not only brings efficiency but also raises new legal issues, particularly related to algorithm transparency,¹² potential bias in decision-making, protection of customer personal data,¹³ and accountability of digital systems in determining financing eligibility.¹⁴

In Indonesia, regulations regarding financing and the use of information technology in the financial services sector have been regulated through various banking regulations and personal data protection.¹⁵ However, regulations specifically governing the use of Artificial Intelligence in Islamic banking financing card products have not been comprehensively regulated, particularly regarding algorithm-based decision-making mechanisms, transparency of Artificial Intelligence systems, protection of customer rights, and banks' legal responsibilities for the risks of using such technology. This condition raises the need for a legal protection structure capable of providing legal certainty, consumer protection, and upholding the principles of fairness and prudence in digital technology-based Islamic banking financing

¹¹ Katja Langenbucher dan Patrick Corcoran, "Responsible AI Credit Scoring – A Lesson from Upstart.com," dalam *Digital Finance in Europe: Law, Regulation, and Governance*, ed. oleh Emilius Avgouleas dan Heikki Marjosola (De Gruyter, 2021), 141–80, <https://doi.org/10.1515/9783110749472-006>.

¹² Alejandro Barredo Arrieta dkk., "Explainable Artificial Intelligence (XAI): Concepts, Taxonomies, Opportunities and Challenges toward Responsible AI," *Information Fusion* 58 (Juni 2020): 82–115, <https://doi.org/10.1016/j.inffus.2019.12.012>.

¹³ Sandra Wachter, Brent Mittelstadt, dan Luciano Floridi, "Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation," *International Data Privacy Law* 7, no. 2 (Mei 2017): 76–99, <https://doi.org/10.1093/idpl/ix005>.

¹⁴ Ninareh Mehrabi dkk., "A Survey on Bias and Fairness in Machine Learning," *ACM Computing Surveys* 54, no. 6 (Juli 2022): 1–35, <https://doi.org/10.1145/3457607>.

¹⁵ Upik Mutiara, Rahmad Ramadhan Hasibuan, dan Lupita Risma Candanni, "Perlindungan Data Dalam Layanan Perbankan Berbasis Teknologi (Fintech): Kerangka Regulasi Di Indonesia Dan Singapura," *Jurnal Magister Ilmu Hukum* 5, no. 2 (Agustus 2021): 1, <https://doi.org/10.36722/jmih.v5i2.788>.

practices. Therefore, this study is important to analyze the legal regulations regarding the use of Artificial Intelligence in Islamic banking financing card products in Indonesia, as well as the legal challenges and the construction of ideal legal protection for banks and customers in the use of Artificial Intelligence in Islamic banking financing card products in Indonesia.

METHODOLOGY

The legal materials used consist of primary, secondary, and tertiary legal materials. The primary legal materials include the Constitution of the Republic of Indonesia, Law Number 21 of 2008 concerning Islamic Banking, Law Number 11 of 2008 concerning Electronic Information and Transactions, Law Number 27 of 2022 concerning Personal Data Protection, Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector, and relevant regulations issued by the Financial Services Authority (Otoritas Jasa Keuangan/OJK) and Bank Indonesia related to digital financial services, banking governance, and risk management. The study also examines Fatwa of the National Sharia Council of the Indonesian Ulema Council (DSN MUI) Number 54/DSN MUI/X/2006 concerning Sharia Cards and other relevant fatwas governing Islamic financing practices. Secondary legal materials consist of books, scientific journal articles, research reports, and other legal literature discussing Artificial Intelligence, Islamic banking, financial technology, consumer protection, and data governance. Tertiary legal materials include legal dictionaries, encyclopedias, and other supporting reference materials. The collection of legal materials is conducted through document identification, inventory, and literature review. The obtained materials are subsequently analyzed using systematic legal analysis to classify, interpret, and construct legal norms in a logical and structured manner. This analytical approach aims to develop a comprehensive normative framework capable of explaining the legal basis, regulatory challenges, and policy implementation concerning the use of Artificial Intelligence in Islamic banking financing card products while ensuring legal certainty, customer protection, accountability, and compliance with sharia principles.

RESULT AND DISCUSSION

Legal Regulations on The Use of Artificial Intelligence in Islamic Banking Financing Card Products in Indonesia

The use of Artificial Intelligence in Indonesia is nothing new, to the point that it can be considered commonplace. Artificial Intelligence can be defined as a device or tool that assists work with a human-like framework of thinking and reasoning based on human commands.¹⁶ Regulations for the use of Artificial Intelligence in Indonesia can be found indirectly in Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Electronic Information and Transactions, hereinafter referred to as the Electronic Information and Transactions Law. As stated in Article 1 paragraph 8, "*Electronic agents are devices in an electronic system created to automatically perform an action on certain electronic information managed by a person.*"

The provisions contained in the Electronic Information and Transactions Law are limited to the characteristics of electronic agents that can be operated by parties. It further stipulates that all legal consequences of electronic transactions conducted by agents are the responsibility of the electronic agent provider. However, this provision does not specify which electronic agents are regulated and can be used. Artificial intelligence is driving unprecedented change across various sectors. One industry experiencing a major Artificial Intelligence powered revolution is banking. Artificial Intelligence based systems help banks improve customer experience, manage risk, track market trends, perform predictive analysis, and automate repetitive processes.¹⁷ This is in line with Bank Syariah Indonesia, one of Indonesia's Islamic banks that has adopted Artificial Intelligence. Bank Syariah Indonesia has so far utilized Artificial Intelligence in its Artificial Intelligence chat bot and Artificial Intelligence mobile banking.¹⁸

¹⁶ Muhammad Dafi Akbar dkk., "Pemanfaatan dan Permasalahan Artificial Intelligence dalam Kehidupan Manusia Serta Pengaturannya Secara Hukum," *Media Hukum Indonesia* 2 no. 2, (2024), 1-5, <https://doi.org/https://doi.org/10.5281/zenodo.12169651>.

¹⁷ "Consulting & Growth Advisory Services | Fortune Business Insights," diakses 25 Juni 2026, <https://www.fortunebusinessinsights.com/>.

¹⁸ Issa Hamadou dkk., "Unleashing the power of artificial intelligence in Islamic banking: A case study of Bank Syariah Indonesia (BSI)," *Modern Finance* 2, no. 1 (Juni 2024): 138, <https://doi.org/10.61351/mf.v2i1.116>.

Furthermore, Artificial Intelligence has been found to optimize credit card processing, improve business process efficiency, and reduce operational costs.¹⁹ The use of Artificial Intelligence can help banks better identify and manage credit risk, as well as prevent the spread and escalation of credit risk within the financial system. Artificial Intelligence technology can also increase the intelligence of banking services, enhance the customer experience, and increase bank competitiveness.²⁰ The application of Artificial Intelligence technology in banking credit risk management brings many innovative opportunities, but also comes with a series of challenges. One emerging challenge is the potential for bias or discrimination in Artificial Intelligence based credit decision-making, which can lead to unfair lending conditions or denial of service. Another challenge is ethical and regulatory issues. The ethical and regulatory concerns raised by the application of Artificial Intelligence in finance can lead to unfair decision-making, regulatory penalties, and reputational risks.²¹

One of the challenges of implementing Artificial Intelligence in Islamic banking financing cards is related to ethics and regulations.²² From a regulatory perspective, the legal framework governing Artificial Intelligence implementation in Islamic banking is still relatively premature in many countries, including Indonesia. The Financial Services Authority and the National Sharia Council - Indonesian Ulama Council do not yet have comprehensive regulations specifically governing Artificial Intelligence implementation in Islamic financial institutions.²³ Moreover, regarding the application of Artificial Intelligence to the use of Islamic banking financing cards, a specific regulatory framework has not yet been found to regulate this matter.

¹⁹ Suprit Kumar Pattanayak, *The Impact of Artificial Intelligence on Operational Efficiency in Banking: A Comprehensive Analysis of Automation and Process Optimization*, 08, no. 10 (2021).

²⁰ Hicham Sadok, Fadi Sakka, dan Mohammed El Hadi El Maknoui, "Artificial Intelligence and Bank Credit Analysis: A Review," *Cogent Economics & Finance* 10, no. 1 (Desember 2022): 2023262, <https://doi.org/10.1080/23322039.2021.2023262>.

²¹ Shuochen Bi dan Wenqing Bao, "Innovative Application of Artificial Intelligence Technology in Bank Credit Risk Management," *International Journal of Global Economics and Management* 2, no. 3 (April 2024): 76–81, <https://doi.org/10.62051/IJGEM.v2n3.08>.

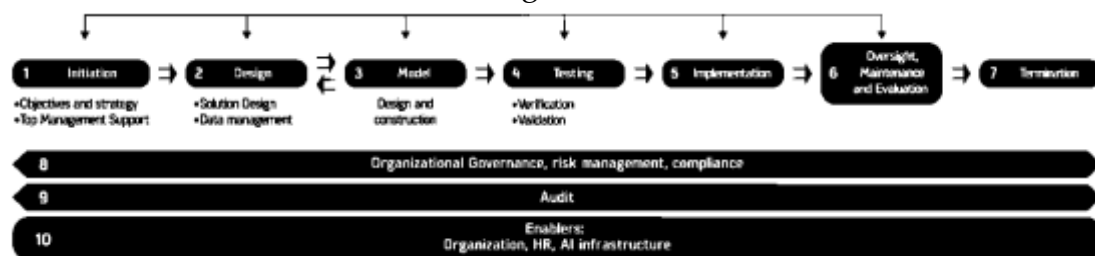
²² Safriatullah Safriatullah dkk., "Tantangan Implementasi AI di Perbankan Syariah: Perspektif Regulasi dan Etika," *Jurnal Ilmiah Guru Madrasah* 4, no. 1 (Juni 2025): 34–51, <https://doi.org/10.69548/jigm.v4i1.40>.

²³ Safriatullah Safriatullah dkk., "Tantangan Implementasi AI di Perbankan Syariah: Perspektif Regulasi dan Etika," *Jurnal Ilmiah Guru Madrasah* 4, no. 1 (Juni 2025): 34–51, <https://doi.org/10.69548/jigm.v4i1.40>.

Law Number 21 of 2008 concerning Sharia Banking, hereinafter referred to as the Sharia Banking Law, does not mention the use of Artificial Intelligence in business activities. The law only regulates that business activities carried out by Sharia Commercial Banks include conducting debit cards and/or financing cards based on Sharia principles. Furthermore,²⁴ Law Number 4 of 2023 concerning the Strengthening and Development of the Financial Sector, hereinafter referred to as the Law on the Strengthening and Development of the Financial Sector, has not yet introduced changes to the Sharia banking sector regarding the involvement of Artificial Intelligence technology in all business activities.²⁵

Previously in 2016, the Financial Services Authority issued Financial Services Authority Regulation Number 75/POJK.03/2016 concerning Information Technology Implementation Standards for Rural Banks and Sharia Rural Financing Banks, hereinafter referred to as Financial Services Authority Regulation 75 2016. This Financial Services Authority Regulation provides regulations for Sharia Banks in using information technology to run their business units. This provision defines information technology as a technique for collecting, preparing, storing, processing, announcing, analyzing and/or disseminating information.²⁶

Figure 1.



Guidelines for the Implementation of Artificial Intelligence in the Banking Sector

Source: Financial Services Authority (Otoritas Jasa Keuangan), 2025.

²⁴ Bayu Mogana Putra, "Kebijakan Politik Hukum Negara Terhadap Perbankan Syariah," *Jurnal Lex Renaissance* 6, no. 2 (April 2021), <https://doi.org/10.20885/JLR.vol6.iss2.art14>.

²⁵ Law Number 4 of 2023 concerning the Strengthening and Development of the Financial Sector

²⁶ "Press Release: OJK Issues Regulation On Information Technology Implementation for Conventional Rural Banks and Sharia Rural Banks Digital Security Strengthening," diakses 25 Juni 2026, <https://ojk.go.id/en/berita-dan-kegiatan/siaran-pers/Pages/OJK-Issues-Regulation-On-Information-Technology-Implementation-For-BPR-And-BPRS-Digital-Security.aspx>.

The Financial Services Authority has issued guidelines for Artificial Intelligence governance in banking in Indonesia. These guidelines serve as a minimum reference for banks implementing Artificial Intelligence systems within their organizations and business processes. Banks can refer to various existing standards to strengthen Artificial Intelligence implementation, ensuring that Artificial Intelligence implementation prioritizes integrity and ethical values, employs sound governance structures and processes, mitigates risks, and ensures compliance with applicable laws, regulations, guidelines, and standards.²⁷ The following are guidelines for implementing Artificial Intelligence in the banking sector:

- a. *First*, initiation is a crucial step to ensure oversight, accountability, and risk management of Artificial Intelligence system implementation. Important aspects of this initiation include clear goals and strategies, and support from top management.
- b. *Second*, solution design. The solutions designed and built adhere to core values for realizing responsible and trustworthy Artificial Intelligence. These values include.
 1. **Reliability.** Reliability is needed to ensure that Artificial Intelligence generated decisions are reliable and align with the bank's strategy to achieve its objectives. A reliable Artificial Intelligence I model is one that is capable of producing output through a system that is explainable and easy to understand, secure, and generated by a reliable and robust system.
 2. **Accountability.** Accountability in Artificial Intelligence systems is ensuring that the administrator can be held accountable for the proper functioning of the Artificial Intelligence system being developed and implemented. The implemented Artificial Intelligence system is trustworthy, useful, fair, respects human rights, is transparent, explainable, robust, and secure.
 3. **Human Oversight.** In this regard, the adoption process of an Artificial Intelligence system throughout the Artificial Intelligence Lifecycle still

²⁷ "Artificial Intelligence Governance for Indonesian Banks," diakses 25 Juni 2026, <https://ojk.go.id/en/Publikasi/Roadmap-dan-Pedoman/Perbankan/Pages/Indonesia-Artificial-Intelligence-Governance-for-Banking.aspx>.

requires human intervention, control, and consideration, from input to output.

- c. *Third*, the model. The design and construction of an Artificial Intelligence model is a crucial stage in developing an Artificial Intelligence system.
- d. *Fourth*, testing. During the testing phase, verification and validation of the Artificial Intelligence system are conducted. This phase aims to review and assess the methods and procedures used to assess whether the performance of the Artificial Intelligence model and system across various dimensions and considerations is functioning as intended, ensuring that the decisions made by the Artificial Intelligence system and the resulting output are reliable.
- e. *Fifth*, implementation. The implementation of an Artificial Intelligence system in bank operations includes trials, compatibility checks with legacy systems, ensuring regulatory compliance, managing organizational change, and evaluating the user experience to ensure the Artificial Intelligence system performs reliably and reliably.
- f. *Sixth*, monitoring, maintenance, and evaluation. This phase aims to identify issues and make adjustments, either by returning to the previous phase or, if necessary, by discontinuing (terminating or stopping) the use of the Artificial Intelligence system.
- g. *Seventh*, discontinuation. Discontinuation involves permanently discontinuing the use of the Artificial Intelligence system because it is no longer effective, obsolete, or risky, and repair and update efforts are no longer sufficient to meet new requirements. Banks discontinue Artificial Intelligence systems in a manner that minimizes potential disruption and risk to the bank. Therefore, the decision to exterminate must be based on good governance.

The governance guidelines that have become guidelines for the use of Artificial Intelligence do not explicitly mention them as guidelines for Islamic banking in Indonesia. The provisions for Islamic banks are limited to Financial Services Authority Regulation 75 of 2016, which does not explicitly categorize information technology as

artificial intelligence. This is particularly true for the use of financing cards in Islamic banking.

The Fatwa of the National Sharia Council of the Indonesian Ulema Council Number 54/DSN-MUI/X/2006 concerning Sharia Cards, later referred to as Fatwa 54 of 2006, stipulates provisions regarding the use of Sharia banking financing cards. A Sharia card is defined as a card that functions like a credit card, with a legal relationship (based on an existing system) between the parties based on Sharia principles as stipulated in the fatwa. Sharia cards are permitted by applying at least three contracts: *Kafalah*, *Qardh*, and *Ijarah*.²⁸

The *Kafalah* contract is a guarantee agreement given by one party to another party, where the guarantee provider (*Kafil*) is responsible for repaying the debt that is the right of the guarantee recipient (*Makful*).²⁹ In this case, the card issuer acts as the guarantor for the cardholder to the merchant for all payment obligations (*Dayn*) arising from transactions between the cardholder and the merchant, and/or cash withdrawals from banks other than the card-issuing bank or automated teller machine. The card issuer may receive a fee (*Ujrah Kafalah*) for granting the *Kafalah*.³⁰ A *Qardh* contract is a loan agreement for a customer, with the condition that the customer must repay the funds received within an agreed-upon time.³¹ In this case, the card issuer acts as the lender to the cardholder through a cash withdrawal from the issuing bank or automated teller machine.³² An *Ijarah* contract is a contract for the provision of funds in order to transfer the right to use or benefit from a good or service based on a rental transaction, without the transfer of ownership of the good itself.³³ In this case,

²⁸ Fatwa of the National Sharia Council of the Indonesian Ulema Council Number 54/DSN-MUI/X/2006 concerning Sharia Cards

²⁹ Explanation of Article 18 paragraph (1) letter i of Law Number 21 of 2008 concerning Sharia Banking.

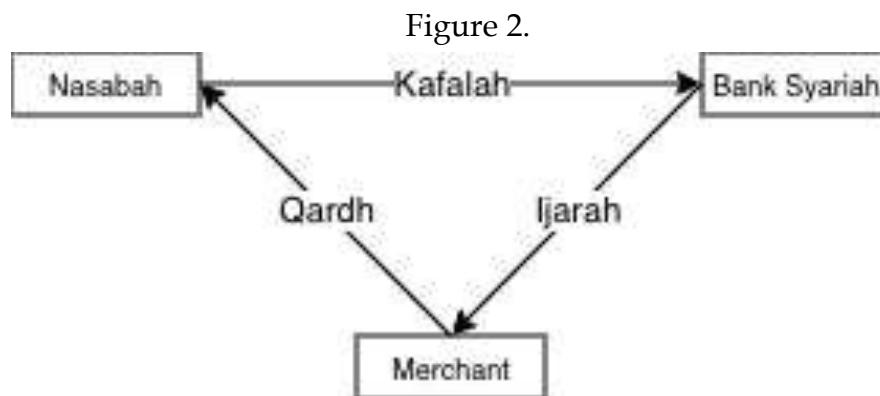
³⁰ Fatwa of the National Sharia Council of the Indonesian Ulema Council Number 54/DSN-MUI/X/2006 concerning Sharia Cards

³¹ Explanation of Article 19 paragraph (1) letter e of Law Number 21 of 2008 concerning Sharia Banking.

³² Fatwa of the National Sharia Council of the Indonesian Ulema Council Number 54/DSN-MUI/X/2006 concerning Sharia Cards

³³ Explanation of Article 19 paragraph (1) letter f of Law Number 21 of 2008 concerning Sharia Banking.

the *Ijarah* involves the card issuer providing payment systems and services to the cardholder. The cardholder is charged a membership fee for this *Ijarah*.³⁴



Financing Card Contract Scheme in Islamic Banking

Source: Processed by the Author (2026).

However, the use of financing cards in Islamic banking has been disrupted by the introduction of Artificial Intelligence in financing decisions for customers. To date, Indonesia's regulatory framework has not adequately addressed the ethical use of Artificial Intelligence in Islamic banking financing cards. This regulatory framework must be separate from conventional banking regulations, given that Sharia principles are standard rules that must be included in all Islamic banking business units. Most existing regulations still refer to general guidelines for conventional financial technology and fail to accommodate the normative and specific requirements of Sharia values.³⁵ Compliance with Sharia principles is a fundamental consideration in the context of Artificial Intelligence technology integration.

In addition to demonstrating a lack of norms regarding Artificial Intelligence regulation for Islamic banking financing cards, the Indonesian regulatory framework also demonstrates fragmented regulations across sectors. The use of Artificial Intelligence in the financial sector is still partially regulated through information technology and digital governance regulations, without any specific harmonization of the characteristics of Islamic banking. As a result, the implementation of Artificial

³⁴ Fatwa of the National Sharia Council of the Indonesian Ulema Council Number 54/DSN-MUI/X/2006 concerning Sharia Cards

³⁵ Wardina Basti, Transforming Ethical Regulation Of Artificial Intelligence In Islamic Banking: A Maqashid Shariah Perspective In The Digital Era, *Jurnal Sipakainge: Inovasi Penelitian, Karya Ilmiah dan Pengembangan (Islamic Science)*, 3 no 1, (Juni 2025), 56-72.

Intelligence within the Islamic card mechanism has the potential to raise legal issues related to algorithm accountability, Islamic oversight, and the validity of machine learning-based financing decisions. AI must be understood not merely as a technological tool but as a force transforming governance in Islamic finance. The future of Artificial Intelligence in Islamic finance depends not only on technological sophistication but also on the strength, adaptability, and moral clarity of Islamic governance institutions.³⁶ Therefore, the need for sector-specific Artificial Intelligence regulations based on Islamic principles is increasingly urgent to provide legal certainty and protection for Islamic banking customers in the digital era.³⁷

Legal Challenges and Construction of Ideal Legal Protection for Banks and Customers in The Use of Artificial Intelligence In Islamic Banking Financing Card Products in Indonesia

Technological developments and advancements represent progress and have a positive impact on people's lives. However, technology must be used wisely and responsibly, given its ease of use and widespread misuse. The application of Artificial Intelligence technology in the banking industry must be considered, as it plays a significant role in controlling a country's economy. The participation of government institutions in developing relevant policies will determine how to prevent and address any issues related to Artificial Intelligence.³⁸ Artificial Intelligence technology applies machine learning algorithms to analyze data including an applicant's spending patterns, financial history, and credit history, then generates a personalized credit score. This cutting-edge technology uses artificial intelligence algorithms to

³⁶ Muhammad Syauqi Bin-Armiya dan Yessen Kambakov, *Artificial Intelligence and Shariab Governance in Islamic Finance: Institutional Design, Value Creation, and Risk Management*, 5, No. 1, (2026),1-13.

³⁷ Muhammad Bashri Bas dkk., "Artificial Intelligence and Financial Regulation in Indonesia's Islamic Banking: a Systematic Literature Review," *Paradoks: Jurnal Ilmu Ekonomi* 8, no. 3 (Juni 2025): 1174–87, <https://doi.org/10.57178/paradoks.v8i3.1519>.

³⁸ "LEXPRESS: OJK Terbitkan Tata Kelola Kecerdasan Artifisial: Bagaimana Regulasi Implementasi Ai Dalam Industri Perbankan di Indonesia?," *LK2 FHUI*, diakses 25 Juni 2026, <https://lk2fhui.law.ui.ac.id/portfolio/lexpress-ijk-terbitkan-tata-kelola-kecerdasan-artifisial-bagaimana-regulasi-implementasi-ai-dalam-industri-perbankan-di-indonesia/>.

significantly transform the credit card approval process in the banking sector, particularly the credit card approval mechanism.³⁹⁴⁰

In the use of Artificial Intelligence in modern banking systems, various factors are used as measurement indicators in decision-making based on data processed by Artificial Intelligence.⁴¹ The first factor is the customer's spending pattern, which includes transaction frequency, type of credit card usage, nominal expenditure, and consistency of customer consumption behavior over a certain period. The second factor is the customer's financial history, which includes financial condition, ability to manage funds, and the stability of the customer's financial activities. The third factor is credit history, which is a record of the customer's compliance with credit payment obligations, including timely bill payments, arrears, and previous loan history. Furthermore, the customer's purchasing behavior is also an important factor in the assessment, because the system can identify transaction habits, consumption patterns, and tendencies of customers' continued use of credit facilities.⁴²⁴³

Based on this data, Artificial Intelligence will generate results indicating the likelihood of customer payment delays, whether in the form of a single payment delay or consecutive payment delays. Furthermore, the system also creates a customer risk profile based on the overall transaction behavior and financial condition analyzed. Artificial Intelligence then calculates the default probability to determine the customer's creditworthiness in meeting their financial obligations in the following period. Based on these results, banks can group customers based on their level of risk and potential losses. Furthermore, the overall analysis results will be converted into a

³⁹ Pradeep Sharma dan J. Logeshwaran, "AI-driven Credit Scoring System for Real-Time Credit Card Approval in Banking," *2024 2nd International Conference on Advances in Computation, Communication and Information Technology (ICAICIT)*, 28 November 2024, 506–11, <https://doi.org/10.1109/ICAICIT64383.2024.10912352>.

⁴⁰ Renu Vij dkk., "AI-Enhanced Credit Scoring Method for Immediate Assessment," *2025 2nd International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMS)*, 11 Juli 2025, 1–7, <https://doi.org/10.1109/ICCAMS65118.2025.11234116>.

⁴¹ Natkamon Tovanich dkk., "Inferring Psychological Traits from Spending Categories and Dynamic Consumption Patterns," *EPJ Data Science* 10, no. 1 (Mei 2021): 24, <https://doi.org/10.1140/epjds/s13688-021-00281-y>.

⁴² Maher Ala'raj, Maysam F. Abbod, dan Munir Majdalawieh, "Modelling Customers Credit Card Behaviour Using Bidirectional LSTM Neural Networks," *Journal of Big Data* 8, no. 1 (Desember 2021): 69, <https://doi.org/10.1186/s40537-021-00461-7>.

⁴³ Maher Ala'raj dkk., "A Deep Learning Model for Behavioural Credit Scoring in Banks," *Neural Computing and Applications* 34, no. 8 (April 2022): 5839–66, <https://doi.org/10.1007/s00521-021-06695-z>.

customer behavior score that is used as a basis for banking decisions, such as granting credit approvals, determining credit card limits, risk monitoring, and other mitigation measures.⁴⁴

The use of Artificial Intelligence in Islamic banking financing card products is not specifically regulated in Indonesian regulations. However, several provisions in the Financial Services Authority Regulation concerning Islamic financing, namely Financial Services Authority Regulation Number 31/POJK.05/2014 concerning the Implementation of Islamic Financing Businesses, can serve as a basis for analyzing the use of Artificial Intelligence, particularly regarding financing assessment, the use of information technology systems, consumer protection, and monitoring and compliance mechanisms.⁴⁵ Therefore, the following provisions can be used as a construction of normative analysis in this study.

Table 1. Normative Provisions Governing the Research Object

Article	Regulatory Substance	Relation to Artificial Intelligence
Article 21-26	Assessment of consumer ability to pay and the quality of Islamic financing	Becoming the basis for the use of Artificial Intelligence in credit scoring, profiling, and customer risk analysis
Article 45-47	Prohibition on the use of incorrect information that is detrimental to consumers	Regarding the potential for algorithmic bias and the use of inaccurate data in Artificial Intelligence systems
Article 52	The obligation of Islamic financing companies to have an integrated information and technology system	Be the basis for the use of Artificial Intelligence systems and digital technology in the financing process

Source: Financial Services Authority Regulation Number 31/POJK.05/2014.

Based on these provisions, it is clear that Islamic banking financing regulations in Indonesia have provided a regulatory framework for financing assessment and the use of information technology, but have not specifically addressed the use of Artificial Intelligence in credit scoring mechanisms, algorithm transparency, and customer data

⁴⁴ Branka Hadji Misheva dkk., "Explainable AI in Credit Risk Management," versi 1, preprint, arXiv, 2021, <https://doi.org/10.48550/ARXIV.2103.00949>.

⁴⁵ Financial Services Authority Regulation Number 31/POJK.05/2014 concerning the Implementation of Islamic Financing Businesses

protection. This situation demonstrates the need for a legal framework that is more adaptive to technological developments in the Islamic banking sector.

The concept of Personal Rights and Property Rights in Islamic Law can be used as a basis for analyzing the use of Artificial Intelligence in Islamic banking financing card products. Personal rights are rights granted by sharia to an individual against another party related to the implementation of certain obligations, whether in the form of performing or not performing an act. This right creates a legal relationship between the rights owner and the party burdened with the obligation, thus having three elements: the rights owner, the object of the rights, and the party bearing the obligation. Meanwhile, property rights are rights granted by sharia to an individual over a specific object, which creates direct authority over the object. In property rights, the legal relationship only occurs between the rights owner and the object of the rights, so the elements contained therein consist of the rights owner and the object of the rights in the form of an object.⁴⁶

In this case, personal rights relate to the legal relationship between the bank and the customer, which gives rise to an obligation to act fairly, honestly, and transparently in the financing process. Meanwhile, property rights relate to the protection of objects of economic value, including the customer's personal data as part of a digital asset. In the context of the use of Artificial Intelligence, both concepts are relevant to assessing how credit scoring mechanisms, data processing, and financing decision-making are carried out to remain aligned with the principles of legal protection and justice in Islamic banking.

Table 2. The Relationship Between Rights and Artificial Intelligence

Concept	Personal Rights	Property Rights
Understanding	Rights that create a legal relationship between a person and another party regarding the implementation of certain obligations	Rights that create a direct relationship between a person and a particular thing or object

⁴⁶ Ahbah az-Zuhaili, *Fiqih Isuim Wa Adiluitubu – Jilid 4* (Jakarta: Gema Insani, 2011), 372.

Concept	Personal Rights	Property Rights
	Artificial Intelligence is used in legal relations between banks and customers as well as in managing customer data and digital assets.	
Legal Relations	Oriented towards obligations and responsibilities between legal subjects	Oriented towards control and authority over certain objects
	Artificial Intelligence influences financing decisions, risk assessments, and management of customer personal data.	
Element	Rights owners, rights objects, and parties burdened with obligations	Rights owners and rights objects
	The Artificial Intelligence system involves the bank as the manager, the customer as the rights owner, and the data as the object being processed.	
Transparency	Customers have the right to obtain clarity and transparency regarding financing decisions.	The owner of the rights has the authority to know the use of the object he owns.
	Black box Artificial Intelligence algorithms have the potential to eliminate customers' rights to know the basis for rejection or approval of financing.	
Algorithmic Bias	Unfairness in decision-making can harm customer rights.	Bias can unfairly influence the control or use of objects.
	Artificial Intelligence has the potential to create digital discrimination in financing assessments based on specific data patterns.	
Data Protection	Customers have the right to fair treatment in the use of their data.	Personal data is viewed as a valuable object that must be protected.
	The use of Artificial Intelligence requires protection for the collection, processing, and storage of customer personal data.	
Islamic Banking Principles	Emphasizing honesty, fairness, and responsibility	Emphasizing the protection of rights and legitimate control
	The use of Artificial Intelligence must remain aligned with the principles of fairness, transparency, and protection of rights in Islamic banking.	

Source: Processed by the Author (2026).

Consumer protection in the use of Artificial Intelligence for credit scoring is insufficient if it focuses solely on consumer rights, such as only granting the right to file an objection or request an explanation for a credit rejection. Because Artificial Intelligence credit scoring systems are highly complex and utilize extensive data and algorithms, consumer protection must also be implemented by regulating the

companies or banks that use Artificial Intelligence.⁴⁷ This means that regulations must oversee how Artificial Intelligence is used by businesses from the very beginning of the credit scoring process.⁴⁸ Customers may benefit if their profiles fall outside conventional credit scoring parameters but perform well under the new method. Conversely, borrowers may also be disadvantaged if the new method disparately impacts certain groups protected by anti-discrimination laws. Furthermore, there's a possibility that data may be collected without borrowers' consent or used in ways they don't understand.⁵⁰

Legal regulation related to Artificial Intelligence in credit scoring cannot rely solely on a single regulatory approach. If a rigid (rules-based) approach is used, regulations can quickly become outdated due to the rapid development of Artificial Intelligence technology. Furthermore, if a principles-driven approach is used, regulations become too general and can create uncertainty in their application. Furthermore, if an adaptive approach is used only, regulations can be too flexible and potentially reduce legal certainty. Therefore, a regulatory system that combines all three approaches (hybrid governance) is needed. This means that regulations must continue to provide legal certainty for banks, regulators, and customers. At the same time, they must remain flexible enough to adapt to developments in Artificial Intelligence technology, support innovation in the financial sector, while still protecting public rights, such as personal data protection, fairness, and the prevention of discrimination. There are practical limitations to implementing this framework, particularly in countries with limited regulatory capacity. Risks such as audit fatigue, regulatory capture, and formalistic compliance remain significant issues. Therefore, the way forward requires not only legal reform, but also continued investment in supervisory infrastructure, cross-

⁴⁷ Holli Sargeant, "Algorithmic Decision-Making in Financial Services: Economic and Normative Outcomes in Consumer Credit," *AI and Ethics* 3, no. 4 (November 2023): 1295–311, <https://doi.org/10.1007/s43681-022-00236-7>.

⁴⁸ Maria Lillà Montagnani dan Carolina Paulesu, "Towards an Ecosystem for Consumer Protection in the Context of AI-Based Credit Scoring," *European Business Law Review* 33, no. Issue 4 (Juni 2022): 557–80, <https://doi.org/10.54648/EULR2022026>.

⁴⁹ Gerald Spindler, "Algorithms, Credit Scoring, and the New Proposals of the EU for an AI Act and on a Consumer Credit Directive," *Law and Financial Markets Review* 15, no. 3–4 (Oktober 2021): 239–61, <https://doi.org/10.1080/17521440.2023.2168940>.

⁵⁰ Katja Langenbucher, "Responsible A.I.-Based Credit Scoring – A Legal Framework," *European Business Law Review* 31, no. Issue 4 (Agustus 2020): 527–72, <https://doi.org/10.54648/EULR2020022>.

border coordination, and the establishment of a culture of algorithmic accountability within financial institutions.⁵¹

In addition to raising issues related to discrimination and personal data protection, the use of Artificial Intelligence in credit scoring also raises important issues from an Islamic law perspective, particularly regarding the principles of *Gharar*, *Siddiq*, and *Amanah*. Many Artificial Intelligence systems operate through complex, black-box algorithms, making it difficult for customers, regulators, and even financial institutions themselves to understand the basis for financing decisions. This situation has the potential to create an element of *gharar* (uncertainty) because customers cannot clearly understand the factors that determine whether a financing application is accepted or rejected. Furthermore, the inability of banks to provide adequate explanations for decisions made by algorithms can conflict with the principle of *siddiq* (honesty and openness), which requires the delivery of information that is accurate, transparent, and understandable to all parties in a financial transaction. Furthermore, the use of large amounts of personal data for credit scoring purposes requires the implementation of the principle of *amanah* (trust), which requires banks to manage customer data responsibly and securely, and to use it only for legitimate purposes and in accordance with customer consent. Therefore, the governance of Artificial Intelligence in Islamic banking is not only assessed from the aspect of technological efficiency and consumer protection alone, but must also ensure that the use of algorithms is in line with the basic values of Islamic finance, namely transparency, accountability, fairness, and trust as the basis of the legal relationship between banks and customers.

Based on the above description, the use of Artificial Intelligence in Islamic banking financing card products not only raises legal challenges in terms of algorithm transparency, personal data protection, and potential digital discrimination, but also demands the construction of legal protection that can balance the interests of banks, customers, and technological developments. In this context, the ideal legal regulation is not only oriented towards repressive consumer protection, but must also regulate

⁵¹ Nydia Remolina, "The Role of Financial Regulators in the Governance of Algorithmic Credit Scoring," *SSRN Electronic Journal*, advance online publication, 2022, <https://doi.org/10.2139/ssrn.4057986>.

the governance of Artificial Intelligence use from the data collection process, credit scoring, to financing decision-making. Therefore, a regulatory model that is hybrid governance by integrating rules-based, principles-driven, and adaptive regulation approaches is needed to create legal certainty, innovation flexibility, and protection of the principles of fairness, transparency, algorithmic accountability, and compliance with Islamic banking principles in Indonesia.

CONCLUSION

The use of Artificial Intelligence in Islamic banking financing card products in Indonesia demonstrates that digital technology developments have driven a transformation in financing mechanisms, particularly in the credit scoring process, risk analysis, and financing decision-making. However, legal regulations in Indonesia remain fragmented and scattered across various sectors, such as personal data protection, information technology, and electronic system governance, without specific regulations comprehensively governing the use of Artificial Intelligence in Islamic banking. This situation creates a gap in norms regarding algorithm transparency, Artificial Intelligence system accountability, sharia supervision, and the validity of machine learning-based financing decisions in Islamic banking financing card products. Furthermore, legal challenges in the use of Artificial Intelligence relate not only to customer protection as consumers but also to the governance and responsibilities of financial institutions that use Artificial Intelligence systems in the financing process. While the use of Artificial Intelligence has the potential to provide benefits through faster and more adaptive credit assessment methods, it can also pose risks such as algorithmic bias, digital discrimination, unauthorized data use, and unclear financing decision-making. Therefore, the ideal construction of legal protection must be able to balance the interests of technological innovation with the protection of customer rights through a hybrid governance approach that combines rules-based, principles-driven, and adaptive regulation models to create legal certainty, regulatory flexibility, and protection of the principles of justice, transparency, and algorithmic accountability in Islamic banking in Indonesia.

Based on the research findings, it is necessary to establish sectoral regulations specifically governing the use of Artificial Intelligence in Islamic banking financing card products in Indonesia, particularly regarding credit scoring mechanisms, algorithm transparency, personal data protection, and legal accountability for Artificial Intelligence based financing decisions. The Financial Services Authority, along with related institutions, needs to integrate Artificial Intelligence technology regulations with consumer protection principles and Sharia principles to ensure Artificial Intelligence use remains aligned with the values of fairness, openness, and accountability in Islamic banking. Furthermore, Islamic banks need to implement regular algorithm monitoring and audit mechanisms to prevent algorithmic bias, digital discrimination, and misuse of customer data. Strengthening regulatory capacity, cross-sector coordination, and establishing a culture of algorithmic accountability are also crucial to ensure the adaptive development of Artificial Intelligence technology in the Islamic banking sector without compromising legal certainty and customer rights protection in the digital era.

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COMPETING INTEREST

The author declares that there is no conflict of interest regarding the publication of this article.

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