

Application of Information Technology in Sharia Accounting: A Strategy for Creating New Efficiency in Sharia Financial Institutions

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Article history: Received May 30 2026; revised June 20, 2026; accepted July 05, 2026

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ABSTRACT

The digital transformation that has penetrated the world of accounting has also reached entities that adhere to Sharia principles, thus creating a need to understand how information technology can support efficiency without sacrificing inherent Islamic values. This study was conducted to examine the role of information technology including cloud computing, blockchain, and artificial intelligence in Sharia accounting information systems (AIS), as well as their implications for compliance with the principles of justice, trustworthiness, transparency, and the prohibition of riba (usury), gharar (gharar), and maysir (gambling). The approach used was qualitative descriptive through library research, reviewing books, journal articles, and regulatory documents relevant to Sharia accounting and accounting information systems. The study's findings demonstrate that the use of information technology can automate transaction recording, reduce human error, accelerate the preparation of financial reports, and strengthen the transparency and accountability of Sharia financial institutions. However, its implementation still faces several obstacles, including limited human resources with expertise in accounting and Sharia principles, high technology investment costs, data security threats, heterogeneity in global standards, and the complexity of adapting conventional systems to Sharia principles. This study is expected to enrich the conceptual discourse regarding the development of a sharia accounting information system that is efficient, transparent, and remains based on Islamic values.

Keywords: Islamic Accounting, Accounting Information Systems, Information Technology, Efficiency, Islamic Financial Institutions

INTRODUCTION

The rapid digital transformation of the past two decades has transformed the way organizations manage and report their financial information, including entities operating under Sharia principles. Data processing speed, record-keeping accuracy, and operational efficiency have become inseparable from current accounting practices, making integration between accounting systems and technology infrastructure a prerequisite for reliable and transparent decision-making.

Unlike traditional accounting, recording and reporting practices in Islamic entities adhere to a set of values derived from Islamic teachings including justice, trustworthiness, and transparency while also prohibiting usury, gharar, and maysir in all transactions. The continued growth of the Islamic financial industry over time has driven demands for faster, more precise recording systems that remain compliant with Islamic principles. In this context, information technology plays a strategic role, accelerating the transaction recording cycle through to reporting, strengthening oversight functions, and supporting audit processes without sacrificing its hallmark Sharia compliance.

A number of cutting-edge technological tools from cloud accounting, enterprise resource planning (ERP) systems, blockchain, to artificial intelligence are now gradually being integrated into the financial management of Islamic institutions. The presence of these tools not only simplifies administrative tasks but also paves the way for more accountable governance, as financial data can be monitored in near real time by various stakeholders, including management, investors, and supervisory authorities.

Despite its promise of numerous benefits, the path to digitizing Islamic accounting is not without its challenges. Human resource readiness, data protection, investment costs, and the need to align systems with Islamic principles remain crucial issues that require careful attention. Previous studies have tended to discuss the implementation of accounting information systems in Islamic financial institutions in a fragmented manner, focusing on a specific aspect such as efficiency (Darmawan & Nugraha, 2025), the role of AIS for compliance (Firdaus, 2025), or managerial decision-making (Mubarak & Lidyah, 2025). However, efforts to integrate the basic concepts of Islamic accounting, the Islamic Financial Accounting Standards framework, and the application of cutting-edge technology into a coherent discussion are still rare. This article attempts to bridge this gap by compiling a more comprehensive study of how information technology drives new efficiencies in Islamic accounting, along with the accompanying impacts and challenges.

Referring to the description above, this study aims to: (1) examine the basic concepts and principles of sharia accounting and the framework of sharia financial accounting standards applicable in Indonesia; (2) describe the forms of application of information technology in sharia accounting information systems (AIS); (3) map new efficiencies and the impacts caused by the application of this technology for sharia financial institutions; and (4) identify the challenges faced in the implementation process.

RESEARCH METHOD

This study was compiled using a descriptive qualitative approach, with a library research strategy as its primary method. The data sources reviewed were secondary data, including reference books, articles in national scientific journals, and relevant policy documents such as the Statement of Sharia Financial Accounting Standards (PSAK), the provisions of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), and official reports from the Financial Services Authority (OJK). The data collection process involved exploring and reviewing various literature discussing the concepts of sharia accounting, accounting information systems, and the practice of implementing information technology in sharia financial institutions.

The collected data was then analyzed descriptively and qualitatively using content analysis techniques. At this stage, findings from various sources were sorted, grouped, and synthesized into interrelated discussion themes from basic concepts, standard frameworks, forms of technology application, resulting efficiencies, impacts on Islamic financial institutions, and implementation challenges as a basis for formulating conclusions that address the study's objectives.

RESULTS AND DISCUSSION

3.1 Basic Concepts and Principles of Islamic Accounting

Sharia accounting serves not only as a recording and reporting tool, but also as an accountability instrument rooted in Islamic values. While conventional accounting is generally profit-oriented, Sharia accounting prioritizes a balance between economic, social, and spiritual dimensions to achieve the common good (maslahah) (Sunarta et al., 2025).

When examined, the principles underpinning Islamic accounting can be grouped into three clusters. The theological-ethical cluster positions every transaction as a form of worship and accountability to Allah SWT, as reflected in the principles of monotheism and trustworthiness. The normative-transactional cluster ensures justice, honesty, and transparency, while filtering contracts from elements of usury, gharar, and maysir, as embodied in the principles of 'adl, shiddiq, and tabligh. The social-sustainability cluster directs economic activities toward mutual benefit and long-term balance, which are summarized in the principles of maslahah and tawazun (Apriyanti, 2018). A summary of these three clusters is presented in Table 1.

Table 1. Grouping of Basic Principles of Sharia Accounting

Group	Principle	Operational Meaning
Theological-Ethical	Monotheism	Transactions are seen as a form of worship, not merely an economic activity, so that intention (niyyah) determines their spiritual validity.
Theological-Ethical	Trust	Fund managers bear a double responsibility: to the fund owners horizontally and to Allah SWT vertically.
Normative-Transactional	'Adl	The presentation and distribution of results is carried out without bias, so that no party is harmed.

Group	Principle	Operational Meaning
Normative-Transactional	Siddiq	The figures presented reflect the actual situation, free from manipulation, in order to maintain the trust of report users.
Normative-Transactional	Tabligh	Information — especially social funds such as zakat and infak — is provided openly so that the public can easily trace it.
Normative-Transactional	Prohibition of Riba, Gharar, Maysir	Each contract is filtered from interest that burdens one party, unclear objects/prices, and speculation that resembles gambling.
Social-Sustainability	Maslahah	Economic decisions are measured not only by the entity's profits, but also by their benefits to society at large.
Social-Sustainability	Tawazun	Short-term interests are aligned with long-term sustainability; material gains are balanced by spiritual dimensions.

Source: synthesized from Apriyanti (2018)

3.2 Islamic Financial Accounting Framework and Standards

The technical elaboration of these principles is outlined in the Basic Framework for the Preparation and Presentation of Sharia Financial Statements (KDPPLKS), which serves as the blueprint for the Sharia Financial Accounting Standards Statement (PSAK) issued by the Sharia Accounting Standards Board (DSAS) of the Indonesian Institute of Accountants (IAI). Unlike conventional PSAK, this framework explicitly filters transactions for elements of riba (riba), gharar (gharar), and maysir (risk of betting), then regulates the accounting treatment for each type of contract according to its respective characteristics.

When mapped, the twelve applicable Sharia PSAKs can be grouped into five contract groups. The first group, sale and purchase, consists of PSAK 102 (murabahah), which regulates the recognition of profit margins and tiered payments; PSAK 103 (salam), which regulates transactions with upfront payments and later delivery of goods; and PSAK 104 (istisna), which regulates the ordering of goods with specific specifications and the recognition of revenue in stages during the production process. The second group, profit-sharing cooperation, includes PSAK 105 (mudharabah) and PSAK 106 (musyarakah), which each regulate the distribution of profits and losses between the owner and the manager of capital.

The third group, leasing, is represented by PSAK 107 (ijarah), which regulates rental costs, maintenance of the leased object, and the option of transferring ownership at the end of the lease term. The fourth group, financial instruments and protection, consists of PSAK 108 (sharia insurance), which regulates tabarru' funds and participant claims, PSAK 110 (sukuk), which regulates the recognition of sharia-based financing instruments, and PSAK 111 (wa'd), which regulates unilateral promises in sharia financial transactions. The fifth group, social funds, includes PSAK 109 (zakat and infaq) and PSAK 112 (waqf), both of which emphasize accountability in the management of community funds. PSAK 101 serves as an umbrella presentation, defining the components of sharia financial statements as a whole balance sheets, income statements, cash flows, changes in equity, and reports on the sources and uses of zakat and charity funds.

3.3 Concept of Accounting Information System

Various accounting literature defines Accounting Information Systems (AIS) with complementary emphases. Essentially, an AIS is understood as a set of procedures, resources, and technologies that work together to capture transaction data both financial and non-financial and then process it into information ready for use in decision-making (Ardana & Lukman, 2016; Kieso et al., 2015). Krismiaji (2015) adds an operational dimension to this definition, namely that AIS output should support three managerial functions simultaneously: planning, controlling, and day-to-day business operations.

The three main objectives of AIS supporting management stewardship, supporting decision-making, and supporting daily operational activities are reflected in the three functions it performs: collecting and storing records of organizational activities, converting raw data into relevant information for planning and evaluation, and providing control mechanisms to protect company assets and data (Romney & Steinbart, 2015).

To carry out these three functions, an AIS requires a combination of five elements: system users, work procedures, organizational data, software, and information technology infrastructure that supports the entire processing process (Romney & Steinbart, 2015). In simpler terms, Mulyadi (2016) describes an AIS as a collection of forms, records, and reports designed to enable management to obtain financial information quickly, accurately, and at a relatively affordable cost.

3.4 Application of Information Technology in Sharia Accounting Information Systems

In Islamic financial institutions, AIS performance is not solely measured by speed and accuracy, as the system is also required to comply with four Sharia principles: ensuring that every recorded transaction is free from *riba* (usury), *gharar* (gharar), and *maysir* (gambling); providing stronger transparency and accountability in reporting; complying with the provisions of the National Sharia Council (DSN) and relevant authorities; and utilizing technology to reduce error-prone manual intervention (Firdaus, 2025).

Field practice demonstrates that the adoption of digital technologies cloud computing, blockchain, and artificial intelligence in Indonesian sharia accounting has had a significant impact on the transparency and accountability of Islamic financial institutions. In addition to accelerating reporting cycles, these technologies simplify the process of verifying transaction compliance with sharia principles, resulting in reports that are not only more accurate but also accessible almost instantly to regulators, auditors, and other stakeholders (Mubarak & Lidyah, 2025).

Furthermore, the Islamic character of Islamic AIS does not stop at the recorded objects, but also extends to the design of its information system, so that this system also bears moral responsibility beyond just administrative functions. In general, the direction of the preparation of Islamic AIS is in line with the objectives of preparing accounting systems in general: supporting the management of new business units, improving the quality and accuracy of information from existing systems, strengthening internal controls and checks, and reducing administrative costs for recording (Ascarya, 2015).

3.5 New Efficiencies Generated

At least five new forms of efficiency emerge from the combination of technology and Islamic AIS. First, the previously time-consuming recording and reporting process can now be shortened thanks to automation. Second, blockchain technology offers an immutable record-keeping trail, making every transaction open to re-trace a characteristic that Islamic financial institutions leverage to strengthen the accountability of their reporting and reduce the potential for recording errors.

Third, artificial intelligence (AI) adds a layer of efficiency with its ability to recognize unusual transaction patterns, a feature that in Islamic banks can be an early warning sign of misuse of funds. Fourth, automation reduces reliance on error-prone manual input, reducing recording time while increasing reporting accuracy. Fifth, a more streamlined system structure also reduces the administrative burden on accounting staff, freeing up their time for more strategically valuable tasks (Darmawan & Nugraha, 2025).

3.6 Impact on Islamic Financial Institutions

In terms of impact, the implementation of technology-enabled sharia accounting has helped raise transparency and public trust in sharia banks. Banks that consistently adopt sharia accounting generally present product, transaction, and risk information more clearly than those that have not fully implemented it. However, the technical terminology inherent in sharia financial reports still makes it difficult for the general public to understand, and the consistency of reporting quality from period to period particularly in selecting and assessing sharia-compliant financial instruments remains a key area of ongoing improvement (Armah & Firdaus, 2024).

In practice, AIS has now penetrated Islamic banks, Islamic cooperatives, and even Islamic microfinance institutions, resulting in more accurate and efficient transaction recording. Several studies have even noted that institutions that rely on cloud-based AIS excel in recording speed and accuracy, as transactions can be recorded instantly, allowing decisions to be made without having to wait for manual recording to complete.

3.7 Implementation Challenges

Despite its promise, the path to digitalizing Islamic accounting remains fraught with eight key challenges. First, differing interpretations of Islamic provisions frequently arise among regulators, auditors, and banking practitioners. Although Islamic Financial Accounting Standards (SAK Syariah) provide clear guidelines, complex transactions still leave room for interpretation, leading to uncertainty regarding reporting compliance (Armah & Firdaus, 2024).

Second, the scarcity of human resources who master accounting and sharia principles simultaneously remains a stumbling block; many practitioners are fluent in conventional bookkeeping but do not fully understand the construction of contracts and the prohibitions on usury, *gharar*, and *maysir*, a gap that is exacerbated by the lack of sharia-certified auditors (Ascarya, 2015).

Third, various types of contracts such as *murabahah*, *mudharabah*, and *musyarakah* each require different accounting treatments, so that their understanding is much more complicated than conventional systems - even though the majority of accounting software on the market is still designed for conventional needs, so additional modifications are needed to align with sharia principles (Usmani, 2002).

Fourth, the cost of investing in technologies such as cloud computing, AI, and blockchain is expensive, often presenting a barrier, especially for small and medium-sized businesses (OJK, 2022). Fifth, the lack of fully uniform global standards also complicates matters. Although the AAOIFI (2020) has formulated international

guidelines, their implementation across countries remains variable, creating disparities in Sharia reporting and auditing across jurisdictions.

Sixth, low levels of Islamic financial literacy among the public have limited demand for Islamic-based services, which in turn has slowed the wider adoption of Islamic AIS. Seventh, digitalization has opened up cybersecurity gaps the more a system relies on technology, the greater the potential for cyberattacks and data leaks that can erode user trust. Eighth, incompatibilities between Islamic and conventional systems still frequently arise in institutions operating hybrid schemes, leading to inconsistent recordkeeping that complicates Islamic audits and weakens reporting transparency (Arifin, 2006).

CONCLUSION

The integration of information technology into Islamic accounting through cloud accounting, blockchain, and artificial intelligence—has been proven to generate new efficiencies: more automated transaction recording, faster financial reporting, increased accuracy, and stronger transparency and accountability for Islamic financial institutions. These efficiencies are not achieved at the expense of Islamic principles, as long as the information systems developed continue to ensure compliance with the prohibitions on *riba* (usury), *gharar* (gharar), and *maysir* (illegal gambling), and are based on the prevailing Islamic Financial Accounting Standards (PSAK) framework and the National Sharia National Sharia Regulations (DSN).

On the other hand, its implementation is still beset by multiple challenges from the scarcity of multi-skilled human resources, the burden of technology investment costs, data security risks, the complexity of aligning conventional systems with Sharia principles, to the lack of uniform global standards. This situation emphasizes that digital transformation in Sharia accounting requires enhanced human resource capacity, regulatory harmonization, and investment in adequate data security infrastructure to ensure sustainable benefits.

As a literature review, this article certainly has limitations because it is not supported by primary empirical data from specific Islamic financial institutions. Further research using empirical designs whether surveys, interviews, or case studies at specific Islamic financial institutions is therefore still widely available to directly test the efficiency and constraints of information technology implementation in Islamic accounting practices in the field.

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