



Digital Transformation Strategies of Islamic Banks to Enhance Financial Inclusion: A Literature Review

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ABSTRACT

This study examines the challenge of low Islamic financial inclusion in Indonesia despite the growth of digital financial services and Islamic financial literacy. Although digitalization has expanded access to financial services, Islamic banks still face difficulties in translating technological advancement into broader and sustainable Sharia-compliant inclusion. This condition highlights the need for an integrated digital transformation strategy that aligns organizational capabilities with user acceptance within the Islamic finance framework. Using a qualitative literature review of academic studies and institutional reports, this study analyzes digitalization strategies in Islamic banking. The findings show that Islamic banking applications, collaboration with halal fintech, strengthened technological infrastructure, and maqashid sharia-based product innovation increase the adoption of Islamic financial services. Theoretically, this study integrates the Technology Acceptance Model and Dynamic Capabilities Theory to explain how organizational readiness and user perceptions jointly support digital transformation. The study confirms that digitalization can accelerate Islamic financial inclusion when aligned with Sharia-based values.

Kata Kunci:

Digitalisasi, Fintech Halal, Inklusi Keuangan Syariah, Literasi Digital, Maqashid Syariah.

ABSTRAK

Digital Transformation Strategies of Islamic Banks to Enhance Financial Inclusion: A Literature Review. Studi ini mengkaji tantangan rendahnya inklusi keuangan syariah di Indonesia meskipun terdapat pertumbuhan layanan keuangan digital dan literasi keuangan syariah. Meskipun digitalisasi telah memperluas akses terhadap layanan keuangan, bank-bank syariah masih menghadapi kesulitan dalam menerjemahkan kemajuan teknologi ke dalam inklusi yang lebih luas dan berkesinambungan. Kondisi ini menyoroti perlunya strategi transformasi digital yang terintegrasi yang menyelaraskan kapabilitas organisasi dengan penerimaan pengguna dalam kerangka kerja keuangan syariah. Dengan menggunakan tinjauan literatur kualitatif terhadap studi akademis dan laporan institusional, penelitian ini menganalisis strategi digitalisasi di perbankan syariah. Temuan menunjukkan bahwa aplikasi perbankan syariah, kolaborasi dengan fintech halal, infrastruktur teknologi yang diperkuat, dan inovasi produk berbasis maqashid syariah meningkatkan adopsi layanan keuangan syariah. Secara teoritis, penelitian ini mengintegrasikan Technology Acceptance Model dan Dynamic Capabilities Theory untuk menjelaskan bagaimana kesiapan organisasi dan persepsi pengguna secara bersama-sama mendukung transformasi digital. Studi ini menegaskan bahwa digitalisasi mempercepat inklusi keuangan syariah ketika diselaraskan dengan nilai-nilai berbasis syariah

INTRODUCTION

Financial inclusion has become a key agenda in modern economic development. However, in Muslim-majority countries such as Indonesia, conventional approaches to financial inclusion do not always fully accommodate Sharia principles. This condition presents regulatory and structural challenges in aligning Islamic economic values with existing financial governance frameworks. In this context, Sharia financial inclusion emerges as an alternative approach that not only expands access to financial services but also ensures compliance with Islamic values.

The rapid advancement of digital technology over the past decade has significantly transformed the financial industry. Digitalization has transformed the way individuals access and use financial services, shifting from conventional channels to digital platforms. According to the World Bank (2022), global financial inclusion has increased substantially due to technological advancements, particularly through digital financial services such as mobile banking, e-wallets, and fintech platforms.

In Indonesia, the importance of financial inclusion is reflected in national strategic policies such as the National Strategy for Financial Inclusion (SNKI), which aims to expand access to formal financial services across all segments of society. Within this framework, Islamic banks play a strategic role not only as providers of Sharia-compliant financial services but also as key actors in promoting inclusive and sustainable financial development, particularly for the Muslim population.

Sharia financial inclusion aims not only to expand access to financial products and services but also to ensure that such services are grounded in Islamic values, including justice ('adl), welfare (mashlahah), and sustainability (falah). These principles are essential in strengthening public trust in the Islamic financial system. In this regard, digital transformation offers Islamic banks an opportunity to broaden their outreach, introduce innovative Sharia-compliant products, and serve previously underserved communities.

Nevertheless, the adoption of digital technology in Islamic banking is accompanied by several challenges, including low levels of digital literacy, limitations in technological infrastructure, and dynamic regulatory environments. Along with shifts in societal behavior toward digital dependency, Islamic banks are required to continuously adapt and innovate to remain relevant. Therefore, digital transformation should be viewed not merely as a technological innovation, but as a strategic approach that requires appropriate planning to effectively support the advancement of sustainable Sharia financial inclusion.

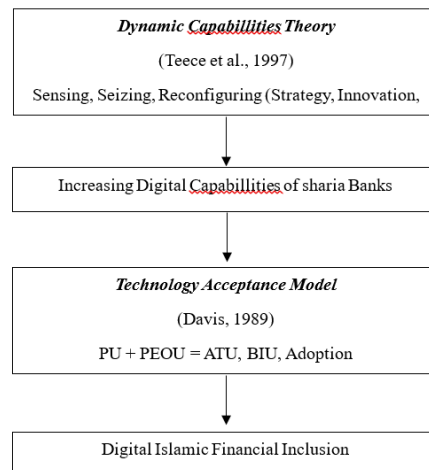
Despite the growing discourse on digital transformation and financial inclusion, existing studies on Islamic banking tend to address these issues in a fragmented manner. Empirical studies largely focus on the adoption of specific digital services such as mobile banking or fintech platforms, while theoretical studies emphasize technology acceptance or organizational capabilities without sufficiently linking both dimensions. Consequently, there remains a lack of integrative analysis explaining how digitalization strategies of Islamic banks encompassing technological infrastructure, organizational capabilities, and sharia-compliant innovation systematically contribute to the expansion of Islamic financial inclusion.

In response to this gap, this study examines digital transformation strategies in Islamic banking by focusing on organizational and user-level dimensions simultaneously. The analysis covers key strategies, including the development of Islamic banking applications, collaboration with halal fintech, strengthening technological infrastructure, and product innovation grounded in maqashid sharia. Accordingly, this study seeks to answer the following research question: how and through what mechanisms do digital transformation strategies of Islamic banks contribute to the expansion of Islamic financial inclusion in the digital era?



To operationalize this inquiry, the study proposes an integrated conceptual model that combines Dynamic Capabilities Theory and the Technology Acceptance Model (TAM). The model conceptualizes how Islamic banks' organizational capabilities such as sensing, seizing, and reconfiguring interact with users' perceptions of usefulness and ease of use in shaping the adoption of digital Islamic financial services. Through this framework, digital transformation strategies are positioned as the linking mechanism between organizational readiness and societal acceptance in promoting Islamic financial inclusion. The proposed conceptual model is presented in Figure X.

Figure 1. Conceptual Model of the Studies



Source: Author's own conceptualization based on the literature.

This conceptual model serves as the analytical framework guiding the subsequent analysis.

LITERATURE REVIEW

The study conducted by Nor Hasanah (2024) emphasizes that Islamic financial inclusion is not solely determined by the availability of digital infrastructure but is also significantly influenced by non-technical factors such as financial literacy, educational capacity, and the strength of social institutions. This perspective provides essential context for the present research, as it enriches the socio-structural understanding of non-digital determinants affecting the effectiveness of Islamic financial inclusion in Indonesia.

This finding is consistent with several relevant prior studies, including Dz (2018), Hildawati et al. (2025), Desky & Maulina (2022), and Sudi (2025), which collectively highlight several core insights. First, the level of Islamic financial inclusion in Indonesia remains relatively low, influenced by physical constraints, high transaction costs for small-volume activities, low levels of Islamic financial literacy, and persistent public perceptions regarding Islamic banking services. Second, digitalization, through mobile banking, internet banking, fintech applications, and branchless banking, is viewed as a key driver capable of expanding access, overcoming geographical barriers, and increasing participation in the financial system. Third, existing literature underscores that digital transformation cannot succeed without adequate institutional capacity and education. Institutional readiness, human resource competency, and public understanding of Sharia principles are significant factors determining the success of digital integration. Hence, the provision of technology must be accompanied by efforts to enhance literacy and strengthen institutional support to ensure effective and sustainable inclusion.



Fourth, the combination of technology, literacy, and institutional support constitutes the foundational framework for building sustainable Islamic financial inclusion. Digitalization is not merely a tool but an ecosystem requiring social, regulatory, and institutional reinforcement to deliver meaningful inclusive outcomes.

Fifth, several studies reveal that claims of improved financial inclusion often rely on narrative-based assumptions rather than strong quantitative tracking. For instance, the assumption that “more digital channels = more inclusion” is rarely supported by detailed measurement of who is truly being included across socioeconomic, geographic, and behavioral-religious segments and how these differences manifest in actual financial behavior.

Sixth, there exists a clear research gap: none of the reviewed studies provides an integrated analysis that simultaneously examines:

1. Specific BI/OJK regulatory instruments, such as tiered e-KYC requirements, QRIS, agent banking regulations, digital signatures, and e-money rules;
2. Bank-level digital architecture and organizational transformation, including core system modernization, contract engines, Sharia audit integration, API strategies, and HR restructuring; and
3. Measured financial inclusion outcomes, such as the number of new Sharia accounts among previously unbanked populations, financial outreach in rural or peri-urban regions, and the use of low-cost digital products.

Such integration is, in fact, the critical intersection that shapes the real impact of digital Islamic finance, yet it remains empirically unaddressed in the existing literature. This gap presents a substantial opportunity for further investigation and forms the core empirical motivation of the present study.

METHODOLOGY

This study uses a qualitative approach with a literature review method. This method was selected to conceptually and empirically examine and analyze the strategy of digitizing Islamic banking in order to improve Islamic financial inclusion through a systematic review of relevant literature and official documents. The research data consists of secondary data obtained from Sinta and Scopus indexed journal articles, as well as reports from governmental and international institutions such as the Financial Services Authority (OJK), Bank Indonesia (BI), and the World Bank published between 2015 and 2025. The data analyzed includes indicators of Islamic financial inclusion and literacy (SNLIK), the development of Islamic banking digital services, and previous research results related to the digitization of the Islamic financial sector. Secondary data was selected because this study focuses on mapping and synthesizing existing conceptual and empirical findings.

The research process was conducted in several stages, namely the identification and selection of relevant and credible sources, the grouping of findings based on main themes, and descriptive and comparative analysis to examine the relationships between concepts. Data were analyzed descriptively and conceptually by integrating two main theoretical frameworks. The Dynamic Capabilities Theory (Teece, Pisano, & Shuen, 1997) was used to explain the internal strategies of Islamic banks in responding to technological changes through sensing, seizing, and reconfiguring capabilities. Meanwhile, the Technology Acceptance Model (TAM) (Davis, 1989) was used to analyze external factors that influence public acceptance of digital Islamic banking services, particularly through perceived usefulness and perceived ease of use. The integration of these two frameworks is used to examine the role of Islamic banking digitalization in supporting the improvement of Islamic financial inclusion in Indonesia. By integrating these two theoretical frameworks, this study evaluates how Islamic banking



digitalization strategies contribute to the improvement of Islamic financial inclusion and identifies obstacles and opportunities for its development in Indonesia.

RESULT AND DISCUSSION

The Concept of Islamic Financial Inclusion through Digitalization

According to Bank Indonesia (BI), inclusive finance is a form of financial deepening aimed at all segments of society, especially the lower classes, so they can access formal financial products and services more easily and affordably, such as savings, safekeeping, transfers, loans, and insurance. The index used to measure financial inclusion consists of three main factors: access, utilization, and quality. The Consultative Group to Assist the Poor (CGAP-GPFI) defines inclusive finance as a condition in which all working-age individuals are able to gain effective access to credit, savings, payment systems, and insurance from all financial service providers. Effective access also includes convenient and responsible services, at prices that are affordable for the community and sustainable for providers. Ultimately, the public will utilize formal financial services rather than informal ones. "The real opportunity to advance development goals lies in harnessing this achievement to improve lives, strengthen resilience, and foster economic growth," which means that easy access alone is not enough; it must be accompanied by maximum utilization of inclusion achievements to drive economic growth.

Financial inclusion is the openness and provision of access to and use of a variety of convenient and affordable financial services. Financial inclusion encompasses sustainable, relevant, cost-effective, and meaningful financial services for the financially underserved, especially rural populations. These services include savings, financing, and insurance, provided in a manner that is sufficiently convenient, reliable, and flexible in terms of access and design (Dz., 2018).

The implementation of financial inclusion will open access for the poor (those without collateral, unemployed, trustworthy, and unable to obtain credit) to financial services. This means bringing the unbankable into the fold of financial institutions. Other goals include access at reasonable costs to a range of financial services (including savings, deposits, payments, and transfer services for all households), financial and institutional sustainability to ensure the continuity and certainty of investments, and competition to ensure choice and affordability for customers. Financial inclusion is defined as the range, quality, and availability of financial services for the financially underserved. Inclusive Islamic finance means that access to Islamic financial instruments must be easy, sustainable, and varied (Sujud, 2021).

The indicators that can be used as a measure of a country's progress in developing financial inclusion are as follows (Dz., 2018):

1. Availability/access, namely the ability to use formal financial services in terms of physical affordability and price;
2. Usage, the actual ability to use financial products and services (including regularity, frequency, and duration of use);
3. Quality, whether the attributes of financial products and services meet customer needs;
4. Well-being, the impact of financial services on the quality of life of service users.

Since the 1980s, the trend of digitalization has been discussed, when home computers were introduced to the consumer market, making information more accessible and allowing consumers to easily access the latest issues. The development of fintech in the world began in the 1800s with the advent of the telegraph and has grown in subsequent years, especially in the current digital era. In the 1900s, Automated Teller Machines (ATMs), Clearing Houses, Internet



Banking, and PayPal began to develop. Then, in the 2000s, Apple Pay, Samsung Pay, and Smile to Pay (Alibaba) emerged (Nurfalah & Rusydiana, 2019a).

Digitalization eliminates barriers to accessing information and provides greater freedom of interaction with various parties regardless of time and space. Digitalization can be defined as the use of digital technology for new business models and the creation of new opportunities that generate value. It represents digital business and the integration of digital technology into everyday life. Digitalization can be regarded as an opportunity for companies and organizations to improve their business activities. In the era of digitalization and automation, many office tasks can be performed more efficiently and at lower costs. Digitalization can be seen as an opportunity to improve customer relationships, business processes, and create and adapt new business models (Nurfalah & Rusydiana, 2019a).

Banking plays a significant role in economic development in Indonesia, particularly as a driving force for inclusive financial activities, given that Indonesian banks account for up to 80% of financial activities. However, involvement in inclusive finance is not solely the responsibility of Bank Indonesia, but also the government's commitment to providing financial services to the wider community (Hamzah, 2019). In the financial sector, digitalization is a development in work methods, scope of work, and work environments. Advances in information technology and computer systems that have evolved into digitalization can improve work efficiency. The general consensus is that due to digitalization, customers will become more independent and the work environment will become more digital, which can transform entire organizations. Telecommuting and working remotely from the office will become more commonplace in today's work environment, and in the future, digital skills will become increasingly important and a workforce requirement.

The digitalization of financial systems and technology is called Financial Technology (fintech), which is a digital financial system innovation that allows the public to easily access financial products and services and lowers barriers to entry. Also according to Bank Indonesia, Chuen and Teo explain that fintech refers to financial services or innovative products delivered through new technology. This fintech development is changing the current financial business model, where the weakening barriers to entry provide a role for fintech in fostering unregulated behavior that operates business models similar to regulated companies or institutions.

According to the Financial Services Authority, there are advantages of fintech, belows:

1. Serving the Indonesian people who cannot be served by the traditional financial industry due to strict banking regulations and the limitations of the traditional banking industry in serving people in certain areas;
2. To become an alternative source of funding besides traditional financial industry services where the community requires a more democratic and transparent financing alternative.

Quoted from the same source, the Financial Services Authority stated several shortcomings of fintech, namely:

1. Fintech is a party that does not have a license to transfer funds and is less established in running its business with large capital, when compared to banks;
2. Some Fintech companies do not have a physical office and lack experience in implementing procedures related to security systems and product integrity.

According to Bank Indonesia, the rapid development of fintech in Indonesia can bring numerous benefits to borrowers, investors, and banks in Indonesia. These benefits are as follows:

- a. For borrowers, the benefits include encouraging financial inclusion, providing alternative loans for debtors who are not yet creditworthy, the process is easy and fast, and the competition that arises encourages a decrease in loan interest rates;

- b. For fintech investors, the benefits that can be felt include investment alternatives with higher returns with default risks spread across many investors with each nominal amount being quite low and investors can choose borrowers who are funded according to their preferences.; and
- c. For banking, collaboration with fintech can reduce costs such as the use of non-traditional credit scoring for initial credit application filtering, increase Third Party Funds (DPK), add credit distribution channels and is an alternative investment for banking.

According to the Financial Services Authority, some of the benefits of fintech in Indonesia include the following:

- a) Encourage the distribution of national financing, which remains uneven across Indonesia's 17,000 islands;
- b) Boost the export capacity of MSMEs, which is currently still low;
- c) Increase national financial inclusion;
- d) Promote equitable distribution of welfare among the population; and
- e) Help meet the still-significant domestic financing needs.

Inclusive financial systems to promote prosperity in Middle Eastern and North African countries (Babajide et al., 2015). Financial inclusion is “the absence of price or non-price barriers to the use of financial services.” In their argument, they argue that the sole purpose of financial inclusion is to increase access to financial services, which essentially involves increasing the level of availability of financial services to everyone at a reasonable price. Therefore, financial inclusion is defined as individual access to financial products and services.

Table 1. Development of the Sharia Financial Literacy and Inclusion Index (SNLIK 2022–2025)

Years	Islamic Financial Literacy Index (%)	Islamic Financial Inclusion Index (%)
2022	38,03	12,12
2023	38,75	12,50
2024	39,11	12,88
2025	43,42	13,41

Sumber: Otoritas Jasa Keuangan (OJK), *Survei Nasional Literasi dan Inklusi Keuangan (SNLIK) 2022–2025*.

The table above explains the results of the 2024 National Survey on Financial Literacy and Inclusion (SNLIK) released by the Financial Services Authority (OJK), which recorded a Sharia financial literacy index of 39.11%, while the Sharia financial inclusion index only reached 12.88%. This indicates that understanding does not automatically encourage people to utilize Sharia financial products. The 2025 SNLIK report, despite an increase in overall literacy and inclusion rates, disparities in Sharia services remain significant, drawing particular attention from policymakers and industry practitioners.

This situation demonstrates that efforts to increase Islamic financial inclusion need to be directed not only at education but also at expanding access and optimizing digital services to meet community needs. In this context, digitalization acts as a catalyst that can accelerate the penetration of Islamic financial services, especially for segments of society previously unreachable by the formal financial system.



Sharia Bank Strategy in Increasing Financial Inclusion

In the rapidly evolving digital era, Islamic banks are required to adapt to customer needs and constantly changing technological trends. Therefore, Dynamic Capabilities Theory (Teece, Pisano & Shuen, 1997) is a relevant framework for analyzing Islamic banking strategies. This theory emphasizes an organization's ability to sense (detect opportunities and threats), seize (capitalize on opportunities), and reconfigure (reconfigure resources and processes) so that the institution can remain adaptive and competitive.

Based on the Dynamic Capabilities Theory framework, Islamic banks can implement digitalization strategies through three core capabilities: sensing, seizing, and reconfiguring. To illustrate this implementation more concretely, a table detailing the strategy, inclusion targets, and examples of digital implementation can be created.

Table 2. Islamic Bank Digitalization Strategy

Islamic Banking Strategy	Theory Dynamic Capability	Inclusion Targets	Example of Digital Implementation
Digitization of Services	<i>Sensing & Seizing</i>	Increasing digital customer access	BSI Mobile: savings, financing, investment
Sharia Fintech Collaboration	<i>Reconfiguring</i>	Expanding reach and efficiency	Integration halal crowdfunding and e-payment
Digital Literacy and Education	<i>Sensing & Seizing</i>	Increasing adoption of digital services	Literacy webinars, educational content on social media
Maqashid Sharia-Based Digital Products	<i>Seizing & Reconfiguring</i>	Reaching the unbanked segment	Online microfinance, digital waqf savings
Infrastructure & Technology Systems	<i>Reconfiguring</i>	Ensuring customer safety and comfort	Data analytics, stable servers, cyber security

Sumber: Teece et al., (1997)

The table shows that each Islamic bank's digitalization strategy aligns with the Dynamic Capabilities principle. For example, the development of a mobile banking application is a form of sensing digital customer needs while simultaneously recognizing opportunities to expand inclusion. The collaboration strategy with Islamic fintech reflects a reconfiguration capability, where banks adapt their business models and technology to reach previously underserved communities.

Furthermore, digital literacy and education programs emphasize sensing and seizing, as banks need to understand customers' knowledge levels and effectively encourage the adoption of digital services. The development of digital products based on the maqasid sharia (Islamic principles) integrates seizing capabilities to capitalize on market opportunities and reconfiguration to adapt products to inclusive sharia-compliant needs. Finally, strengthening infrastructure and technology systems is a form of reconfiguration, ensuring services remain secure, stable, and accessible to all segments of society.

Empirical phenomena from various studies show that this combination of strategies can increase the adoption of digital services, expand access to Islamic finance, and encourage sustainable financial inclusion. For example, BSI Mobile data shows an increase in active users of up to 35% by 2024, while Islamic fintech and maqashid-based digital products have



successfully reached communities previously without access to banking services. In the context of Islamic financial inclusion, the application of Dynamic Capabilities Theory is reflected in the five main strategies of Islamic banks, outlined in the following digitalization strategy table:

1. Digitalization of Services

Sharia banks utilize their sensing and seizing capabilities by developing mobile banking applications, such as BSI Mobile, which offers comprehensive features ranging from savings and financing to Sharia-compliant investment transactions. This strategy enables banks to detect digital customer needs and promptly address them by providing easily accessible services. BSI data shows that the number of active mobile app users increased by 35% in 2024 compared to the previous year, demonstrating the effectiveness of digitalization in expanding financial inclusion (Hannany & Rosdiana, 2024).

2. Collaboration with Fintech Syariah

This strategy demonstrate the ability of Islamic banks to reconfigure their business models to adapt to digital demands. Through collaboration with Islamic fintechs, banks can expand their service reach and improve operational efficiency, for example by integrating halal crowdfunding platforms and digital payments. This approach makes it easier for the public, including the unbanked segment, to access Islamic financial services more broadly and inclusively (Rajib, 2025).

3. Strengthening Digital Literacy and Education

Islamic banks implement a sensing and seizing strategy through financial and digital literacy programs, including webinars and educational content on social media. This strategy aims to increase customer understanding of digital services, thereby encouraging the adoption of Islamic banking products. Furthermore, digital education strengthens public trust in Islamic banks, ultimately supporting sustainable financial inclusion (Kholidah et al., 2023)

4. Digital Product Inovation Based on Maqashid Sharia

Islamic banks are implementing seizing and reconfiguring capabilities by developing digital products that align with the principles of maqashid sharia, such as online microfinance and digital waqf savings. These products enable people from all walks of life to access Islamic financial services, including those previously underserved by conventional or Islamic banks. Research by Nurfalah & Rusydiana (2019) shows that digitalizing maqashid-based products can increase service penetration to the wider community in an inclusive manner (Nurfalah & Rusydiana, 2019b).

5. Strengthening Infrastructure and Technology Systems

This strategy emphasizes the reconfiguration of Islamic banks to adapt internal resources to support secure and stable digital services. System strengthening includes enhancing cybersecurity, server stability, and customer data analytics capabilities. With reliable infrastructure, banks can provide a convenient and secure digital experience, thereby increasing the use of digital products and expanding financial inclusion (Sunandar, 2024).

By applying the Dynamic Capabilities principle, Islamic banks are able to adapt their strategies and resources to changes in the digital environment, creating innovative products and services, expanding financial access, and improving customer literacy. These strategies demonstrate that Islamic financial inclusion depends not only on product availability but also on the bank's ability to continuously adapt and innovate within the digital ecosystem.



Challenges and Opportunities for Developing Digital Services

The development of digital technology in the financial industry, including Islamic banking, presents both opportunities and challenges in promoting financial inclusion. One relevant theoretical framework for understanding the acceptance and use of technology is the Technology Acceptance Model (TAM) introduced by Davis (1989). This theory explains that technology adoption is influenced by two main factors: 1) Perceived Usefulness (PU), which is the extent to which a person believes that using a system will improve their performance or provide tangible benefits in daily life. In the context of Islamic banking, PU can be interpreted as the public's belief that Islamic digital services (mobile banking, internet banking, Islamic e-wallets) can increase access to financial products and services that comply with Islamic principles. 2) Perceived Ease of Use (PEOU) refers to the extent to which a person believes that using technology will be easy to understand and operate. If Islamic banking applications have a simple interface, easy-to-understand language, and support for educational features, the level of public acceptance will be higher. The level of technology benefits for users.

In the context of Islamic financial inclusion, TAM helps explain potential barriers, such as low digital literacy, limited technological infrastructure, or user resistance to new services, as well as potential opportunities, such as expanding access for unbanked customers, improving service efficiency, and creating digital-based product innovations. By understanding these factors, Islamic banks can design more effective digital strategies to increase service adoption and expand financial inclusion.

In addition to these two factors, the Technology Acceptance Model (TAM) also links user perceptions with Attitude Toward Using (ATU) and Behavioral Intention to Use (BIU), which ultimately influence the decision to actually use technology. Thus, TAM serves as a powerful conceptual framework for understanding the extent to which society is willing to accept the digitalization of Islamic banking services as a means to increase financial inclusion. The application of TAM in Islamic finance research has proven relevant because it can help map challenges, such as low digital literacy, application complexity, and public trust in data security, which often reduce PEOU and PU values. On the other hand, TAM also opens up opportunities, because if Islamic banks are able to increase Perceived Usefulness through service features that suit the needs of the community, such as online zakat services or digital Islamic MSME financing, and increase Perceived Ease of Use through user-friendly application design, then Islamic financial inclusion will be more easily achieved. In other words, TAM not only explains the factors of technology acceptance but also serves as an important entry point for identifying challenges and opportunities in the process of digitalizing Islamic banking.

1.Challenges (Barriers)

a. Regulation and Sharia Compliance

The digitalization of Islamic banking services has given rise to the need for electronic contracts, digital signatures, and smart contracts, which must remain compliant with Sharia principles and applicable banking regulations. However, detailed Sharia fatwas and guidelines related to these technical aspects have not yet been developed, resulting in Sharia banks often facing ambiguity in implementing digital products. This reflects the fact that Sharia regulations often lag behind the pace of technological innovation, preventing them from always keeping pace with the rapid development of digital services. This phenomenon is empirically demonstrated in the study "Digitalization of Islamic Banking in Indonesia: Justification and Compliance to Sharia Principles," which shows that Islamic banks face a dilemma between technological innovation and Sharia compliance when adapting digital services. Another case study also reported that several Islamic rural banks (BPRS) delayed the launch of



mobile banking due to uncertainty regarding the legality of electronic contracts. This situation underscores the need for an adaptive regulatory approach and clearer technical guidelines to ensure the smooth digitalization of Islamic banking without compromising Sharia compliance (Ichsan et al., 2024).

b. Digital Infrastructure Gap

Although national internet penetration is relatively high, its distribution is still far from equitable. In many rural and 3T (Frontier, Outermost, and Disadvantaged) areas, internet access and cellular signals are still limited, making it difficult for people in these areas to consistently use digital banking services. This situation is a significant obstacle to Islamic banks' efforts to promote digital financial inclusion. The Digital Transformation in Islamic Banking study states that limited infrastructure and inadequate internal system architecture are among the biggest obstacles to digital transformation in Islamic banks. Furthermore, the study "Innovation in Islamic Financial Technology through Islamic Fintech" reported that Bank Riau Kepri Syariah faced technical network obstacles in deploying digital innovations in small branches. This situation forces Islamic banks to maintain a hybrid model, a combination of digital services and a physical presence, longer than conventional banks to ensure services remain accessible to customers across the region (Desky & Maulina, 2022).

c. Low Financial and Digital Literacy

Targeted communities for inclusion (especially those in the lower-middle economic segment) often have limited understanding of financial technology and products. This hinders the adoption of digital services due to uncertainty, fear of misuse, and low trust. According to a 2022 OJK survey, the Sharia financial literacy index was only 9.14%, far below the national financial literacy rate. (Bintari et al., 2024). Journal (Nst & Nasution, 2024) Islamic Bank Digital Services as a Driving Factor for the Islamic Financial Literacy and Inclusion Index found that the quality of digital services (ease, security) is significantly correlated with the literacy index and use of digital Islamic services.

d. Limited Human Resources and Organizational Culture

Digital transformation requires technological expertise (IT, data science, cybersecurity) as well as innovation management. Many Islamic banks, especially small institutions like BPRS, lack this capacity. They often rely on external vendors, who sometimes don't understand the nuances of Sharia law in digital products. The Digital Transformation in Islamic Banking study cited deficiencies in internal architecture and human resources as key obstacles (Desky & Maulina, 2022). In the study The Readiness of Islamic Banking in Indonesia to Implement Digital and Green Banking, it was found that the technology readiness index (ICT) has a positive correlation with the digital adoption of Islamic banks (Cahyadin et al., 2020).

e. Cybersecurity and Customer Trust

In the digital realm, the risk of data breaches, cyberattacks, phishing, and fraud is increasing. Because Islamic banking is closely tied to religious and religious elements, any security incident can erode legitimacy and customer trust. Cyberfraud cases in digital banking have increased significantly (OJK 2023 report), leading to public skepticism about digital systems. The study, "The Influence of Islamic Banking Digital Service Quality on Intention to Continue Using Islamic Banking", concluded that security and reliability are important indicators of intention to continue using Islamic banking digital services (Rahma & Sofyani, 2024).



f. Competition with Fintech and Conventional Banks

Fintech and conventional banks often have more flexible capital, less bureaucracy, and faster innovation. Slower-moving Islamic banks risk being left behind in the digital realm. The study "Digital Payment and Banking Stability in Emerging Economies with Dual Banking" shows how digitalization is driving competitive pressures for Islamic banks in a dual banking system (Islamic and conventional) (Kasri et al., 2022). The study Islamic Bank Strategy in Facing Competition in the Era of Digitalization maps the strategies taken by Islamic banks to maintain competitiveness (Fitria, 2025).

2. Opportunities

a. Strategic Partnership with Fintech

Collaboration between Islamic banks and fintech (both Islamic and conventional) allows for the utilization of fintech's technological capabilities while maintaining Sharia compliance on the bank's side. Through APIs, white-labeling, or co-branding, Islamic banks can reach a wider audience without building their own full infrastructure. The study, "Innovation in Islamic Financial Technology through Islamic Fintech," states that Bank Riau Kepri Syariah is already exploring partnerships with fintech to expand its digital reach (Agustiyani et al., 2025). The bibliometric journal Islamic Finance in the Era of Financial Technology: A Bibliometric found that research trends in fintech–Islamic finance often highlight synergy points between banks and technology startups (Qudah et al., 2023).

b. Digital Agent / Agent Banking Hybrid

Agent banking, using local agents (kiosks, cooperatives, and BMTs), can bridge the digital access gap, especially in areas with limited infrastructure. Agents use simple applications for transactions, account activation, and customer education. BI's Laku Pandai program, which involves hundreds of thousands of agents, demonstrates the effectiveness of the agent model in expanding financial coverage. The Journal of Sharia Banking Digital Services as a Driving Factor for the Literacy and Inclusion Index states that synergistic digital services with the presence of local agents can strengthen public trust in Sharia banks (Nst & Nasution, 2024).

c. Micro Product & Alternative Data

Digitalization enables the use of alternative data (e-commerce transaction history, electricity bills, phone credit) as input for micro-credit scoring without requiring physical collateral. Islamic banks can tailor financing contracts (e.g., profit-sharing, micro-ijarah) to this segment. The article "The Role of Big Data Analytics in Increasing Transparency of Islamic Financial Reports" states that big data-based digitalization opens up opportunities for inclusion, especially for MSMEs. This is also in line with research on Islamic Financial Technology Innovation through Islamic Fintech, which shows halal crowdfunding practices and digital microfinance as innovations implemented in Islamic banking (Khusna et al., 2025).

d. Zakat Services Integration, Wakaf, and Takaful

Islamic banks have a unique advantage: their ability to integrate financial services with Islamic social elements. Digitally, customers can directly donate zakat, waqf, or purchase takaful products through Islamic banking applications. For example, BAZNAS recorded a 30% increase in digital zakat through e-wallet platforms. The journal Optimizing the Role of Islamic Banks in Supporting Islamic Financial Inclusion in Indonesia examines how Islamic fintech can be optimized for financial inclusion in Indonesia through the integration of social services (Midu & Yusuf, 2024).



e. Utilization of QRIS & Payment System Interoperability

QRIS (Quick Response Code Indonesian Standard) is a national digital payment standard system. Sharia banks can utilize QRIS to enable merchants across Indonesia to seamlessly accept payments from Sharia-compliant customers. Bank Indonesia (BI) data shows that QRIS transactions will reach IDR 196 trillion (2023), representing a significant market potential for Sharia banks. Research from the UIN Syahada Institute of Digital and Non-Digital Services Influence on Customers (UIN Syahada) proves that Sharia banking digital services (including QR) boost financial literacy and inclusion indexes (Nst & Nasution, 2024).

f. Sharia-Based Digital Education

Islamic banks can design digital financial literacy packaged within a sharia narrative (e.g., trustworthy, halal, and just). This strengthens trust and reduces public resistance to new technologies. The Islamic Banking Customers' Intention to Use Digital Banking Services (JIMF) study using UTAUT-2 showed spiritual motivation as one of the variables in the intention to use Islamic banking digital services. The Journal of Science Literation emphasizes that religiosity and the quality of digital services influence millennial customers' savings decisions (Harahap et al., 2023; Rahmawati et al., 2025).

Islamic banks' strategies for increasing financial inclusion in the digital era depend not only on technological capabilities but also on institutional adaptability and clear policy direction. Challenges such as incompletely adaptive regulations, low public digital literacy, and disparities in digital infrastructure require a comprehensive strategic approach, encompassing education, system strengthening, and Sharia-based innovation. Nevertheless, significant opportunities arise when Islamic banks are able to address internal limitations such as human resources and organizational culture through collaboration with Sharia-compliant fintech companies, partnerships with local agents, and the strengthening of Islamic social values in digital products.

By balancing security, trust, and speed of innovation, Islamic banks can expand access to inclusive financial services without compromising Sharia principles. Therefore, digitalization is not simply a technological transformation, but rather part of a sustainable strategy to strengthen an adaptive, competitive, and socially just Islamic financial ecosystem, in line with the primary goal of Islamic financial inclusion in the digital era.

CONCLUSIONS

This study concludes that digital transformation strategies play a crucial role in expanding Islamic financial inclusion in Indonesia. The findings indicate that the development of Islamic banking applications, collaboration with halal fintech, strengthening technological infrastructure, and product innovation based on maqashid sharia significantly contribute to increasing public adoption of Islamic financial services. These strategies enable Islamic banks to reach broader segments of society, including previously underserved communities, while maintaining compliance with Sharia principles.

Furthermore, the study demonstrates that the effectiveness of digital transformation in Islamic banking is determined by the interaction between organizational capabilities and user acceptance. By integrating Dynamic Capabilities Theory and the Technology Acceptance Model, this research provides a conceptual framework that explains how adaptive organizational strategies and positive user perceptions jointly support the advancement of Islamic financial inclusion in the digital era. Overall, digitalization is affirmed as a strategic instrument for strengthening the inclusiveness and sustainability of the Islamic financial system.



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