

# Adaptation of Sharia Accounting in the Digital Economy: A Study of Sharia-Based Fintech Startups in Indonesia

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## Keywords:

Sharia Accounting, Digital Economy, Sharia Fintech, Financial System Adaptation, Sharia PSAK, Indonesian Startups

## ABSTRACT

The digital transformation in the financial sector has spurred the emergence of Sharia fintech startups as an innovative alternative financial service that remains compliant with Sharia principles. However, the integration of digital financial systems and Sharia accounting still faces challenges, particularly in recording contract-based transactions and preparing financial reports in accordance with Sharia Financial Accounting Standards (PSAK). While previous studies have explored Sharia compliance in conventional financial institutions, research focusing on the contextual adaptation of Sharia accounting within the digital-based fintech ecosystem remains limited. This study addresses that gap by analyzing how Sharia fintech startups in Indonesia adapt Sharia accounting practices, identifying key challenges, and formulating a novel Digital Sharia Accounting Adaptation Model tailored for the digital economy. Using a qualitative case study approach involving three Sharia fintech startups, data were collected through in-depth interviews, questionnaires for certified employees, and direct observation of the financial information systems employed. Thematic analysis was conducted to identify patterns of adaptation and innovation in digital Sharia financial reporting. Findings reveal that adaptation is significantly influenced by technological readiness, understanding of Sharia accounting, and managerial support, while major obstacles include the absence of detailed regulatory guidelines and limited human resources. The proposed model integrates Sharia compliance, technology integration, and organizational readiness, providing a practical framework for developing robust, digital-based Sharia financial reporting systems in the era of financial technology.

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## 1. INTRODUCTION

The massive digital transformation of the past decade has disrupted nearly every sector of the global economy, including the financial sector. Digitalization has given rise to various innovations, one of which is financial technology (fintech), offering efficiency, financial inclusion, and more adaptive service models. In the context of Islamic economics, the emergence of Sharia-compliant fintech responds to the community's demand for a financial

system that is both efficient and aligned with Sharia principles, such as fairness, transparency, and the prohibition of usury (riba) and uncertainty (gharar).

Indonesia, as the country with the largest Muslim population, holds substantial potential for the growth of the Sharia economy, including in the fintech sector. This is reflected in the increasing number of Sharia-compliant fintech startups established in recent years. However, these technological advances present unique challenges in financial recording and reporting that comply with Sharia accounting principles. The urgency lies in contextually adapting Sharia accounting to meet the dynamic requirements of the digital economy.

Globally, there is strong momentum toward building an inclusive, ethical, and sustainable financial system. A 2023 World Bank report shows that digital-based financial inclusion is rising rapidly in developing countries. In parallel, the Islamic Financial Services Board (IFSB) and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) emphasize the importance of standardizing Sharia accounting to be compatible with digital technology. The disparity between the rapid expansion of Sharia fintech and the slower readiness of Sharia accounting infrastructure is a global concern that warrants academic attention.

Despite the rapid growth of Islamic fintech in Indonesia, most startups still encounter challenges in adopting appropriate Sharia accounting principles, including:

- a. The absence of technical guidelines for implementing Sharia accounting in cloud- and blockchain-based systems.
- b. Low Sharia accounting literacy among fintech startup developers.
- c. Misalignment between digital business models and conventional manual document-based reporting frameworks.

These challenges create risks of inconsistency, violations of Sharia principles, and the potential rejection of financial reports by regulators and Sharia investors.

**Table 1.** Number of Sharia Fintech Startups Registered with the OJK (2020–2024)

| Year | Number of Sharia Fintech Startups | Growth Percentage (%) |
|------|-----------------------------------|-----------------------|
| 2020 | 11                                | -                     |
| 2021 | 16                                | 45.5%                 |
| 2022 | 22                                | 37.5%                 |
| 2023 | 27                                | 22.7%                 |
| 2024 | 31                                | 14.8%                 |

*Source: OJK, 2024.*

This upward trend underscores the necessity for an accounting approach that is both relevant and adaptable to technological changes.

Previous studies, such as Huda and Zulfikar (2020) and Arifin (2022), examined the application of Sharia Accounting Standards (PSAK) in formal financial institutions like Islamic banks and Islamic microfinance institutions (BMT). Similarly, Sulaiman et al. (2021) explored Sharia reporting in the digital era but focused only on auditing aspects. However, there remains a significant gap in research on how Sharia accounting can be adapted to fintech startup contexts—entities that are small, dynamic, and technology-driven. Most prior studies are normative or tailored to large institutions, leaving the adaptation process in startup environments largely unexplored.

This study addresses that gap by conducting empirical case studies on Islamic fintech startups in Indonesia and developing a Digital Sharia Accounting Adaptation Model. This

model integrates the *maqasid al-sharia* (objectives of Islamic law) with digital compliance principles to serve as both a conceptual and evaluative framework.

This study adopts an institutional adaptation approach to explain how Islamic fintech startups adjust their organizational practices in line with Sharia accounting standards. At the same time, the *maqasid al-sharia* perspective ensures that these adaptation efforts uphold core Islamic values such as justice, transparency, and the protection of wealth (*hifz al-mal*). These values are operationalized through modern accounting information systems integrated with fintech functionalities.

The main objectives of this research are to analyze how Islamic fintech startups in Indonesia adapt Sharia accounting principles into their digital operations, to identify specific challenges within the adaptation process, and to formulate a model for Sharia accounting adaptation that harmonizes digital technology with Islamic principles.

The contributions of this study span three dimensions. First, theoretically, it expands the literature on Sharia accounting by introducing a technology-oriented adaptation model that combines institutional theory with *maqasid al-sharia*. Second, practically, it provides guidelines for Islamic fintech startups to design efficient and Sharia-compliant financial recording and reporting systems. Third, from a policy perspective, it offers empirical insights for regulators to develop adaptive Islamic accounting standards suitable for the digital era.

## 2. METHOD

This research employs a qualitative approach with a case study design to provide an in-depth understanding of how sharia accounting principles are adapted to the digital operations of sharia-compliant fintech startups in Indonesia. This design was chosen to allow a contextual exploration of the phenomenon, including the practices, challenges, and strategies implemented by the entities under study. The case study focused on three sharia-compliant fintech startups registered with the Financial Services Authority (OJK), selected based on specific criteria: (1) in operation for at least three years, (2) offering digital financial services with active customer bases exceeding 10,000 users, and (3) representing different business models-peer-to-peer lending, digital payments, and investment platforms-to capture variations in digital maturity and operational contexts.

The research location covered startups headquartered in Jakarta and Yogyakarta, with data collection conducted between January and April 2024. The data sources in this study consisted of both primary and secondary data. Primary data were obtained through in-depth interviews with financial management teams, accounting staff, and accounting information system developers from each startup. Data collection techniques also included direct observation of internal documents such as digital financial reports, Enterprise Resource Planning (ERP) systems, and sharia transaction recording applications used by the companies. Meanwhile, secondary data were collected from scientific literature, regulatory reports, and official publications from the Financial Services Authority (OJK) and the National Sharia Council (DSN-MUI).

The data analysis technique used was thematic analysis, encompassing categorization, data coding, and thematic conclusion drawing to identify patterns of digital sharia accounting adaptation. Data validity was ensured through triangulation of sources and techniques.

## 3. RESULTS AND DISCUSSION

### General Description of Respondents

#### General Description of Respondents

This research involved three Sharia-compliant fintech startups located in Jakarta, Bandung, and Yogyakarta, each specializing in peer-to-peer (P2P) lending, waqf-based

digital payments, and halal investments in Sharia-compliant stocks. The respondents comprised three financial managers (CFOs/Finance Directors), six certified internal accountants (CAs or CPAs), and 15 operational and information systems staff engaged in digital financial reporting.

To explore both the technical dimensions and Sharia values, semi-structured interviews were conducted with six key management representatives, and questionnaires were distributed to 15 finance employees holding professional licenses or certifications, such as the Sharia Accounting Certification from the Indonesian Institute of Accountants (IAI) or a digital competency certificate from the National Professional Certification Board (BNSP).

Interview findings revealed that all three Sharia-compliant fintech startups had implemented basic Sharia accounting principles in their financial reporting, but their digitization approaches varied. Startup A (P2P lending) deployed a cloud-based accounting system with Sharia contract modules such as murabahah and mudharabah. Startup B (digital waqf) relied on Excel-based PSAK Sharia templates with quarterly manual audits, while Startup C (Sharia investment) integrated an open-source ERP system customized for halal transactions.

The main challenges identified by managers were:

- a. Lack of standardized digitalization guidelines for Islamic accounting from regulators.
- b. Limited human resources with expertise in both technology and Islamic accounting principles.
- c. The need to ensure maqashid al-sharia compliance in data-driven financial decision-making.

### Findings from the Licensed Employee Questionnaire

The questionnaire was constructed using a Likert scale (1–5) and covered five dimensions: understanding of sharia accounting, digital accounting capabilities, reporting compliance with Sharia PSAK, accessibility of digital financial data, and commitment to sharia principles. The questionnaire results are tabulated as follows:

**Table 1.** Average Questionnaire Score per Dimension

| Assessment Dimensions                | Average Score (1–5) |
|--------------------------------------|---------------------|
| Understanding Sharia Accounting      | 4.33                |
| Digital Accounting Capabilities      | 3.87                |
| Compliance with Sharia PSAK          | 4.12                |
| Digital Financial Data Accessibility | 3.65                |
| Commitment to Sharia Principles      | 4.47                |

The results indicate that while Sharia accounting understanding is high, technical proficiency in implementing digital systems requires improvement, particularly in accessibility and integration across platform.

Field Observation Results

Table 2. Comparison of Digital Accounting Systems of Sharia Fintech Startups

| Aspect                    | Startup A                        | Startup B          | Startup C                |
|---------------------------|----------------------------------|--------------------|--------------------------|
| System Base               | Cloud Accounting                 | Excel Manual       | Open-Source ERP          |
| Sharia Module             | There is (mudharabah, murabahah) | There is (limited) | There is (comprehensive) |
| Reporting Automation      | Tall                             | Low                | Currently                |
| Integration into User App | Yes                              | No                 | Yes                      |
| Internal Audit            | Monthly                          | Quarterly          | Monthly with dashboard   |

Observations show that infrastructure readiness, managerial support, and finance team digital literacy strongly influence the success of Sharia accounting adaptation in digital contexts.

Interview Data and Interpretation of Results

In-depth interviews with six key respondents from three different Islamic fintech startups-comprising financial managers, heads of accounting teams, and financial information system developers-revealed five dominant themes:

- 1. Level of understanding of Islamic accounting.
- 2. Technical implementation constraints.
- 3. Interpretation of Islamic contracts in digital systems.
- 4. Lack of official guidance from regulators.
- 5. Need for collaboration between Islamic experts and system developers.

Overall, respondents demonstrated strong conceptual knowledge of Sharia accounting principles, particularly regarding the correct application of contracts and reporting of halal transactions. However, in operational reality, application tends to be adaptive and flexible, shaped by digital infrastructure constraints. As one manager expressed, "We have to adapt our digital transaction systems to maintain Sharia principles, even though the software we use is not Sharia accounting software."

Most transaction recording systems remain rooted in conventional accounting frameworks (GAAP/IFRS), later adjusted to meet Sharia requirements. For example, murabahah or mudharabah transactions are often initially recorded as receivables or investments, then annotated with contract details adding complexity because current digital platforms do not offer automated contract-based labeling.

The absence of technical standards from bodies like the Financial Services Authority (OJK), the Indonesian Institute of Accountants (IAI), or the National Sharia Council (DSN-MUI) was highlighted by nearly all respondents. This reinforces the urgency for regulations that are not merely normative but also provide technical implementation guidelines.

Discussion of Questionnaire Results

A questionnaire distributed to 15 certified finance and information systems staff revealed the following average scores (scale: 1-5):

- Commitment to Sharia principles: 4.47
- Understanding of Sharia accounting principles: 4.33
- Compliance with Sharia PSAK: 4.12

- Digital technical skills: 3.87
- Data accessibility: 3.65

The findings reveal a clear gap between normative knowledge and technical proficiency. While employees grasp Sharia accounting concepts, their ability to implement them effectively in digital systems remains limited-further constrained by low accessibility scores, suggesting insufficient integration of Sharia-compliant financial data into startup platforms.

This gap is systemic. Most startups still rely on modified conventional accounting software, limiting automation for multi-contract transactions or profit-sharing calculations in real time.

### **Analysis of Observation Results**

Observational data showed significant variation in digital readiness:

- Startup A: Operates a cloud-based ERP system with dedicated murabahah and ijarah modules, plus a Sharia dashboard monitoring maqasid al-sharia.
- Startup B: Uses manual Excel-based processes-compliant with Sharia PSAK but lacking automation and transaction audit trails.
- Startup C: Employs an open-source ERP with custom Sharia reporting features, but still struggles with consistent automated contract recording.

These observations indicate that success in digital Sharia accounting adaptation hinges on infrastructure readiness, managerial commitment, and finance team digital literacy. Purpose-built systems outperform generic, retrofitted ones in embodying Sharia values.

### **Comparison with Previous Research**

This research strengthens the conclusions of Nurhayati and Wasilah (2019), who emphasized that the integration of Islamic accounting and digital technology requires a systematic approach and the development of a dedicated framework. However, while prior studies primarily concentrated on large-scale financial institutions-especially Islamic banks-this study focuses on the fintech startup sector, which is characterized by agile decision-making, rapid iteration, and adaptive organizational cultures.

In addition to addressing the gap in organizational scale, this study advances the theoretical discourse by applying the institutional adaptation framework-an approach rarely employed in Islamic accounting studies -to explain how startups internalize Sharia compliance within digital infrastructures. The findings also corroborate Sulaiman et al. (2021), who noted persistent weaknesses in digital infrastructure for ensuring Sharia accountability, but extend their work by highlighting sector-specific challenges unique to fintech startups, such as rapid scaling pressures and investor-driven technology adoption.

Comparatively, research from Malaysia (e.g., Ibrahim & Kamal, 2020) shows that regulatory sandbox programs can accelerate digital Sharia compliance, while studies in the Middle East (e.g., Al-Qudah et al., 2021) emphasize centralized Sharia governance mode ensure standardization across fintech platforms. This study diverges by proposing a hybrid adaptation approach-balancing centralized guidelines with localized, agile implementations-tailored for the indonesia fintech ecosystem.

The novelty of this research lies in the formulation of a Digital Sharia Accounting Adaptation Model, which is both field-driven and pragmatically oriented. Unlike previous theoretical models, this one incorporates stakeholder feedback from startup founders, accounting practitioners, and Sharia advisors, ensuring its applicability in real-world operations.

### Practical Implications

The results of this study present several actionable recommendations:

1. **System Development** - Sharia-compliant fintech startups must design accounting information systems that are not only technically efficient but also substantively aligned with Sharia principles. This includes embedding digital modules capable of automatically mapping contract types (akad), calculating halal profit margins, and generating PSAK Syariah-compliant financial statements.
2. **Capacity Building** - Regular, structured training for accounting and IT teams is essential to enhance competencies in interpreting and applying PSAK Syariah in a digital environment.
3. **Multi-Stakeholder Collaboration** - Effective collaboration among regulators, academics, and industry actors is necessary to produce implementable technical Guidelines that can serve as a national benchmark for digital Islamic accounting practices.
4. **Policy-Level Considerations** - Policymakers could establish a Regulatory Digital Sharia Compliance Sandbox for fintech startups, enabling controlled experimentation while maintaining compliance oversight, similar to Malaysia's Bank Negara model.
5. **Investor and User Trust** - Transparent, Sharia-compliant reporting systems can boost investor confidence, accelerate Sharia financial inclusion, and reinforce the legitimacy of startups within Indonesia's halal economic framework.

### Research Limitations

This research is not without constraints:

- **Sample Size** - The study was limited to three fintech startup cases, thus results should be interpreted cautiously when generalizing to the broader sector.
- **Qualitative Emphasis** - The exploratory nature of the qualitative approach provides depth but cannot fully capture macro-level statistical trends in the Islamic fintech industry.
- **Data Access** - Limited access to sensitive internal data means certain analyses rely on self-reported information, which may introduce bias.
- **Standardization Gap** - The absence of a unified national standard for digital Islamic accounting means compliance assessments are relative, relying on PSAK interpretations and expert judgment.

Future research could adopt a mixed-method approach combining broader quantitative surveys with in-depth qualitative insights, involve a larger and more diverse sample, and develop empirically validated measurement tools for evaluating technology-driven Sharia accounting adaptation.

## 4. CONCLUSION

This study aims to analyze the adaptations undertaken by Sharia-compliant fintech startups in integrating Sharia accounting principles into their digital systems, identify the challenges faced, and formulate a relevant adaptation framework within the context of the digital economy. Based on findings from interviews, questionnaires, and observations, it can be concluded that the adaptations undertaken vary depending on the level of digital maturity and human resource capacity of each startup. Startups with cloud-based ERP systems and Sharia contract modules are able to record and report their finances in accordance with Sharia

Financial Accounting Standards (PSAK) more effectively and in real-time, while startups with manual or conventional systems face limitations both technically and substantively.

Key challenges in the adaptation process include a lack of technical guidance from regulators, limited human resources skilled in both Sharia accounting and information technology, and a gap between normative understanding and operational implementation. However, startups that implemented collaborative strategies with academics, internal training, and the development of contract-based accounting information systems demonstrated better adaptation outcomes.

As a key finding, this study produced a conceptual model for Digital Sharia Accounting Adaptation that integrates three essential pillars: Sharia compliance, technology integration, and organizational readiness. This model is expected to serve as a foundation for the development of a more systematic, applicable, and sustainable digital Sharia financial reporting system in the Sharia-based fintech sector in Indonesia.

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