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Digital Transformation In Islamic Banking: A Systematic Literature Review Of Opportunities, Challenges, And Research Agendas

Ella Annissa[1], Ismail Nura[2]
[12] Uin Ar-Raniry Banda Aceh, Indonesia
Email: ella.annissa@ar-raniry.ac.id, ismail_nura@ar-raniry.ac.id

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Abstract

Digital transformation has fundamentally altered the landscape of Islamic banking, presenting both opportunities and frictions not encountered by conventional financial institutions. This article presents a systematic literature review of 18 academic articles and policy reports published between 2013 and 2025, encompassing quantitative empirical, bibliometric, and conceptual studies, as well as analyses of regulatory policies. Through thematic synthesis, five recurring thematic clusters were identified: (1) efficiency and operational performance, (2) financial inclusion via digital channels, (3) the alignment of innovation with *Maqashid al-Shari'ah* and Shari'ah governance, (4) customer adoption and technology acceptance, and (5) implementation risks and challenges specifically cyber risk and Shari'ah non-compliance. Additionally, several research gaps were identified: a scarcity of cross-jurisdictional comparative studies, a lack of mature empirical instruments for assessing digital-Shari'ah alignment, and a dominance of qualitative-descriptive methodologies that has not yet been balanced by longitudinal or mixed-method designs. These findings offer a roadmap for regulators, Islamic banking practitioners, and academics to develop a research agenda that is more focused and responsive to the accelerating digitalization of the Islamic financial sector.

Keywords Digital Transformation, Islamic Banking, Islamic Fintech, Maqashid al-Syariah, Financial Inclusion, Systematic Literature Review

INTRODUCTION

Over the past decade, global banking has moved at an unstoppable pace toward a digital ecosystem. This shift is not merely about repackaging existing services into new applications; rather, it represents a fundamental overhaul of how financial institutions operate, compete, and engage with their customers. Islamic banks find themselves at a unique crossroads: they are compelled to match the speed of conventional competitors in adopting technology while ensuring that every innovation remains within the Sharia boundaries that underpin their very existence.

Pressure to move quickly stems from various directions. On the supply side, financial technology (fintech) firms are introducing financing, payment, and asset management services with significantly lower operating costs than traditional banks. On the demand side, younger customers who have grown up with smartphones expect seamless, round-the-clock transaction capabilities without the need to queue. Meanwhile, regulators across various jurisdictions are championing financial inclusion as a national agenda, with digitalization serving as a key instrument in this effort (Sahay et al., 2020; OJK, 2024).

Islamic banks have responded to these pressures by investing resources in mobile banking, digital account opening, and AI-driven credit scoring, as well as exploring blockchain-based smart contracts. This response has sparked a wave of academic studies aiming to map out the benefits, risks, and Sharia implications of each innovation. However, the existing literature remains highly fragmented; most studies focus on a single country, technology, or analytical dimension, while comprehensive syntheses that capture the broader picture are scarce. This article seeks to address this gap by conducting a systematic literature review (SLR) of research that directly examines digital transformation within the context of Islamic banking or finance. It aims to answer three research questions: First, what themes dominate the literature? Second, what benefits and challenges have been identified within each theme? Third, what research gaps remain open for further study?

Structurally, this article is organized as follows: the second section outlines the review methodology; the third section summarizes the reviewed articles; the fourth section presents thematic findings; the fifth section discusses research gaps; and the sixth section concludes with a summary and directions for future research.

METHODS

This review employs a systematic literature review (SLR) approach based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. This approach was selected because SLR enables the transparent and replicable identification, selection, and synthesis of literature unlike narrative reviews, which rely more heavily on the reviewer's subjective judgment (Ashraf et al., 2025; Masrina, 2024). Rather than a quantitative review (meta-analysis), this study presents a thematic synthesis that categorizes findings based on patterns emerging from the literature.

Articles were included if they met all the following criteria: (a) published between 2013 and 2025; (b) published in peer-reviewed journals, indexed scientific proceedings, or official policy reports from authoritative bodies; and (c) explicitly

examined digital dimensions within the context of Islamic banking or finance, or provided a directly relevant theoretical framework (e.g., the *maqashid al-Shariah* framework). Articles were excluded if they: did not address digital dimensions at all; discussed Islamic finance without a direct link to technology; represented a duplication of findings already covered by other articles of superior methodological quality; or had unverifiable author identities or bibliographic details.

Searches were conducted across academic databases and repositories using combinations of the following keywords: "digital transformation," "digitalization," "fintech," "mobile banking," "blockchain," "artificial intelligence," "Islamic banking," "Sharia banking," and "maqashid al-Shariah." Search sources included Scopus, Google Scholar, the Directory of Open Access Journals (DOAJ), and repositories for Islamic finance journals such as the *International Journal of Islamic and Middle Eastern Finance and Management* (IJIMEFM) and the *Journal of Islamic Monetary Economics and Finance* (JIMEF).

FINDINGS AND DISCUSSION

Operational Efficiency and Performance

The most consistent finding across the literature is that digitalization significantly reduces Islamic banking operational costs. A PRISMA protocol-based SLR study analyzing over two hundred articles from 2015 to 2025 reported that digital transformation consistently improves operational efficiency across countries (Ashraf et al., 2025). Similar findings were reached by a review framing this trend as part of the transition to so-called "Islamic Finance 5.0," a paradigm in which technology becomes a key enabler of Islamic bank performance without compromising Sharia compliance (Masrina, 2024). Efficiency in this context does not simply mean cost reduction. Digitalization also improves credit scoring accuracy, speeds up transaction processing, and enables personalized services previously unaffordable to mid-sized Islamic banks. Much of the literature even positions this efficiency not as an end in itself, but rather as a means to expand service reach to segments previously underserved by formal banking.

There is one important caveat behind these findings. A bibliometric review shows that studies on the operational performance of Islamic banks based on the principles of Sharia (maqasid al-Shariah) still face serious methodological challenges: there is no consensus on the most valid indicators for measuring efficiency within an Islamic normative framework (Rusydiana & Devi, 2021). This implies that efficiency claims made by many studies may be measured using conventional metrics that are not necessarily relevant for institutions with dual mandates: financial and sharia-compliant.

Financial Inclusion through Digital Channels

The literature widely agrees that digitalization opens up opportunities for expanding financial inclusion that were previously difficult to achieve through conventional branch banking models. Fintech, broadly encompassing mobile banking, digital wallets, and halal peer-to-peer lending platforms, enables Islamic financial institutions to reach unbanked and underbanked groups, particularly in rural areas that have historically been economically underserved by physical branch networks (Sahay et al., 2020; Rusydiana & Devi, 2022). A bibliometric study exploring research trends in Islamic fintech and financial inclusion found that this research cluster has grown rapidly, particularly post-2018, due to increasing smartphone penetration and affordable internet connections in countries with large Muslim populations (Rusydiana & Devi, 2022). However, the distribution is uneven: the majority of empirical studies are concentrated in Indonesia and Malaysia, while countries with large Muslim populations but earlier-developing fintech ecosystems such as Bangladesh, Pakistan, or Nigeria remain relatively underrepresented in the literature.

It should be emphasized that digitalization itself does not automatically result in inclusion. An empirical study in Indonesia found that customer intention to use Islamic banking digital services is not solely determined by the availability of the technology but is highly dependent on trust and perceived usefulness (Harahap et al., 2023). This finding suggests that Islamic banks that invest in digital infrastructure without considering customer trust and digital literacy risk facing adoption rates that are far below expectations. On a more micro-scale, the integration of artificial intelligence and blockchain within Islamic microfinance institutions paves the way for more affordable and transparent financing for small and ultra-micro businesses, a segment historically most difficult to access by formal banking (Katterbauer et al., 2022). This prospect is promising, although most existing studies are still conceptual and have not been supported by large-scale empirical testing.

Alignment of Innovation with Maqasid al-Shariah and Sharia Governance

This is the theme that most distinguishes Islamic banking literature from conventional digital banking research. Every digital innovation, from algorithm-based credit scoring models to the use of third-party e-wallets to blockchain-based contracts, must be examined not only from the perspective of commercial benefits, but also from the perspective of its compliance with maqasid al-Shariah: does the innovation truly protect and advance the objectives of Islamic law? The normative foundation for this has been firmly laid by contemporary Islamic jurisprudence scholars. The maqasid al-Shariah framework asserts that any financial innovation is legitimate only as long as it achieves the objectives of Sharia, such as ease of transactions (taysir) and protection of wealth (hifz al-mal), rather than simply fulfilling formal compliance (Laldin & Furqani, 2013; Kahf, 2006). In other words, a digital product that formally does not contain riba (usury) or gharar (gharar) is not necessarily truly "sharia" if it fails to achieve these objectives in practice.

More recent studies have translated this normative principle into concrete operational challenges. In Indonesia, sharia fintech institutions face dual pressures: innovating as rapidly as conventional competitors on the one hand, and maintaining sharia integrity on the other,

in a situation where the Sharia Supervisory Board (DPS) often lacks sufficient technical expertise to assess whether an algorithm or blockchain infrastructure meets sharia criteria (Muryanto, 2023). The potential of technology to strengthen, rather than simply weaken, sharia governance is also beginning to be explored. Artificial intelligence and smart contracts, for example, have the potential to automate real-time sharia compliance checks, reducing reliance on human judgment, which can vary between individuals (Rahim et al., 2018). However, this implementation requires standardizing sharia logic into machine-executable code an unsolved epistemological challenge.

Customer Adoption and Technology Acceptance

Most empirical literature applies technology acceptance models to explain the factors that drive or hinder the adoption of Islamic banking digital services. The Technology Acceptance Model (TAM) and its variants are the most frequently used frameworks, with trust repeatedly emerging as a strong mediating variable between customer expectations and actual adoption behavior. A quantitative study in Indonesia found that trust and perceived usefulness significantly mediate the relationship between the quality of Islamic banking digital services and intention to use them continuously (Harahap et al., 2023). Trust here has two dimensions: trust in the reliability of the technical system and trust in the Sharia-compliant integrity of the product offered. Customers who doubt the Sharia-compliant nature of a digital product are less likely to use it, even if the product offers greater technical convenience.

In the digital payment services (Paytech) segment, religiosity has been shown to play a distinct role that goes beyond generic technology acceptance models. A quantitative analysis of Islamic bank customers found that perceived value and religiosity, i.e., how strongly customers believe the product aligns with their Islamic values, significantly influence adoption decisions, even after controlling for conventional technology acceptance variables such as perceived ease of use and usefulness (Irimia-Diéguez et al., 2024). This finding has important practical implications. Islamic banks cannot rely on digitalization strategies that simply copy the approaches of conventional banks or mainstream fintech companies. Communicating the Sharia compliance of each digital product is not simply a legal obligation but a determinant of adoption that must be carefully managed as part of a digital marketing strategy.

Implementation Risks and Challenges

The literature consistently identifies a number of risks accompanying the digital transformation of Islamic banks, and these risks are not entirely the same as those faced by conventional banks. There are two distinct layers of risk: the technical-operational risks faced by all digital banks, and the risks of Sharia non-compliance, which are unique to Islamic financial institutions. On the first layer, cyber risk is a primary concern. Massive digitalization dramatically expands the attack surface; every customer device connected to bank services is a potential entry point for cybercriminals. Furthermore, migrating from legacy systems to new digital architectures carries non-trivial integration risks and service

disruptions (Alkhowaiter & Alsharif, 2022). The adoption rate of AI and blockchain in Islamic financial institutions also remains far below that of the conventional sector, in part due to limited internal technical capacity and investment in cybersecurity.

On the second layer, the risks of Sharia non-compliance in the digital context encompass new dimensions that are not yet fully understood. Do credit scoring algorithms that use customer consumption behavior data implicitly contain elements of gharar (prohibited uncertainty)? Do smart contracts meet the requirements for a valid contract in Islamic jurisprudence? Does storing customer data on third-party servers raise ownership or confidentiality issues that violate Sharia principles? These questions lack widely accepted answers, and according to the regulator's own report, a Sharia-specific digital governance framework lags far behind conventional banking regulations in Indonesia (OJK, 2024). From a new technological infrastructure perspective, the adoption of blockchain in Islamic financial institutions promises significant improvements in transaction transparency and security two elements that align with Islamic values of honesty in transactions (Aisah et al., 2025; Rabbani et al., 2020). However, a bibliometric review shows that most of the blockchain-Islamic finance literature is still conceptual, with little empirically documented evidence of implementation (Patel et al., 2022) a real gap between the potential of the technology often debated in academic forums and the reality of adoption on the ground.

Discussion: Research Gaps and Further Directions

The synthesis across the five themes above reveals a number of both concerning and promising patterns. On the one hand, there is a fairly solid body of literature on the efficiency and financial inclusion benefits of Islamic banking digitalization. On the other hand, the literature on risks and on how to empirically assess digital-Shariah alignment remains very limited. This imbalance is significant: research biased toward benefits without adequately assessing risks has the potential to produce overly optimistic policy recommendations and managerial practices. The majority of empirical studies included in this synthesis are based in Indonesia or Malaysia, two countries with relatively advanced digital Islamic financial ecosystems. Findings from these two countries cannot be easily generalized to the context of the Middle East, Sub-Saharan Africa, or Central Asia, which have very different regulatory structures, levels of digital penetration, and customer profiles. Cross-jurisdictional comparative research that compares not only adoption rates but also regulatory models, digital Shari'a governance architecture, and risk patterns remains scarce and urgently needed.

Conceptual arguments based on the principles of Sharia (maqasid al-Shariah) for assessing digital innovation are quite well developed theoretically (Laldin & Furqani, 2013; Kahf, 2006). However, to date, there is no agreed-upon measuring instrument for empirically assessing whether a particular digital product, for example, an installment scheme using a qard-based digital wallet, truly meets the maqasid criteria or simply meets a formal compliance checklist. Developing such an instrument is one of the most pressing and complex research agendas, as it requires intensive collaboration between Islamic jurists,

economists, and information technology experts. The methodological bias in the reviewed literature is striking: the majority of studies use qualitative, conceptual, or descriptive-analytical approaches. Longitudinal quantitative studies that can track changes in adoption, performance, and risk over time are virtually non-existent. Mixed-method designs that combine the strengths of qualitative approaches (exploring meaning, context, and mechanisms) with quantitative ones (hypothesis testing and generalization) are also very limited. This is a serious limitation that impacts the generalizability of existing findings (Hasan et al., 2020).

The financial and social benefits of digitalization have received far more research attention than its risks. This creates an incomplete picture: without a comprehensive understanding of cyber risks, the risks of Shariah non-compliance, and the risks of digital exclusion for less tech-savvy customers, policy recommendations derived from this literature could be overly optimistic and imprudent. Some studies have begun to address risk (Alkhowaiter & Alsharif, 2022; OJK, 2024), but the number and depth of studies are still far from proportional. Artificial intelligence and blockchain, two technologies most often cited as game-changers for Islamic banking, are still dominated by conceptual studies. Studies with field data measuring the actual impact of AI or blockchain implementation on bank performance, risk, or Sharia compliance are still very limited (Patel et al., 2022; Katterbauer et al., 2022). Longitudinal research that can capture the dynamics of adoption and outcomes over time is the most pressing need in this cluster.

CONCLUSION

This literature review confirms that digital transformation offers tangible benefits for Islamic banking: increased operational efficiency, expanded financial inclusion, and the prospect of new technologies strengthening Sharia governance. At the same time, the literature also indicates that the path to the "ideal digital Islamic bank" remains long and winding, fraught with governance challenges, cyber risks, and unanswered compliance questions. What distinguishes Islamic banks from conventional banks is not merely technical, but normative: every technological choice carries Sharia-compliant consequences that must be seriously considered, not simply delegated to supervisory boards that may lack adequate technical understanding. The maqasid al-Shariah framework provides a solid normative foundation for assessing digital innovation, but it still requires more rigorous empirical operationalization to be truly useful for practitioners and regulators.

For academics, the most pressing research agendas include: cross-jurisdictional comparative studies, the development of digital-Shariah alignment measurement instruments, longitudinal and mixed-method research designs, and empirical studies of risks, which have thus far been relatively neglected. For practitioners and

regulators, the findings of this review confirm that investment in the technical capacity of the Sharia Supervisory Board, standardization of digital Sharia compliance protocols, and digital literacy education of customers are three pillars that cannot be postponed any longer.

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