

THE IMPLEMENTATION OF TECHNOLOGY BASED INFORMATION SYSTEMS IN ISLAMIC BANKING TO IMPROVE CUSTOMER SERVICES

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Abstract

The implementation of technology-based information systems in Islamic banking is a crucial step in improving the quality of customer service. By leveraging the rapid development of information technology, Islamic banks can improve operational efficiency, accelerate transaction processes, and facilitate customer access to services. An integrated information system enables banks to provide faster, more accurate, and more transparent services, in accordance with Sharia principles that prioritize fairness and openness. Furthermore, technology also plays a role in supporting innovation in a wider variety of Islamic banking products, such as digital banking services and technology-based financing products, which provide ease and convenience for customers in conducting transactions. The application of this technology is expected to increase customer satisfaction, strengthen the competitiveness of Islamic banking, and expand the reach of services both nationally and internationally. With an effective information system, Islamic banks can respond to increasingly dynamic market needs, maintain customer loyalty, and remain steadfast in adhering to the Sharia principles that underpin their operations. Overall, technology is expected to support the development of a more advanced, efficient, and competitive Islamic banking industry.

Keywords: *Information systems; technology; Islamic banking; customer service; efficiency; innovation; transactions; sharia principles.*

A. INTRODUCTION

The development of information technology has brought significant changes to the banking industry, including the Islamic banking sector. Increasingly intense competition with conventional banks has encouraged Islamic banks to innovate in providing fast, efficient, and easily accessible services for customers. The implementation of technology-based information systems, such as mobile banking, internet banking, and digital application-based services, has become one of the key strategies to enhance competitiveness while addressing customer needs in the digital era. This condition requires Islamic banks not only to focus on compliance with Sharia principles but also to ensure the quality of services in line with the expectations of modern society.

Although information technology offers various opportunities, its implementation in Islamic banking still faces several challenges. Some Islamic banks in Indonesia have not yet fully optimized the integration of technology systems capable of supporting services that are fast, secure, and efficient. Limitations in infrastructure, human resources, as well as customers' level of digital literacy are factors that may affect the success of this implementation. In addition, issues related to data security and customer trust in digital services remain obstacles that need to be addressed seriously. Along with the rapid development of information technology, various sectors, including banking, have undergone significant digital transformation. In the banking sector, the implementation of technology-based information systems is an essential step to improve operational efficiency and service quality. Islamic banking, which focuses on Islamic Sharia principles, is no exception in adopting technology to support its business activities (Trimulyana, 2024). Technology-based information systems enable Islamic banks to provide faster, safer, and more affordable services for their customers. This plays a crucial role in creating a better customer experience, which in turn increases customer satisfaction and loyalty (Julianto & Helvira, 2022).

The adoption of technology in Islamic banking has become increasingly important given the growing demand from customers for practical and modern services. Today's customers expect easy and quick access to banking products and services, including those based on Sharia principles. Therefore, Islamic banks need to continuously innovate in utilizing information technology to meet customer expectations. One of the reasons this study was conducted is to examine how the implementation of technology-based information systems can enhance customer service quality in Islamic banks. Technology is not only used for financial transactions but also to improve communication, security, and convenience for customers (Nurhasanah *et al.*, 2022). Previous studies have shown that the adoption of technology-based information systems can improve efficiency and productivity across various sectors, including Islamic banking (Reni, 2023). For instance, Abdullah (2019) found that the use of information technology in Islamic banking accelerates transaction processes and minimizes human error. Furthermore, Harahap (2020) revealed that the implementation of technology-based information systems can expand the reach of Islamic banking services, particularly in underserved areas. Another study by Suryanto (2018) also stated that the application of information technology enhances customer experience by providing easier and faster access to various Islamic financial services.

In addition, within the context of Islamic banks, the implementation of information technology also impacts compliance with Sharia principles. With more transparent and integrated systems, Islamic banks can more effectively manage transactions in accordance with Sharia requirements, thereby strengthening customer trust in these institutions. Fadillah (2021) emphasized that technology can assist Islamic banking in optimizing auditing and supervision, making it easier to ensure that all banking activities remain within the framework of Sharia law (Mafikah & Latifah, 2022). The main objective of this study is to identify how the implementation of technology-based information systems can contribute to improving customer services in Islamic banks. This study also aims to explore the various types of technologies that have been adopted in Islamic banking and analyze their impact on customer satisfaction. By understanding the role of technology in enhancing customer service, this study is expected to provide valuable insights for Islamic bank managers in designing better technology development strategies in the future (Mutia Cahyani *et al.*, 2024).

Moreover, this study also seeks to identify the challenges faced by Islamic banks in applying technology-based information systems. Some potential challenges include limited resources, lack of technical understanding among employees, and resistance to change (Hidayah *et al.*, 2024). Therefore, this research is expected to provide recommendations regarding strategies to overcome these challenges so that the application of technology in Islamic banking can be more effective and deliver maximum benefits. Overall, this study aims to provide a comprehensive overview of the implementation of technology-based information systems in Islamic banking and its impact on customer services. It is expected that the findings of this research will contribute to the development of more innovative Islamic banking services that meet the needs of modern customers while supporting the sustainability and growth of the Islamic banking industry in Indonesia (Ferlangga Al Yozika, 2019).

B. LITERATURE REVIEW

The implementation of information technology in banking has become a widely discussed topic in various studies, particularly in the Islamic banking sector. According to Al-Qudah (2018), the rapid development of information technology plays an important role in improving operational efficiency and service quality in banking, including Islamic banking. Information technologies such as Management Information Systems (MIS), mobile applications, and cloud-based systems enable banks to deliver faster and more accurate services (Liyana Dini Safa, Nurnasrina, Nola Fibriyanti Bte Salman, 2024). In addition, these technologies assist Islamic banks in ensuring compliance with Sharia principles that underlie every transaction and banking product offered. For example, the use of blockchain technology in Islamic banking transactions can enhance transparency and accountability.

The importance of technology adoption in Islamic banking is also highlighted by Harahap (2020), who states that technology enables Islamic banks to expand their service reach, particularly in regions that were previously difficult to access through traditional banking channels. Web-based and mobile banking technologies provide customers with access to conduct transactions anytime and anywhere, without being limited by time and place (Hakim, 2024). This increases customer convenience and strengthens their loyalty to Islamic banks. The study further indicates that by adopting technology, Islamic banks can offer a variety of more innovative products and services that align with the evolving needs of the market. Research conducted by Fadillah (2021) explains that the implementation of information technology in Islamic banking also has an impact on risk management and compliance with Sharia law (Keuangan & Islam, 2023). By utilizing integrated technologies, Islamic banks can

monitor transactions more effectively and efficiently, allowing them to identify and address potential risks at an early stage. Moreover, the use of advanced information systems enables Islamic banks to conduct audits and supervision of transactions more easily, ensuring that all operational activities remain in accordance with Sharia principles. Several studies also highlight the challenges faced by Islamic banks in adopting information technology. According to Abdullah (2019), one of the main challenges is the limited human resources who possess both technological expertise and a deep understanding of Sharia law. This often hampers the effective and efficient implementation of technology in Islamic banking (Mandiri et al., 2022). In addition, concerns about data security and customer privacy also remain as barriers to the adoption of information technology in this sector. Therefore, Islamic banks need to provide training for employees and ensure that the systems used are secure and reliable.

Suryanto (2018) concluded that despite the existing challenges in the implementation of technology, the benefits gained are far greater, particularly in improving the quality of customer service. He emphasized that the success of technology adoption in Islamic banking largely depends on the appropriate strategy in designing and implementing technological systems. Islamic banks must prioritize system integration, data security, and continuous employee training to ensure that the technologies applied can support corporate objectives and deliver the best services to customers. Therefore, effective information technology management becomes the key to success in enhancing service quality within Islamic banking (Werdi Apriyanti, 2018). Therefore, research on The Implementation of Technology Based Information Systems in Islamic Banking to Improve Customer Service is essential to conduct. This study is expected to provide an overview of the extent to which the application of digital information technology can enhance the quality of services in Islamic banking. Furthermore, the findings of this research may serve as valuable input for Islamic banks in formulating appropriate strategies to optimize information technology, thereby not only improving customer satisfaction and loyalty but also strengthening the position of Islamic banks within the national and global financial industry.

C. METHOD

This study will employ a qualitative approach with a descriptive research design to illustrate the implementation of technology-based information systems in Islamic banking and their impact on improving customer services. The main focus of this research is to understand how information technology is implemented in the operations of Islamic banks and how it affects the quality of services provided to customers. The data used in this study consist of both primary and secondary sources. Primary data will be obtained through in-depth interviews with stakeholders directly involved in the implementation of information technology in Islamic banks, such as managers, IT staff, and customers. In addition, document studies will be conducted by analyzing annual reports, technology policies, and relevant prior research. Direct observation of banking operations will also be carried out to assess the effectiveness of technology utilization in enhancing customer services.

This study employs a qualitative research approach with a literature study design. A qualitative approach is considered appropriate because the research seeks to obtain an in-depth understanding of the implementation of technology-based information systems in Islamic banking and their impact on improving customer service. Rather than measuring numerical data, this study emphasizes the exploration, interpretation, and analysis of various concepts, theories, and previous research findings relevant to the topic. The data in this study are collected through literature review from a variety of sources, including academic journals, books, official reports from financial and banking institutions, conference proceedings, and credible online publications. The collected data are analyzed using qualitative content analysis. This technique involves organizing the literature, coding key themes, and categorizing findings according to research objectives. The analysis process includes three main stages: 1) Data reduction: selecting, simplifying, and focusing on relevant information from the literature. 2) Data display: presenting the findings systematically in the form of descriptions, tables, or conceptual frameworks. 3) Conclusion drawing: interpreting the analyzed data to formulate insights about how technology-based information systems are implemented in Islamic banking and how they contribute to improving customer service.

D. RESULT & DISCUSSION

RESULT:

1. Improving Operational Efficiency

The implementation of technology in Islamic banking operations, such as Management Information Systems (MIS), mobile banking, and cloud-based applications, has had a significant impact on operational efficiency.

Previously, many transactions had to be conducted manually and required considerable time to process. However, with the use of technology, transaction processes have become faster, automated, and more accurate. For example, through mobile banking applications, customers can perform transactions anytime and anywhere without having to visit a branch office (Julianto & Helvira, 2022). This not only facilitates customers but also reduces the workload of bank employees, as many transactions can now be processed automatically by the system. On the other hand, the use of cloud-based systems also enables more efficient data integration between various branches and the head office of Islamic banks. Transaction data can be accessed in real-time, facilitating decision-making and accelerating the auditing and monitoring process. For instance, Islamic banks can directly monitor the performance of each branch and identify potential issues before they escalate. Thus, the implementation of these technologies improves operational efficiency and reduces long-term operational costs (Nurhasanah et al., 2022).

2. Compliance with Sharia Principles

One of the main challenges in Islamic banking is ensuring that all transactions and products offered comply with Sharia principles (Najib, 2017). Information technology plays a crucial role in facilitating this. For instance, blockchain-based systems allow banks to ensure transparency and accountability in every transaction. Each transaction is automatically recorded and can be fully audited, thereby reducing the potential for violations of Sharia principles, which emphasize transparency and adherence to Islamic law (Arwani & Priyadi, 2024). Furthermore, technology-based information systems simplify the management of Sharia-compliant banking products. Integrated technologies enable banks to more easily verify each product or service offered, making it easier to detect inconsistencies with Sharia principles, such as *riba* (interest) or *gharar* (uncertainty in transactions). Therefore, technology not only enhances operational efficiency but also strengthens the position of Islamic banks in maintaining Sharia compliance and increasing customer trust.

3. Accessibility and Service Convenience

One of the greatest contributions of technology to Islamic banking is its ability to expand service reach. Before the adoption of technology, many customers living in remote areas had difficulty accessing banking services. However, with mobile banking and online banking systems, Islamic banks can now provide services to customers who were previously difficult to reach. This enables customers in rural or infrastructure-limited areas to access financial services in accordance with Sharia principles (Trimulyana, 2024). In addition, technology enhances customer convenience. Processes that once required considerable time, such as loan applications or account openings, can now be carried out online. Features such as transaction notifications, account balance updates, and other banking services accessible via mobile applications further simplify financial management for customers. Thus, technology-based Islamic banking is able to offer conveniences that traditional banking systems could not achieve (Nasir Tajul Aripin et al., 2022).

4. Challenges in Implementation

Despite the many benefits of technology adoption, this study also identifies several challenges faced by Islamic banks in implementing technology-based information systems. One of the most significant challenges is the limited availability of human resources with in-depth technological expertise as well as a strong understanding of Sharia principles (Nu'man, 2021). Some Islamic banks experience difficulties in recruiting professionals who possess the necessary combination of knowledge in both technology and Sharia law, which is essential to design and manage systems that meet the needs of Islamic banks. Another challenge concerns data security and customer privacy. As more customer data is processed and stored digitally, Islamic banks must ensure that their systems are secure from potential data breaches or cyberattacks. Data security has become a crucial issue, especially for customers who place high importance on the privacy and safety of their personal information. Although some Islamic banks have implemented advanced security systems, concerns among customers regarding risks of data theft or fraud through digital platforms remain (Kurinci, 2022). Finally, resistance to change from certain stakeholders within Islamic banks also poses a challenge. Some employees who are accustomed to manual systems may feel reluctant or find it difficult to adapt to new technologies. Therefore, it is important for Islamic banks to provide training and guidance for employees in using new technologies.

Discussion

The implementation of technology-based information systems in Islamic banks has had a significantly positive impact on improving customer service quality. With the adoption of technology, Islamic banks are able to enhance operational efficiency, expand service access to customers across diverse regions, and ensure

compliance with Sharia principles. These benefits align with customer expectations for fast, secure, and easily accessible services that also conform to Islamic values. However, the challenges in implementing technology in Islamic banking cannot be overlooked. Limited human resources, data security concerns, and resistance to change must be carefully addressed by Islamic banks when adopting new technologies. To ensure smooth implementation, Islamic banks need to invest time and resources in employee training, strengthen security systems, and ensure that the technologies applied remain in line with Sharia principles. Overall, despite the challenges that need to be addressed, the adoption of technology in Islamic banking is crucial to meeting the demands of increasingly digital-savvy customers seeking more efficient and secure services. Moving forward, Islamic banks are expected to continue innovating by leveraging information technology to remain competitive and meet the evolving needs of their customers.

E. CONCLUSION

Based on the findings of this study, the implementation of technology-based information systems in Islamic banking has had a significantly positive impact on improving the quality of customer services. Information technologies such as mobile banking, Management Information Systems (MIS), and cloud-based applications enable Islamic banks to enhance operational efficiency, accelerate transaction processes, and expand their service reach to various regions. This is particularly important given that today's customers demand faster, easier, and more practical access to Islamic banking products and services. One of the key contributions of technology in Islamic banking is the improvement of compliance with Sharia principles. Technologies such as blockchain allow Islamic banks to ensure transparency and accountability in every transaction conducted. Integrated information systems also help Islamic banks verify Sharia-compliant products and services while identifying potential inconsistencies with Islamic principles such as *riba* (interest) and *gharar* (uncertainty). Thus, the implementation of information technology strengthens the position of Islamic banks in maintaining integrity and enhancing customer trust.

Despite the many benefits, several challenges remain. Limited human resources with both advanced technological expertise and a deep understanding of Sharia law represent one of the main obstacles in implementing technology-based information systems. In addition, data security and customer privacy issues are critical concerns that require serious attention. The security of information systems used in Islamic banking must be guaranteed to ensure that customers feel safe and confident in using digital services. Furthermore, resistance to change among some employees who are accustomed to manual systems presents another challenge that Islamic banks must address. To overcome these challenges, Islamic banks need to invest in human resource training and development, strengthen security systems, and ensure better integration of technology with Sharia principles. Overall, the adoption of technology-based information systems in Islamic banking is a highly important and strategic step in meeting the evolving needs of customers. Islamic banks that successfully adopt technology will be able to provide more efficient, secure, and Sharia-compliant services, ultimately strengthening their position in an increasingly competitive Islamic banking market.

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