



Trust and behavioral intention toward blockchain-based *mudharabah* smart contracts in Islamic banking

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Abstract

Purpose – This study examines how perceived usefulness, perceived ease of use, and Sharia compliance shape trust in blockchain-based *mudharabah* smart contracts and how trust drives the behavioral intention to adopt them.

Methodology – An online survey of 300 purposively selected Islamic bank customers in Indonesia, screened for familiarity with digital financial services and blockchain, was analyzed using partial least squares structural equation modelling (PLS-SEM), drawing on the technology acceptance model and the Sharia compliance perspective.

Findings – Perceived usefulness ($\beta = 0.707$) and Sharia compliance ($\beta = 0.234$) significantly increased trust, whereas perceived ease of use did not ($\beta = 0.041$; $p = 0.069$). Trust strongly predicted behavioral intention ($\beta = 0.889$) and mediated the effects of perceived usefulness ($\beta = 0.629$) and Sharia compliance ($\beta = 0.208$), but not perceived ease of use. The model explains 91.9% of the variance in trust and 79.1% in the behavioral intention.

Implications – Adoption depends more on demonstrable functional benefits and visible Sharia governance than on interface simplicity; therefore, Islamic banks and fintech developers should prioritize transparency and auditable Sharia assurance mechanisms in smart contract design.

Originality – Prior Islamic fintech research has treated technology acceptance and Sharia compliance as separate explanations for adoption. This study jointly models them as antecedents of trust in a decentralized contract setting, where automation removes the human intermediary that conventionally guarantees Sharia conformity — a configuration not previously tested on Islamic banking customers.

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Introduction

The rapid advancement of financial technology has significantly reshaped the Islamic banking landscape, creating new opportunities to enhance transparency, efficiency, and accountability within Sharia-compliant financial systems. Among recent innovations, blockchain technology and smart contracts have gained increasing attention because of their ability to automate financial

agreements and reduce the operational inefficiencies associated with traditional processes (Elamin, 2023). These technologies enable transactions to be executed through predefined digital protocols, minimizing human intervention and reducing the risk of errors and disputes. In Islamic finance, where contractual clarity, fairness, and trust are fundamental principles, the adoption of blockchain-based smart contracts offers a promising approach to strengthening the implementation of profit-sharing arrangements such as *mudharabah*. Smart contracts allow contractual terms to be executed automatically once the agreed conditions are fulfilled, while simultaneously maintaining transparent and immutable transaction records. These features can help overcome longstanding structural challenges related to monitoring, verification, and trust among contracting parties. By improving accountability and information transparency, blockchain technology has the potential to reinforce confidence in Islamic financial arrangements and support the modernization of Sharia-compliant banking practices in an increasingly digital financial environment (Uula, 2025). Comparable evidence from Islamic capital markets shows that distributed ledger technology and asset tokenization can restructure Sharia-compliant instruments by embedding contractual conditions directly into executable code (Delle Foglie et al., 2021).

This question is particularly consequential for Indonesia, the largest Muslim-majority economy and one of the fastest-growing Islamic banking markets globally. Despite holding a very large Islamic retail base, Indonesian Islamic banks continue to rely heavily on debt-like *murabahah* financing, while genuine profit-sharing *mudharabah* financing remains marginal—largely because information asymmetry, weak monitoring, and doubts over reported profits make banks reluctant to extend trust-based capital. Blockchain-based *mudharabah* smart contracts directly target these structural frictions by automating profit distribution and recording all transactions on a tamper-resistant ledger. For the Indonesian Islamic banking industry, the technology is therefore not merely an efficiency tool but a potential instrument for rebalancing the financing portfolio toward the risk-sharing ideals of *maqashid al-Sharia*, making customer trust in and intention to adopt such contracts a question of direct strategic relevance to the national Islamic finance agenda (Karyani et al., 2024). This reluctance is empirically grounded: cross-country evidence indicates that profit-loss-sharing schemes carry credit-risk profiles distinct from debt-based financing, which helps explain why banks restrict their exposure to *mudharabah* (Warninda et al., 2019).

In Islamic banking, *mudharabah* contracts are structured to support partnership-based financing, in which capital providers (*rabb al-mal*) and entrepreneurs (*mudharib*) share profits according to a mutually agreed ratio. This model reflects the core principles of risk sharing and fairness embedded in Islamic jurisprudence. However, despite its strong theoretical foundation, the practical implementation of *mudharabah* encounters several challenges. Issues such as information asymmetry, limited transparency, monitoring difficulties, and concerns over the accuracy of reported profits often arise during contract execution (Miah et al. 2023). These operational constraints may reduce investors' confidence and discourage the broader utilization of profit-sharing financing instruments within Islamic banking systems (Yustiardi et al., 2020). In response to these limitations, blockchain-based smart contracts have emerged as promising technological solutions. By enabling the automated execution of contractual terms and secure, tamper-resistant transaction records, blockchain technology can enhance transparency and accountability between contracting parties. The decentralized and immutable nature of blockchain systems helps minimize disputes and monitoring costs, thereby strengthening the trust among participants. Consequently, integrating smart contracts into *mudharabah* arrangements offers significant potential to improve the efficiency, credibility, and adoption of profit-sharing financing in contemporary Islamic finance.

The adoption of emerging financial technologies depends not only on their technical sophistication but also on how users perceive and accept these systems in practice. The Technology Acceptance Model explains that individuals' intention to adopt new technologies is strongly influenced by perceived usefulness and perceived ease of use, as these factors shape users' evaluations of efficiency, convenience, and overall value (Martin 2022). When users believe that a technology improves performance and is easy to operate, the likelihood of adoption increases significantly. However, in the context of Islamic financial innovation, technological perceptions

alone are insufficient. Users must also be confident that the system operates according to Sharia principles. Sharia compliance constitutes a fundamental dimension of Islamic banking because Muslim customers often assess financial products not only through functional benefits but also through their alignment with religious values and ethical norms (Naysary et al. 2020). Therefore, compliance serves as both spiritual assurance and a credibility signal that strengthens users' confidence. Consequently, trust becomes a central mechanism connecting technological perceptions and religious assurance, ultimately shaping users' willingness to adopt innovative digital financial systems in Islamic banking environments.

Existing studies on Islamic fintech adoption have primarily emphasized technological determinants, particularly perceived usefulness, perceived ease of use, and users' general attitudes toward financial technology (Firmansyah Harsanto, 2022; Hassan et al., 2023). These studies provide valuable insights into how individuals evaluate and accept emerging digital financial services from functional and usability perspectives. In parallel, another stream of research highlights the critical role of Sharia compliance in fostering customer trust and encouraging the acceptance of Islamic financial products (Kaakeh et al., 2019). Compliance with Islamic principles is often viewed as a regulatory requirement and moral assurance that strengthens users' confidence in financial transactions. Despite these contributions, prior research has tended to examine technological acceptance and Sharia compliance independently, leaving a limited empirical understanding of how both dimensions interact simultaneously. This separation creates an important research gap, particularly in the context of blockchain-based financial contracts, where technological innovation and religious compliance are inherently interrelated. As Islamic banking institutions increasingly explore blockchain integration to enhance transparency, efficiency, and contract automation, understanding the combined influence of technological perceptions and Sharia alignment is essential. Addressing this gap can offer a more holistic explanation of how trust is formed and how behavioral intention to adopt blockchain-enabled Islamic financial solutions develops in practice. The explicit novelty of this study lies in three points: (i) it jointly models TAM constructs and Sharia compliance as simultaneous antecedents of trust rather than treating them in isolation; (ii) it does so in the specific setting of blockchain-based *mudharabah* smart contracts, where automation removes the human intermediary that conventionally certifies Sharia conformity; and (iii) it provides empirical evidence from Indonesia, the world's largest Islamic retail market, where such evidence remains scarce.

To address this gap, this study examines the determinants of trust and behavioral intention in adopting blockchain-based smart contracts for *mudharabah* in Islamic banking. This study focuses on how perceived usefulness, perceived ease of use, and Sharia compliance shape users' trust in blockchain-enabled *mudharabah* contracts and how this trust subsequently influences their behavioral intention to adopt the system. By integrating technology acceptance factors with Sharia compliance perspectives, this study offers a more holistic framework for understanding adoption behavior in Islamic fintech. It recognizes that users evaluate financial innovations not only based on technological efficiency and convenience but also on their alignment with Islamic principles. Consequently, this study bridges the gap between technological and religious considerations that jointly influence trust formation. The findings are expected to enrich the growing body of Islamic fintech literature while providing practical implications for Islamic banks and fintech developers in designing digital financial solutions that are both trustworthy and compliant with Sharia values, thereby supporting sustainable innovation in Islamic financial services.

Literature Review and Hypotheses Development

Perceived usefulness and trust

Perceived usefulness refers to the degree to which individuals believe that using a particular technology can enhance their performance or provide meaningful benefits in accomplishing tasks. Within the context of financial technology, perceived usefulness reflects users' perceptions that digital financial systems improve the efficiency, transparency, and reliability of financial transactions. The concept originates from the Technology Acceptance Model (TAM), which posits that users are more likely to accept and trust technologies that offer tangible advantages over traditional systems (Khatri

et al., 2020). In the context of Islamic financial innovation, blockchain technology provides several potential benefits, including improved transparency, automation of contractual agreements, and reduced reliance on intermediaries to name a few. These features may significantly enhance the perceived usefulness of blockchain-based financial systems, particularly in profit-and-loss-sharing contracts such as *mudharabah*. Scholars argue that blockchain-based systems can increase operational efficiency and reduce information asymmetry between contracting parties, thereby strengthening users' confidence in the technology (Thong 2025). Trust plays a crucial role in determining the success of financial technologies, especially those involving automated contracts and decentralized systems. When users perceive that a technology offers significant functional benefits, they are more likely to develop trust in the system. Previous studies have indicated that perceived usefulness positively influences users' trust in digital financial platforms because beneficial technologies are often perceived as reliable and capable of improving financial decision-making processes. In the case of blockchain-based *mudharabah* smart contracts, users who perceive the system as useful for improving transparency and efficiency are more likely to trust the technology (Ula 2025). Empirical evidence from financial technology adoption studies consistently demonstrates that perceived usefulness significantly contributes to the development of user trust in digital financial systems. As users recognize the practical advantages of a system, their confidence in its reliability and effectiveness tends to increase (Amnas et al. 2023). Based on this reasoning, the following hypothesis is proposed: Consistent with this reasoning, blockchain applications in Islamic finance have been argued to promote trust and transparency precisely by increasing the accountability of parties involved in delivering Sharia-compliant products and services (Chong, 2021).

H₁: Perceived usefulness positively influences trust in blockchain-based *mudharabah* smart contracts.

Perceived ease of use and trust

Perceived ease of use refers to the degree to which individuals believe that a technology can be used without significant effort or difficulty. According to the technology acceptance model, systems that are easier to use are more likely to be accepted by users because they reduce the cognitive and operational barriers associated with technology adoption. In financial technology environments, ease of use is particularly important because complex systems may discourage users from engaging with digital financial platforms (Chinnasamy et al., 2024). In the context of blockchain-based financial services, perceived complexity is often a barrier to adoption. Blockchain technology is frequently associated with technical sophistication, which may create uncertainty among users unfamiliar with the system. Therefore, ensuring that blockchain applications are user-friendly and accessible is essential for encouraging trust and adoption among potential users (Jang et al., 2020). Previous studies on financial technology adoption have demonstrated that ease of use significantly influences users' trust in digital financial systems. When users perceive a system to be simple, intuitive, and easy to operate, they tend to feel more confident in using the technology. This sense of confidence contributes to the development of trust, which subsequently influences the intention to adopt a system (Emini et al., 2025). In the case of blockchain-based *mudharabah* smart contracts, the perception that the technology is easy to understand and operate may reduce users' perceived risks and uncertainties (Ali et al., 2021). As a result, users may become more comfortable interacting with the system and develop stronger trust in its functionality. Therefore, systems that prioritize user-friendly designs and intuitive interfaces may significantly enhance trust among potential users (Candra et al., 2020). Based on this reasoning, the following hypothesis is proposed.

H₂: Perceived ease of use positively influences trust in blockchain-based *mudharabah* smart contracts.

Sharia compliance and trust

Sharia compliance is one of the most fundamental principles of Islamic financial systems. Islamic banking customers often evaluate financial products not only based on their economic benefits but also on their conformity with Islamic legal and ethical principles. Therefore, ensuring that financial innovations adhere to Sharia principles is essential for gaining acceptance and trust among Muslim customers (Sadek et al., 2025). In Islamic finance, Sharia compliance ensures that financial transactions avoid prohibited elements, such as *riba* (interest), *gharar* (excessive uncertainty), and

maysir (gambling). Institutions that demonstrate a strong commitment to Sharia principles are generally perceived as more credible and trustworthy by Muslim customers. Consequently, the perception that financial technologies operate within the framework of Islamic law may significantly influence users' trust in the system. The integration of blockchain technology into Islamic financial contracts offers an opportunity to enhance transparency and accountability in these transactions. Blockchain-based systems provide immutable and verifiable records that allow stakeholders to monitor financial activities in real time. These features may strengthen users' perceptions that financial contracts are implemented fairly and in accordance with Sharia principles (ALRashdan et al., 2025). Previous research suggests that perceptions of Sharia compliance significantly influence trust in Islamic financial services. When users believe that financial technologies adhere to Islamic principles, their confidence in the system increases (Unal Aysan, 2022). In the case of blockchain-based *mudharabah* smart contracts, transparent mechanisms embedded in blockchain technology may reinforce users' perception that the contract operates in accordance with Islamic jurisprudence. Based on this reasoning, the following hypothesis is proposed: The extent to which Sharia principles can be computationally encoded nevertheless remains a recognized challenge for Islamic financial technology, which makes the perceived compliance of automated contracts an empirical rather than a settled question (Chong, 2021).

H₃: Sharia compliance positively influences trust in blockchain-based *mudharabah* smart contracts.

Trust and behavioral intention

Trust is widely recognized as a critical factor influencing the adoption of financial technologies. In digital financial environments, users must rely on technological systems to execute financial transactions accurately and securely. Without sufficient trust, users may hesitate to adopt new financial technologies because of concerns about security, privacy, and reliability (Mardoyan & Sargsyan, 2025). In the context of Islamic FinTech, trust encompasses both technological and ethical dimensions. Users evaluate the reliability and security of digital platforms and consider whether the system aligns with Islamic ethical principles. Therefore, trust is a central determinant of users' willingness to adopt blockchain-based financial contracts in Islamic banking (Alsadi, 2025). Previous studies have consistently demonstrated that trust plays a significant role in shaping behavioral intentions toward the adoption of financial technology. When users trust a financial system, they are more likely to develop positive attitudes toward the technology and express their willingness to use it in the future. Trust reduces the perceived risks associated with digital transactions and strengthens users' confidence in the reliability of the system (Gharaibeh, 2024). In the case of blockchain-based *mudharabah* smart contracts, trust may arise from multiple factors, including technological transparency, system reliability and compliance with Islamic financial principles. Users are more likely to develop a strong intention to adopt a technology if they believe it is secure, transparent, and Sharia-compliant (Irimia-Diéguez et al., 2024). Based on the literature discussed above, the following hypothesis is proposed:

H₄: Trust positively influences the behavioral intention to use blockchain-based *mudharabah* smart contracts.

Beyond its direct influence on behavioral intention, trust may also serve as an important mediating variable that connects technological perceptions and users' adoption intentions. In technology adoption studies, trust often acts as a psychological mechanism through which users translate their perceptions of technology into their behavioral intentions. When users perceive a system as useful, easy to use, and compliant with ethical or religious principles, these perceptions first strengthen trust in the system, which subsequently increases the likelihood of adoption (Yan & Yang, 2015). In the context of blockchain-based *mudharabah* smart contracts, users who perceive the system as beneficial and easy to operate may develop trust in the technology, which encourages them to adopt the system. Similarly, when users believe that the financial system adheres to Sharia principles, this perception strengthens their trust, which ultimately increases their intention to use the technology (Karyani et al., 2024). Therefore, trust may function as a mediating variable that links perceived usefulness, perceived ease of use, and Sharia compliance with the behavioral intention to adopt

blockchain-based *mudharabah* smart contracts. Based on this reasoning, the following hypotheses are proposed.

- H₅: Trust mediates the relationship between perceived usefulness and the behavioral intention to use blockchain-based *mudharabah* smart contracts.
- H₆: Trust mediates the relationship between the perceived ease of use and the behavioral intention to use blockchain-based *mudharabah* smart contracts.
- H₇: Trust mediates the relationship between Sharia compliance and the behavioral intention to use blockchain-based *mudharabah* smart contracts.

In this study, a conceptual model was developed to examine the relationships between perceived usefulness, perceived ease of use, Sharia compliance, trust, and behavioral intention toward adopting blockchain-based *mudharabah* smart contracts in Islamic financial services. Grounded in the Technology Acceptance Model and the perspective of Sharia compliance in Islamic finance, the model proposes that perceived usefulness, perceived ease of use, and Sharia compliance directly influence users' trust in the system (H₁–H₃), while trust subsequently affects behavioral intention to use the technology (H₄). In addition, trust is expected to mediate the relationships between perceived usefulness, perceived ease of use, Sharia compliance, and behavioral intention (H₅–H₇). The conceptual framework in Figure 1 illustrates the proposed relationships between these constructs.

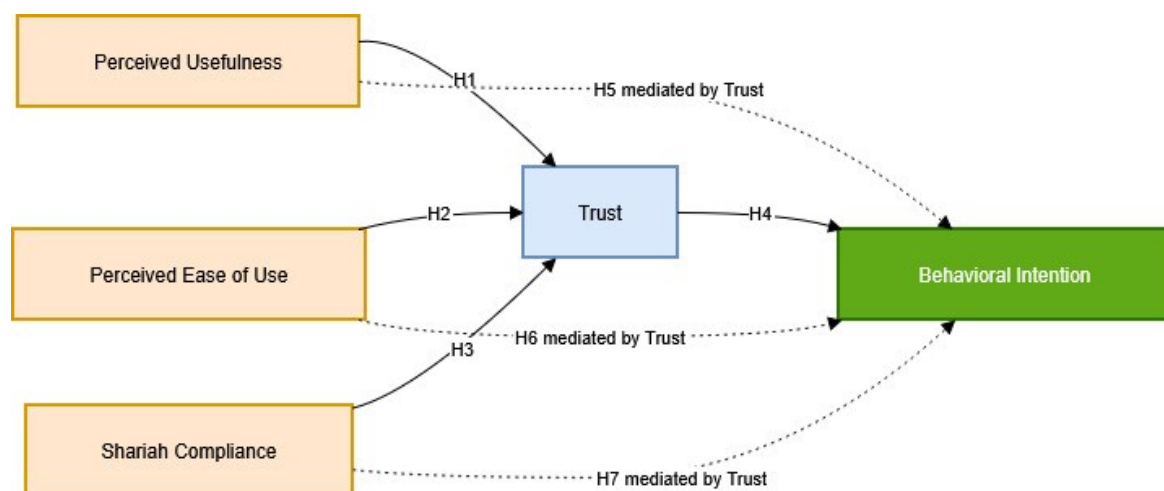


Figure 1. Conceptual framework.

Source: Authors' own elaboration.

Research Methodology

A quantitative approach with an explanatory research design was employed in this study to examine the causal relationships between perceived usefulness, perceived ease of use, Sharia compliance, trust, and behavioral intention toward adopting blockchain-based *mudharabah* smart contracts. Trust was positioned as a mediating variable linking technological perceptions and Sharia compliance with users' behavioral intentions. Structural Equation Modeling based on Partial Least Squares (SEM-PLS) was used as the most appropriate analytical method for testing models involving latent constructs, multiple indicators, and mediation relationships, grounded in the Technology Acceptance Model and the perspective of Sharia compliance in Islamic finance (Creswell, 2014). Customers of Islamic Commercial Banks (Bank Umum Syariah, BUS) in Indonesia, as documented by the Financial Services Authority (Otoritas Jasa Keuangan, OJK) in October 2025, constituted the population of this study, which included 14 Islamic banks. A total of 300 respondents were included in the analysis (Krejcie & Morgan, 1970). The sampling technique applied was purposive sampling, targeting Islamic banking customers and individuals familiar with digital financial services to ensure that the respondents possessed sufficient knowledge to evaluate the research constructs (Krejcie & Morgan, 1970). Data were collected

through an online questionnaire using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement items were adapted from prior studies on technology acceptance and Islamic financing. The data were analyzed using SmartPLS through a two-stage procedure, including evaluation of the measurement model (outer model) to assess reliability and validity, followed by evaluation of the structural model (inner model) to test the proposed hypotheses using bootstrapping at the 5% significance level (Hair et al., 2022). The analytical procedure follows the current methodological guidance on PLS-SEM estimation, bootstrapping, and significance testing, which recommends percentile bootstrap confidence intervals and the joint reporting of path coefficients, effect sizes, and predictive relevance (Becker et al., 2023).

To clarify the population and avoid combining two separate groups, the population is defined as a single qualified group: individual customers of the 14 Islamic Commercial Banks (Bank Umum Syariah) in Indonesia who are also users of digital financial services. “Familiarity with digital financial services” was therefore not a second population but an eligibility attribute applied within the customer base, ensuring that every respondent could meaningfully evaluate a digital, blockchain-based contract. Purposive sampling was chosen, rather than probability sampling, because the constructs require respondents with the specific knowledge to assess a technology that is not yet mainstream; a random sample of the general banking public would have included many respondents unable to evaluate blockchain-based contracts, introducing uninformed responses. The sample of 300 exceeds both Krejcie and Morgan (1970) reference and the conventional PLS-SEM minimum of ten times the largest number of structural paths directed at any construct (Hair et al., 2022). Because response validity depends on respondents understanding of the object being evaluated, the questionnaire began with a screening block that verified familiarity with blockchain. Respondents first confirmed that they were active BUS customers and digital banking users. They then completed two self-reported familiarity items and a short knowledge check describing, in plain language, what a smart contract does. Respondents who failed the knowledge check or selected “not familiar” on both familiarity items were excluded prior to analysis, and a concise, non-technical scenario describing a blockchain-based *mudharabah* contract was presented before the main items so that all retained respondents evaluated a common, clearly specified stimulus. This procedure verified baseline familiarity but did not establish actual use, a limitation acknowledged in the Discussion and Conclusion sections.

The instrument comprised 36 items measuring five constructs, adapted from established prior studies. The number of items was fixed at 36 throughout the study and was the figure used in all subsequent validity, reliability, and measurement analyses. Table 1 summarizes the constructs, item counts, and source.

Table 1. Construct measurement and item sources.

Construct	Items	Indicators	Adapted from
Perceived usefulness	8	PU1–PU8	Khatri et al. (2020); Amnas et al. (2023)
Perceived ease of use	6	PEU1–PEU6	Chinnasamy et al. (2024); Candra et al. (2020)
Sharia compliance	8	SC1–SC8	Unal & Aysan (2022); Sadek et al. (2025)
Trust	8	Trust1–Trust8	Amnas et al. (2023); Gharaibeh (2024)
Behavioral intention	6	BI1–BI6	Irimia-Diéguez et al. (2024); Karyani et al. (2024)
Total	36		

Source: Authors' own elaboration based on prior studies cited in the table.

Results

This study was conducted from July 2025 to February 2026, covering the stages of questionnaire distribution, completion, and verification of the data. The respondents consisted of Islamic banking customers and individuals familiar with digital financial services in Indonesia, selected to ensure their ability to evaluate perceptions related to technological usefulness, ease of use, Sharia compliance, and trust in FinTech. Data were collected using an online survey distributed through Google Forms, allowing respondents from multiple cities in Indonesia to participate. The questionnaire was designed to measure constructs related to perceived usefulness, perceived ease

of use, Sharia compliance, trust, and behavioral intention toward adopting of blockchain-based *mudharabah* smart contracts in Islamic banking. After screening for completeness and consistency, 300 valid responses were obtained and used for further analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM), as illustrated in [Table 2](#).

Table 2. Characteristics of respondents

	Characteristics	Frequency	Percentage
Current city/District of residence	Aceh	25	8%
	Medan	15	5%
	Pekanbaru	12	4%
	Bengkulu	9	3%
	Jambi	18	6%
	Palembang	9	3%
	Jakarta	36	12%
	Depok	12	4%
	Banten	21	7%
	Bandung	24	8%
	Yogyakarta	15	5%
	Surabaya	15	5%
	Lombok	14	5%
	Banjarmasin	12	4%
	Makassar	18	6%
	Pontianak	9	3%
	Surakarta	12	4%
	Semarang	6	2%
	Malang	6	2%
	Kendari	6	2%
Gender	Male	156	52%
	Female	144	48%
Age	17–25 years old	48	16%
	26–35 years old	66	22%
	36–45 years old	102	34%
	Over 45 years old	84	28%
Education level	Doctorate (S3)	51	17%
	Master's Degree (S2)	93	31%
	Bachelor's Degree (S1)	114	38%
	High School Equivalent	42	14%
Occupation	Civil Servant	168	56%
	Entrepreneur	72	24%
	Professional	39	13%
	Student	21	7%
Monthly income	< IDR 2,000,000	18	6%
	IDR 2,000,000 – IDR 5,000,000	21	7%
	IDR 5,000,000 – IDR 10,000,000	72	24%
	> IDR 10,000,000	189	63%
Islamic Bank currently used	Bank Aceh Syariah	18	6%
	BPD Riau Kepri Syariah	18	6%
	BPD NTB Syariah	18	6%
	Bank Muamalat Indonesia	21	7%
	Bank Victoria Syariah	18	6%
	Bank Jabar Banten Syariah	18	6%
	Bank Syariah Indonesia (BSI)	57	19%
	Bank Mega Syariah	24	8%
	Bank Panin Dubai Syariah	18	6%
	Bank Syariah Bukopin	18	6%
	BCA Syariah	18	6%

	BTPN Syariah	18	6%
	Bank Aladin Syariah	18	6%
	Bank Nano Syariah	18	6%
	5–12 Months	24	8%
Duration as Islamic bank customer	1–2 Years	51	17%
	2–4 Years	42	14%
	Over 5 Years	183	61%
Islamic Bank services used	Savings (Savings, Checking, Deposit)	186	62%
	Financing / Credit	114	38%
	Less than 1 Year	30	10%
Experience using digital banking	1–3 Years	102	34%
	3–5 Years	90	30%
	Over 5 Years	78	26%
Familiarity with blockchain technology	Very Familiar	54	18%
	Moderately Familiar	126	42%
	Slightly Familiar	84	28%
Awareness of blockchain in Islamic finance	Not Familiar	36	12%
	High Awareness	72	24%
	Moderate Awareness	144	48%
Frequency of digital Banking transactions per Month	Low Awareness	84	28%
	5–10 Times	6	2%
	10–20 Times	135	45%
	Over 20 Times	159	53%

Source: Processed primary data (2026).

The demographic profiles of the respondents provide an important foundation for understanding the factors that shape trust and behavioral intention toward blockchain-based *mudharabah* smart contracts in Islamic banking. The respondents were drawn from various cities across Indonesia, with the largest proportion residing in Jakarta (12%), followed by Aceh and Bandung (8% each), Banten (7%), and several other cities that contributed smaller proportions. This geographical diversity indicates that the perceptions examined in this study reflect a wide range of experiences with Islamic banking services and digital financial technology across different regions.

The gender distribution of the respondents showed a relatively balanced composition, consisting of 156 males (52%) and 144 females (48%). This distribution suggests that both male and female customers actively engage with Islamic banking services and digital financial platforms. In the context of FinTech adoption, previous studies suggest that men and women may evaluate technological systems differently; some users emphasize functional efficiency and performance, while others focus more on reliability and trustworthiness. In the context of blockchain-based smart contracts, this implies that perceptions of usefulness, ease of use, and Sharia compliance may influence trust among both groups, although potentially through different evaluative perspectives (Sholevar & Bachmann, 2025).

The age structure of the respondents further highlights the relevance of trust in technology adoption for the elderly. The largest proportion of respondents fell within the 36–45 years age group (34%), followed by those above 45 years old (28%), 26–35 years old (22%), 17 and 25 years old (16 %). The dominance of middle-aged respondents suggests that many participants possess relatively stable financial responsibilities and have considerable experience with banking services (Islam et al., 2024). Such individuals are more likely to carefully evaluate emerging financial technologies, particularly with regard to reliability, transparency, and Sharia compliance. Consequently, trust is a critical mechanism through which technological perceptions translate into behavioral intentions to adopt blockchain-based *mudharabah* smart contracts (Karyani et al., 2024).

The respondents' educational profile indicates a relatively high level of academic attainment. The majority hold bachelor's degrees (38%), followed by master's degrees (31%) and doctoral degrees (17%), while 14% possess high school-level education. Higher educational attainment generally increases individuals' ability to understand new technologies and to assess their potential benefits and risks. In the context of Islamic fintech, well-educated users may be

more capable of evaluating how blockchain technology enhances transparency, contract automation and compliance with Islamic financial principles. Consequently, perceptions of usefulness and ease of use may play a stronger role in shaping trust among respondents with higher educational backgrounds (Ashurov & Othman, 2019).

Occupational and income characteristics also provide insights into respondents' financial engagement and technological adoption. The largest group of respondents consisted of civil servants (56%), followed by entrepreneurs (24%), professionals (13%), and students (7%). Civil servants are often financially stable individuals who regularly interact with formal financial institutions, making them relevant participants in banking technology adoption studies. Income distribution further reinforces this observation, as 63% of respondents reported earning more than IDR 10,000,000 per month, while 24% earned between IDR 5,000,000 and IDR 10,000,000. Higher income levels may increase individuals' engagement with digital financial services, which, in turn, enhances their exposure to financial innovations such as blockchain-based contracts (Adegbite, 2024).

The banking profiles of the respondents also reflect their diverse engagement with Islamic financial institutions. Although respondents reported using multiple Islamic banks, the largest proportion of respondents were customers of Bank Syariah Indonesia (19%), followed by several other Islamic banks, each representing approximately 6–8% of the sample. This distribution indicates that the respondents represent customers from various Islamic banking institutions, allowing the study to capture broader perceptions of technological innovation across the Islamic banking sector rather than focusing on a single institution (Oladapo et al., 2022).

The length of respondents' relationships with Islamic banks further illustrates their experience with this financial system. A substantial majority of participants (61%) had been customers for more than five years, while 17% had used Islamic banking services for one to two years and 14% for two to four years. Only 8% of the respondents had relatively recent experience of less than one year. Long-term relationships with Islamic banks suggest that many respondents are sufficiently familiar with banking operations and service quality, which may influence their evaluation of new technological solutions, such as blockchain-based smart contracts (Kanwal et al., 2023).

In terms of banking activities, most respondents primarily used savings-related services such as savings accounts, checking accounts, and deposits (62%), while 38% utilized financing or credit services. This pattern reflects the typical usage behavior of Islamic banking customers, in which deposit-based products remain the most commonly used services. Nevertheless, the presence of financing users indicates that respondents are also familiar with contractual financial arrangements, making them capable of evaluating innovations related to profit-sharing contracts, such as *mudharabah* (Yafiz et al., 2019).

The respondents also demonstrated substantial experience with digital financial services. Regarding digital banking usage, 34% had used digital banking services for one to three years, 30% for three to five years, and 26% for more than five years, while only 10% had less than one year of experience. This indicates that most participants possessed moderate to extensive experience with digital banking platforms, which is particularly relevant when assessing perceptions related to the ease of use and usefulness of blockchain-based financial systems (Latifa & Zakaria, 2020).

Exposure to blockchain technology also appeared to be moderate among the respondents. Approximately 18% reported being very familiar with blockchain technology, 42% indicated moderate familiarity, 28% reported slight familiarity, and 12% stated that they were not familiar with the technology. In addition, awareness of blockchain in Islamic finance shows a similar pattern, with 48% reporting moderate awareness, 24% high awareness, and 28% low awareness. These findings suggest that while blockchain technology is still relatively new to many users, a significant proportion of respondents already possess a basic understanding of its potential applications in financial services (Izzatillayev et al., 2024).

Finally, the respondents demonstrated high levels of digital banking activity. More than half of the participants (53%) conducted over 20 digital banking transactions per month, while 45% performed between 10 and 20 transactions, and only 2% conducted fewer than 10 transactions monthly. Such frequent interactions with digital banking services indicate that the respondents are

active users of financial technology, making them appropriate participants for evaluating the potential adoption of blockchain-based *mudharabah* smart contracts.

Overall, the demographic and behavioral characteristics of the respondents suggest that the sample consisted of financially active, technologically experienced, and relatively well-educated Islamic banking customers. These attributes provide a suitable context for examining how perceptions of usefulness, ease of use, and Sharia compliance contribute to the development of trust, which ultimately influences users' behavioral intentions to adopt blockchain-based *mudharabah* smart contracts in Islamic banking.

Prior to conducting model testing using structural equation modeling (SEM), validity and reliability assessments were first carried out on 36 questionnaire items representing the five main constructs: perceived usefulness, perceived ease of use, Sharia compliance, trust, and behavioral intention to use blockchain-based *mudharabah* smart contracts in Islamic banking. Content validity was evaluated by seven experts using a Likert scale and analyzed through Aiken's V method, which showed that all items scored above the threshold of 0.75 ($p < 0.05$), indicating a high level of alignment with theoretical indicators. Additionally, the inter-rater reliability reached a coefficient of 0.879, reflecting strong consistency among expert judgments and affirming that the instrument is suitable for data collection and subsequent SEM analysis (Kadir & Sappaile, 2019). The detailed item-level results are provided in Appendix A (Table A1).

Based on the Table A1, the evaluation results from seven experts regarding the 36 instrument items indicate that all items achieved an Aiken's V coefficient above the threshold of 0.75, reflecting a high level of agreement among validators on the relevance and appropriateness of the items in relation to the theoretical indicators. Furthermore, all p-values were below 0.05, indicating that the content validity of each item was statistically significant and thus reliable as a measurement tool within the context of this study.

Subsequently, inter-rater reliability was calculated using the following formula:

$$r = \frac{MS_{Rows} - MS_{Error}}{MS_{Rows}}$$

Based on the ANOVA in Table 3, two-factor without replication analysis, the following summary results were obtained:

Table 3. ANOVA

Source of Variation	SS	df	MS	F
Rows	30.833	35	0.881	8.284
Columns	0.389	5	0.078	0.731
Error	18.611	175	0.106	
Total	49.833	215		

Source: Processed primary data

Based on the ANOVA calculation results for the data above, the following findings were obtained.

$$r = \frac{0.880952 - 0.106349}{0.880952} = 0.879$$

An inter-rater reliability coefficient of 0.879, or 87.9%, indicates a high level of consistency among the expert evaluations, categorizing the assessment as being good. This result demonstrates that the experts showed strong agreement in assessing the relevance and appropriateness of the 36 items developed in this study. Therefore, the instrument is considered highly reliable and suitable for use in measurement, assessment, and empirical research aimed at examining perceived usefulness, perceived ease of use, Sharia compliance, trust, and behavioral intention to use blockchain-based *mudharabah* smart contracts in Islamic banking. Consequently, the validated instrument provides a robust basis for subsequent data collection and analysis using partial least squares structural equation modeling (PLS-SEM) to investigate the determinants of trust and behavioral intention in adopting blockchain-based *mudharabah* smart contracts in Islamic banking.

Outer model evaluation

Convergent validity testing determines how well the indicators used in the measurement correlate with the other indicators of the same construct. The correlation between the indicator and construct scores indicated convergent validity. Based on [Table 4](#), all indicators have a loading factor value of > 0.7 ; thus, they can be considered valid because they have met the predetermined requirements ([Hair et al., 2021](#)).

Table 4. Measurement model assessment (item loadings, VIF, AVE, composite reliability, and Cronbach's alpha)

Construct	Item	Loading	VIF	AVE	CR (rho_a)	CA
Perceived usefulness	PU1	0.789	2.134	0.650	0.924	0.923
	PU2	0.812	2.320			
	PU3	0.809	2.320			
	PU4	0.806	2.331			
	PU5	0.809	2.238			
	PU6	0.796	2.190			
	PU7	0.818	2.348			
	PU8	0.811	2.220			
Perceived ease of use	PEU1	0.738	1.831	0.561	0.862	0.847
	PEU2	0.730	1.934			
	PEU3	0.721	1.840			
	PEU4	0.767	1.978			
	PEU5	0.782	1.862			
	PEU6	0.753	1.782			
Sharia compliance	SC1	0.814	2.295	0.652	0.924	0.924
	SC2	0.801	2.234			
	SC3	0.815	2.329			
	SC4	0.828	2.468			
	SC5	0.762	1.913			
	SC6	0.814	3.126			
	SC7	0.836	3.409			
	SC8	0.787	2.062			
Trust	Trust1	0.794	2.252	0.646	0.922	0.922
	Trust2	0.807	2.270			
	Trust3	0.779	2.118			
	Trust4	0.808	2.276			
	Trust5	0.803	2.282			
	Trust6	0.794	2.212			
	Trust7	0.821	2.365			
	Trust8	0.821	2.374			
Behavioral intention	BI1	0.798	2.086	0.658	0.897	0.896
	BI2	0.843	2.429			
	BI3	0.772	1.848			
	BI4	0.816	2.141			
	BI5	0.822	2.217			
	BI6	0.813	2.183			

Note. AVE= average variance extracted; CR= composite reliability; CA= Cronbach's alpha

Source: Processed primary data using SmartPLS 4 (2026).

The measurement model was assessed by examining its convergent validity and internal consistency reliability. As presented in [Table 4](#), all latent variables in this study exhibited average variance extracted (AVE) values exceeding the recommended threshold of 0.50, indicating adequate convergent validity. An AVE value greater than 0.50 suggests that the constructs explain more than half of the variance of their indicators, confirming that all indicators adequately represent their respective latent variables ([Hair et al., 2021](#)).

Reliability and validity testing were conducted to assess the quality of the measurement models. The results show that the composite reliability (ρ_a) values for all constructs—perceived usefulness (0.924), perceived ease of use (0.862), Sharia compliance (0.924), trust (0.922), and behavioral intention (0.897)—exceeded the recommended threshold of 0.70. Cronbach's alpha values ranged from 0.847 to 0.924, indicating satisfactory internal consistency reliability. In addition, the average variance extracted (AVE) values ranged from 0.561 to 0.658, surpassing the minimum requirement of 0.50, and confirming convergent validity. Following the criteria suggested by Hair et al., these findings demonstrate that the measurement model is both reliable and valid, and therefore, suitable for subsequent structural model analysis (Hair et al., 2021).

Discriminant validity was further assessed using the Fornell–Larcker criterion, which compares the square root of each construct's AVE (the diagonal value in Table 5) with its correlation with the other constructs. The results, reported in full below, are interpreted critically in light of the high inter-construct correlations observed among the constructs.

Table 5. Discriminant validity — Fornell–Larcker criterion.

	BI	PEU	PU	SC	Trust
Behavioral intention (BI)	0.811				
Perceived ease of use (PEU)	0.762	0.749			
Perceived usefulness (PU)	0.927	0.785	0.806		
Sharia compliance (SC)	0.904	0.797	0.912	0.807	
Trust	0.889	0.782	0.953	0.911	0.804

Source: Processed primary data using SmartPLS 4 (2026).

It must be acknowledged that the Fornell–Larcker results do not fully satisfy the discriminant validity criterion. While perceived ease of use behaves as a distinct construct, the square roots of AVE for perceived usefulness (0.806), Sharia compliance (0.807), trust (0.804), and behavioral intention (0.811) are exceeded by several of their inter-construct correlations—most notably perceived usefulness with trust (0.953), perceived usefulness with behavioral intention (0.927), Sharia compliance with perceived usefulness (0.912), trust with Sharia compliance (0.911), and Sharia compliance with behavioral intention (0.904). This indicates a high degree of empirical overlap between the four constructs.

This overlap is a genuine limitation of the present study and is reported here in full rather than being concealed. It plausibly reflects two factors: first, the constructs are conceptually adjacent—perceived usefulness, Sharia compliance, trust, and behavioral intention all capture closely related evaluative and intentional responses toward the same hypothetical system; and second, because the majority of respondents assessed a described rather than an actually used technology, their responses may have formed a single, highly consistent global attitude rather than sharply differentiated construct-level judgments. The high R^2 and f^2 values reported earlier are consistent with and partly explained by this overlap. Accordingly, the structural results—particularly the magnitudes of the path coefficients linking Perceived Usefulness, Sharia Compliance, and Trust—should be interpreted with caution, as these constructs are not cleanly separable in the current data. The Discussion and Conclusion sections return to this issue and outline how future research (for example, refining or consolidating the affected constructs and re-testing with users of operational systems) can establish clearer discriminant validity.

Inner model evaluation

The evaluation of the structural model began with an assessment of the coefficient of determination (R^2), which reflects the proportion of variance in the endogenous construct explained by exogenous variables. The R^2 value indicates the model's explanatory power in capturing the underlying phenomenon. Following this assessment, the structural relationships were examined by analyzing the path coefficients and their statistical significance using a bootstrapping procedure. Table 6 presents the structural model quality indices, including the R -square values of the endogenous constructs, their predictive relevance (Q -square), and the overall model fit

(SRMR). The R-square value for Behavioral Intention is 0.791, indicating a strong level of explanatory power according to the classification by Duryadi (2021), where R-square values of 0.67 or higher are categorized as strong, 0.33 as moderate, and 0.19 as weak (Duryadi, 2021). This result implies that 79.1% of the variance in behavioral intention can be explained by the predictor variables included in the model, while the remaining 20.9% is influenced by factors beyond the model. Similarly, the Trust variable demonstrates an R-squared value of 0.919, which also falls within the strong category. This indicates that 91.9% of the variance in trust is explained by perceived usefulness, perceived ease of use, and Sharia compliance. These findings suggest that the proposed model possesses substantial explanatory power in explaining users' trust and behavioral intentions in the context of Islamic financial technology adoption. These R-squared values are high and should be interpreted with caution. Three features of the design plausibly elevate them: (i) the constructs are conceptually proximate—trust and behavioral intention are closely related attitudinal-intentional states, so high shared variance is expected; (ii) the responses measure perceptions of a described system rather than behavior toward a system actually used, which tends to produce more internally consistent and thus more strongly correlated self-reports; and (iii) the screened, relatively homogeneous sample reduces unexplained heterogeneity. Therefore, the values are read as evidence of a strong internal structure within a perception-based model rather than as a forecast of real-world adoption rates, a caveat revisited in the Discussion.

Table 6. Structural model quality (R^2 , Q^2 , and model fit).

Endogenous construct/Index	R^2	Q^2	Result
Behavioral Intention	0.791	0.516	Strong R^2 ; predictive relevance ($Q^2 > 0$)
Trust	0.919	0.585	Strong R^2 ; predictive relevance ($Q^2 > 0$)
SRMR (saturated/estimated)	0.073 / 0.076	—	Acceptable fit (< 0.08)

Source: Processed primary data using SmartPLS 4 (2026).

The results of the effect size (f^2) analysis are presented together with the hypothesis tests in Table 7, which illustrates the relative contribution of each predictor to its corresponding endogenous construct. According to Cohen, f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively. The relationship between PU and trust showed an f^2 value of 0.007, indicating a negligible effect size. This relationship is also statistically insignificant (T-statistic = 0.657; p-value = 0.256), suggesting that the perceived ease of use does not substantially contribute to the formation of trust in this model. In contrast, the relationship between Perceived Usefulness and trust demonstrated an f^2 value of 0.982, indicating a very large effect size. This effect is statistically significant (T-statistic = 5.860; p-value = 0.000), confirming that perceived usefulness is a dominant factor influencing trust. Similarly, Sharia Compliance shows an f^2 value of 0.102 for Trust, representing a small effect size. However, the relationship remains statistically significant (T-statistic = 2.037; p-value = 0.021), indicating that Sharia compliance contributes meaningfully, although modestly, to the development of trust. Furthermore, the relationship between Trust and Behavioral Intention exhibits an f^2 value of 3.782, which represents an extremely large effect size far exceeding Cohen's threshold. This effect is highly significant (T-statistic = 6.271; p-value = 0.000), indicating that trust is the primary determinant of behavioral intention within the proposed model (Cohen, 2013). Overall, these findings suggest that perceived usefulness plays the most substantial role in shaping trust, while trust itself serves as the strongest predictor of behavioral intention in the context of Islamic financial technology adoption.

The unusually large f^2 for the trust $\rightarrow$ behavioral intention path should be read alongside the R-square caveat above: it reflects the conceptual proximity of the two constructs in a perception-based design rather than an implausibly strong real-world causal force.

The predictive relevance and overall model fit are reported together with the coefficient of determination in Table 6. The blindfolding-based Q^2 values for both endogenous constructs are above zero (Trust = 0.585; Behavioral Intention = 0.516), confirming the model's predictive relevance, and the standardized root mean square residual (SRMR) of 0.073 (saturated) and 0.076 (estimated) is below the 0.08 threshold, indicating an acceptable fit.

Hypothesis testing

Table 7 presents the results of the hypothesis testing for both the direct and indirect relationships among the constructs in the proposed model. The analysis shows that perceived usefulness has a strong and statistically significant direct effect on Trust, with a path coefficient of 0.707, T-statistic of 14.386, and p-value of 0.000, indicating that users' perceptions of usefulness substantially enhance trust in Islamic financial technology services. Similarly, Sharia compliance significantly influences Trust ($\beta = 0.234$; T-statistic = 4.320; p-value = 0.000), suggesting that adherence to Sharia principles positively contributes to the development of user trust. In contrast, the Perceived Ease of Use does not significantly affect trust ($\beta = 0.041$; T-statistic = 1.480; p-value = 0.069), indicating that ease of use alone is insufficient to build trust within the examined context. Furthermore, Trust demonstrates a very strong and significant effect on Behavioral Intention ($\beta = 0.889$; T-statistic = 61.795; p-value = 0.000), confirming that trust acts as a key determinant of users' intention to adopt Islamic financial technology.

The indirect effect analysis further reveals that Trust mediates the relationship between Perceived Usefulness and Behavioral Intention ($\beta = 0.629$; T-statistic = 14.208; p-value = 0.000), as well as between Sharia compliance and behavioral intention ($\beta = 0.208$; T-statistic = 4.274; p-value = 0.000). However, the indirect effect of perceived ease of use on behavioral intention through trust was not significant ($\beta = 0.037$; T-statistic = 1.483; p-value = 0.069). Overall, these findings indicate that trust serves as a crucial mediating mechanism through which perceived usefulness and Sharia compliance influence behavioral intention in the context of Islamic financial technology adoption.

Table 7. Hypothesis testing results and effect sizes (f^2).

	Hypothesis / Path	β	T	p	f^2	Result
Direct	H1 Perceived usefulness $\rightarrow$ Trust	0.707	14.386	0.000	0.982	Accepted
	H2 Perceived ease of use $\rightarrow$ Trust	0.041	1.480	0.069	0.007	Rejected
	H3 Sharia compliance $\rightarrow$ Trust	0.234	4.320	0.000	0.102	Accepted
	H4 Trust $\rightarrow$ Behavioral intention	0.889	61.795	0.000	3.782	Accepted
Indirect	H5 Perceived usefulness $\rightarrow$ Trust $\rightarrow$ Behavioral intention	0.629	14.208	0.000	—	Accepted
	H6 Perceived ease of use $\rightarrow$ Trust $\rightarrow$ Behavioral intention	0.037	1.483	0.069	—	Rejected
	H7 Sharia compliance $\rightarrow$ Trust $\rightarrow$ Behavioral intention	0.208	4.274	0.000	—	Accepted

Source: Processed primary data using SmartPLS 4 (2026).

Discussion

This study provides empirical evidence of how technological perceptions and religious legitimacy jointly shape trust and behavioral intentions toward blockchain-based *mudharabah* smart contracts. By integrating the technology acceptance model (TAM) with Sharia compliance perspectives, the findings demonstrate that adoption behavior in Islamic financial technology cannot be fully explained by conventional technology acceptance assumptions. Instead, trust emerges as a multidimensional construct formed through both technological evaluation and ethical validation, functioning as the central mechanism that translates user perceptions into adoption intention.

The results show that perceived usefulness significantly enhances trust, indicating that users develop confidence in blockchain-based financial systems when they perceive clear functional advantages in them. This finding supports prior fintech adoption studies asserting that performance expectancy and perceived benefits are the primary drivers of trust formation (Amnas et al., 2023; Uula, 2025). In blockchain-enabled *mudharabah* contracts, technological features such as transparency, automation, and immutable records appear to reduce the agency problems traditionally associated with profit-and-loss-sharing mechanisms. These characteristics likely signal reliability and fairness, thereby strengthening users' confidence in the system. The strong relationship observed in this study extends TAM literature by demonstrating that perceived

usefulness not only influences acceptance but also acts as a foundational antecedent of trust in decentralized Islamic financial environments. The results also reinforce the argument that users evaluate emerging fintech innovations primarily through value creation rather than technological novelty.

However, the finding that perceived ease of use does not significantly influence trust represents an important deviation from the classical TAM assumptions. Numerous prior studies have identified ease of use as a key predictor of trust and adoption in digital platforms (Candra et al., 2020; Jang et al., 2020); however, the present study found no significant relationship. This unexpected result suggests that usability considerations may lose their explanatory power in highly innovative or technically sophisticated systems such as blockchain. Users may accept operational complexity when a technology demonstrates strong security, transparency, and institutional legitimacy. Rather than evaluating blockchain applications based on simplicity, users appear to prioritize their credibility and perceived benefits. This finding aligns with emerging research arguing that in early stage technological ecosystems, trust formation depends more on perceived system integrity than on interface convenience. Consequently, this study refines TAM by suggesting that perceived ease of use may not universally function as a determinant of trust, particularly within Islamic fintech contexts, where ethical assurance and technological reliability dominate user evaluation criteria. A deeper reading clarifies why blockchain-based *mudharabah* differs from conventional fintech. In mature fintech, such as mobile wallets or internet banking, interfaces are standardized, and usability is the marginal differentiator; therefore, ease of use predicts trust (Candra et al., 2020; Jang et al., 2020). Blockchain-based *mudharabah* differs on three counts: it is an early stage, unfamiliar technology, so users have no stable usability schema and instead anchor trust on perceived integrity and benefit; it is consequential, governing the distribution of invested capital, which raises the salience of security and Sharia conformity above interface comfort; and it is disintermediated, so removing the human intermediary shifts the basis of trust from relationship and brand toward the verifiable properties of the protocol itself. The non-significant ease-of-use effect is therefore best understood as a boundary condition of TAM—usability recedes precisely where a technology is novel, high-stakes, and decentralized—which reconciles the result with the mixed prior evidence (Ali et al., 2021; Emini et al., 2025) rather than treating it as a mere anomaly.

The significant influence of Sharia compliance on trust further highlights the distinctive institutional environment of Islamic fintech adoption. This result supports previous studies emphasizing that adherence to Islamic principles strengthens confidence in financial services (Unal & Aysan, 2022). Unlike conventional fintech adoption, where trust is largely technology driven, Islamic fintech requires alignment with religious norms to achieve legitimacy. Blockchain technology appears to reinforce Sharia compliance perceptions through transparent and verifiable transaction mechanisms, allowing users to monitor contractual implementation more objectively. Although the effect size is smaller than that of perceived usefulness, its significance confirms that religious conformity remains a critical trust-building mechanism. This finding contributes to the literature by demonstrating that ethical governance operates alongside technological functionality in shaping trust formation, thereby extending technology adoption frameworks into faith-based financial systems. This interpretation is consistent with the argument that blockchain reinforces trust in Islamic finance mainly through verifiable accountability rather than through technological novelty alone (Chong, 2021).

Consistent with expectations, trust exerts a dominant influence on behavioral intention, confirming its central role in the adoption of digital finance. This finding strongly supports prior research that positions trust as the most influential predictor of fintech usage intention (Alsadi, 2025; Gharaibeh, 2024). In blockchain-based *mudharabah* contracts, users must rely on automated execution without direct institutional oversight, which increases perceived uncertainty. Therefore, trust functions as a risk-reduction mechanism that enables users to accept decentralized financial arrangements. The exceptionally strong relationship identified in this study suggests that adoption intention is primarily trust-driven rather than technology-driven, indicating that technological attributes influence behavior only after users develop psychological confidence in the system.

The mediation analysis further clarifies this mechanism by demonstrating that trust fully translates technological and ethical perceptions into behavioral intentions. Trust significantly mediates the relationship between perceived usefulness and behavioral intention, supporting earlier arguments that technological evaluations influence adoption indirectly through psychological assurance (Yan & Yang, 2015). Similarly, trust mediates the relationship between Sharia compliance and behavioral intention, indicating that religious legitimacy encourages adoption primarily by strengthening confidence rather than directly motivating behavior. These results suggest that usefulness and compliance operate as antecedent signals, whereas trust acts as the decisive evaluative stage preceding adoption.

Conversely, the absence of mediation for perceived ease of use reinforces the earlier unexpected finding and challenges the universality of TAM pathways. This contradiction with prior studies suggests a contextual boundary condition of the technology acceptance theory: when technologies involve high perceived innovation uncertainty and ethical considerations, users may bypass usability evaluation during trust formation. Therefore, this finding contributes to theory refinement by identifying the conditions under which traditional TAM relationships weaken, particularly in emerging Islamic fintech ecosystems.

Taken together, these results indicate that blockchain-based Islamic financial innovation follows a hybrid acceptance logic. Perceived usefulness provides cognitive justification, Sharia compliance offers ethical legitimacy, and trust integrates both dimensions into behavioral intention. This integrated mechanism extends TAM beyond its original utilitarian orientation by incorporating religious governance as an institutional determinant of trust. This study advances the Islamic fintech literature by empirically demonstrating that trust in blockchain-based financial contracts is simultaneously technological and moral in nature.

From a theoretical perspective, the findings refine the technology adoption theory in three ways. First, they repositioned trust as a central mediating construct rather than a secondary outcome of technological perceptions. Second, they introduce Sharia compliance as a contextual extension of TAM capable of explaining adoption behavior in faith-based financial systems. Third, they identified the diminishing explanatory role of perceived ease of use in complex technological environments, suggesting that adoption models must account for contextual and institutional factors beyond usability considerations. These contributions collectively offer a more context-sensitive framework for understanding adoption behavior in Islamic digital finance.

However, a critical caveat must be considered. The majority of respondents are familiar with, but have not transacted through, an actual blockchain *mudharabah* contract; therefore, this study measures behavioral intention under hypothetical exposure rather than adoption of a live system. Substantively, the strong relationships likely reflect coherent attitudes toward an attractive concept, and real deployment—with onboarding friction, fees, regulatory uncertainty, and rare but visible failures—would probably attenuate them, particularly the trust→intention path. Methodologically, hypothetical evaluation inflates internal consistency, partly accounting for the high explanatory power reported previously. Thus, the results are best read as establishing the perceptual architecture of adoption, while its behavioral magnitude awaits confirmation with users of operational systems.

These findings have concrete regulatory and industry implications for Indonesia. Because trust hinges on verifiable benefit and visible Sharia governance rather than interface simplicity, the priority for regulators such as OJK and Bank Indonesia is an enabling framework that makes on-chain *mudharabah* auditable and legally enforceable: standards for smart-contract certification, the legal status of automated profit distribution, dispute-resolution mechanisms where code and intent diverge, and a continuing formal role for Sharia supervisory boards in reviewing contract logic. From a Sharia-governance perspective, automating *mudharabah* relocates compliance from periodic board attestation toward continuously auditable on-chain execution; yet the modest size of the compliance effect implies this substitution is only partial, cautioning institutions against marketing “code is Sharia” without retaining human oversight. For the industry, readiness remains uneven—core-banking integration, oracle reliability for real-world profit data, and Sharia-audit capacity for code are all nascent—so controlled regulatory sandboxes offer the most prudent path for piloting

blockchain *mudharabah* while these safeguards mature. Comparable regulatory questions have already been raised for tokenized Sharia-compliant instruments, where the enforceability of automatically executed contractual terms remains unsettled (Delle Foglie et al., 2021).

Overall, this study demonstrates that the successful adoption of blockchain-based *mudharabah* smart contracts depends not only on technological sophistication but also on the ability of the system to simultaneously deliver functional value and ethical assurance. Trust emerges as a critical convergence point where technological performance and religious legitimacy intersect, ultimately shaping users' willingness to adopt Islamic financial innovations. These findings provide a theoretical foundation for future research exploring how emerging technologies can operationalize Islamic finance principles while maintaining user confidence in decentralized financial ecosystems.

Conclusion

This study set out to determine how perceived usefulness, perceived ease of use, and Sharia compliance shape trust in blockchain-based *mudharabah* smart contracts and how trust translates into behavioral intention. The research objectives were thus achieved. Perceived usefulness and Sharia compliance emerged as significant antecedents of trust, trust proved to be the dominant and fully mediating determinant of behavioral intention, and perceived ease of use contributed to neither. The rejection of the ease-of-use hypothesis is a substantive finding rather than a deficiency of the model.

Theoretically, this study makes three contributions. It repositions trust from a secondary outcome to the central mechanism, integrating technological and religious perceptions into intention. This study extends the Technology Acceptance Model into faith-based finance by treating Sharia compliance as an institutional antecedent of trust that is auditable on-chain rather than externally certified. It specifies a boundary condition of the model: perceived ease of use loses explanatory power when a technology is novel, consequential, and disintermediated.

Practically, Islamic banks and fintech developers are advised to compete on demonstrable functional value and conspicuous, verifiable Sharia governance, rather than on interface simplicity. For regulators such as OJK and Bank Indonesia, the results underline the need for smart-contract certification standards, legal recognition of automated profit distribution, dispute-resolution provisions, and a continuing formal role for Sharia Supervisory Boards in auditing contract logic, with regulatory sandboxes offering a prudent path for piloting.

However, this study has three limitations bound these conclusions. First, discriminant validity was not fully established: inter-construct correlations reached 0.953, so the structural estimates should be read as indicative rather than definitive. Second, respondents evaluated a described rather than a used system; therefore, the findings capture informed intention rather than actual adoption, which also helps explain the high explanatory power obtained. Third, the purposive, predominantly well-educated Indonesian sample limits its generalizability.

Future research should therefore refine or consolidate the overlapping constructs and re-estimate the model with users of operational blockchain *mudharabah* pilot projects, ideally using longitudinal or on-chain behavioral data. Cross-country replication across Malaysia, the GCC, and Indonesia would test whether the trust architecture is culturally robust, and incorporating blockchain-specific constructs such as perceived security, perceived decentralization, regulatory uncertainty, and gharar-related risk perception would enrich the explanation of trust formation.

Abbreviation

BUS: Bank Umum Syariah

OJK: Otoritas Jasa Keuangan

SSB: Sharia Supervisory Board

TAM: Technology Acceptance Model

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Data availability statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available because they contain information that could compromise the privacy of the participants.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used generative AI tools solely to improve the readability and grammar of the manuscript. No AI tool was used to generate research data, perform statistical analyses, or produce scientific interpretations. After using this service, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

Conflict of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this study.

Ethic approval and consent to participate

No institutional ethics approval was obtained because no review board with jurisdiction over non-clinical survey research was available to the authors. The study collected no personally identifiable information and did not involve vulnerable groups. A statement of willingness to participate preceded the online questionnaire, and submission was considered as implied consent. Participation was voluntary, anonymous, and unpaid.

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Appendix

The detailed content validity results referenced in the Results section are provided here. These tables are supplementary and are not counted among the main tables of this manuscript.

Table A1. Expert validation result

No. Item	Expert Validator Scores							V	Z	p Value	Status	Decision
	E1	E2	E3	E4	E5	E6	E7					
1	5	5	5	4	5	5	5	0,964	3,341	0,000	Valid	Used
2	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
3	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
4	5	5	5	5	5	5	4	0,964	3,341	0,000	Valid	Used
5	5	4	5	5	5	5	5	0,964	3,341	0,000	Valid	Used
6	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
7	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
8	5	4	5	5	5	5	5	0,964	3,341	0,000	Valid	Used
9	5	5	5	5	5	5	4	0,964	3,341	0,000	Valid	Used
10	4	5	4	5	4	5	4	0,857	2,539	0,006	Valid	Used
11	5	5	5	4	5	4	5	0,929	3,074	0,001	Valid	Used
12	5	5	5	5	5	5	5	0,929	3,074	0,001	Valid	Used
13	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
14	4	4	4	4	4	4	5	0,786	2,004	0,023	Valid	Used
15	4	4	5	4	4	5	4	0,821	2,272	0,012	Valid	Used
16	4	4	4	5	4	4	5	0,821	2,272	0,012	Valid	Used
17	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
18	5	5	5	5	5	5	4	0,964	3,341	0,000	Valid	Used
19	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
20	5	5	5	5	4	5	5	0,964	3,341	0,000	Valid	Used
21	4	4	4	5	4	4	5	0,821	2,272	0,012	Valid	Used
22	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
23	4	4	4	4	4	4	4	0,750	1,737	0,041	Valid	Used
24	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
25	5	5	5	5	5	5	4	0,964	3,341	0,000	Valid	Used
26	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
27	4	4	4	4	4	5	4	0,786	2,004	0,023	Valid	Used
28	4	4	4	4	4	4	4	0,750	1,737	0,041	Valid	Used
29	4	4	4	5	4	4	4	0,786	2,004	0,023	Valid	Used
30	4	4	4	5	4	5	4	0,821	2,272	0,012	Valid	Used
31	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
32	4	4	4	4	4	4	4	0,750	1,737	0,041	Valid	Used
33	5	5	5	5	5	5	5	1,000	3,608	0,000	Valid	Used
34	4	4	4	4	4	4	4	0,750	1,737	0,041	Valid	Used
35	4	4	4	4	5	4	4	0,786	2,004	0,023	Valid	Used
36	4	4	4	4	4	4	5	0,786	2,004	0,023	Valid	Used

Table A2. ANOVA: Two-factor without replication analysis

SUMMARY	Count	Sum	Average	Variance
P2	36	165	4,583	0,250
P3	36	167	4,639	0,237
P4	36	169	4,694	0,218
P5	36	166	4,611	0,244
P6	36	169	4,694	0,218
P7	36	166	4,611	0,244