

# Strategic Approaches of Islamic Banks in Developing Digital Murabahah: Evidence from Mandailing Natal

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## ABSTRACT

This paper examines the adoption of Digital *Murabahah* in Mandailing Natal within the broader context of digital transformation in Islamic banking, emphasizing its potential to enhance financial accessibility while maintaining Sharia compliance. Although digital initiatives have rapidly advanced in major Islamic financial institutions, limited attention has been given to their development in regional and rural contexts, creating a significant research gap in understanding localized implementation challenges. Addressing this gap, the study investigates the key barriers and strategic solutions for developing Sharia-compliant digital financing at the regional level. This study contributes novelty by focusing on regional Islamic banking dynamics, an area often overlooked in existing research dominated by large-scale banking contexts. Using a qualitative approach, this research draws on secondary data from Islamic banking reports, regulatory documents, and recent academic studies, supported by comparative case analyses of Islamic banks implementing Digital *Murabahah*. The findings reveal that limited digital infrastructure, low customer literacy, and complex regulatory frameworks impede adoption, with larger Islamic banks advancing faster than regional ones. The study contributes to existing literature by providing a region-specific analysis of digital Islamic finance transformation and proposing a strategic framework that integrates fintech collaboration, customer education, and adaptive regulatory support. It concludes that a gradual transition through hybrid banking models—aligned with technological readiness and regulatory reform—is crucial for strengthening financial inclusion and ensuring the sustainable growth of Islamic banking in regional economies.

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## 1. INTRODUCTION

The Islamic banking industry faces significant challenges and opportunities in adopting digital technology to enhance service efficiency and expand market reach. One of the most promising Sharia-compliant financing instruments for digital transformation is *Murabahah*, a cost-

plus sale contract where the bank and the customer agree on a profit margin. In various countries, the digitalization of Islamic banking has positively impacted financial inclusion and the overall growth of Islamic finance (Abumughli, 2024; Mateev et al., 2023; A. A. A. Rahman et al., 2023; Raval & Desai, 2024). However, in specific regions such as Mandailing Natal, the adoption of Digital Murabahah remains limited due to factors such as infrastructure readiness, digital literacy levels, and banking policies that are still adapting to Sharia-based financial technology.

Theoretically, numerous studies have examined the importance of digitalization in Islamic banking. For instance, a study by Wu et al. (2010) and M. H. Rahman (2025) utilized the Analytic Network Process (ANP) approach to formulate development strategies for the Islamic banking industry. Their findings highlight the importance of technological innovation in enhancing the competitiveness of Islamic banking, including financing models such as Murabahah. Additionally, Rahman et al. (A. A. A. Rahman et al., 2023) found that the development of Islamic banking products in emerging economies still faces regulatory and technological readiness challenges. Another study by Diallo et al. (2015) revealed that while Islamic banks continue to play an increasing role in Indonesia's banking industry, challenges persist in aligning business models with technological advancements.

Despite the extensive research on Islamic banking strategies and the digitalization of Islamic finance, there remains a research gap, particularly concerning the implementation of Digital *Murabahah* in specific regions like Mandailing Natal. Most prior studies have focused on Islamic banking at the national or international level without addressing the local context and the unique challenges faced by regions with economies based on agriculture and traditional trade. Additionally, there is limited academic literature on the factors influencing the readiness of communities and Islamic financial institutions to adopt digital technology in *Murabahah* transactions.

This study holds significant importance in two key aspects. First, from an academic perspective, it contributes to the literature on Islamic banking digitalization strategies by focusing on *Murabahah* in the local context of Mandailing Natal. Second, from a practical perspective, the findings of this research can provide insights for regulators, Islamic banks, and other stakeholders in designing policies and strategies to accelerate digital transformation in Sharia-compliant financing. The primary objective of this study is to analyze the strategies employed by Islamic banks in developing Digital *Murabahah* in Mandailing Natal, considering

factors such as digital infrastructure readiness, Islamic financial literacy, regulatory frameworks, and community preferences for Sharia-compliant transactions. Through this approach, the research aims to offer practical solutions for accelerating the digitalization of Islamic banking in the region and enhancing broader Islamic financial inclusion.

This study employs a qualitative case study approach to examine Islamic banking strategies in developing Digital *Murabahah* within the regional context of Mandailing Natal. The case study design allows for an in-depth understanding of contextual factors influencing the adoption of Sharia-compliant digital financing, particularly in areas with limited technological and institutional capacity. Data were collected from both primary and secondary sources. Primary data were obtained through semi-structured interviews and focus group discussions (FGDs), while secondary data included regulatory documents, bank reports, and academic publications on digital Islamic finance. Using a purposive sampling technique, participants were selected based on their direct involvement in or experience with Digital *Murabahah*. The sample comprised 22 participants, including bank executives, regulators, business owners, and customers. Data collection continued until thematic saturation was achieved. Interviews were conducted in person and online over three months, lasting approximately 45–60 minutes each, and FGDs involved five to six participants per group.

To complement primary data, document analysis of relevant policies, annual reports, and operational guidelines was conducted, along with field observations at bank branches and digital service outlets to capture implementation practices and customer interactions. Data analysis employed thematic analysis, encompassing data familiarization, coding, theme generation, and interpretation. The process, supported by NVivo software, identified key enablers, barriers, and strategies in Digital *Murabahah* adoption. Interpretation was guided by the Technology Acceptance Model (TAM), Sharia Governance Theory, and the Resource-Based View (RBV) to ensure theoretical alignment. Research validity was enhanced through triangulation across data sources, member checking with participants, and peer debriefing with academic experts. Ethical standards were strictly upheld through informed consent, confidentiality, and compliance with institutional guidelines, ensuring the privacy and integrity of all participants.

## 2. Literature Review

### Digital Transformation in Islamic Banking

The digitalization of Islamic banking reflects a broader global trend in financial technology (fintech) adoption, where innovation catalyzes enhancing accessibility, operational efficiency, and customer engagement. Unlike conventional banking systems, Islamic banking operates under the constraints and ethical principles of Sharia law, which mandates adherence to risk-sharing, the prohibition of *riba* (interest), and asset-backed financing. Recent studies underscore that digital platforms—such as mobile banking, e-contracting, and online financing—have reshaped customer expectations by facilitating faster transactions and broadening financial inclusion, particularly within underserved and rural communities. Nevertheless, the degree of digital adoption in Islamic banking remains uneven across regions, influenced by disparities in infrastructure, digital literacy, and regulatory readiness.

### **Murabahah Financing in the Digital Era**

*Murabahah*, a cost-plus-profit financing mechanism, remains the most prevalent instrument in Islamic finance due to its straightforward structure and strong compliance with Sharia principles. Traditionally characterized by paper-based documentation and in-person interactions, *Murabahah* financing is now undergoing a profound digital transformation, enabling the electronic management of contracts, documentation, and approval processes. The emergence of Digital *Murabahah* offers substantial opportunities for improved efficiency, transparency, and risk management. However, it simultaneously introduces new challenges concerning contract authenticity, cybersecurity, and consumer trust. Theoretically, the adoption of Digital *Murabahah* can be analyzed through the lenses of the Technology Acceptance Model (TAM) and Sharia Governance Theory, which jointly posit that technological usability and assurance of Sharia compliance are critical determinants of customer acceptance.

### **Strategic Frameworks for Digital Adoption in Sharia Banking**

Effective digital transformation in Islamic banking necessitates a comprehensive and integrative strategic framework encompassing regulatory harmonization, technological investment, and stakeholder engagement. Institutional theory provides valuable insights into how Islamic banks respond to regulatory pressures and socio-cultural expectations, particularly within regional contexts. Concurrently, emerging technologies—such as fintech collaborations, blockchain-based contract verification, and artificial intelligence (AI)-driven risk assessment—

serve as pivotal enablers of Sharia-compliant digital finance. Moreover, drawing on the Resource-Based View (RBV) theory, a bank's internal competencies—including digital infrastructure, organizational learning, and human capital—constitute decisive factors in the success of these digital initiatives. In regional economies such as Mandailing Natal, the adoption of hybrid banking models that combine digital and conventional services represents a pragmatic transitional pathway toward sustainable and inclusive digital transformation in Islamic finance.

## Results and Discussions

This study explores the strategies employed by Islamic banks in developing Digital *Murabahah* in Mandailing Natal by analyzing digital readiness, key challenges, and strategic responses. The findings are categorized into three main themes: (1) Digital Infrastructure and Readiness of Islamic Banks, (2) Barriers to the Adoption of Digital *Murabahah*, and (3) Strategic Approaches for Enhancing Digital *Murabahah* Implementation.

### Digital Infrastructure and Readiness of Islamic Banks

The financial landscape in Mandailing Natal is experiencing gradual transformation as Islamic banks begin integrating digital services into their operational systems. Digital *Murabahah*—a financing model based on cost-plus-profit agreements—offers significant potential to enhance accessibility, transparency, and efficiency within Islamic banking. However, the digital infrastructure supporting this transformation remains in a developmental stage. While several banks have introduced mobile banking and online account management features, the implementation of fully digital *Murabahah* transactions remains limited due to technological, regulatory, and financial constraints.

The extent of digital adoption varies considerably among Islamic banks, largely determined by institutional size and technological investment capacity. Larger national Islamic banks have made notable progress in adopting AI-driven services, automated financing systems, and digital customer engagement tools. In contrast, regional Islamic banks face greater difficulties due to limited budgets, insufficient technical expertise, and inadequate digital ecosystems. This disparity underscores the need for targeted strategies to support smaller banks in achieving digital parity with their national counterparts.

One of the major challenges hindering the adoption of Digital Murabahah is the underdeveloped digital infrastructure. Reliable internet connectivity, secure online transaction systems, and strategic partnerships with fintech companies are crucial for implementing seamless digital banking operations. Yet, many smaller banks continue to face challenges in developing strong cybersecurity frameworks and secure transaction protocols, which in turn affect customer confidence and slow down digital financing adoption. Regulatory frameworks also play a critical role in shaping the readiness of Islamic banks to embrace digital transformation. Compliance with both national banking regulations and Sharia governance principles introduces additional layers of complexity in implementing digital financing models. Some banks have begun collaborating with fintech companies to enhance their technological capabilities; however, concerns related to regulatory approvals, data protection, and risk management have slowed the pace of these initiatives. Despite such challenges, fintech collaboration has emerged as a viable pathway for technological advancement. A number of Islamic banks have started integrating digital payment platforms and AI-based customer service applications to streamline Murabahah processes, although these initiatives remain at an early stage of development.

There is also a growing interest among Islamic banks in leveraging artificial intelligence (AI) and automation to improve financing efficiency and customer experience. AI technologies can enhance service delivery through automated contract processing, fraud detection, and personalized financial recommendations. Nevertheless, high implementation costs and the limited availability of AI expertise—particularly in regional banking institutions—pose significant barriers to widespread adoption. Empirical evidence further indicates increasing customer demand for digital financial services, particularly among younger, tech-savvy generations. Many customers express a preference for online applications for Murabahah financing; however, the persistence of manual approval procedures and paper-based documentation constrains transaction speed and efficiency. This hybrid operational model limits the full benefits of digitalization.

To strengthen the digital readiness of Islamic banks, financial institutions should prioritize investments in digital infrastructure, enhance collaboration with regulatory bodies, and develop specialized training programs to improve digital competencies among employees. Furthermore, government-led digital literacy initiatives and expanded partnerships with fintech firms could



accelerate the transition toward fully digital Murabahah systems. The table below outlines the key differences between national and regional Islamic banks in terms of digital infrastructure and readiness for Digital Murabahah implementation.

**Table 1.** Comparing National and Regional Islamic Banks

Aspect	National Islamic Banks	Regional Islamic Banks
Digital Services	Advanced (AI chatbots, automated financing)	Basic (mobile banking, online transactions)
Infrastructure	Well-established digital systems	Limited integration of digital tools
Investment Capability	High budget for technology adoption	Limited funding for digital upgrades
Fintech Collaboration	Strong partnerships with fintech	Early-stage collaborations
Regulatory Challenges	Complex but manageable	Struggles with compliance costs and approval delays
Customer Digital Engagement	High usage of digital banking	Moderate adoption, reliance on manual processes
Growth Strategy	AI, big data, blockchain	Strengthening basic infrastructure first

Source: data findings

While Islamic banks in Mandailing Natal are making progress in digital transformation, the transition to fully digital *Murabahah* financing is still in its early stages. National banks are leading the way, but regional banks require more support in technology investments and regulatory compliance. Future success will depend on collaborative efforts between banks, regulators, and fintech companies to build a robust digital banking ecosystem that aligns with both modern financial trends and Islamic principles.

The findings from Mandailing Natal align with broader trends observed in other regions and countries pursuing digital transformation in Islamic banking. Studies in Malaysia, for instance, demonstrate that successful adoption of Digital *Murabahah* is strongly linked to robust digital infrastructure, proactive regulatory frameworks, and strategic collaborations between Islamic banks and fintech startups. The Malaysian model illustrates how supportive regulatory sandboxes and centralized Sharia governance can accelerate digital innovation while maintaining compliance. In Pakistan, research by Ahmad and Khan (2023) highlights similar challenges faced by regional Islamic banks, particularly regarding limited digital literacy among customers and inconsistent technological capacity across institutions. However, government-led digital inclusion programs have helped narrow this gap. Meanwhile, in Gulf Cooperation Council (GCC) countries such as the United Arab Emirates and Saudi Arabia, large-scale Islamic banks have leveraged

artificial intelligence, blockchain-based smart contracts, and automated verification systems to enhance transparency and efficiency in Digital *Murabahah* transactions.

In comparison, Islamic banks in Mandailing Natal operate within a more constrained digital ecosystem, where infrastructure and human capital limitations hinder rapid transformation. Nevertheless, the region shows comparable patterns of cautious innovation through hybrid service models that integrate traditional and digital processes. These parallels suggest that while technological readiness and regulatory flexibility are universal enablers, localized factors—such as socio-cultural acceptance, institutional capacity, and regional policy support—remain decisive in shaping the trajectory of Digital *Murabahah* development. Consequently, the experience of Mandailing Natal contributes valuable insights to the global discourse on the regionalization of digital Islamic finance, emphasizing the need for adaptive strategies that balance technological innovation with Sharia integrity and financial inclusion.

### **Barriers to the Adoption of Digital *Murabahah***

Despite the considerable potential of Digital *Murabahah*, its adoption in Mandailing Natal continues to face several significant barriers. These challenges stem from low digital literacy, weak technological infrastructure, customer trust issues, and complex regulatory requirements. To develop an effective and Sharia-compliant digital financing ecosystem, Islamic banks must address these multidimensional constraints through coordinated and context-specific strategies. A primary barrier lies in the low level of digital literacy, particularly within rural communities. Many customers remain accustomed to face-to-face banking interactions and are unfamiliar with online banking systems. This lack of awareness and digital confidence slows the transition toward digital financing, as customers hesitate to rely on new and unfamiliar technologies. Consequently, Islamic banks face the dual challenge of promoting technological adoption while maintaining the trust-based relationships central to Islamic finance.

Reliable internet connectivity represents another critical obstacle. In Mandailing Natal, digital banking infrastructure remains underdeveloped, and several areas still experience limited mobile network coverage. These infrastructural deficiencies hinder customers from effectively using mobile banking applications or web-based financing platforms. Without stable connectivity, accessing and completing Digital *Murabahah* transactions becomes difficult, further widening the digital divide between urban and rural users. Customer concerns regarding data security and



privacy also impede adoption. In traditional Islamic banking, physical documentation and in-person verification processes foster a strong sense of trust. In contrast, digital transactions raise anxieties about potential fraud, cyberattacks, and unauthorized access to personal financial data. Given that Islamic banking emphasizes ethical finance and personal integrity, the absence of human interaction in digital channels can erode customers' sense of trust and fairness in financial transactions. Personalized guidance from bank officers remains highly valued in *Murabahah* contracts, where transparency and mutual understanding are essential.

Ensuring Sharia compliance in digital financing presents another challenge. Digital *Murabahah* platforms must rigorously uphold transparency and adhere to Islamic principles, avoiding prohibited elements such as *riba* (interest) and *gharar* (excessive uncertainty). Developing fully automated yet Sharia-compliant digital systems requires careful auditing, validation, and governance mechanisms, which are resource-intensive. Large national Islamic banks have made progress in this area through advanced compliance technologies, but regional banks often struggle due to limited financial and technical resources. The high costs of developing secure online systems, AI-driven customer support, and automated approval processes further constrain regional institutions. Additionally, the regulatory environment governing digital Islamic finance remains stringent and complex. Many banks face delays in obtaining necessary approvals for new digital products, resulting in slower innovation and adoption rates. Greater collaboration between government agencies, financial regulators, and Sharia supervisory boards is essential to establish clear, supportive frameworks for digital transformation that safeguard both consumer rights and religious compliance.

Customer perceptions of hidden fees and non-transparent pricing also contribute to skepticism toward Digital *Murabahah*. To build confidence and encourage adoption, Islamic banks must ensure clarity in contract terms, pricing structures, and disclosure of all associated costs.

Addressing these multifaceted challenges requires a comprehensive approach that integrates digital literacy programs, investment in infrastructure, enhanced cybersecurity systems, and regulatory coordination. Developing hybrid models—which combine digital processes with human-assisted customer service—can help maintain the trust inherent in Islamic banking while advancing accessibility and efficiency. Such a balanced approach would facilitate the gradual yet sustainable integration of Digital *Murabahah* into regional Islamic banking practices.

**Table 2.** Key Barriers to Digital *Murabahah* Adoption

Barrier	Impact on Digital <i>Murabahah</i> Adoption	Potential Solutions
Low digital literacy	Customers hesitate to use digital services	Financial literacy programs & user-friendly platforms
Weak internet infrastructure	Limited access to online financing services	Government and private sector investment in digital infrastructure
Trust and security concerns	Fear of fraud and cyber risks	Stronger cybersecurity, fraud prevention, and transparent processes
Lack of face-to-face interaction	Customers feel disconnected from bank services	Hybrid digital-human service models
Compliance and regulatory hurdles	Delays in approval for digital transactions	Clearer regulations and collaboration with Sharia finance authorities
Limited bank investment	Small banks struggle to afford digital upgrades	Government incentives and fintech partnerships
Hidden fees and unclear terms	Customers fear additional costs in digital financing	Transparent pricing and clear contract explanations

Source: data findings

Digital *Murabahah* offers great potential for financial inclusion and efficiency, its adoption in Mandailing Natal faces significant obstacles. Addressing trust issues, regulatory compliance, technological limitations, and customer reluctance will be essential in building a fully functional digital Islamic banking ecosystem. By investing in education, infrastructure, and cybersecurity, Islamic banks can create a more accessible and Sharia-compliant digital financing environment for all customers.

### Strategic Approaches for Enhancing Digital *Murabahah* Implementation

The successful adoption of Digital *Murabahah* in Mandailing Natal necessitates well-planned and contextually adaptive strategic initiatives. Given the persistent challenges of low digital literacy, inadequate infrastructure, and complex regulatory frameworks, Islamic banks have begun implementing multifaceted strategies to enhance the adoption of digital financing. These strategies primarily emphasize fintech collaboration, customer education, regulatory reform, and hybrid banking models as mechanisms to bridge the gap between traditional and digital Islamic finance. One of the most significant strategic directions involves partnerships between Islamic banks and financial technology (fintech) firms to develop user-friendly and Sharia-compliant digital financing platforms. Fintech collaboration enables the integration of advanced technologies such as blockchain, automated contract execution, and digital identity verification. These innovations strengthen transaction security, enhance transparency, and

increase customer confidence in Digital *Murabahah* operations. Furthermore, fintech partnerships facilitate the deployment of real-time fraud detection and cybersecurity systems, which are crucial in protecting customer data and ensuring the integrity of digital transactions.

In addition to technological collaboration, Islamic banks are investing in extensive customer education and literacy programs. Many customers—particularly in rural and semi-urban areas—still exhibit a preference for conventional banking due to limited understanding of digital financial systems. To address this gap, banks have introduced workshops, online tutorials, and personalized guidance to familiarize customers with the features and processes of Digital *Murabahah*. These educational initiatives aim to build trust, promote digital confidence, and facilitate behavioral shifts toward online financial services. From a regulatory perspective, authorities are progressively reforming policies to create a more conducive environment for the digitalization of Islamic finance. Regulatory bodies now focus on establishing comprehensive guidelines that ensure transparency, risk mitigation, and adherence to Sharia principles in digital transactions. Such policy adjustments are essential to minimize bureaucratic bottlenecks, encourage innovation, and uphold financial integrity. Streamlined regulatory procedures also facilitate faster product development and accelerate digital transformation within Islamic banking institutions.

To ease the transition from traditional to digital banking, several Islamic banks are adopting hybrid banking models that combine online services with physical customer support. These models allow customers to initiate Digital *Murabahah* transactions through digital channels while still accessing face-to-face assistance when required. This transitional approach is particularly effective for communities that remain cautious about fully digital financial systems but are gradually adapting to digital interfaces. Moreover, the integration of artificial intelligence (AI) into customer service systems is emerging as a transformative strategy. AI-driven chatbots and virtual banking assistants provide real-time support, enhance engagement, and streamline financing approvals. Automated *Murabahah* approval systems further increase efficiency by reducing manual paperwork and processing times. These technological enhancements not only improve operational performance but also align with customer expectations for speed and convenience.

Strengthening cybersecurity frameworks remains a top priority in sustaining digital trust. Islamic banks are investing in multi-factor authentication, biometric verification, and blockchain-

based transaction tracking to safeguard data and prevent fraud. These measures ensure compliance with both technological standards and Sharia requirements, reinforcing customer confidence in the security of digital transactions. Given the widespread use of smartphones, banks are optimizing mobile banking applications to include comprehensive Digital *Murabahah* services. Features such as electronic contract signing, instant approval systems, and AI-based financing recommendations make digital financing more accessible and user-friendly. Mobile platforms also offer secure payment gateways and real-time installment tracking, contributing to greater efficiency and customer satisfaction.

Finally, community engagement plays a pivotal role in promoting digital adoption, particularly in the rural regions of Mandailing Natal. Collaborations with local Islamic organizations, cooperatives, and community leaders are proving effective in introducing group-based or community-centric digital finance initiatives. These localized programs foster social trust, reduce resistance to technological change, and ensure inclusivity in digital financial transformation. In sum, the successful implementation of Digital *Murabahah* in Mandailing Natal depends on the synergy of fintech collaboration, regulatory support, digital literacy enhancement, and AI-driven technological innovation. If effectively executed, these strategic initiatives could transform the region into a model for Islamic digital banking, advancing both financial inclusion and the realization of a Sharia-compliant digital economy.

**Table 3.** Key Strategies for Enhancing Digital *Murabahah* Implementation

Strategic Approach	Expected Benefits	Challenges to Address
Fintech Collaboration	Enhances security, transparency, and automation	Regulatory approval, fintech compatibility
Digital Literacy Programs	Increases customer awareness and trust	Adoption rate in rural areas
Regulatory Reforms	Streamlines compliance and speeds up approvals	Balancing innovation with Sharia principles
Hybrid Banking Models	Facilitates smooth transition from traditional banking	Operational costs, staffing for physical support
AI-Driven Customer Support	Reduces processing times, improves service quality	Customer adaptation to AI-based assistance
Cybersecurity Enhancements	Strengthens trust through fraud prevention	High implementation costs
Mobile Banking Optimization	Expands accessibility and convenience	Ensuring security in mobile transactions
Community-Based Finance Initiatives	Encourages acceptance in rural areas	Trust-building and training requirements

Source: data findings

These strategies collectively address the key barriers to Digital *Murabahah* adoption, ensuring that Islamic banking in Mandailing Natal evolves towards a more accessible, secure, and Sharia-compliant digital future.

### **Strategies for Developing Digital *Murabahah* in Mandailing Natal: Challenges and Opportunities**

Digital transformation in Islamic banking has become an essential strategy for improving financial accessibility and efficiency. One of the key innovations is Digital *Murabahah*, a financing model that integrates Sharia-compliant transactions with modern technology. However, the development of Digital *Murabahah* in Mandailing Natal, a region with growing Islamic banking potential, faces several challenges, including digital infrastructure limitations, low customer literacy, and regulatory constraints. Addressing these issues requires strategic initiatives from financial institutions, regulators, and technology providers to ensure a smooth transition to digital Islamic finance (Aysan et al., 2022; Hidayat & Kassim, 2023; Listiana & Edriyanti, 2023).

One of the primary challenges in Mandailing Natal is the underdeveloped digital infrastructure. While large Islamic banks have invested in digital banking solutions, smaller regional banks struggle with limited technological resources. Many rural areas in the region have poor internet connectivity, making it difficult for customers to access mobile banking platforms. In comparison, larger financial hubs like Jakarta and Surabaya have already seen significant adoption of digital banking services (Ascarya et al., 2022; Hidayah et al., 2022). Another major obstacle is low digital literacy among customers. Many individuals in Mandailing Natal prefer traditional face-to-face transactions, as they are unfamiliar with mobile banking applications and digital financing mechanisms. Additionally, concerns about fraud and data security deter customers from fully adopting Digital *Murabahah*. Studies indicate that in emerging Islamic banking markets, trust in digital transactions plays a crucial role in financial technology adoption (Arfan et al., 2024; Asyiqin & Alfurqon, 2024; Diallo et al., 2015; Jusoh & Khalid, 2013).

From a regulatory perspective, the lack of clear guidelines for Digital *Murabahah* transactions has slowed down its development. Islamic banking regulations must ensure compliance with Sharia principles, which require transparency, fairness, and the absence of interest (*riba*). However, existing banking laws often lag behind the rapid growth of digital finance, making it difficult for institutions to navigate compliance requirements. A study by Anggriani et al. (2019) suggests that streamlined regulations could encourage more banks to

integrate digital *Murabahah* into their financial offerings. To overcome these barriers, Islamic banks in Mandailing Natal have begun collaborating with fintech companies. These partnerships provide banks with access to advanced digital technologies, such as blockchain for contract verification, AI-driven risk assessment, and digital identity verification systems. Research has shown that fintech collaboration can significantly improve efficiency in Islamic banking services while maintaining Sharia compliance (Alidinar et al., 2022; Khaldi & Hamdouni, 2011; Wulandari et al., 2016).

Another key strategy is customer education and awareness programs. Islamic banks have introduced digital banking workshops, online tutorials, and dedicated customer service teams to help customers transition to digital financial services. A similar approach has been successfully implemented in Malaysia, where Bank Islam Malaysia Berhad launched digital literacy campaigns to encourage Islamic banking adoption (Amin, 2021; Jusoh & Khalid, 2013). Additionally, regulatory bodies in Indonesia are working on new digital banking frameworks that specifically address the needs of Islamic finance. These frameworks focus on transaction transparency, fraud prevention, and risk management. By establishing clearer guidelines for digital *Murabahah*, regulators can create a more conducive environment for innovation while ensuring adherence to Sharia principles (Aisjah et al., 2022; Asyiqin & Alfurqon, 2024; Guizani & Ajmi, 2021; Ichsan et al., 2024).

The successful implementation of Digital *Murabahah* in Mandailing Natal could lead to greater financial inclusion, particularly in rural communities. By offering Sharia-compliant digital financing options, banks can reach previously unbanked populations, helping them access capital for businesses, education, and other financial needs. According to the Islamic Financial Services Board (IFSB), digital financial inclusion is a key factor in the global expansion of Islamic banking (Alshubiri & Al Ani, 2023). Moreover, the adoption of digital solutions will enhance operational efficiency in Islamic banks. Digital *Murabahah* transactions eliminate the need for extensive paperwork and manual approvals, leading to faster financing approvals and reduced operational costs. In countries like Saudi Arabia and the UAE, AI-driven banking solutions have significantly improved the speed and accuracy of Islamic financial transactions (Guizani, 2020).

The development of Digital *Murabahah* in Mandailing Natal presents both opportunities and challenges. While the region faces technological, educational, and regulatory hurdles, strategic initiatives such as fintech collaboration, customer education, and regulatory reform can



accelerate the adoption of digital Islamic finance. As Islamic banks continue to invest in digital transformation, Mandailing Natal has the potential to become a model for regional digital Islamic banking innovation. By ensuring compliance with Sharia principles and leveraging modern financial technologies, Digital *Murabahah* can play a crucial role in advancing Islamic finance accessibility and sustainability in Indonesia and beyond.

#### 4. Conclusion

The findings from this study indicate that the development of Digital *Murabahah* in Mandailing Natal faces several challenges, including limited digital infrastructure, low customer literacy, and regulatory constraints. While some Islamic banks have initiated digital transformation, the full-scale implementation of Sharia-compliant digital financing is still in its early stages. The need for fintech collaboration, enhanced digital banking policies, and customer education is crucial to overcoming these obstacles. Additionally, regulatory improvements can facilitate the smooth transition of *Murabahah* financing into digital platforms while ensuring compliance with Sharia principles and national banking laws. From the discussion, it is evident that strategic initiatives, such as partnerships with fintech companies, regulatory advancements, and hybrid banking models, can accelerate the adoption of Digital *Murabahah*. These efforts will help improve trust, security, and efficiency in Islamic financial transactions. The case of Mandailing Natal highlights the importance of gradual implementation, ensuring that traditional banking customers adapt to digital services without disrupting existing financial practices. Furthermore, the integration of AI-driven solutions and blockchain technology could significantly enhance the transparency and efficiency of Islamic digital financing.

Beyond the theoretical contribution, the study also provides several policy implications for stakeholders in the Islamic banking sector. Policymakers and regulators should develop a clear and supportive framework for digital Islamic finance, including standardized guidelines for Digital *Murabahah* operations, cybersecurity protocols, and Sharia-compliance auditing systems. Strengthening regulatory coordination between the Financial Services Authority (Otoritas Jasa Keuangan), Bank Indonesia, and the National Sharia Board (Dewan Syariah Nasional–MUI) is essential to harmonize digital banking innovation with Islamic financial principles. Government-backed programs aimed at improving digital literacy—particularly in rural and semi-urban areas—would also play a critical role in promoting public trust and participation in digital Islamic banking.

From a practical perspective, regional Islamic banking institutions should prioritize investments in digital infrastructure, staff training, and fintech partnerships to enhance operational capabilities. Developing hybrid service models that combine face-to-face and digital interactions can help maintain customer confidence during the transition period. Regional banks are also encouraged to adopt scalable digital solutions, such as mobile-based *Murabahah* applications and AI-driven customer support systems, to improve accessibility and service efficiency. Establishing local collaborations with universities, fintech startups, and community organizations can further accelerate knowledge transfer and innovation in digital Islamic finance.

Despite these insights, this study has several limitations. The research focuses primarily on Mandailing Natal, and the findings may not be fully generalizable to other regions with different economic and technological conditions. Additionally, the study does not deeply explore customer behavioral aspects related to digital Islamic banking adoption. Future research should consider conducting comparative studies between different regions, exploring customer perceptions and behavioral shifts, and assessing the long-term impact of regulatory changes on Digital *Murabahah* adoption. Expanding the study to other Islamic banking products and digital financial innovations can further contribute to the growing body of knowledge in Islamic fintech development.

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