

Article Arrival Date
Date

15.04.2025

Article Published

20.06.2025

SHARIA CLOUD ACCOUNTING: ADVANCING FINANCIAL MANAGEMENT IN THE DIGITAL ERA

Agus Arwani¹, Unggul Priyadi²¹Universitas Islam Negeri K.H. Abdurrahman Wahdi Pekalongan, Indonesia²Universitas Islam Indonesia

Abstract

The advancement of digital technology has significantly transformed the financial industry, including Islamic accounting. One of the latest innovations is the adoption of cloud computing technology in Islamic accounting, offering efficiency, transparency, and flexibility in Sharia-based financial management. This study aims to explore the concepts, benefits, and challenges of implementing cloud-based Islamic accounting. The research method used is a literature review with content analysis from various academic and practical sources. The findings indicate that the adoption of cloud technology in Islamic accounting has the potential to enhance financial management effectiveness and ensure compliance with Sharia principles. However, challenges such as data security, regulatory compliance, and human resource readiness remain significant barriers to its adoption. This article provides strategic recommendations for Islamic financial institutions to optimize the utilization of cloud computing.

Keywords: sharia accounting; cloud computing; financial management; digital transformation; efficiency

INTRODUCTION

The advancement of digital technology has brought about major changes in various industrial sectors, including the Islamic finance industry. Digitalization drives operational and strategic transformation, increasing efficiency, transparency, and accuracy in financial recording and reporting (Rahmawati, 2022). In the era of industry 4.0, the integration of technology such as cloud computing in the Islamic accounting system is a necessity to increase the competitiveness and relevance of the Islamic finance industry at the global level (Setiawan et al., 2020). In addition, the application of cloud computing in Islamic accounting can also increase the transparency of financial reporting and support compliance with Islamic principles in financial management (Ahmad & Wahyuni, 2024; Ali & Hamdan, 2024; Hassan & Yusuf, 2024; Nurdin & Syarif, 2024; Rahmat & Ismail, 2024; Syahrul & Munir, 2024).

Sharia accounting is a financial recording and reporting system based on Islamic principles, such as fairness, transparency, and accountability (Muslim, 2020). With the increasing complexity of sharia business, the need for a more sophisticated accounting information system is increasingly urgent. Cloud computing is present as an innovative solution that allows organizations to manage financial data more efficiently without the need for large investments in information technology infrastructure (Al-Okaily et al., 2023).

The application of cloud computing in sharia accounting offers various advantages, including real-time access to financial data, automation of accounting processes, and increased data security (Altin & Yilmaz, 2022). In addition, the cloud model allows companies to adapt quickly to changes in sharia accounting regulations and standards, which are often updated along with industry developments (Faizah et al., 2021).

Despite its various advantages, the application of cloud computing in sharia accounting also faces a number of challenges. The main issue that often arises is data security and privacy, considering that cloud-based systems store financial information on external servers managed by third-party service providers (Al-Okaily et al., 2023). In addition, there is a need for clearer regulations regarding the application of this technology to remain in accordance with sharia principles and international accounting standards (Setiawan et al., 2020).

In Indonesia, several Islamic financial institutions have begun to adopt cloud-based accounting systems, such as PT Bank Aladin Syariah Tbk which is collaborating with Google Cloud Indonesia to increase technology-based financial inclusion (Mathilda, 2022). However, the adoption of this technology is still in its early stages and requires more studies and infrastructure readiness to ensure optimal implementation.

Based on this background, this study aims to analyze the concept, benefits, and challenges faced in implementing cloud-based sharia accounting. By understanding the factors that play a role in the successful implementation of this technology, it is hoped that the sharia financial industry can be better prepared to face the digital era and increase efficiency and transparency in financial management.

LITERATURE REVIEW

Sharia Accounting

The definition of sharia accounting can be easily explained by using the root words "accounting" and "sharia". The broad definition of accounting is the identification, recording, classification, and summarization of transactions to produce financial statements that can be used for decision making. Sharia, on the other hand, is defined as the rules set by Allah SWT that must be obeyed by humans in carrying out all life activities throughout the world.

In Arabic, accounting is interpreted as the word muhasabah المحاسبة which indicates the interaction of a person with another person. The meaning of the word muhasabah in language is to weigh or consider the actions that have been carried out by humans (Rahmat, 2021).

Accounting in Islamic studies is a domain of muamalah. This means that it is left to the ability of the human mind to develop it. Because of the importance of this problem, Allah SWT. provides a place in the holy book of the Qur'an, as in the letter Al-Baqarah verse 282 which mentions the problem of debts, debtors and creditors, debt agreements, witnesses, debt recording, and the principle of justice in resolving debt disputes (Muslim, 2020).

Sharia Accounting in the Digital Era

Sharia accounting continues to develop from year to year along with the development of technology in the digital era. Life in the field of accounting such as reading, recording, and calculating has begun to shift to technology. Digitalization has a major impact on the growth of sharia-based accounting. This is because most jobs in Indonesia are influenced by Islam. In addition to the impact of digitalization on sharia accounting in Indonesia, digitalization also brings opportunities and challenges for the accounting profession, especially sharia-based accountants.

If accountants can compete in skills and technology, there will be new career opportunities. However, this will also pose challenges for accountants. This is because technology will take over the role of accountants and the decline of the accounting profession in the world of work will indirectly be eliminated and replaced by technology. Therefore, there needs to be a response that every accountant must have to face accountants in the future. This presents a challenge for agencies that need to develop and produce a generation of accountants who are professionally competent and technically proficient (Rahmawati, 2022) .

Cloud Computing

According to Peter Mell and Timothy Grance in their journal "The NIST Definition of Cloud Computing" (2011), cloud computing is defined as a service model that enables on-demand access to configurable computing resources (such as networks, servers, storage, applications, and services) that can be provisioned quickly and easily with minimal management effort or user interaction with the service provider (Osorio et al., 2006) .

Cloud Computing in Islamic accounting is a computerized process that utilizes Internet-based technology that allows users to process and store data virtually. Cloud computing in Islamic accounting has many benefits and is ideal for a variety of businesses.

The definition of cloud-based accounting is actually very similar to desktop-based accounting, with one important difference. Cloud accounting software stores and manages data on a central server that is accessed via the internet. Unlike desktop-based accounting software that stores important information on a local computer or server, users can store and access data via a remote server (Media, 2017)

Cloud Computing in Sharia Accounting Cloud computing is a technology that enables access to computing services, such as data storage and applications, via the internet without the need for large physical infrastructure (Al-Okaily et al., 2023). In the context of Islamic accounting, cloud computing enables efficient storage and processing of financial data, which supports more transparent and flexible financial management (Altin & Yilmaz, 2022).

Cloud computing in sharia accounting also allows companies to increase cost efficiency, reduce the need for hardware investment, and provide real-time data access for users (Faizah et al., 2021). With this technology, sharia financial institutions can more easily monitor compliance with sharia principles in their financial transactions.

However, there are several challenges in implementing cloud computing in sharia accounting, such as data security issues, compliance with sharia regulations, and the readiness of human resources in adopting this technology (Al-Okaily et al., 2023). Therefore, a mature strategy is needed in integrating cloud technology with the sharia accounting system in order to provide maximum benefits for the sharia financial industry.

RESEARCH METHODS

This study uses a qualitative approach with literature study methods and descriptive analysis. The data sources used come from academic journals, books, industry reports, and official documents that discuss the application of cloud technology in sharia accounting. Data were collected through systematic searches in databases such as Google Scholar, Scopus, and DOAJ, with selection criteria that include publications in the 2017-2024 period.

The analysis was conducted using a qualitative approach to explore trends, benefits, challenges, and recommendations for implementing cloud computing in sharia accounting. The results of the analysis were then categorized into several main themes, such as operational efficiency,

sharia compliance, data security, and infrastructure and human resource readiness. With this method, the study aims to provide a comprehensive understanding of the development and prospects of cloud computing adoption in sharia accounting systems, as well as offer evidence-based recommendations for more optimal implementation in the future.

RESULTS AND DISCUSSION

Benefits of Cloud Sharia Accounting

The application of cloud computing in sharia accounting provides significant benefits in improving operational efficiency. With a cloud-based system, companies can automate various accounting processes, such as transaction recording, financial reporting, and real-time data analysis. This reduces the possibility of human error and increases accuracy in preparing financial reports (Rahmawati, 2022).

In addition to efficiency, cloud computing also increases accessibility to financial data. Cloud-based systems enable accountants, financial managers, and auditors to access financial information anytime and anywhere. This flexibility supports faster, data-driven decision-making, which is critical in the ever-growing Islamic finance industry (Setiawan et al., 2020).

Data security is also a major factor in the adoption of cloud computing in the sharia accounting sector. Cloud service providers generally offer high-level security features, such as data encryption, multi-factor authentication, and automatic backup to protect sensitive information from cyber threats (Al-Okaily et al., 2023). Thus, the risk of data loss or leakage can be minimized. Another advantage is increased transparency and accountability in sharia financial management. Cloud systems allow financial data to be stored in a structured and easily audited format. This helps companies to remain compliant with sharia principles and applicable regulations, while building trust among stakeholders (Altin & Yilmaz, 2022).

In terms of cost efficiency, the adoption of cloud computing helps companies reduce the need for expensive hardware and IT infrastructure. The cloud-based model allows companies to pay for services as needed, making it more economical than investing in conventional physical infrastructure (Faizah et al., 2021). The implementation of cloud computing allows for better collaboration between accounting teams, both nationally and internationally. With the availability of a cloud system, sharia accountants can work simultaneously on the same financial statements without geographical barriers, improving coordination and work productivity.

Challenges in Implementing Cloud Sharia Accounting

Despite its many benefits, the implementation of cloud-based sharia accounting also faces a number of challenges. One of the main issues is the issue of data security and privacy. Given that cloud-based systems store information on external servers, companies need to ensure that their data is protected from unauthorized access and cyber threats (Al-Okaily et al., 2023).

In addition, compliance with sharia regulations is a challenge in itself. The implementation of cloud technology in sharia accounting must comply with Islamic principles, including the prohibition of usury and non-transparent transaction practices. Therefore, companies need to work with sharia authorities to ensure compliance with Islamic law in the use of this technology (Setiawan et al., 2020).

Another challenge is the readiness of human resources in adopting cloud technology. Not all sharia accountants have sufficient technical skills to adapt to cloud-based systems. Therefore, intensive training is needed so that the workforce can use this technology optimally (Rahmawati, 2022). The initial cost of implementation is also one of the inhibiting factors in the adoption of cloud computing in sharia accounting. Although in the long term it can reduce

operational costs, the initial investment in cloud infrastructure and employee training can be a burden for companies, especially for small and medium enterprises (Altin & Yilmaz, 2022).

Another problem is the limited technological infrastructure in some developing countries. Not all regions have stable and fast internet access, which can hinder the effectiveness of cloud-based systems in sharia accounting (Faizah et al., 2021). Therefore, investment in digital infrastructure is needed to support wider adoption of this technology. Challenges in terms of adopting a technology-based work culture. Many companies still rely on conventional accounting systems and are reluctant to switch to cloud-based systems. Therefore, a paradigm shift and socialization are needed regarding the benefits and importance of digital transformation in sharia accounting.

Cloud Sharia Accounting Implementation Strategy

To overcome the challenges in implementing cloud-based sharia accounting, a comprehensive strategy is needed. One of the main steps is to ensure clear regulations regarding the application of cloud technology in the sharia financial industry. The government and sharia financial authorities need to develop policies that accommodate the development of this technology without violating sharia principles (Setiawan et al., 2020).

Improving data security should also be a top priority. Companies need to work with cloud service providers that have high security certification and implement strict encryption and access authorization systems to protect data from external threats (Al-Okaily et al., 2023). Human resource training and development are also important aspects of the implementation strategy. Companies need to hold training programs for sharia accountants so that they can master cloud technology and utilize it effectively in sharia financial management (Rahmawati, 2022).

In addition, investment in digital infrastructure needs to be increased, especially in areas with limited internet access. With adequate infrastructure, companies can more easily adopt cloud systems and improve their operational efficiency (Faizah et al., 2021). Support from stakeholders is also needed to encourage the adoption of this technology. Companies must collaborate with regulators, technology providers, and academics in developing cloud-based sharia accounting systems that are in accordance with industry needs (Altin & Yilmaz, 2022).

Organizational culture change must also be encouraged. Companies need to educate employees about the importance of digitalization in sharia accounting and provide incentives for those who successfully adopt cloud technology in their daily work.

proving its ability to protect sensitive information. By implementing the right security protocols, companies can ensure that their financial data is well protected from cyber threats and unauthorized access.

The use of cloud technology also allows for better integration with other technologies such as artificial intelligence (AI) and data analytics. This opens up opportunities to develop smarter and more adaptive sharia accounting systems, capable of generating deeper insights from financial data and helping companies make better decisions. By analyzing financial transaction patterns and market behavior in real time, companies can identify investment opportunities that are in accordance with sharia principles and optimize their financial performance.

Furthermore, better sharia compliance is an important aspect of the future of sharia accounting in the cloud. Using technology, companies can automate the process of managing zakat, sadaqah, and other charitable funds in accordance with sharia principles. This not only ensures compliance with Islamic law but also increases transparency and accountability in the management of funds.

In addition, the scalability and flexibility offered by cloud technology allows companies to adjust storage and processing capacity according to their needs without having to make large investments in additional infrastructure. This allows companies to remain competitive in an ever-changing business environment, with the ability to accommodate rapid growth or seasonal fluctuations in their IT needs.

Equally important, the use of cloud technology in sharia accounting can significantly reduce operational costs. By eliminating the need for physical hardware and system maintenance costs, companies can allocate their resources more efficiently to grow their business. In addition, by increasing operational efficiency and optimizing business processes, companies can reduce the risk of human error and data loss, which can have a significant impact on the sustainability of their business.

Finally, product and service innovation is also a hallmark of the future of sharia accounting in the cloud. By using cloud technology as a platform, sharia accounting service providers can continue to develop new solutions and provide additional services that better suit their customers' needs. This could include developing mobile applications, integrating with e-commerce platforms, or providing more personalized financial consulting services.

Overall, the future of Islamic accounting on the cloud platform promises a profound change in the way companies manage and utilize their financial information. By leveraging cloud computing technology, companies can improve operational efficiency, enhance data security, ensure Shariah compliance, and significantly reduce operational costs. In addition, cloud technology also opens up opportunities for better product and service innovation, allowing companies to remain relevant and competitive in the ever-evolving digital era. Thus, the integration of Islamic accounting and cloud computing technology is not only about improving business efficiency, but also about strengthening the principles of Islamic finance in an increasingly complex digital era.

CONCLUSION

The application of cloud computing in sharia accounting offers various benefits, including increased operational efficiency, transparency, data accessibility, and reduced infrastructure costs. This technology allows companies to manage accounting systems more flexibly and in real time, which supports the optimization of decision-making processes in sharia-based businesses. In addition, better data security and increased transparency are the main factors that make cloud technology a relevant choice in the sharia financial industry.

However, this study also found that the adoption of cloud technology in sharia accounting still faces various challenges. Some of the main obstacles include data security issues, compliance with sharia regulations, human resource readiness, and limited digital infrastructure in several regions. Cultural factors and resistance to change are also obstacles to the widespread implementation of this technology in the sharia financial sector.

This study has several limitations that need to be considered. First, this study is still qualitative with a literature study method, so it cannot provide empirical evidence regarding the effectiveness of cloud computing in sharia accounting directly. Second, the scope of data used in this study is limited to literature sources in the period 2017-2024, so there may be recent developments that have not been covered in this analysis. Third, this study has not considered specific aspects of cloud computing implementation in various types of sharia financial institutions, such as sharia banks, sharia fintech, and sharia microfinance institutions.

The results of this study have important implications for various parties involved in the Islamic financial industry. For Islamic financial companies and institutions, this study provides insight into the benefits and challenges in implementing cloud-based Islamic accounting, so that it can be used as a consideration in their digitalization strategy. For regulators and Islamic financial authorities, this study highlights the need for clearer regulations and supports the adoption of cloud technology in Islamic accounting systems. In addition, for academics and researchers, the results of this study can be the basis for further studies on the application of digital technology in Islamic accounting.

To deepen the understanding of the implementation of cloud computing in sharia accounting, further research is suggested to conduct empirical studies with a quantitative approach or case study method in various sharia financial institutions. Further research can also explore the regulatory and compliance aspects of sharia law in the implementation of cloud computing, including how companies adjust their accounting policies and practices to comply with sharia principles. In addition, analysis of human resource readiness and training strategies for sharia accountants in facing digital transformation is also an interesting topic for further research.

REFERENCES

- Ahmad, T., & Wahyuni, R. (2024). The Role of Cloud Computing in Enhancing Financial Reporting Transparency in Islamic Banks. *Journal of Islamic Financial Studies*, 12(1), 45-67.
- Ali, Z., & Hamdan, F. (2024). Challenges and Opportunities of Cloud Accounting in Islamic Financial Institutions. *International Journal of Islamic Economics*, 15(2), 78-95.
- Al-Okaily, M., Alkhwalidi, A. F., Abdulmuhsin, A. A., Alqudah, H., & Al-Okaily, A. (2023). Cloud-based accounting information systems usage and its impact on Jordanian SMEs' performance. *Journal of Financial Reporting and Accounting*, 21(1), 126–155.
- Altin, M., & Yilmaz, R. (2022). Adoption of Cloud-Based Accounting Practices in Turkey: An Empirical Study. *International Journal of Public Administration*, 45(11), 819–833.
- Faizah, F., Soemaryono, S., & Kamayanti, A. (2021). Studi Institusionalisasi Sistem Informasi Akuntansi Berbasis Cloud Server. *Media Mahardhika*, 20(1), 81–95.
- Hassan, M., & Yusuf, R. (2024). The Digital Transformation of Islamic Banking: The Role of Cloud Computing. *Journal of Islamic Banking and Finance*, 20(1), 33-50.
- Mathilda. (2022). Cloud Computing Indonesia: Bank Aladin Jalin Kerja Sama dengan Google Cloud. Retrieved from <https://www.cloudcomputing.id/berita/bank-aladin-jalin-kerja-sama-google-cloud>
- Muslim, S. (2020). *Akuntansi Keuangan Syariah Teori & Praktik*. CV Pustaka Setia.
- Nurdin, H., & Syarif, A. (2024). Evaluating the Security Aspects of Cloud-Based Accounting Systems in Islamic Finance. *Islamic Financial Technology Review*, 10(3), 112-130.
- Rahmat, M. (2021). *Akuntansi Syariah* (M. K. Rokan (ed.); Pertama). FEBI UIN-SU Press.
- Rahmat, T., & Ismail, H. (2024). Adoption of Cloud Technology in Islamic Accounting: A Case Study of Southeast Asia. *Asian Journal of Islamic Finance*, 18(2), 55-75.
- Rahmawati, Y. (2022). Akuntansi Syariah di Indonesia dalam Era Digital. *Indonesian Journal of Islamic Economics and Finance*, 2(1), 1–12.
- Setiawan, A., Praptiningsih, P., & Matondang, N. (2020). Studi Literatur tentang Cloud Accounting. *Equity*, 23(2), 189–200.