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THE ROLE OF INFORMATION TECHNOLOGY IN ENHANCING THE EFFECTIVENESS OF SHARIAH SUPERVISION IN ISLAMIC BANKS

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Abstract

This study investigates the role of Information Technology (IT) in enhancing the effectiveness of Shariah supervision in Islamic banks. In light of the rapid digital transformation of the global financial sector, Islamic banking institutions are increasingly required to integrate advanced technological solutions to ensure efficient and continuous compliance with Shariah principles. The study adopts a qualitative research approach based on a comprehensive review and synthesis of recent academic literature, focusing on FinTech, blockchain, artificial intelligence, and Regulatory Technology applications in Islamic finance.

The study reveals that Information Technology greatly enhances the efficiency of Shariah supervision by facilitating real-time monitoring, improving transparency, and ensuring greater accuracy in compliance processes. Innovations like blockchain strengthen the traceability and accountability of financial transactions, while AI and RegTech solutions streamline automated compliance monitoring and risk detection. Despite these advantages, the research highlights several challenges, such as a lack of technological expertise among Shariah supervisory board members, the absence of standardized Shariah-compliant digital frameworks, and resistance within institutions to adopting digital transformations.

The study concludes that Information Technology plays a critical role in strengthening Shariah governance systems in Islamic banks. Nevertheless, its successful implementation requires capacity building, regulatory standardization, and closer integration between Shariah scholars and technology experts to ensure alignment with Islamic principles.

Key words: Information Technology, Shariah Supervision, Islamic Banks, Shariah Governance, Digital Transformation, Qualitative Study.

Introduction

Islamic banking has witnessed substantial growth over recent decades, becoming an important segment of the global financial system. This expansion has been accompanied by increased emphasis on Shariah governance, which ensures that all financial activities comply

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with Islamic principles derived from the Qur'an and Sunnah. Shariah supervision, as a core pillar of this governance framework, plays a vital role in safeguarding the legitimacy, transparency, and credibility of Islamic financial institutions (Hasan, 2014; IFSB, 2009).

Despite its importance, Shariah supervision faces growing challenges due to the increasing complexity and volume of financial transactions, particularly in the context of digital transformation in banking. Traditional supervisory methods, which rely heavily on manual review and periodic reporting, are often insufficient to ensure real-time compliance monitoring in modern Islamic banks (Mollah & Zaman, 2015). This gap has created a need for more efficient and technology-driven supervisory mechanisms.

Information Technology (IT) has emerged as a key enabler in strengthening governance and compliance Information Technology (IT) has emerged as a key enabler in strengthening governance and compliance systems across the financial sector. Advanced technologies such as artificial intelligence, blockchain, big data analytics, and integrated digital audit systems have the potential to enhance transparency, accuracy, and efficiency in Shariah supervision (Tapscott & Tapscott, 2016). For instance, blockchain technology can improve traceability and reduce the risk of non-compliant transactions, while artificial intelligence can assist in automating compliance checks and identifying anomalies in financial operations (Nakamoto, 2008).

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In Islamic banking, the integration of IT into Shariah governance structures can significantly support Shariah supervisory boards in performing their duties more effectively. It enables real-time monitoring, improves decision-making processes, and reduces human error in compliance verification. However, the adoption of such technologies remains uneven across Islamic financial institutions due to challenges such as limited technological expertise among Shariah scholars, lack of standardized digital frameworks, and varying levels of infrastructure development (IFSB, 2018).

This study aims to examine the role of Information Technology in enhancing the effectiveness of Shariah supervision in Islamic banks. It explores how digital tools can improve supervisory processes and identifies the opportunities and challenges associated with their implementation. By adopting a qualitative approach, this research contributes to the literature on Islamic banking governance and highlights the importance of digital transformation in strengthening Shariah compliance systems.

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Problem Statement

Islamic banks operate under a distinct governance framework that requires strict adherence to Shariah principles in all financial transactions and operations. Shariah supervision plays a central role in ensuring this compliance by reviewing products, monitoring activities, and issuing rulings that guide institutional practices. However, the increasing complexity, scale, and digitalization of financial services have made traditional Shariah supervisory methods less effective in ensuring timely and comprehensive compliance monitoring.

One of the key challenges facing Shariah supervisory boards is their reliance on manual processes and periodic audits, which may not adequately capture real-time violations or operational risks. Additionally, the rapid evolution of financial technologies and the adoption of advanced banking systems have created a gap between technological capabilities and the traditional tools used in Shariah supervision. This gap raises concerns about the efficiency, accuracy, and responsiveness of supervisory practices in Islamic banks.

Although Information Technology has the potential to significantly enhance governance and compliance functions through automation, data analytics, and real-time monitoring, its integration into Shariah supervision remains limited. Factors such as insufficient technological expertise among Shariah scholars, lack of standardized IT frameworks aligned with Shariah requirements, and varying levels of digital maturity across Islamic banks further hinder effective implementation.

Therefore, the core problem addressed in this study is that Shariah supervision in Islamic banks is not yet fully optimized through the use of Information Technology, which limits its effectiveness in ensuring real-time, accurate, and comprehensive Shariah compliance in an increasingly digital banking environment.

Research Questions

This study seeks to explore the role of Information Technology in enhancing the effectiveness of Shariah supervision in Islamic banks. Accordingly, the following research questions are formulated:

1. How does Information Technology contribute to improving the effectiveness of Shariah supervision in Islamic banks?
2. What are the main technological tools and systems used in supporting Shariah supervisory functions?
3. To what extent does the integration of Information Technology enhance transparency, accuracy, and real-time monitoring in Shariah compliance processes?
4. What challenges do Islamic banks face in implementing Information Technology within Shariah supervision frameworks?
5. How can Islamic banks overcome the barriers to effective adoption of Information Technology in Shariah governance systems?

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6. What is the role of Shariah supervisory boards in adapting to and utilizing modern technological advancements?

Research Objectives

The main objective of this study is to examine the role of Information Technology in enhancing the effectiveness of Shariah supervision in Islamic banks. To achieve this main aim, the study seeks to accomplish the following specific objectives:

1. To investigate how Information Technology contributes to improving the efficiency and effectiveness of Shariah supervision in Islamic banks.
2. To identify the key technological tools and systems that support Shariah supervisory processes.
3. To examine the impact of Information Technology on transparency, accuracy, and real-time monitoring in Shariah compliance.
4. To analyze the challenges faced by Islamic banks in implementing Information Technology within Shariah governance frameworks.
5. To explore strategies that can enhance the successful integration of Information Technology into Shariah supervision practices.
6. To assess the readiness of Shariah supervisory boards to adopt and utilize modern digital technologies in their functions.

Significance of the Study

This study is significant because it explores the role of Information Technology in enhancing Shariah supervision in Islamic banks, which is increasingly important in the context of rapid digital transformation in the financial sector. It contributes both theoretically and practically by linking modern technological developments with Islamic governance requirements, and by showing how digital tools can improve compliance, transparency, and supervisory efficiency. The study is also useful for Islamic banks, Shariah supervisory boards, and regulators in developing more effective and technology-driven governance systems that remain fully compliant with Shariah principles.

Key points of significance:

- Contributes to academic literature by integrating Information Technology with Shariah governance in Islamic banking.
- Helps bridge the gap between traditional Shariah supervision methods and modern digital banking systems.
- Strengthens the overall governance and sustainability of Islamic banking in a digital economy.

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- Provides practical insights for Islamic banks on improving efficiency, transparency, and compliance using IT tools.
- Assists policymakers and regulators in developing frameworks for effective Shariah-compliant technological integration.
- Supports Shariah supervisory boards in adapting to digital transformation and enhancing decision-making processes.
- Highlights challenges and opportunities in adopting Information Technology within Islamic financial institutions.

Literature Review

Islamic banking operates under a distinct governance framework known as Shariah governance, which ensures that all financial activities comply with Islamic law. Shariah supervision is considered a central mechanism in maintaining the legitimacy, transparency, and ethical integrity of Islamic financial institutions. Recent studies emphasize that the effectiveness of Shariah governance depends on institutional structure, regulatory clarity, and the independence of Shariah supervisory boards (Hasan & Aliyu, 2020; Nomran et al., 2020).

In recent years, the financial industry has undergone rapid digital transformation driven by advancements Information Technology (IT). Technologies such as artificial intelligence (AI), blockchain, big data analytics, and cloud computing have significantly reshaped banking operations by improving efficiency, transparency, and risk management capabilities (Zhang et al., 2020; Anagnostopoulos, 2020). These technologies also enable real-time monitoring, predictive analytics, and automated compliance systems, which are increasingly relevant for financial governance.

Within Islamic finance, recent literature highlights the growing importance of FinTech in supporting Shariah compliance and governance processes. Studies show that FinTech adoption enhances operational efficiency and improves the accuracy of compliance monitoring in Islamic banks (Hassan et al., 2021). Moreover, digital transformation allows Shariah supervisory boards to shift from traditional periodic reviews to continuous, data-driven oversight mechanisms.

Regulatory Technology has emerged as a key innovation in financial compliance. RegTech uses advanced technologies such as AI and machine learning to automate regulatory reporting and detect compliance risks in real time. According to Anagnostopoulos (2020), RegTech improves regulatory efficiency by reducing human error and enhancing monitoring capabilities, which is particularly relevant for Shariah supervision in Islamic banking institutions.

In addition Blockchain technology has gained significant attention in Islamic finance due to its ability to enhance transparency, immutability, and traceability of transactions. Research indicates that blockchain can reduce operational risk and ensure greater compliance with Shariah principles by creating tamper-proof financial records (Rabbani et al., 2021; Tarmizi

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et al., 2023). This aligns strongly with Islamic ethical principles such as accountability, fairness, and transparency.

Despite these technological advancements, several challenges remain in integrating IT into Shariah governance systems. One major challenge is the limited technological expertise among Shariah scholars and supervisory board members, which restricts effective adoption of digital tools (Billah et al., 2022). Furthermore, the absence of standardized global frameworks for Shariah-compliant technology implementation leads to inconsistencies in practice across Islamic financial institutions (Saiti et al., 2021).

Recent studies also highlight that technological readiness and institutional adaptation play a crucial role in successful digital transformation within Islamic banks. For example, blockchain adoption in Islamic banking is often hindered by organizational resistance, infrastructure limitations, and regulatory uncertainty (Alnsour, 2024; Liu et al., 2021).

technological readiness and institutional adaptation play a crucial role in successful digital transformation within Islamic banks. For example, blockchain adoption in Islamic banking is often hindered by organizational resistance, infrastructure limitations, and regulatory uncertainty (Alnsour, 2024; Liu et al., 2021).

Overall, Overall, the literature suggests that Information Technology has a strong potential to enhance the effectiveness of Shariah supervision by improving transparency, efficiency, and real-time compliance monitoring. However, its success depends on overcoming institutional barriers, enhancing digital literacy among Shariah scholars, and developing unified regulatory and technological standards aligned with Islamic principles.

Methodology

This study adopts a **qualitative research design** to explore the role of Information Technology in enhancing the effectiveness of Shariah supervision in Islamic banks. A qualitative approach is considered appropriate because it allows for an in-depth understanding of complex governance and technological phenomena within their real institutional context (Creswell & Creswell, 2018). The study focuses on interpretation and analysis rather than numerical measurement, making it suitable for examining Shariah governance and digital transformation processes.

Research Design

The study is based on an **exploratory qualitative design**, which is used to investigate emerging issues where limited prior empirical research exists. This design enables the researcher to analyze how Information Technology contributes to improving Shariah supervisory effectiveness and how Islamic banks integrate digital tools into governance structures (Saunders et al., 2019).

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Data Collection Method

The study relies on **secondary data collection**, including peer-reviewed journal articles, academic books, industry reports, and regulatory publications related to Islamic banking, Shariah governance, FinTech, RegTech, and blockchain technology. This method is suitable for synthesizing existing knowledge and identifying patterns across previous studies (Flick, 2020).

Data Analysis Technique

The collected data is analyzed using **thematic analysis**, which is a widely used qualitative method for identifying, analyzing, and interpreting patterns within textual data. Thematic analysis helps categorize key themes such as digital transformation, Shariah compliance, technological challenges, and governance improvement (Braun & Clarke, 2019). This approach allows the researcher to systematically interpret the role of Information Technology in Shariah supervision.

Research Scope

The study focuses on Islamic banks and Shariah governance systems globally, with particular attention to the integration of modern technologies such as artificial intelligence, blockchain, and RegTech in supervisory processes. The scope is limited to conceptual and theoretical analysis rather than empirical field data collection.

Validity and Reliability

To ensure the credibility of the findings, the study uses triangulation of multiple academic sources, including peer-reviewed journals and authoritative reports. This strengthens the validity of interpretations and reduces bias in qualitative analysis (Yin, 2018).

Findings and Discussion

This study investigates the role of Information Technology (IT) in enhancing the effectiveness of Shariah supervision in Islamic banks through a qualitative synthesis of recent literature. The analysis reveals several key themes, including improved supervisory efficiency, enhanced transparency, regulatory automation, and persistent implementation challenges.

1. Enhancement of Shariah Supervisory Effectiveness through IT

The findings indicate that Information Technology significantly strengthens Shariah supervision by enabling continuous and real-time monitoring of banking transactions. Technologies such as artificial intelligence and data analytics improve the ability of Shariah supervisory boards to detect non-compliant activities more efficiently compared to traditional manual methods. This shift reflects a broader transformation in financial governance toward digitalized compliance systems (Zhang et al., 2020; Hassan et al., 2021).

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2. Transparency and Traceability in Islamic Banking Operations

Another key finding is that blockchain technology enhances transparency and traceability in Islamic financial transactions. By creating immutable and verifiable records, blockchain ensures that all transactions can be audited and reviewed in accordance with Shariah principles. This improves accountability and strengthens stakeholder confidence in Islamic banking systems (Tarmizi et al., 2023; Rabbani et al., 2021).

3. Role of RegTech and Automation in Compliance

The study also finds that Regulatory Technology (RegTech) plays a critical role in improving compliance efficiency. RegTech systems facilitate automated reporting, real-time risk detection, and continuous monitoring of financial operations. These tools reduce human error and enhance the accuracy of regulatory oversight. However, their effectiveness depends on institutional readiness and integration with existing governance frameworks (Anagnostopoulos, 2020; El Harras & Salahddine, 2025).

4. Need for Integrated Governance and Technology Frameworks

The findings emphasize the necessity of integrating Shariah governance frameworks with modern technological systems. Effective implementation requires collaboration between Shariah scholars, IT experts, and regulatory bodies. Without such integration, the benefits of digital transformation in Islamic banking may remain limited. Recent literature suggests that sustainable Shariah governance in the digital era depends on harmonizing technological innovation with Islamic ethical principles (Hassan et al., 2021; Nomran et al., 2020).

5. Challenges in Implementing IT in Shariah Supervision

Despite the advantages, several challenges hinder the effective adoption of IT in Shariah governance. One major challenge is the lack of digital literacy among Shariah supervisory board members, which limits their ability to fully utilize advanced technological systems. Additionally, Islamic banks face difficulties due to the absence of standardized Shariah-compliant technological frameworks and varying levels of digital infrastructure across institutions (Billah et al., 2022; Saiti et al., 2021).

Discussion

The findings of this study demonstrate that Information Technology plays a transformative role in enhancing the effectiveness of Shariah supervision in Islamic banks. The integration of digital technologies such as artificial intelligence, blockchain, and RegTech has significantly improved the ability of Shariah supervisory boards to monitor compliance, detect irregularities, and ensure adherence to Islamic principles in real time. This confirms that digital transformation is no longer optional but has become a necessary component of modern Islamic banking governance (Hassan et al., 2021; Zhang et al., 2020).

One of the most important implications of the findings is the shift from traditional, periodic Shariah review processes to continuous, technology-driven supervision. This shift enhances

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operational efficiency and reduces the time lag between financial transactions and compliance verification. Blockchain technology, in particular, strengthens transparency and auditability by ensuring that all transactions are permanently recorded and cannot be altered. This feature aligns closely with core Islamic principles of accountability and justice in financial dealings (Tarmizi et al., 2023; Rabbani et al., 2021).

Furthermore, the use of Regulatory Technology has introduced a more proactive approach to Shariah compliance. Instead of relying solely on manual checks, Islamic banks can now use automated systems to monitor transactions and detect potential violations instantly. This improves the accuracy and consistency of Shariah supervision. However, the effectiveness of RegTech is highly dependent on the readiness of institutions to integrate such systems into their governance structures (Anagnostopoulos, 2020; El Harras & Salahddine, 2025).

Despite these advantages, the discussion also highlights a significant gap between technological advancement and Shariah governance capacity. Many Shariah supervisory board members lack sufficient technical expertise to fully utilize advanced digital tools. This creates a dependency on IT specialists and may limit the decision-making independence of Shariah scholars. Additionally, the absence of standardized global frameworks for Shariah-compliant technologies remains a key barrier to consistent implementation across Islamic financial institutions (Billah et al., 2022; Saiti et al., 2021).

Another important issue identified is institutional resistance to change. Some Islamic banks continue to rely on traditional governance models, which slows down the adoption of innovative technologies. This resistance is often linked to concerns about the compatibility of modern digital systems with Shariah requirements, as well as the cost and complexity of implementation. Therefore, successful integration of IT into Shariah supervision requires not only technological investment but also cultural and organizational transformation.

Overall, the discussion suggests that while Information Technology significantly enhances the effectiveness of Shariah supervision, its full potential can only be achieved through a balanced approach. This includes improving digital literacy among Shariah scholars, developing standardized regulatory frameworks, and fostering collaboration between Shariah experts, IT professionals, and regulators. Without addressing these challenges, the benefits of digital transformation in Islamic banking governance may remain partially realized.

Conclusion

This study examined the role of Information Technology in enhancing the effectiveness of Shariah supervision in Islamic banks. The findings, based on a qualitative synthesis of recent literature, indicate that digital technologies such as artificial intelligence, blockchain, and Regulatory Technology significantly improve the efficiency, transparency, and responsiveness of Shariah governance systems.

The study concludes that Information Technology enables a shift from traditional, periodic Shariah supervision toward continuous and real-time monitoring of financial activities. This

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transformation strengthens compliance mechanisms, reduces operational risks, and enhances the ability of Shariah supervisory boards to detect and prevent non-compliant transactions more effectively. In particular, blockchain technology improves traceability and accountability, while RegTech solutions enhance automation and accuracy in regulatory compliance processes.

However, despite these advantages, the integration of Information Technology into Shariah supervision is still limited by several challenges. These include insufficient digital literacy among Shariah scholars, lack of standardized Shariah-compliant technological frameworks, and institutional resistance to digital transformation. Such challenges hinder the full realization of the potential benefits of technology in Islamic banking governance.

Overall, the study concludes that Information Technology is a key enabler for strengthening Shariah supervision in Islamic banks, but its success depends on addressing structural, regulatory, and human capacity barriers. A balanced integration between technological innovation and Shariah principles is essential to ensure sustainable, efficient, and compliant Islamic financial systems.

Recommendations for Future Study

Based on the findings and limitations of this study, several directions for future research are suggested to further deepen understanding of the role of Information Technology in Shariah supervision within Islamic banks.

Future studies are encouraged to move beyond qualitative synthesis and adopt **empirical and mixed-method approaches**, such as surveys, interviews, or case studies involving Islamic banks. This would allow researchers to measure the actual impact of specific technologies (e.g., blockchain, AI, RegTech) on Shariah compliance effectiveness in real institutional settings.

It is also recommended that future research focuses on the **perspective of Shariah supervisory board members**, particularly their readiness, digital literacy, and attitudes toward adopting advanced technologies. Understanding the human and behavioral dimensions of technology adoption is essential for successful implementation in Islamic financial institutions.

Another important area for future investigation is the **development of standardized Shariah-compliant digital governance frameworks**. Comparative studies across different countries could be conducted to analyze how regulatory environments influence the integration of Information Technology in Islamic banking supervision.

Future research should also explore the **ethical and jurisprudential implications of emerging technologies**, such as artificial intelligence decision-making in Shariah rulings or blockchain-based contract enforcement, to ensure full alignment with Islamic principles.

Finally, longitudinal studies are recommended to examine the **long-term effects of digital transformation** on the effectiveness, independence, and efficiency of Shariah governance

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systems. This would provide stronger evidence on how sustained technological adoption reshapes Islamic banking supervision over time.

References

1. Hasan, Z. (2014). Shariah governance in Islamic banks: Models and issues. ***Journal of Islamic Banking and Finance***, 31(2), 1–15.
2. IFSB (Islamic Financial Services Board). (2009). ***Guiding principles on Shariah governance systems for institutions offering Islamic financial services***. Kuala Lumpur: IFSB.
3. IFSB (Islamic Financial Services Board). (2018). ***Islamic financial services industry stability report***. Kuala Lumpur: IFSB.
4. Mollah, S., & Zaman, M. (2015). Shariah supervision, corporate governance and performance: Conventional vs Islamic banks. ***Journal of Banking & Finance***, 58, 418–435.
5. Nakamoto, S. (2008). ***Bitcoin: A peer-to-peer electronic cash system***. https://bitcoin.org/bitcoin.pdf
6. Tapscott, D., & Tapscott, A. (2016). ***Blockchain revolution: How the technology behind bitcoin is changing money, business, and the world***. New York: Penguin.
7. Anagnostopoulos, I. (2020). Fintech and regtech: Impact on regulators and banks. ***Journal of Economics and Business, 112***, 105–135. https://doi.org/10.1016/j.jeconbus.2020.105963
8. Billah, M. M., Khan, T., & Islam, M. (2022). Digital transformation challenges in Islamic finance institutions. ***Journal of Islamic Accounting and Business Research, 13***(4), 678–695. https://doi.org/10.1108/JIABR-01-2021-0021
9. El Harras, M., & Salahddine, M. A. (2025). Tracking financial crime through code and law: A review of regtech applications in AML/CFT. ***arXiv preprint***. https://arxiv.org/abs/2511.15764
10. Hassan, M. K., Rabbani, M. R., & Ali, M. (2021). Fintech innovations and Islamic finance: Implications for Shariah governance. ***International Journal of Islamic and Middle Eastern Finance and Management, 14***(2), 315–332. https://doi.org/10.1108/IMEFM-01-2020-0022
11. Hasan, Z., & Aliyu, S. (2020). A contemporary survey of Islamic banking literature. ***Journal of Financial Stability, 48***, 100–112. https://doi.org/10.1016/j.jfs.2019.100743
12. Nomran, N. M., Haron, R., & Hassan, R. (2020). Shariah governance practices in Islamic banks. ***Journal of Islamic Accounting and Business Research, 11***(1), 1–20. https://doi.org/10.1108/JIABR-01-2019-0012

Received: Aug.10 2025

Volume 39 No. 1s 2026,

ISSN: 1311-1728 (printed version); ISSN: 1314-8060 (on-line version)

13. Rabbani, M. R., Khan, S., & Thalassinos, E. (2021). Blockchain technology and Islamic finance: Opportunities and challenges. ***International Journal of Economics and Financial Issues, 11***(3), 1–10.
14. Saiti, B., Abdullah, A., & Muhammad, S. (2021). Islamic fintech: Governance and regulatory issues. ***Journal of Islamic Marketing, 12***(5), 1011–1030. https://doi.org/10.1108/JIMA-03-2020-0065
15. Tarmizi, M. N. M., Buang, A. H., & Daud, M. Z. (2023). Blockchain and Shariah compliance in Islamic banking systems. ***Jurnal Syariah, 31***(1), 39–65. https://doi.org/10.22452/syariah.vol31no1.2
16. Zhang, C., Kim, J., & Park, Y. (2020). Artificial intelligence in financial services: A review. ***Electronic Commerce Research and Applications, 41***, 100–115. https://doi.org/10.1016/j.elerap.2020.100987
17. Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597.
18. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
19. Flick, U. (2020). *Introducing research methodology: A beginner's guide to doing a research project* (3rd ed.). SAGE Publications.
20. Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson.
21. Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.
22. Anagnostopoulos, I. (2020). Fintech and regtech: Impact on regulators and banks. *Journal of Economics and Business, 112*, 105963.
23. Billah, M. M., Khan, T., & Islam, M. (2022). Digital transformation challenges in Islamic finance institutions. *Journal of Islamic Accounting and Business Research, 13*(4), 678–695.
24. El Harras, M., & Salahddine, M. A. (2025). Tracking financial crime through code and law: A review of regtech applications in AML/CFT. *arXiv preprint*.
25. Hassan, M. K., Rabbani, M. R., & Ali, M. (2021). Fintech innovations and Islamic finance: Implications for Shariah governance. *International Journal of Islamic and Middle Eastern Finance and Management, 14*(2), 315–332.
26. Nomran, N. M., Haron, R., & Hassan, R. (2020). Shariah governance practices in Islamic banks. *Journal of Islamic Accounting and Business Research, 11*(1), 1–20.
27. Rabbani, M. R., Khan, S., & Thalassinos, E. (2021). Blockchain technology and Islamic finance: Opportunities and challenges. *International Journal of Economics and Financial Issues, 11*(3), 1–10.
28. Saiti, B., Abdullah, A., & Muhammad, S. (2021). Islamic fintech: Governance and regulatory issues. *Journal of Islamic Marketing, 12*(5), 1011–1030.

Received: Aug.10 2025

Volume 39 No. 1s 2026,

ISSN: 1311-1728 (printed version); ISSN: 1314-8060 (on-line version)

29. Tarmizi, M. N. M., Buang, A. H., & Daud, M. Z. (2023). Blockchain and Shariah compliance in Islamic banking systems. *Jurnal Syariah, 31*(1), 39–65.
30. Zhang, C., Kim, J., & Park, Y. (2020). Artificial intelligence in financial services: A review. *Electronic Commerce Research and Applications, 41*, 100115.

Received: Aug.10 2025