Al-bank: Journal of Islamic Banking and Finance
e-ISSN: 2797-8265, p-ISSN: 2797-9466
https://doi.org/10.31958/ab.v6i2

Integration of AI and Adaptive Microfinance in Islamic Banking for Maqashid Sharia-Based Financial Inclusion: A Conceptual Framework

Misi Anggraini[1]
Imam Bonjol State Islamic University Padang, Indonesia
Email: misi.anggraini@uinib.ac.id

Muchlis Bahar[2]
Imam Bonjol State Islamic University Padang, Indonesia
Email: muchlisbahar@uinib.ac.id

Duhriah[3]
Imam Bonjol State Islamic University Padang, Indonesia
Email: duhriah@uinib.ac.id

Yulizain Putra[4]
Imam Bonjol State Islamic University Padang, Indonesia
Email: yulizain.putra@uinib.ac.id

Corresponding Author

Email:
misi.anggraini@uinib.ac.id

Keywords
Artificial Intelligence;
Adaptive Microfinance;
Islamic Banking;
Maqashid Sharia-Based;
Financial Inclusion;

Abstract

Background: Digital transformation and artificial intelligence (AI) are reshaping Islamic banking, creating opportunities to improve financial inclusion while adhering to *Maqashid Sharia*. Objective**:** This study develops a conceptual framework integrating AI and adaptive microfinance to promote *Maqashid Sharia*-based financial inclusion in Islamic banking. Methodology**:** A qualitative conceptual approach was employed through a comprehensive literature review and policy analysis of studies on AI, adaptive microfinance, Islamic banking, and financial inclusion. Findings: The proposed framework suggests that AI can improve financing assessment, operational efficiency, risk management, and access to financial services for underserved communities. Combined with adaptive microfinance, AI supports the achievement of *Maqashid Sharia* by enhancing social welfare, protecting wealth, promoting equitable economic opportunities, and reducing poverty. The analysis also identifies key challenges, including regulatory constraints, limited Sharia-compliant digital expertise, algorithmic bias, data privacy, and institutional coordination. Novel Contribution: This study proposes the AI-Based Adaptive Islamic Microfinance Framework, integrating AI, adaptive microfinance, and *Maqashid Sharia* into a unified conceptual model. Practical Implication: The framework offers strategic guidance for Islamic banks, regulators, and policymakers while providing a foundation for future empirical research.

How to Cite:
Anggraini, M., Bahar, M., Duhriah, D., & Putra, Y. (2026). Integration of AI and Adaptive Microfinance in Islamic Banking for Maqashid Sharia-Based Financial Inclusion: A Conceptual Framework. *Al-Bank: Journal of Islamic Banking and Finance, 6(2). 102-119* https://doi.org/10.31958/ab.v6i2.16967

INTRODUCTION

Maqashid Sharia-based financial inclusion has become a strategic objective of Islamic banking because it seeks not only to provide financial services but also to promote social justice, equitable wealth distribution, and sustainable economic development (Ubaidillah., 2025). Although the Islamic banking industry has grown steadily over the last decade, access to Sharia-compliant financial services remains limited among micro-enterprises, low-income households, and underserved communities, particularly in developing countries. Conventional financing procedures, limited financial literacy, geographical barriers, and inadequate service outreach continue to

constrain financial inclusion (Hidayanti et al., 2025). These persistent challenges indicate that achieving *Maqashid Sharia*-based financial inclusion requires new approaches capable of expanding access while preserving Islamic ethical values (Miah & Suzuki, 2020).

Artificial Intelligence (AI) has emerged as a transformative technology capable of improving *financing* decisions, customer profiling, operational efficiency, and risk management (Iroth et al., 2026). However, within the context of Islamic banking, AI should not be viewed merely as a technological tool for automation. AI increasingly influences financing eligibility, customer assessment, and resource allocation through algorithm-driven decision making. These developments raise important theoretical questions regarding fairness, transparency, accountability, and ethical responsibility because algorithmic decisions may unintentionally exclude vulnerable groups, reinforce bias, or prioritize efficiency over social welfare (Alim et al., 2026). Consequently, integrating AI into Islamic banking requires more than technological adoption. It requires a conceptual foundation that aligns AI-based decision making with the objectives of *Maqashid Sharia* (Javaid, M., 2022).

From the perspective of *Maqashid Sharia*, technological innovation should contribute to the *protection* of wealth (*hifz al-mal*), social welfare (*maslahah*), equitable access to economic opportunities, and poverty alleviation rather than merely increasing institutional efficiency (Extrasona et al., 2025). Therefore, the value of AI in Islamic banking depends not only on its analytical capability but also on its ability to support ethical, transparent, and inclusive financial services. This perspective shifts the discussion from technological efficiency toward the broader question of how AI can contribute to achieving the social and developmental objectives of Islamic finance (Schwab, 2020).

Adaptive microfinance provides an important mechanism for translating these objectives into practice. Unlike conventional financing models, adaptive microfinance offers flexible financing *schemes* that respond to the heterogeneous characteristics of micro-enterprises and financially excluded communities (Furqani, 2020). The integration of AI with adaptive microfinance enables more accurate customer identification, dynamic risk assessment, and personalized financing recommendations based on real-time data. Such integration has the potential to reduce information asymmetry, improve financing accessibility, and expand financial inclusion without compromising Sharia principles. Accordingly, AI functions not merely as a digital innovation but as an enabling mechanism for strengthening *Maqashid Sharia*-based financial inclusion through adaptive and evidence-based financial services Baber, 2020).

Existing studies have examined AI adoption, Islamic fintech, digital banking, blockchain, and Islamic microfinance as separate research streams. Most studies emphasize technological performance, operational efficiency, or financial outcomes, whereas limited attention has been given to explaining how AI, adaptive microfinance, and *Maqashid Sharia* can be conceptually integrated into a unified framework for financial inclusion (Rohman et al., 2025). As a result, the literature still lacks a comprehensive conceptual model that explains the mechanisms through which AI can strengthen inclusive Islamic banking while maintaining Sharia objectives (Ullah, S., 2024).

To *address* this gap, this study develops a conceptual framework entitled the AI-Based Adaptive Islamic Microfinance Framework (Amsari & Anggara, 2025). The framework integrates AI capabilities, adaptive microfinance mechanisms, and *Maqashid Sharia* principles to explain how technology can support inclusive, ethical, and sustainable Islamic banking. Rather than empirically testing causal relationships, this study synthesizes previous literature and relevant policy

perspectives to construct a conceptual model that can serve as a theoretical foundation for future empirical research and practical implementation (Ascarya, & Sakti, 2022).

LITERATURE REVIEW

Artificial Intelligence in Islamic Banking

Artificial Intelligence (AI) refers to computational systems capable of simulating human intelligence through learning, reasoning, prediction, and decision-making. Rather than representing a single technology, AI encompasses several complementary techniques that perform distinct functions in financial services, including Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Explainable AI (XAI), and Generative AI (GenAI) (Dwivedi, Y. K., 2023). These technologies have transformed banking operations by enhancing data analytics, process automation, risk management, and customer engagement. In Islamic banking, AI has evolved beyond a tool for operational efficiency into a strategic capability that supports Sharia-compliant decision-making, strengthens financial governance, and expands access to inclusive financial services (Lusardi, A., & Messy, 2023). Accordingly, understanding the specific role of each AI technique is essential for explaining how AI contributes to *Maqashid Sharia*-based financial inclusion (Setiawan, B., 2021).

Machine Learning (ML) enables banking systems to learn from historical data and predict future outcomes without explicit programming (Huang, M.-H., & Rust, 2021). In Islamic banking, ML supports financing eligibility assessment, customer segmentation, financing risk prediction, and early identification of potential defaults, thereby reducing information asymmetry and improving financing decisions for micro-enterprises and underserved communities. Deep Learning (DL), an advanced branch of ML, analyzes complex and unstructured data through multilayer neural networks, enabling more accurate fraud detection, transaction monitoring, biometric authentication, and behavioral analysis (Banna, H., 2024). By improving the quality of financing assessment and reducing operational risks, ML and DL help Islamic banks expand responsible financing while maintaining financial sustainability and broader access to Sharia-compliant financial services (Aziz, *et al.,* 2023).

Natural Language Processing (NLP) enables computers to understand, interpret, and generate human language, making it valuable for multilingual chatbots, automated customer support, document verification, and the analysis of financing contracts and Sharia regulations (Rabbani, M. R., 2021). Explainable AI (XAI) complements these capabilities by providing transparent and interpretable explanations for algorithmic decisions, allowing banks, regulators, and Sharia supervisory boards to evaluate whether AI-assisted financing decisions comply with the principles of justice, transparency, and accountability (Rahman, *et al.,* 2023). Generative AI (GenAI) further extends AI capabilities by generating compliance reports, summarizing regulatory documents, assisting product documentation, supporting Sharia advisory services, and delivering interactive financial education through intelligent virtual assistants (Hassan, *et al.,* 2022). Although GenAI does not directly determine financing decisions, it strengthens customer engagement, improves institutional communication, and facilitates a broader understanding of Sharia-compliant financial products, thereby supporting more inclusive Islamic financial services (Goodell, J. W., 2021).

The complementary roles of ML, DL, NLP, XAI, and GenAI demonstrate that AI should not be viewed merely as an automation technology but as an integrated decision-support ecosystem for Islamic banking (Bestariyah & Putra, 2022). When combined with adaptive microfinance, these AI techniques enable more accurate customer identification, personalized financing recommendations, transparent financing decisions, and continuous monitoring of financing

performance (Izzeldin *et al.,* 2021). Such integration reduces information asymmetry, improves access to financing for unbanked and underbanked communities, and strengthens ethical governance through transparent and accountable decision-making. Consequently, AI contributes not only to operational efficiency but also to the achievement of *Maqashid Sharia* by promoting equitable financial access, protecting wealth, enhancing social welfare, and reducing economic exclusion (Extrasona *et al.,* 2025). This integrated perspective provides the theoretical foundation for the AI-Based Adaptive Islamic Microfinance Framework proposed in this study (Chatterjee, S.,*et al* 2023).

Adaptive Microfinance in Islamic Banking

Adaptive microfinance refers to a flexible and data-responsive financing approach designed to accommodate the diverse characteristics, capacities, and needs of micro-enterprises and financially underserved populations. Unlike conventional microfinance, which often relies on standardized lending criteria and fixed repayment structures, adaptive microfinance adjusts financing mechanisms according to customers' socioeconomic conditions, business performance, and risk profiles. Within Islamic banking, adaptive microfinance is implemented through Sharia-compliant contracts such as *murabaha*, *mudarabah*, *musharakah*, and *qard hasan*, which emphasize fairness, risk sharing, and social welfare. Its core characteristics include financing flexibility, customer-centered assessment, continuous monitoring, and the ability to respond dynamically to changing economic circumstances. These features enable Islamic banks to serve groups that are frequently excluded from formal financial systems, including micro-entrepreneurs, low-income households, and rural communities, thereby supporting broader financial inclusion objectives (Iroth *et al.,* 2026).

The emergence of Artificial Intelligence (AI) has significantly enhanced the effectiveness of adaptive microfinance by enabling more accurate, efficient, and personalized financing services. AI-enabled microfinance utilizes technologies such as Machine Learning, Deep Learning, and Natural Language Processing to analyze customer behavior, assess financing eligibility, predict repayment capacity, and identify potential risks using both traditional and alternative data sources. This capability is particularly relevant in Islamic banking, where many potential customers lack formal credit histories or sufficient collateral. By reducing information asymmetry and improving customer profiling, AI enables Islamic banks to extend financing to previously underserved populations while maintaining prudent risk management. Consequently, AI-enabled adaptive microfinance strengthens the capacity of Islamic banking to deliver inclusive financial services that align with both commercial sustainability and the social objectives of Islamic finance (Puspita *et al.*, 2024).

Despite its potential, the implementation of adaptive microfinance in Islamic banking faces several challenges. Regulatory uncertainty, limited digital infrastructure, data quality concerns, algorithmic bias, cybersecurity risks, and shortages of Sharia-compliant digital expertise may constrain the effectiveness of AI-driven financing models. Furthermore, excessive reliance on automated decision-making may create tensions between technological efficiency and the ethical principles of justice, transparency, and accountability that underpin Islamic finance. Nevertheless, these challenges also create opportunities for innovation through the development of explainable AI systems, adaptive governance frameworks, and closer collaboration among Islamic banks, regulators, fintech providers, and Sharia supervisory authorities. When supported by appropriate governance and ethical safeguards, AI-enabled adaptive microfinance can become a strategic instrument for expanding financial access, reducing economic exclusion, and advancing *Maqashid Sharia*-based financial inclusion within Islamic banking (Ramadan *et al.,* 2024).

Maqashid Sharia-Based Financial Inclusion

Maqashid Sharia represents the higher objectives of Islamic law that seek to promote human well-being (*maslahah*) through the protection and development of essential dimensions of life, including religion (*hifz al-din*), life (*hifz al-nafs*), intellect (*hifz al-'aql*), wealth (*hifz al-mal*), and lineage (*hifz al-nasl*). Within the context of Islamic finance, these objectives extend beyond legal compliance to emphasize justice, social inclusion, equitable wealth distribution, and sustainable economic development. Consequently, financial inclusion in Islam should not be understood merely as increasing access to financial products but as enabling individuals and communities to participate in productive economic activities that improve welfare while preserving ethical and Sharia principles. This perspective distinguishes *Maqashid Sharia*-based financial inclusion from conventional financial inclusion by placing social justice and human development at the center of financial intermediation (Rohman *et al.*, 2025).

The implementation of *Maqashid Sharia*-based financial inclusion requires measurable indicators that reflect both financial accessibility and social outcomes. Beyond conventional indicators such as account ownership, financing accessibility, and service availability, Islamic financial inclusion should also consider equitable financing distribution, empowerment of micro, small, and medium enterprises (MSMEs), poverty alleviation, wealth protection, financial capability, and long-term socioeconomic welfare. These indicators emphasize whether Islamic financial services contribute to inclusive and *sustainable* development rather than solely improving institutional performance. Accordingly, Islamic banking is expected to allocate financial resources in ways that reduce economic exclusion, strengthen productive entrepreneurship, and promote shared prosperity in accordance with the ethical objectives of *Maqashid Sharia* (Adityarini *et al.,* 2025).

The achievement of these objectives increasingly depends on the integration of Artificial Intelligence (AI) and adaptive microfinance within Islamic banking. AI enhances financing quality through data-driven customer assessment, predictive risk analysis, and transparent decision support, while adaptive microfinance provides flexible financing mechanisms that respond to the diverse needs of underserved communities. Together, these approaches reduce information asymmetry, improve financing accessibility, and support more equitable allocation of financial resources without compromising Sharia principles. From a *Maqashid Sharia* perspective, the value of *technological* innovation lies not only in improving operational efficiency but also in expanding economic opportunities, protecting wealth, strengthening social welfare, and reducing poverty. Therefore, the integration of AI and adaptive microfinance constitutes a conceptual pathway through which Islamic banking can advance *Maqashid Sharia*-based financial inclusion, providing the theoretical foundation for the conceptual framework proposed in this study (Hidayanti *et al.*, 2025).

Proposed Conceptual Framework

Figure 1 presents the AI-Based Adaptive Islamic Microfinance Framework**,** which conceptually explains how the integration of Artificial Intelligence (AI) and adaptive microfinance can strengthen *Maqashid Sharia*-based financial inclusion in Islamic banking. In this framework, AI functions as the primary technological enabler through Machine Learning, Deep Learning, Natural Language Processing, Explainable AI, and Generative AI. These technologies enhance customer profiling, financing eligibility assessment, risk prediction, fraud detection, document verification, and decision transparency. When embedded within adaptive microfinance, AI enables Islamic banks to provide more flexible, personalized, and data-driven financing that responds to the diverse characteristics of micro-enterprises and financially underserved communities. This

integration reduces information asymmetry, improves financing quality, and expands access to Sharia-compliant financial services while maintaining operational efficiency (Amsari & Anggara, 2025).

The framework further proposes that the effectiveness of AI-enabled adaptive microfinance depends on the implementation of Sharia-compliant governance, including transparency, accountability, fairness, data protection, and regulatory compliance. These governance principles ensure that technological innovation supports not only institutional performance but also the broader objectives of *Maqashid Sharia*. Consequently, the integration of AI and adaptive microfinance is expected to improve equitable access to finance, strengthen wealth protection (*hifz al-mal*), promote social welfare (*maslahah*), encourage inclusive economic participation, and reduce poverty. Rather than representing empirically tested causal relationships, this framework provides a conceptual foundation for understanding the interaction among AI, adaptive microfinance, Islamic banking, and *Maqashid Sharia*-based financial inclusion, while offering directions for future empirical validation (Said, 2025).

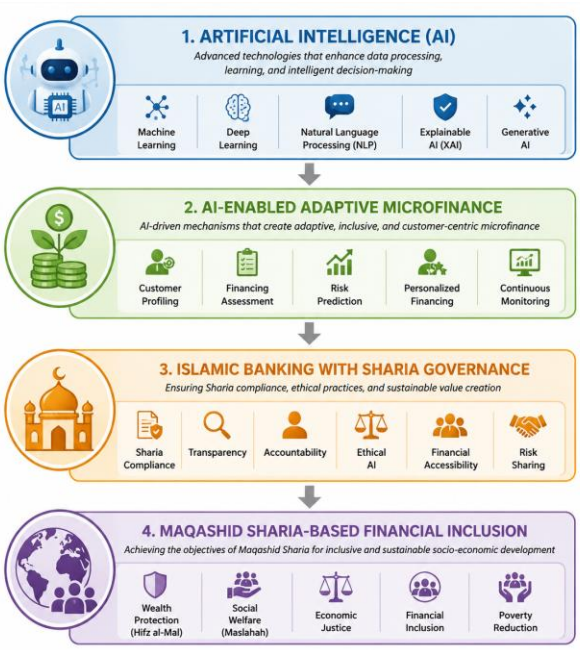

Figure 1. AI-Based Adaptive Islamic Microfinance Framework for Maqashid Sharia-Based Financial Inclusion
Source: Developed by the authors (2026).

RESULT AND DISCUSSION

Results

Thematic Synthesis

The thematic synthesis of the reviewed literature identified four interrelated themes that explain how the integration of Artificial Intelligence (AI) and adaptive microfinance can strengthen *Maqashid Sharia*-based financial inclusion in Islamic banking (Hidayanti *et al.*, 2025). Rather than functioning as independent concepts, these themes form a coherent conceptual structure that links technological innovation with Sharia-compliant financial practices and inclusive socioeconomic development. The four themes comprise: (1) AI as a strategic enabler of Islamic banking transformation, (2) adaptive microfinance as a customer-centered financing mechanism, (3) Sharia-compliant governance as a mediating foundation for responsible AI implementation, and (4) *Maqashid Sharia*-based financial inclusion as the ultimate developmental outcome. The synthesis demonstrates that previous studies have largely examined these themes separately, while only a

limited number have explored their conceptual integration within a unified framework. Consequently, the findings indicate that the principal contribution of this study lies in connecting these fragmented perspectives into a comprehensive conceptual model.

The first theme identifies AI as a strategic enabler that extends beyond operational automation toward intelligent decision support within Islamic banking. Across the reviewed literature, AI technologies, including Machine Learning, Deep Learning, Natural Language Processing, Explainable AI, and Generative AI, consistently improve financing assessment, customer profiling, fraud detection, document verification, and service personalization (Amsari & Anggara, 2025). The synthesis reveals that these technologies reduce information asymmetry and enable Islamic banks to evaluate financing applications using both conventional and alternative data sources, thereby expanding access for customers who lack formal financial records or collateral. However, previous studies primarily evaluate AI from the perspectives of operational efficiency, digital transformation, or technological adoption. Only limited attention has been given to the role of AI in supporting the broader social objectives of Islamic finance. This finding suggests that AI should be understood not merely as a technological innovation but as a strategic capability that enables Islamic banks to balance efficiency, financial sustainability, and social responsibility.

The second theme emphasizes adaptive microfinance as the operational mechanism through which AI capabilities can be translated into inclusive financing practices. Unlike conventional financing models that rely on standardized assessment procedures, adaptive microfinance employs flexible financing structures that respond to customers' business performance, repayment capacity, and socioeconomic characteristics (Said, 2025). The literature consistently highlights that such flexibility is particularly important for micro, small, and medium enterprises (MSMEs), informal workers, rural communities, and financially underserved populations that remain excluded from conventional banking systems. The synthesis further indicates that integrating AI into adaptive microfinance enhances financing accuracy through predictive analytics, alternative credit scoring, and continuous customer monitoring. These capabilities enable Islamic financial institutions to provide personalized financing while simultaneously reducing financing risks. Nevertheless, previous studies generally discuss adaptive microfinance and AI independently, leaving limited theoretical explanation regarding how both components interact to strengthen Islamic financial inclusion.

The third theme identifies Sharia-compliant governance as a critical mediating element that determines whether AI-driven financial innovation remains consistent with Islamic ethical principles. Although many studies recognize the importance of digital transformation, relatively few examine governance mechanisms capable of ensuring that AI-generated decisions satisfy the principles of justice (*adl*), transparency (*amanah*), accountability (*mas'uliyyah*), and public benefit (*maslahah*). The synthesis demonstrates that Explainable AI, transparent algorithms, robust data governance, cybersecurity protection, and effective Sharia supervision constitute essential requirements for responsible AI implementation (Ubaidillah. *et al,* 2025). Without these governance mechanisms, algorithmic bias, opaque decision-making, and inadequate regulatory oversight may undermine both institutional legitimacy and public trust. Therefore, the literature suggests that governance should not be regarded as a supplementary component but rather as an integral element that links technological capability with the ethical objectives of Islamic banking (Agustin, 2019).

The fourth theme positions *Maqashid Sharia*-based financial inclusion as the ultimate outcome of integrating AI and adaptive microfinance within Islamic banking. The reviewed studies consistently indicate that Islamic financial inclusion should be evaluated not only through

conventional indicators such as account ownership or financing access but also through broader developmental outcomes, including wealth protection (*hifz al-mal*), social welfare (*maslahah*), equitable financing distribution, poverty reduction, and sustainable economic empowerment (Miah & Suzuki, 2020). However, most existing studies measure these outcomes independently without explaining the underlying mechanisms through which technological innovation contributes to achieving them. The present synthesis demonstrates that AI-enabled adaptive microfinance provides the missing conceptual linkage by enabling more inclusive financing decisions, reducing structural barriers to financial access, and strengthening customer empowerment while maintaining Sharia compliance. Consequently, financial inclusion becomes both an economic and ethical objective that reflects the broader mission of Islamic banking.

The overall thematic synthesis reveals a significant conceptual gap in the existing literature. Previous studies predominantly investigate AI adoption, adaptive microfinance, Islamic banking governance, and *Maqashid Sharia*-based financial inclusion as separate research domains, resulting in fragmented theoretical explanations. This fragmentation limits understanding of how technological capability, financing mechanisms, governance principles, and developmental objectives interact within a unified Islamic financial ecosystem. Based on this synthesis, the present study proposes that AI functions as the technological enabler, adaptive microfinance operates as the financing mechanism, Sharia-compliant governance serves as the ethical and institutional mediator, and *Maqashid Sharia*-based financial inclusion represents the intended developmental outcome. These interconnected themes provide the conceptual foundation for developing the AI-Based Adaptive Islamic Microfinance Framework**,** which is presented in the following section.

Development of the Conceptual Framework

Based on the thematic synthesis presented in the previous section, this study develops the AI-Based Adaptive Islamic Microfinance Framework as a conceptual model that explains the interaction among Artificial Intelligence (AI), adaptive microfinance, Islamic banking governance, and *Maqashid Sharia*-based financial inclusion (Bakhouche *et al.,* 2022). The framework is not intended to establish empirically validated causal relationships but to provide a systematic explanation of how these four dimensions interact to create a more inclusive, ethical, and sustainable Islamic financial ecosystem. Unlike previous studies that predominantly examined AI adoption, Islamic microfinance, or financial inclusion as separate research domains, the proposed framework integrates these components into a single conceptual structure. The synthesis indicates that the effectiveness of AI in Islamic banking cannot be evaluated solely through operational efficiency or technological sophistication, but should also be assessed according to its ability to strengthen social justice, equitable financing, and sustainable economic empowerment in line with the objectives of *Maqashid Sharia*.

The framework positions Artificial Intelligence as the primary technological enabler that enhances institutional capability in Islamic banking. The literature synthesis demonstrates that Machine Learning improves financing eligibility assessment and customer segmentation through predictive analytics, while Deep Learning strengthens fraud detection and behavioral risk analysis using complex transaction data (Yenny Kornitasaro., 2022). Natural Language Processing facilitates intelligent customer interaction, automated document verification, and interpretation of Sharia-related documents, thereby improving operational responsiveness and service accessibility. Explainable AI contributes to transparent and accountable decision-making by enabling regulators, Sharia supervisory boards, and financial institutions to understand the rationale underlying algorithmic recommendations. Meanwhile, Generative AI supports institutional efficiency through automated report generation, customer education, product documentation, and Sharia advisory

assistance. Collectively, these AI technologies enhance decision quality, reduce operational inefficiencies, and improve institutional responsiveness to the diverse needs of customers. However, the synthesis also indicates that technological capability alone is insufficient to achieve inclusive Islamic finance unless it is embedded within financing mechanisms specifically designed to address financial exclusion.

Accordingly, the framework identifies adaptive microfinance as the operational mechanism through which AI capabilities are translated into inclusive financing practices. Adaptive microfinance differs from conventional financing by emphasizing flexibility, customer-specific financing arrangements, and continuous adjustment according to business performance, repayment capacity, and socioeconomic conditions (Basar & Nur, 2023). The thematic synthesis reveals that AI significantly strengthens this adaptive capacity through customer profiling, alternative credit scoring, predictive financing assessment, and continuous financing monitoring. These capabilities enable Islamic financial institutions to extend financing to micro-enterprises, informal workers, and underserved communities that are often excluded from traditional banking because of insufficient collateral or limited financial records. Consequently, adaptive microfinance functions as the strategic bridge connecting technological innovation with practical financial inclusion by ensuring that financing decisions become more accurate, equitable, and responsive to the characteristics of vulnerable customers.

The framework further recognizes that technological innovation and adaptive financing require an appropriate governance structure to ensure consistency with Islamic ethical principles. Therefore, Sharia-compliant governance is conceptualized as the institutional foundation that mediates the relationship between AI-enabled adaptive microfinance and inclusive financial outcomes (Yahya *et al.,* 2020). The synthesis demonstrates that responsible AI implementation depends upon transparent algorithms, explainable decision-making, effective Sharia supervision, data privacy protection, cybersecurity, regulatory compliance, and institutional accountability. These governance mechanisms minimize the risks associated with algorithmic bias, opaque decision processes, and unethical technological practices that may undermine public confidence in Islamic financial institutions. More importantly, Sharia governance ensures that AI functions not only as an efficiency-enhancing technology but also as an ethical decision-support system aligned with the principles of justice (*adl*), trustworthiness (*amanah*), accountability (*mas'uliyyah*), and public benefit (*maslahah*). Thus, governance represents an indispensable component that connects technological capability with the normative values underlying Islamic banking.

The final component of the framework is Maqashid Sharia-based financial inclusion**,** which represents the intended developmental outcome of integrating AI, adaptive microfinance, and Sharia-compliant governance. The thematic synthesis suggests that financial inclusion should be interpreted more comprehensively than conventional measures of banking access or account ownership (Putra *et al.*, 2024). Instead, it encompasses equitable financing distribution, wealth protection (*hifz al-mal*), poverty reduction, MSME empowerment, financial capability enhancement, and broader socioeconomic welfare. Within the proposed framework, these outcomes are achieved through data-driven financing decisions, flexible financing mechanisms, ethical governance, and customer-centered financial services that collectively reduce structural barriers to financial access. Consequently, the framework positions financial inclusion as both an economic objective and an ethical commitment, reflecting the broader mission of Islamic banking to promote sustainable and socially responsible development.

The conceptual relationships identified in this framework provide several theoretical contributions to the Islamic finance literature. First, the framework integrates technological

innovation and Islamic financial principles within a unified analytical model rather than treating them as independent research domains. Second, it explains the mechanism through which AI contributes to financial inclusion by positioning adaptive microfinance as the operational pathway and Sharia-compliant governance as the institutional mediator (Rahmawati *et al.*, 2020). Third, it extends the discussion of Islamic financial inclusion beyond conventional financial indicators by incorporating the multidimensional objectives of *Maqashid Sharia* as the ultimate measure of success. These conceptual relationships offer a more comprehensive explanation of how digital transformation can strengthen the developmental role of Islamic banking while preserving its ethical foundations. Accordingly, the AI-Based Adaptive Islamic Microfinance Framework provides a robust theoretical basis for future empirical studies seeking to validate the proposed relationships across different institutional, regulatory, and socioeconomic contexts.

Conceptual Relationships

The conceptual framework developed in this study proposes that the achievement of *Maqashid Sharia*-based financial inclusion is determined by the interaction among four interdependent constructs: Artificial Intelligence (AI), adaptive microfinance, Sharia-compliant governance, and inclusive financial outcomes (Brennen, S., & Kreiss, 2016). Rather than operating independently, these constructs form a sequential and mutually reinforcing mechanism that explains how technological innovation can generate both economic and social value within Islamic banking. The thematic synthesis indicates that AI provides the technological capability required to improve financing decisions, while adaptive microfinance functions as the operational mechanism that translates these technological capabilities into customer-centered financial services. At the same time, Sharia-compliant governance ensures that technological innovation remains consistent with Islamic ethical principles, thereby enabling Islamic banking to pursue financial inclusion without compromising its religious and social responsibilities. Consequently, the framework conceptualizes financial inclusion as the cumulative outcome of interactions among technology, financing mechanisms, governance, and Islamic developmental objectives.

The first conceptual relationship links Artificial Intelligence with adaptive microfinance. The literature synthesis demonstrates that AI strengthens adaptive financing by improving customer profiling, financing eligibility assessment, predictive risk analysis, fraud detection, and continuous monitoring of financing performance (Gomber, P., 2018). Machine Learning and Deep Learning enable Islamic banks to utilize structured and unstructured data for more accurate financing decisions, while Natural Language Processing improves communication and document processing. Explainable AI increases transparency by providing interpretable explanations for algorithmic recommendations, and Generative AI supports customer education, regulatory documentation, and Sharia advisory services. These complementary technologies allow Islamic banks to replace standardized financing approaches with adaptive financing models that respond to individual customer characteristics and changing business conditions. Therefore, AI functions not merely as an automation technology but as an intelligent decision-support system that enhances the effectiveness of adaptive microfinance.

The second conceptual relationship explains how adaptive microfinance contributes to *Maqashid Sharia*-based financial inclusion. The synthesis indicates that flexible financing mechanisms reduce many structural barriers preventing underserved populations from accessing formal financial services (Vial, 2019). Adaptive financing enables Islamic banks to accommodate customers with limited collateral, irregular income, or insufficient financial histories through personalized financing arrangements and continuous performance evaluation. As a result, financing becomes more inclusive and responsive to the socioeconomic realities of micro, small, and medium

enterprises (MSMEs), informal workers, and rural communities. This flexibility supports equitable resource allocation, strengthens productive entrepreneurship, and expands economic participation among financially excluded groups. Consequently, adaptive microfinance represents the principal operational pathway through which Islamic banking can realize the broader developmental objectives of *Maqashid Sharia*, particularly wealth protection (*hifz al-mal*), poverty alleviation, and social welfare enhancement.

The third conceptual relationship emphasizes the mediating role of Sharia-compliant governance in ensuring that AI-enabled adaptive microfinance remains ethically acceptable and institutionally legitimate (Lee, I., & Shin, 2018). The thematic synthesis identifies governance as an indispensable mechanism for aligning technological innovation with Islamic legal and ethical principles. Transparent algorithms, explainable decision-making, robust cybersecurity, responsible data governance, regulatory compliance, and effective oversight by Sharia supervisory boards collectively reduce the risks associated with algorithmic bias, discriminatory financing decisions, and excessive reliance on automated systems. The framework therefore proposes that governance strengthens public trust and institutional credibility by ensuring that technological efficiency is balanced with fairness, accountability, and transparency. This relationship highlights that successful digital transformation within Islamic banking depends not only on technological capability but also on institutional capacity to govern AI responsibly in accordance with Sharia principles.

The integrated relationships among AI, adaptive microfinance, governance, and financial inclusion constitute the primary conceptual contribution of this study. Existing literature generally investigates these dimensions separately, focusing either on AI adoption, Islamic banking digitalization, microfinance development, or financial inclusion (Javaid, M., 2022). By integrating these constructs into a unified conceptual framework, this study demonstrates that the effectiveness of AI depends upon adaptive financing mechanisms and Sharia-compliant governance, while the ultimate measure of success extends beyond operational performance toward the realization of *Maqashid Sharia*-based financial inclusion. The proposed relationships therefore provide a comprehensive theoretical explanation of how Islamic banking can simultaneously improve technological innovation, financial accessibility, ethical governance, and socioeconomic development. These conceptual propositions establish a foundation for future empirical studies to examine the strength, direction, and contextual variation of the proposed relationships across different Islamic banking systems and regulatory environments.

Discussion

Comparison with Previous Studies

The findings of this study demonstrate that the integration of Artificial Intelligence (AI), adaptive microfinance, and *Maqashid Sharia*-based financial inclusion provides a broader conceptual perspective than that presented in previous studies. Existing research has consistently acknowledged the transformative role of AI in improving banking efficiency through credit scoring, fraud detection, customer service automation, and predictive analytics. Similarly, studies on Islamic banking have emphasized the importance of digital transformation for improving institutional competitiveness and operational performance. However, these studies generally examine AI from a technological or managerial perspective, with limited attention to its contribution to the social and ethical objectives of Islamic finance. As a result, AI is frequently portrayed as a productivity-enhancing technology rather than as a strategic instrument capable of supporting equitable financial access and sustainable socioeconomic development. The present study extends this perspective by positioning AI as a technological enabler that contributes directly to *Maqashid*

Sharia-based financial inclusion through its integration with adaptive microfinance (Hassan, M. K., 2022.

The comparison also reveals important differences between previous studies on Islamic microfinance and the conceptual framework proposed in this research. Earlier studies have demonstrated that Islamic microfinance contributes to poverty alleviation, entrepreneurship development, and financial inclusion through Sharia-compliant financing contracts such as *murabaha*, *mudarabah*, *musharakah*, and *qard hasan*. Nevertheless, these studies predominantly focus on institutional performance, financing models, or the socioeconomic impact of microfinance programs, while paying relatively little attention to the role of digital technologies in improving financing quality and accessibility. Consequently, adaptive microfinance has often been discussed as a financial mechanism rather than as an intelligent financing system capable of utilizing data-driven decision support (Dusuki, A. W., & Abdullah, 2007). In contrast, the present study argues that the effectiveness of adaptive microfinance can be substantially enhanced through AI technologies that enable customer profiling, alternative credit assessment, predictive risk analysis, continuous financing monitoring, and personalized financing recommendations (Kamla, R., & Rammal, 2013). This integration transforms adaptive microfinance from a conventional financing approach into a dynamic and technology-enabled mechanism capable of addressing the diverse needs of financially underserved communities (Chapra, 2000).

Another important distinction concerns the treatment of *Maqashid Sharia* within the Islamic finance literature. Previous studies generally recognize *Maqashid Sharia* as the normative foundation of Islamic banking and frequently evaluate institutional performance using indicators related to social welfare, justice, and wealth protection (Mohammed, M. O.,*et al* 2015). However, these discussions often remain normative and are rarely integrated with contemporary technological developments. Likewise, studies on AI adoption seldom evaluate technological innovation from the perspective of Islamic ethical objectives, resulting in two parallel streams of literature that rarely intersect (Auda, 2008). The findings of this study address this gap by demonstrating that AI should be evaluated not only according to operational efficiency but also according to its ability to support the higher objectives of Islamic finance. By integrating AI-enabled adaptive microfinance with Sharia-compliant governance, the proposed framework explains how technological innovation can strengthen wealth protection (*hifz al-mal*), improve financial accessibility, promote social welfare (*maslahah*), and reduce economic exclusion. This perspective broadens the understanding of digital transformation in Islamic banking from a purely technological phenomenon to a value-driven process guided by Islamic ethical principles (Baber, 2020).

The proposed framework also differs from previous studies by assigning a central role to Sharia-compliant governance as the institutional mechanism that links technological capability with ethical financial outcomes (Ullah, S., 2024). Although governance has been widely discussed in relation to Islamic banking regulation and corporate governance, relatively few studies explicitly examine governance within AI-enabled financial systems. Existing research often assumes that AI adoption automatically improves financial services without sufficiently considering issues such as algorithmic bias, decision transparency, explainability, data governance, and accountability (Demirgüç-Kunt, A., 2022). The thematic synthesis conducted in this study indicates that these governance dimensions are essential because they determine whether AI-generated financing decisions remain consistent with the principles of justice, fairness, and transparency that underpin Islamic finance. Consequently, this study conceptualizes governance not as a complementary

component but as a mediating construct that ensures responsible AI implementation while strengthening public trust in Islamic banking institutions (Ascarya, & Sakti, 2022).

Compared with earlier conceptual and empirical studies, the principal contribution of this research lies in its integrative perspective. Rather than examining AI, adaptive microfinance, Islamic banking governance, and financial inclusion as separate topics, this study synthesizes these constructs into a coherent conceptual framework that explains their interdependence (Dwivedi, Y. K., 2023). The framework proposes that AI functions as the technological enabler, adaptive microfinance serves as the operational mechanism, Sharia-compliant governance provides the ethical and institutional foundation, and *Maqashid Sharia*-based financial inclusion represents the ultimate developmental outcome (Setiawan, B., 2021). This integrated perspective addresses a significant gap in the existing literature by offering a comprehensive explanation of how digital technologies can simultaneously improve institutional performance, expand financial accessibility, and advance the broader objectives of Islamic finance (Davenport, T., & Ronanki, 2018). Accordingly, the study contributes not only by extending theoretical understanding but also by providing a conceptual basis for future empirical research seeking to validate these relationships across different institutional, regulatory, and socioeconomic contexts (Lusardi, A., & Messy, 2023).

Theoretical Contributions

This study makes several theoretical contributions to the literature on Islamic banking, financial technology, and Islamic financial inclusion by developing an integrated conceptual framework that connects Artificial Intelligence (AI), adaptive microfinance, Sharia-compliant governance, and *Maqashid Sharia*-based financial inclusion (Brynjolfsson, E., & McAfee, 2017). Previous studies have generally examined these concepts independently, with AI research emphasizing operational efficiency and digital innovation, while Islamic finance literature has focused on Sharia compliance, financial inclusion, or microfinance as separate research domains. Consequently, the existing body of knowledge lacks a comprehensive theoretical explanation of how AI can support the social and ethical objectives of Islamic banking beyond technological modernization. By synthesizing these fragmented perspectives, this study offers a more holistic understanding of digital transformation within Islamic banking, demonstrating that technological innovation should be evaluated according to both institutional performance and its contribution to the broader objectives of *Maqashid Sharia* (Huang, M.-H., & Rust, 2021).

The second theoretical contribution lies in the introduction of adaptive microfinance as the central operational mechanism linking AI capabilities with inclusive Islamic financial services. Existing literature commonly identifies AI as a tool for improving credit assessment, fraud detection, and customer service, yet rarely explains how these technological capabilities translate into more equitable financing for financially underserved communities (Banna, H., 2024). The proposed framework addresses this limitation by conceptualizing adaptive microfinance as a dynamic financing model that utilizes AI-driven customer profiling, predictive analytics, alternative credit assessment, and continuous financing monitoring to improve financing accessibility and responsiveness. This perspective extends the theoretical role of Islamic microfinance from a conventional financing instrument to an intelligent and adaptive system capable of supporting inclusive and sustainable economic development (Aziz, *et al.,* 2023).

Another important contribution concerns the incorporation of Sharia-compliant governance as a mediating construct within AI-enabled Islamic banking. While previous studies acknowledge the importance of governance in Islamic financial institutions, limited attention has been given to governance challenges arising from AI adoption, including algorithmic transparency, explainability, accountability, data protection, and ethical decision-making (Chatterjee, S.,*et al* 2023). This study

argues that governance is not merely an institutional requirement but a fundamental mechanism that aligns technological innovation with the principles of justice (*adl*), trustworthiness (*amanah*), transparency, and public benefit (*maslahah*). By positioning governance as an integral component of the conceptual framework, this research broadens the theoretical discussion on digital transformation by integrating technological capability with ethical and regulatory considerations that are distinctive to Islamic banking (Goodell, J. W., 2021).

Finally, this study contributes to the development of Islamic financial inclusion theory by redefining financial inclusion through the perspective of *Maqashid Sharia*. Rather than limiting financial inclusion to indicators such as account ownership or financing accessibility, the proposed framework emphasizes multidimensional outcomes that include wealth protection (*hifz al-mal*), equitable financing distribution, MSME empowerment, poverty reduction, and long-term social welfare (Rabbani, M. R., 2021). Accordingly, the AI-Based Adaptive Islamic Microfinance Framework provides a comprehensive theoretical model explaining how AI-enabled adaptive financing, supported by Sharia-compliant governance, can contribute to achieving the higher objectives of Islamic finance (Rahman, *et al.,* 2023). The framework therefore establishes a stronger theoretical foundation for future empirical studies examining the relationships among digital technologies, Islamic banking innovation, governance quality, and *Maqashid Sharia*-based financial inclusion across different institutional and regulatory contexts (Firmansyah, I., & Anwar, 2019).

Practical Implications

The conceptual framework proposed in this study provides several practical implications for Islamic banking institutions seeking to accelerate digital transformation while maintaining compliance with Sharia principles. The findings suggest that Artificial Intelligence (AI) should be implemented not merely as an operational automation tool but as a strategic capability that supports more accurate, transparent, and inclusive financing decisions (Yunus, 2017). By integrating Machine Learning, Deep Learning, Natural Language Processing, Explainable AI, and Generative AI into adaptive microfinance, Islamic banks can improve customer profiling, financing eligibility assessment, fraud detection, financing monitoring, and customer engagement (Ismail Abdel Mohsin, 2019). These capabilities enable financial institutions to expand financing access for micro, small, and medium enterprises (MSMEs), low-income households, and financially underserved communities without compromising prudent risk management. Consequently, Islamic banks can simultaneously enhance operational efficiency, financing quality, and social responsibility in accordance with the objectives of *Maqashid Sharia* (Hassan, *et al.,* 2022).

The proposed framework also offers important implications for regulators and Sharia supervisory authorities (Miah & Suzuki, 2020). As AI becomes increasingly embedded in financial decision-making, regulatory frameworks should evolve beyond conventional banking supervision by incorporating standards for algorithmic transparency, explainability, fairness, data governance, cybersecurity, and ethical AI implementation. Regulatory authorities should establish comprehensive governance mechanisms that ensure AI-assisted financing decisions remain accountable, free from discriminatory bias, and fully compliant with Sharia principles. In addition, closer collaboration among financial regulators, Islamic banking institutions, Sharia supervisory boards, fintech companies, and technology developers is essential to develop standardized governance guidelines for AI-enabled Islamic finance. Such collaboration will strengthen public trust, reduce implementation risks, and facilitate responsible digital innovation across the Islamic banking sector (Rahmat Ilyas, 2017).

From a broader socioeconomic perspective, the framework demonstrates that AI-enabled adaptive microfinance can serve as a strategic instrument for advancing sustainable financial

inclusion and inclusive economic development. Policymakers should encourage the adoption of digital financing ecosystems that prioritize financial accessibility, MSME empowerment, entrepreneurship development, and poverty reduction while preserving the ethical values of Islamic finance. Investment in digital infrastructure, financial literacy, AI competency, and Sharia-compliant technological innovation should therefore become integral components of national Islamic finance development strategies. Furthermore, academic institutions and professional training organizations should develop interdisciplinary educational programs combining Islamic finance, data analytics, artificial intelligence, and digital governance to address the growing demand for qualified human resources. By translating technological innovation into socially responsible financial services, the proposed framework provides practical guidance for building a resilient, inclusive, and sustainable Islamic banking ecosystem capable of achieving *Maqashid Sharia*-based financial inclusion in the digital economy (Chong & Liu, 2009).

Future Research Directions

The conceptual nature of this study provides several opportunities for future research to validate and extend the proposed AI-Based Adaptive Islamic Microfinance Framework. Since the framework is developed through thematic synthesis and conceptual analysis, future studies should empirically examine the proposed relationships among Artificial Intelligence (AI), adaptive microfinance, Sharia-compliant governance, and *Maqashid Sharia*-based financial inclusion. Quantitative approaches, such as Structural Equation Modeling (SEM), Partial Least Squares Structural Equation Modeling (PLS-SEM), or covariance-based SEM (CB-SEM), may be employed to test the direct, indirect, and mediating effects proposed in the framework. In addition, qualitative methods, including case studies and in-depth interviews with Islamic banking practitioners, regulators, and Sharia supervisory boards, could provide richer insights into the institutional and organizational factors influencing AI adoption in Islamic financial institutions (Bestariyah & Putra, 2022).

Future research should also investigate the practical implementation of specific AI technologies within Islamic banking operations. Although this study conceptually discusses Machine Learning, Deep Learning, Natural Language Processing, Explainable AI, and Generative AI, empirical evidence regarding their effectiveness in financing assessment, fraud detection, customer engagement, and Sharia compliance remains limited. Comparative studies across Islamic commercial banks, Islamic rural banks, Islamic microfinance institutions, and Islamic fintech platforms could identify differences in technological readiness, governance quality, and financing outcomes. Furthermore, cross-country comparative research involving countries with well-developed Islamic financial systems, such as Indonesia, Malaysia, Saudi Arabia, and the United Arab Emirates, would enhance understanding of how institutional environments, regulatory frameworks, and digital infrastructure influence the adoption and effectiveness of AI-enabled adaptive microfinance (Izzeldin *et al.,* 2021).

Another promising direction involves expanding the theoretical scope of the proposed framework by incorporating additional organizational, technological, and behavioral variables. Future studies may examine the moderating or mediating roles of digital financial literacy, customer trust, organizational readiness, technology acceptance, institutional capability, regulatory quality, cybersecurity, and ethical AI governance in shaping the relationship between AI and *Maqashid Sharia*-based financial inclusion. Researchers may also explore how emerging technologies, including blockchain, decentralized finance (DeFi), the Internet of Things (IoT), and Central Bank Digital Currencies (CBDCs), complement AI in strengthening Islamic financial inclusion. These extensions would enrich the theoretical foundation of Islamic digital finance while

providing more comprehensive empirical evidence to support policy formulation, technological innovation, and the sustainable development of Islamic banking in the digital economy (Extrasona *et al.,* 2025).

CONCLUSION

This study develops the AI-Based Adaptive Islamic Microfinance Framework through a thematic synthesis of the existing literature to explain how the integration of Artificial Intelligence (AI) and adaptive microfinance can strengthen *Maqashid Sharia*-based financial inclusion in Islamic banking. The findings demonstrate that AI alone is insufficient to achieve inclusive and sustainable Islamic finance. Instead, AI creates greater value when integrated with adaptive microfinance and supported by Sharia-compliant governance, enabling Islamic banks to improve financing accuracy, expand financial access for underserved communities, and promote ethical and transparent decision-making. The principal theoretical contribution of this study lies in integrating AI capabilities, adaptive microfinance, Sharia-compliant governance, and *Maqashid Sharia*-based financial inclusion into a unified conceptual framework, thereby extending the current literature on Islamic banking digital transformation. From a practical perspective, the framework provides strategic guidance for Islamic banking institutions to implement responsible AI-driven financing, while offering policy insights for regulators and Sharia supervisory authorities to develop governance frameworks that ensure transparency, accountability, fairness, and compliance with Sharia principles.

This study is limited by its conceptual design and reliance on thematic literature synthesis, meaning that the proposed framework has not yet been empirically validated and may not fully capture variations across institutional, technological, and regulatory contexts. Therefore, future studies should empirically examine the proposed conceptual relationships using quantitative, qualitative, or mixed-method approaches in different Islamic banking environments. Further research may also investigate the roles of digital financial literacy, organizational readiness, customer trust, ethical AI governance, and regulatory quality as potential mediating or moderating variables. Such empirical validation will strengthen the robustness of the proposed framework and contribute to the development of a more inclusive, ethical, and sustainable Islamic banking ecosystem that advances the objectives of *Maqashid Sharia*.

REFERENCES

Adityarini, E., Rofiq, M., & Latipah, D. (2025). Analisis Penerapan Teknologi Informasi Fintech Syariah dalam Perspektif Maqashid Syariah di Era Ekonomi Digital. *Journal Of Islamic Business Management Studies*, *6*(2), 170–177.

Alim, S., Dozan, W., Baini, N., & Asy, H. (2026). Islamic Economic Ethics , E-Commerce Usage , and Consumptive Behavior among Generation Z in East Lombok : A Quantitative Study. *International Journal of Islamic Economics (IJIE) P-ISSN:*, *8*(1), 1–15.

Amsari, S., & Anggara, W. (2025). Transformation Of Islamic Fintech In Enhancing Financial Inclusion : Digitalization Strategy Based On Maqashid Shariah. *Proceeding International Seminar on Islamic Studies*, *6*(1), 3295–3301.

Ascarya, & Sakti, A. (2022). Determinants of Islamic financial inclusion in Indonesia. *Journal of Islamic Monetary Economics and Finance.*

Aziz, N. A., et al. (2023). Artificial intelligence adoption in Islamic microfinance institutions. *International Journal of Islamic and Middle Eastern Finance and Management.*

Banna, H., et al. (2024). AI and financial inclusion in emerging economies. *Technological*

Forecasting and Social Change.

Bestariyah, A. S., & Putra, R. (2022). Pemahaman karyawan bank terhadap prinsip dasar dan konsep operasional perbankan syariah. *Jurnal Masharif Al-Syariah: Jurnal Ekonomi Dan Perbankan Syariah*, *7*(30), 1–23.

Chatterjee, S., et al. (2023). Machine learning applications in banking risk management. *Journal of Business Research.*

Dwivedi, Y. K., et al. (2023). So what if ChatGPT wrote it? Generative AI and the future of research. *International Journal of Information Management.*

Extrasona, N., Dwi, W., & Priyo, A. (2025). Artificial Intelligence and Machine Learning in Financial Industry Transformation : A Comparative Analysis of Conventional and Sharia Fintech in Indonesia. *Journal of Finance and Islamic Banking*, *8*(2), 141–158.

Furqani, H. (2020). Ethics in Islamic economics : microfoundations for an ethical endogeneity. *International Journal of Ethics and Systems*. https://doi.org/10.1108/IJOES-03-2020-0032

Goodell, J. W., et al. (2021). Artificial intelligence and finance. *Finance Research Letters.*

Hassan, M. K., et al. (2022). Islamic banking and digital transformation. *Pacific-Basin Finance Journal.*

Hidayanti, N. F., Ariani, Z., & Sahman, Z. (2025). The Integration of Artificial Intelligence in Islamic Financial Services : A Review on Digital Innovation for Sharia Financial Inclusion. *Integrating Religion, Social, and Law: Conference Series*, *1*(1), 8–17.

Huang, M.-H., & Rust, R. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science.*

Iroth, J. N., Tagal, J., Sinaga, G., & Malau, H. (2026). Artificial intelligence adoption and financial management outcomes : A multi-dimensional analysis of banking and insurance sectors in Indonesia. *Journal of Management and Digital Business*, *6*(1), 541–553.

Izzeldin, M., Johnes, J., Ongena, S., Pappas, V., & Tsionas, M. (2021). Journal of International Financial Markets , Institutions & Money Efficiency convergence in Islamic and conventional banks. *Journal of International Financial Markets, Institutions & Money*, *70*, 101279. https://doi.org/10.1016/j.intfin.2020.101279

Javaid, M., et al. (2022). Industry 4.0 technologies and banking transformation. *Sustainable Operations and Computers.*

Lusardi, A., & Messy, F. (2023). Financial literacy and financial inclusion. *OECD Working Papers.*

Miah, M. D., & Suzuki, Y. (2020). Murabaha syndrome of Islamic banks: a paradox or product of the system? *Journal of Islamic Accounting and Business Research*, *11*(7), 1363–1378. https://doi.org/10.1108/JIABR-05-2018-0067

Puspita, A. T., Fatimah, S., & Kassim, M. (2024). Islamic Financial Inclusion : A Review and Bibliometric Analysis. *Journal of Islamic Economic Literatures*, *5*(2).

Rabbani, M. R., et al. (2021). Islamic FinTech and blockchain. *Journal of Open Innovation.*

Rahman, A. A., et al. (2023). Digital Islamic microfinance and AI adaptation. *Journal of Islamic Marketing.*

Ramadan, H., Setyono, J., Islam, U., Sunan, N., & Yogyakarta, K. (2024). el-Jizya : Jurnal Ekonomi Islam ISSN : 2579-6208 (Online) Bibliometric Analysis of Islamic Banking Products in Encouraging the Finansial Inclusion in Indonesia. *El-Jizya: Jurnal Ekonomi Islam*, *12*(December), 289–302.

Rohman, H. F., Diana, I. N., & Suprayitno, E. (2025). Bridging Islamic Philanthropy and Digital

Economy : A Maqashid Shariah Model for Zakat on Digital Assets. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah (Journal of Islamic Economics)*, *17*(2), 325–348.

Said, M. (2025). Optimizing Sharia Fintech for Financial Inclusion in Indonesia in the Digital Era : An Islamic Economic Perspective. *Balanca: Jurnal Ekonomi Dan Bisnis Islam*, *7*(1), 47–62.

Schwab, K. (2020). *The Fourth Industrial Revolution*. Currency.

Setiawan, B., et al. (2021). Determinants of Islamic financial inclusion in rural Indonesia. *Banks and Bank Systems.*

Ubaidillah., et al. (2025). Sharia Microfinance Reformulation Towards An Inclusive Economy: An Approach Maqashid Al-Shariah fi Hifdz Al-Mal. *Mu'amalah : Jurnal Hukum Ekonomi Syariah*, *4*(2), 273–302.

Ullah, S., et al. (2024). Ethical AI governance in Islamic finance. *Journal of Financial Regulation and Compliance.*