

Digital Transformation in Islamic Banking: A Structural Equation Modeling Approach to User Adoption of Shariah-Compliant Fintech Services

Rizkiya Khalila*

Universitas Islam Sulthanah Nahrasiyah Lhokseumawe

email: rizkiyakhalila23@gmail.com

Umaira

Universitas Islam Negeri Ar-Raniry, Banda Aceh

email: iraumaira110@gmail.com

**corresponding author*

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Abstract:

The rapid digitalization of the global financial sector has compelled Islamic Banking Institutions (IBIs) to accelerate their digital transformation by integrating Shariah-compliant fintech services. Despite the structural growth of Islamic finance, user adoption of Islamic digital banking platforms exhibits regional variance and unique behavioral determinants rooted in religious values and technological perceptions. This study investigates the factors influencing user adoption of Shariah-compliant fintech services offered by Islamic banks using a Structural Equation Modeling (SEM) approach based on Partial Least Squares (PLS-SEM). Grounded in an extended Technology Acceptance Model (TAM), this research integrates novel constructs: *Perceived Shariah Compliance (PSC)*, *Initial Trust (IT)*, and *Consumer Financial Literacy (CFL)* alongside traditional variables including *Perceived Usefulness (PU)*, *Perceived Ease of Use (PEOU)*, and *Behavioral Intention (BI)*. Primary data were collected through a structured questionnaire administered to 420 active clients of Islamic banks across major urban centers. The empirical findings reveal that *Perceived Shariah Compliance* and *Initial Trust* exert the

Author correspondence email: rizkiyakhalila23@gmail.com

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strongest direct positive effects on *Behavioral Intention*, surpassing the influence of traditional *PEOU*. Furthermore, *Perceived Ease of Use* significantly impacts *Perceived Usefulness*, which indirectly reinforces user adoption. *Consumer Financial Literacy* serves as a crucial moderating variable that amplifies the relationship between Shariah compliance perception and user trust. The structural model demonstrates strong explanatory power ($R^2 = 0.684$ for *Behavioral Intention*). The findings provide strategic insights for Islamic bank executives, fintech developers, and regulatory bodies to optimize user experience while maintaining rigorous Shariah governance.

Keywords:

Islamic digital banking; shariah fintech; user adoption.

Introduction

The contemporary global financial landscape is undergoing a profound paradigm shift, driven by the exponential advancement of financial technology (fintech) and digital infrastructure. Digital transformation is no longer a peripheral strategy for financial institutions; it has become a fundamental imperative for operational resilience, competitive advantage, and customer retention. Within this macroeconomic shift, Islamic Banking Institutions (IBIs) face a dual mandate. On one hand, IBIs must modernize their delivery channels to match the agility, speed, and seamless user experiences provided by conventional neo-banks and financial technology firms. On the other hand, IBIs must strictly preserve their core value proposition: complete adherence to Islamic jurisprudence (*Shariah*), which prohibits *riba* (usury/interest), *maysir* (gambling/speculation), and *gharar* (excessive uncertainty).

The intersection of Islamic finance and digital innovation often referred to as Shariah-compliant fintech or Islamic Digital Banking represents one of the fastest-growing segments within the global Islamic Financial Services Industry (IFSI). According to recent industry reports, the global Islamic fintech market is projected to expand significantly, driven by a young, digitally native demographic across Muslim-majority nations and international financial hubs. Shariah compliant fintech services encompass a wide array of digital solutions,

including mobile banking applications, peer-to-peer (P2P) financing platforms, equity crowdfunding, digital waqf and zakat portals, and automated Shariah-compliant wealth management platforms.

Despite this favorable market trajectory, the rate of user adoption for Shariah compliant fintech services reveals underlying complexities. While smartphone penetration and digital literacy have surged, the transition from conventional digital banking or cash based transactions to specialized Islamic fintech solutions is not automatic. Users of Islamic financial services demonstrate unique behavioral dynamics. Unlike conventional banking consumers whose platform choices are predominantly dictated by transaction speed, fee structures, and user interface design, consumers of Islamic financial services operate under a dual-utility framework. Their economic decisions are governed by both material utility (convenience, cost efficiency, functional value) and spiritual/ethical utility (religious alignment, moral comfort, divine compliance).

To systematically understand user adoption in this specialized context, academic literature has frequently turned to technology adoption frameworks such as the Technology Acceptance Model (TAM) proposed by Davis (1989), the Theory of Planned Behavior (TPB) by Ajzen (1991), and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). While these classical frameworks excel at explaining technological adoption based on utilitarian dimensions such as *Perceived Usefulness (PU)* and *Perceived Ease of Use (PEOU)*, they were originally developed within Western, secular, and purely commercial operational settings. Consequently, they often fail to capture the subtle socio-religious and ethical determinants that govern consumer behavior in Islamic markets.

To address this theoretical gap, recent scholarship emphasizes the necessity of contextualizing technology adoption models by incorporating religious and institutional constructs. *Perceived Shariah Compliance (PSC)* has emerged as a vital determinant. Consumers must feel confident that the underlying algorithms, smart contracts, automated profit and loss sharing mechanisms, and underlying asset structures strictly conform to Shariah principles. If a digital platform exhibits high functional efficiency but lacks transparent Shariah

auditability, religiously conscious consumers will exhibit hesitation or outright rejection.

Furthermore, *Trust* plays a paramount role in digital financial environments where physical human interactions are replaced by automated algorithmic interfaces. In Islamic banking, trust is multi-dimensional; it encompasses technological security (cybersecurity, data privacy, system reliability) as well as institutional integrity (transparency in profit-sharing ratios, accurate calculation of *zakat*, and absence of hidden non-compliant earnings). This construct, conceptualized as *Initial Trust (IT)*, is particularly crucial for digital-only Islamic fintech products where brand history may be limited.

Additionally, the role of *Consumer Financial Literacy (CFL)* specifically Islamic Financial Literacy cannot be overstated. The structural mechanics of Islamic financial contracts (*Mudarabah*, *Musharakah*, *Murabahah*, *Ijarah*) are inherently more complex than conventional interest-based loans. When these contracts are digitized into mobile applications or automated advisory services, consumers require a foundational understanding of both financial mechanics and basic Shariah principles to fully appreciate the value proposition of the service. A lack of financial literacy can breed skepticism, leading consumers to misinterpret Shariah-compliant fee structures or risk-sharing protocols as disguised conventional interest.

While literature on Islamic banking and fintech adoption has grown in recent years, several critical empirical and theoretical gaps remain. First, many existing studies treat Shariah compliance as a static background assumption rather than an active behavioral construct within structural models. Second, limited empirical research has investigated how technological perceptions (*PU* and *PEOU*) interact with religious perceptions (*PSC*) to influence consumer trust and behavioral intentions simultaneously using robust multivariate structural techniques. Third, the moderating influence of financial literacy on the relationship between religious perception and user adoption remains under-explored.

To bridge these gaps, this study formulates a comprehensive conceptual framework extending the classic Technology Acceptance Model (TAM) through the integration of *Perceived Shariah Compliance (PSC)*, *Initial Trust (IT)*, and *Consumer Financial Literacy (CFL)*. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), this

research empirically evaluates the structural relationships governing user adoption of Shariah-compliant fintech services in Islamic banking. The primary objectives of this study are threefold:

1. To examine the direct and indirect impacts of *Perceived Usefulness* (PU), *Perceived Ease of Use* (PEOU), and *Perceived Shariah Compliance* (PSC) on users' *Behavioral Intention* (BI) to adopt Islamic fintech services.
2. To assess the mediating role of *Initial Trust* (IT) in transferring the effects of technological convenience and Shariah legitimacy into behavioral adoption.
3. To evaluate the moderating effect of *Consumer Financial Literacy* (CFL) on the relationship between *Perceived Shariah Compliance* and *Initial Trust*.

By achieving these objectives, this study contributes to both theoretical literature and practical management. Theoretically, it enriches the information systems and Islamic economics literature by providing an empirically validated, contextually rich technology adoption model tailored for ethical and religious financial technologies. Practically, the findings offer actionable guidance for bank executives, fintech architects, Shariah board members, and financial regulators seeking to design digital banking solutions that are technologically superior, user-friendly, and unassailably Shariah-compliant.

Methods

This research builds upon an extended Technology Acceptance Model (TAM). The core TAM constructs *Perceived Ease of Use* (PEOU) and *Perceived Usefulness* (PU)—are augmented by three domain specific variables: *Perceived Shariah Compliance* (PSC), *Initial Trust* (IT), and *Consumer Financial Literacy* (CFL). The conceptual model posits that PEOU influences PU; both PU and PSC directly influence *Initial Trust* and *Behavioral Intention* (BI); *Initial Trust* mediates the path toward adoption; and CFL moderates the relationship between PSC and *Initial Trust*.

The following formal hypotheses are formulated:

- **H1:** *Perceived Ease of Use* (PEOU) has a significant positive effect on *Perceived Usefulness* (PU).

- **H2:** *Perceived Ease of Use (PEOU)* has a significant positive effect on *Initial Trust (IT)*.
- **H3:** *Perceived Usefulness (PU)* has a significant positive effect on *Behavioral Intention (BI)* to use Shariah fintech services.
- **H4:** *Perceived Shariah Compliance (PSC)* has a significant positive effect on *Initial Trust (IT)*.
- **H5:** *Perceived Shariah Compliance (PSC)* has a significant positive effect on *Behavioral Intention (BI)*.
- **H6:** *Initial Trust (IT)* has a significant positive effect on *Behavioral Intention (BI)*.
- **H7:** *Initial Trust (IT)* significantly mediates the relationship between *Perceived Shariah Compliance (PSC)* and *Behavioral Intention (BI)*.
- **H8:** *Consumer Financial Literacy (CFL)* significantly moderates the positive relationship between *Perceived Shariah Compliance (PSC)* and *Initial Trust (IT)*.

The target population for this study comprises individual retail customers of Islamic banks who actively use or have been exposed to Shariah-compliant mobile banking or fintech services. A non-probability purposive sampling technique was employed to select respondents who possessed a minimum of six months of active banking experience with an Islamic financial institution and owned a smartphone capable of running digital financial applications.

Data collection was conducted using a self-administered structured online questionnaire distributed across major urban commercial centers. To ensure data quality and avoid common method bias, procedural remedies suggested by Podsakoff et al. (2003) were implemented, including protecting respondent anonymity, counterbalancing question order, and executing a pre-test pilot study with 30 respondents to refine item wording.

A total of 450 responses were received. After screening for incomplete responses, straight-lining, and unengaged answers, 420 valid responses were retained for structural analysis. This sample size exceeds the minimum threshold requirements recommended for PLS-SEM based on power analysis (Cohen, 1988) and the 10 times rule (Hair et al., 2017).

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) executed via SmartPLS

software. PLS-SEM was chosen over covariance-based SEM (CB-SEM) due to its suitability for complex structural models with indirect and moderating effects, its variance-explanatory focus (R^2 maximization), and its robustness with non-normally distributed behavioral data (Hair et al., 2019). The analytical process followed a two-step sequential approach: (1) evaluation of the reflective measurement model (outer model) for reliability and validity, and (2) evaluation of the structural model (inner model) to test hypotheses and predictive power.

Result and Discussion

Evaluation of the Quality of Measuring Instruments and Data Collection

Before testing the relationships between variables, all questionnaire items were evaluated to ensure that the collected data were valid and reliable. The evaluation was conducted on 420 respondents who were active customers of Islamic banks.

The test results showed that all questionnaire items had very high levels of consistency and reliability. Each indicator was able to accurately measure its respective variable without any overlap between variables. This indicates that the research instrument met academic standards to proceed to the stage of influence analysis.

Key Findings and Hypothesis Testing

Overall, this research model explains 68.4% of the variation in the factors influencing customers' intentions to use Islamic bank fintech services. The remainder is explained by other factors outside the scope of this study.

A summary of the findings from the analysis of the relationships among the variables is as follows:

a. **Ease of Use Affects Usability:**

The ease of using Sharia-compliant fintech apps has been shown to have a very strong positive impact on perceived usefulness. When customers find the app easy to navigate, straightforward, and responsive, they tend to view the service as highly useful in supporting their daily financial activities.

b. **Ease of Use Influences Initial Trust:**

A professionally designed and user-friendly app indirectly boosts customers' initial trust. A clean interface free of technical glitches gives the impression that the bank manages its digital systems seriously and securely.

c. Service Utility Influences Intention to Use:

The level of service utility has been shown to drive customers' intention to continue using Sharia-compliant fintech. Customers will be motivated to use the app if they experience tangible benefits, such as time savings, ease of transactions between accounts, and the convenience of its features.

d. Perceived Shariah Compliance Is a Key Driver of Trust:

Perceptions of Sharia compliance are the variable with the most dominant influence on shaping customers' initial trust. The assurance that fintech operations are free from *riba*, *gharar* (uncertainty), and *maysir* (speculation) provides customers with emotional and spiritual peace of mind.

e. Sharia Compliance Directly Influences Intended Use:

In addition to building trust, the clarity of the contract and the transparency of sharia-based fund management directly encourage customers to choose sharia-compliant fintech over conventional options.

f. Initial Trust Influences Intention to Use:

Initial trust serves as the primary driver of customer intent. Without confidence in the system's security and the institution's integrity, customers tend to be reluctant to conduct digital transactions.

The Role of Trust as a Mediator

This study found that Initial Trust serves as a bridge (mediating variable) between perceptions of Sharia compliance and customers' intentions to use fintech.

Although Sharia compliance can directly drive the intention to use fintech, its impact becomes significantly stronger when such compliance first succeeds in building customer trust. This means that the Sharia guarantees offered by banks are interpreted by customers as assurance regarding the institution's security and ethics, which ultimately solidifies their decision to actively use the app.

The Role of Financial Literacy as a Moderating Factor

One of the interesting findings in this study is the moderating role of customer financial literacy. The analysis results show that a high level of financial literacy strengthens the positive relationship between perceptions of Sharia compliance and customers' initial trust. Customers who have a good understanding of Sharia financial concepts (such as the differences between Mudarabah, Musharakah, and Murabahah contracts) are able to appreciate the transparency and Sharia-compliant schemes presented in the app. This understanding makes it easier for them to trust the claims of Sharia compliance made by the bank.

Conversely, for customers with low financial literacy, claims of Sharia compliance are sometimes viewed as nothing more than a marketing term, so the impact of Sharia compliance on building trust is not as strong as it is among financially literate customers.

Academic Discussion and Practical Implications

The results of this study underscore that the behavior of Islamic banking customers is unique. Unlike users of conventional financial services, who focus solely on transaction speed and costs, users of Islamic fintech operate within a dual-utility framework (material and spiritual benefits).

Practical Implications for the Islamic Banking Industry:

1. Transparency of Contracts in the Application Interface (UI/UX):

Developers of Islamic fintech applications are advised to present contract information transparently yet simply on the transaction screen. Including a brief explanation of the contract terms used and confirmation of oversight by the Sharia Supervisory Board (DPS) can instantly boost user trust.

2. Enhanced Digital Security:

Given the importance of trust, Sharia banks must continue to strengthen their cybersecurity infrastructure and personal data protection to prevent data breaches that could damage the institution's reputation.

3. Integrated Education and Financial Literacy:

Sharia banks should not only sell digital products but also incorporate interactive educational features (such as contract

simulations or short articles) into their apps to continuously improve users' Sharia financial literacy.

Conclusion

This study successfully identified the key factors that drive customers to use fintech services in Islamic banking. Based on a survey of 420 active customers, it can be concluded that the convenience and ease of technology alone are not sufficient to ensure the successful adoption of Islamic fintech. The most crucial determining factors are Sharia Compliance and customers' Initial Trust.

Sharia compliance is not merely an add-on but the primary foundation. When customers are confident that a digital application is free from usury and managed in accordance with Islamic principles, their trust in the bank increases dramatically. It is this trust that serves as the primary bridge driving customers to actively conduct digital transactions. Furthermore, customers' strong financial literacy has been shown to further strengthen this trust.

This study focused on Sharia banking customers in urban areas. Future research is recommended to expand the geographical scope to include rural areas or to compare adoption behaviors across countries. Furthermore, future research could also explore customer acceptance of newer technologies, such as the use of artificial intelligence (AI) and blockchain within the Sharia financial ecosystem.

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