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Developing a Sharia Mobile Banking Strategy to Enhance Financial Literacy and Digital Inclusion for Underbanked Financing Customers

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Abstract
This paper develops a pragmatic strategy for launching a Sharia-compliant mobile banking application at Bank Tepat Syariah to enhance financial literacy and improve access to finance for underbanked financing customers. Although smartphone penetration in Indonesia is high, adoption of mobile banking among financing customers remains low. Based on twenty-four semi-structured interviews with internal stakeholders, field officers, and current and potential customers, complemented by secondary data and regulatory documents (POJK 13/2021; POJK 21/2023), the study identifies three interlinked barriers: (1) Financial Literacy & Digital Confidence Gaps, (2) Behavioral Resistance & Social Influence, and (3) Perceived App Complexity & Usability Barriers. These findings inform an Integrated Adoption Strategy Framework consisting of three pillars—Embedded Financial Literacy, Behavioural Reinforcement, and Simplicity-by-Design—implemented through a phased pilot–scale–launch roadmap aligned with Sharia governance and the three-lines-of-defense risk framework. The paper offers a human-centred, Sharia-compliant blueprint for digital transformation in an underbanked context, positioning mobile banking not only as a transaction channel but also as a vehicle for financial capability and inclusion.

Keywords: *Mobile Banking, Financial Literacy, Behavioral Adoption, Digital Inclusion, Sharia Compliance.*

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INTRODUCTION

Although Indonesia has made significant progress in financial inclusion at the national level, many low-income and rural customers remain underbanked and rely heavily on cash-based transactions. Smartphone penetration has surpassed 80 percent, yet the use of mobile banking among financing customers is still limited. In Bank Tepat Syariah, sales officers report that many financing customers who already own smartphones prefer manual cash payments and feel anxious about using digital channels. At the same time, Islamic financial literacy and inclusion indices remain far below conventional figures, indicating that many Muslim customers have access to, but do not fully utilise, Sharia-compliant financial services (Samud et al., 2025). This paper therefore asks: how should a Sharia-compliant mobile banking application be designed and launched so that it can close the gaps in literacy, behaviour, and usability and effectively expand access to finance for underbanked financing customers?

The challenge facing Bank Tepat Syariah is both intriguing and complex: despite a high level of digital readiness among its financing customers - evidenced by widespread smartphone ownership and reliable network coverage - mobile banking adoption remains stubbornly low. This paradox suggests that the issue is not technological accessibility but rather a deeper misalignment between the bank's digital offerings and the behavioral, cultural, and operational realities of its customer base. It is not enough to assume that because customers have the tools to access mobile banking, they will naturally embrace it. The real problem lies in understanding why they choose not to - whether due to distrust, lack of familiarity, perceived complexity, or even misalignment with their religious values. Addressing this requires a nuanced, customer-centric approach that goes beyond mere interface design or marketing campaigns.

To truly tackle this issue, the bank must first identify the precise barriers that prevent adoption. These barriers can be broadly categorized into three domains: behavioural, technological, and operational. Behavioural barriers may include resistance to change, fear of digital fraud, or a preference for face-to-face interactions rooted in cultural norms. Technological barriers could involve confusing user interfaces, lack of digital literacy, or compatibility issues with older devices. Operational barriers might encompass internal processes that inadvertently discourage digital engagement, such as lengthy verification steps or insufficient customer support for digital channels. By mapping these barriers systematically, Bank Tepat Syariah can move from speculation to targeted intervention, ensuring that every solution addresses a real, observed pain point rather than an assumed one.

Once the barriers are clearly understood, the next step is to develop a comprehensive strategy that not only removes obstacles but also actively encourages adoption through meaningful engagement. This strategy must be deeply rooted in Islamic financial literacy, recognizing that many customers may hesitate to use mobile banking not because they distrust technology, but because they are unsure whether the services comply with Sharia principles. By embedding educational content directly into the user journey - such as explanations of how transactions are Sharia-compliant, or how profit-sharing mechanisms work — the bank can transform mobile banking from a mere convenience into a tool for financial empowerment aligned with customers' values. Additionally, the user journey must be simplified to reduce friction: from onboarding to transaction completion, every step should be intuitive, fast, and reassuring.

The rollout of this strategy must be carefully planned to ensure regulatory compliance and ethical oversight. Operating within the framework of the Otoritas Jasa Keuangan (OJK), Bank Tepat Syariah must demonstrate that its mobile banking platform meets all legal and supervisory requirements. Equally important is the role of the Dewan Pengawas Syariah (DPS), whose approval is essential to maintain the bank's Sharia integrity. The implementation plan should therefore include clear checkpoints for both regulatory and Sharia compliance, with regular audits and feedback loops to ensure continuous alignment. This dual-layered governance ensures that the bank not only avoids legal risk but also preserves the trust of its customers, who rely on the institution to uphold both financial and religious standards.

Beyond compliance, the strategy must also be designed with scalability and sustainability in mind. A phased implementation allows the bank to test interventions on smaller customer segments before scaling up, reducing risk and enabling data-driven refinement. Each phase should include measurable KPIs - such as adoption rates, transaction volumes, and customer satisfaction scores - to track progress and adjust tactics as needed. Moreover, integrating governance, risk, and compliance (GRC) components from the outset ensures that operational, digital, and Sharia risks are managed proactively rather than reactively. The three-lines-of-defense model — where frontline operations, risk management, and internal audit each play distinct but complementary roles - provides a robust framework for maintaining control while fostering innovation.

Ultimately, the success of this initiative hinges on its ability to resonate with customers on a human level. Mobile banking should not be positioned as a replacement for traditional banking but as an enhancement — a tool that makes their financial lives easier, more transparent, and more aligned with their values (Balcioglu & Evranos, 2025). By combining behavioural insights, technological simplicity, and Sharia-compliant design, Bank Tepat Syariah has the opportunity to not only increase adoption but also deepen customer loyalty and trust. This is not just about digitizing services; it’s about reimagining the bank-customer relationship in a way that honors both modern technology and timeless principles. The goal is not merely to get customers to use an app - but to empower them to thrive financially, in a manner that feels authentic, secure, and deeply meaningful.

LITERATURE REVIEW

1. Theoretical Foundation

This chapter reviews the key bodies of literature that underpin the business issue of low mobile banking adoption among underbanked financing customers of Bank Tepat Syariah. The discussion is structured to move from the broader concepts of financial inclusion and financial literacy toward more specific theories on technology adoption, customer behaviour in financial technology, and Sharia financial inclusion. In doing so, it provides a coherent narrative that links the macro policy agenda, customer capabilities, and behavioural mechanisms that are ultimately translated into the conceptual framework of this study

Financial Inclusion and Digital Financial Inclusion

In the context of Islamic finance, the challenge of financial inclusion is particularly acute. Despite Indonesia being the world’s largest Muslim-majority country and possessing a well-established Islamic financial sector, Sharia-compliant financial inclusion continues to lag behind its conventional counterpart. National survey data reveal that many potential users either remain entirely outside the formal Islamic financial system or do not yet rely on Sharia-based services as their primary financial tools (OJK, 2024). For institutions like Bank Tepat Syariah, this gap underscores that digital financial inclusion must go beyond merely offering access to digital channels — it must ensure that Sharia-compliant services are not only available but also clearly communicated, culturally resonant, and practically usable by underbanked populations. This requires embedding Islamic financial literacy into the customer journey and designing interfaces that reflect the values and expectations of Sharia-conscious users.

The paradox faced by Bank Tepat Syariah - high smartphone penetration yet low mobile banking adoption among its financing customers - exemplifies a broader phenomenon in digital financial inclusion: access does not guarantee usage. While digital platforms can overcome geographic and cost barriers, their benefits often accrue first to those already equipped with higher income, education, and digital literacy (Wang et al., 2025). This creates a risk of "digital exclusion," where individuals may hold formal accounts but remain unable or unwilling to engage meaningfully with digital services. For an Islamic bank serving over three million low-income and remote customers, this necessitates a dual focus: expanding digital access while simultaneously building digital capability and trust through Sharia-aligned education, simplified user experiences, and culturally sensitive design (Schoon, 2016). Only then can digital financial inclusion become truly inclusive - not just in reach, but in impact.

Financial Literacy: Concept and Role in Inclusion

Financial inclusion extends beyond mere access to financial services - it fundamentally hinges on the capability of individuals to understand and effectively utilize those services. Financial literacy, as defined by the OECD (2018), encompasses not only knowledge and skills but also attitudes and confidence that empower individuals to make sound financial decisions, manage resources responsibly, and plan for the future. This includes the ability to comprehend basic financial concepts, evaluate product offerings, and exercise self-discipline in spending and borrowing. Empirical evidence consistently demonstrates that higher financial literacy correlates with greater use of formal savings, prudent borrowing behavior, and long-term financial planning. In the digital context, literacy further determines a user's capacity to interpret transaction data, assess digital risks and benefits, and troubleshoot issues. In Indonesia, Noor et al. (2020) identified a pronounced "literacy–usage gap," where many adults possess access to formal services but lack the confidence or knowledge to use them optimally - often due to mistrust of institutions and a preference for cash, particularly among low-income and underbanked groups.

For Bank Tepat Syariah's financing customers, financial literacy is not merely a personal trait but a critical enabler of digital financial inclusion. Customers unfamiliar with concepts such as profit-sharing structures, instalment schedules, or late-payment consequences may resist transitioning from manual, field-officer-mediated transactions to self-service digital platforms. This makes financial literacy a strategic design consideration—not just an educational add-on. In the Islamic banking context, literacy must also include comprehension of Sharia principles and contract types like murābaḥah, ijārah, or mushārakah, as well as the distinction between interest and profit-sharing. National data reveal that Islamic financial literacy lags significantly behind general financial literacy, suggesting that many customers using or eligible for Sharia-compliant products may not fully understand their rights, obligations, or risk-return dynamics. For Bank Tepat Syariah's underbanked clientele, this dual deficit - low general literacy compounded by limited Islamic literacy -can severely undermine confidence in digital Sharia-based transactions. Therefore, effective mobile banking design must not only simplify interfaces but also embed Sharia-aligned educational elements to build trust, comprehension, and meaningful usage.

Mobile Banking as a Channel for Financial Access

Mobile banking, defined as the use of smartphones and applications to access services like balance checks, transfers, bill payments, and loan management, is widely regarded as a transformative tool for financial inclusion due to its ability to transcend physical branch limitations and offer round-the-clock service (Wang et al., 2025). However, adoption remains uneven: while wealthier, tech-savvy users benefit most - especially during disruptions to physical branches - lower-income customers often face barriers such as usability issues, security fears, and a perceived lack of relevance to their daily financial routines. These challenges highlight that mobile banking's potential is not automatically realized; it requires intentional design and contextual adaptation to serve underbanked populations effectively.

For Bank Tepat Syariah, mobile banking is strategically positioned to reduce operational burdens on field officers, minimize cash-handling risks, and empower rural and peri-urban financing customers with greater autonomy over their financial activities. Yet the persistent gap between this strategic vision and the current low adoption rate reveals a critical insight: technology alone cannot drive inclusion. Success hinges on addressing customer perceptions, behavioral tendencies, and contextual realities—such as digital literacy, trust in digital platforms, and alignment with users' financial habits. Without integrating these human-centered considerations into the design and rollout of mobile banking services, even the most advanced technology may fail to reach or resonate with the very populations it aims to serve.

Technology Acceptance Model (TAM)

To understand user acceptance or rejection of new technologies, this analysis employs the Technology Acceptance Model (TAM), as proposed by (Davis, 1989). TAM posits that user adoption is primarily driven by two key beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the extent an individual believes a system will enhance their performance or outcomes, while perceived ease of use indicates how effortless the system is to use. The model suggests that PEOU positively influences PU, and both subsequently shape users' attitudes, behavioral intentions, and actual system usage. This framework is particularly relevant in mobile banking, where studies like that by Siswoyo and Irianto (2023) confirm PEOU's significant impact on PU, which then dictates adoption among Indonesian customers. When a system is seen as complex or cumbersome, its potential benefits are often overlooked, particularly by underbanked customers with limited digital experience.

Within this context, TAM serves as a critical lens for examining how financial literacy influences customer perceptions of mobile banking. Higher financial literacy is expected to improve customers' understanding of digital transaction functionalities and benefits, thereby boosting both perceived usefulness and perceived ease of use. Conversely, low financial literacy can escalate the perception of complexity and diminish the perceived benefits, hindering adoption. This connection is vital, as it highlights that the effectiveness of mobile banking initiatives goes beyond technological design and extends to empowering users through improved financial understanding, especially for those with less exposure to digital financial tools.

Customer Behaviour, Trust, and Fintech Adoption

Mobile banking adoption among low-income and underbanked populations is not solely determined by perceptions of usefulness or ease of use, as suggested by the Technology Acceptance Model (TAM). Instead, it is deeply influenced by trust, perceived risk, and social influence. For these customers, concerns about the safety of their funds, fear of irreversible transaction errors, and reliance on trusted intermediaries - such as field officers - often outweigh the functional benefits of digital platforms. Angeles (2022) emphasizes that digital and financial literacy act as critical mediators: they determine whether users perceive mobile banking as an empowering tool or as a potential source of financial risk. Without addressing these psychological and social barriers, even the most user-friendly interface may fail to gain traction among vulnerable customer segments.

Trust in mobile banking encompasses confidence in the institution, the underlying technology, and the user's own ability to navigate transactions safely. When trust is low, customers gravitate toward face-to-face interactions, physical transaction records, and tangible proof such as passbooks or receipts. In collectivist societies, social norms and peer experiences significantly shape adoption behavior: positive testimonials from trusted community members can catalyze uptake, while negative anecdotes can create widespread hesitation. Therefore, customer behavior in this context is best understood as the result of a dynamic interplay between financial literacy, perceived usefulness and ease of use, trust in the platform, and contextual factors like device ownership and network reliability. These behavioral drivers form the foundation of the conceptual framework guiding this study, ensuring that technology deployment is aligned with human and social realities.

Sharia Financial Inclusion and Digitalization

In Islamic finance, financial inclusion is not merely about expanding access to affordable financial services but also ensuring that these services strictly adhere to Sharia principles. Nurfalah and Rusydiana (2019) highlight that digitalization can foster "Sharia financial inclusion endogenously" by integrating Sharia - compliant contracts—such as murabahah (cost-plus financing) and ijarah (leasing) - into digital platforms, alongside risk-sharing mechanisms and ethical safeguards. However, they caution that for customers to fully benefit from these innovations, they must possess a foundational understanding of these contracts. Without such comprehension, the ethical and spiritual value of Sharia-compliant finance may be lost, reducing digital offerings to mere transactional tools rather than instruments of economic justice and moral responsibility.

For Bank Tepat Syariah, which positions itself as a Sharia-compliant institution committed to financial inclusion, digitalization serves a dual purpose: it acts as both a delivery channel and a medium for reinforcing Islamic financial values. The bank aims to protect and grow customer value, enhance real-sector productivity, and ensure equitable access to Sharia-compliant financing - all while maintaining transparency, fairness, and the avoidance of gharar (excessive uncertainty). The convergence of Sharia compliance, financial literacy, and digital usability thus becomes the cornerstone of this thesis. Customers must feel confident that their digital transactions reflect the same ethical integrity as in-person services and that they can comprehend the implications of every digital action they undertake. This insight bridges the theoretical foundations of financial inclusion and technology adoption with the practical design of a conceptual framework that respects both Islamic principles and user experience.

2. Conceptual Framework

The conceptual framework of this study transforms theoretical foundations into a causal chain of constructs explaining mobile banking adoption among underbanked customers of Bank Tepat Syariah, beginning with financial literacy and culminating in improved financial inclusion. It synthesizes insights from financial inclusion and literacy literature, the Technology Acceptance Model (TAM), and research on trust and customer behavior in fintech. This integrated model, visualized in Figure 1., ensures that technological adoption aligns with both behavioral drivers and Sharia-compliant financial objectives.

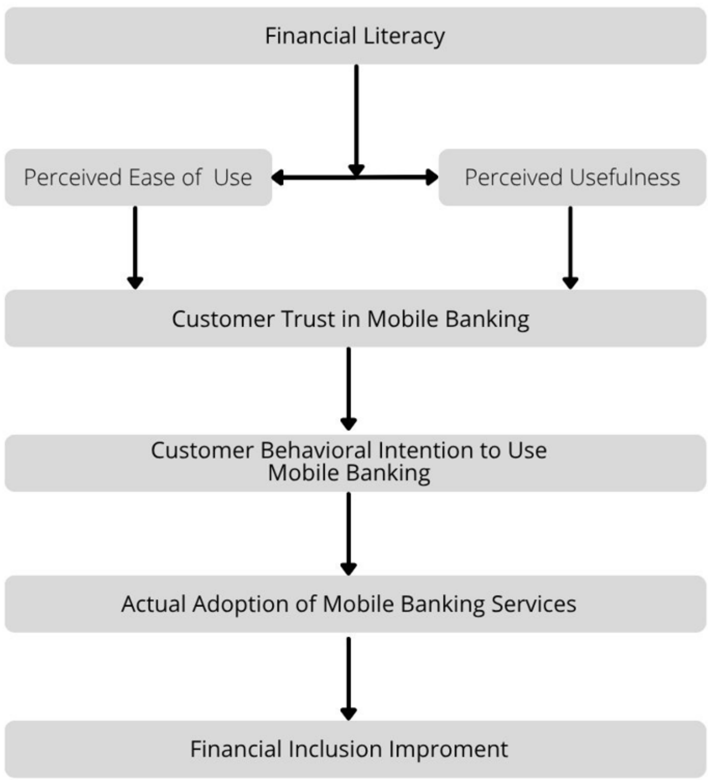

Figure 1. Customer Demographics, Digital Readiness, Shariah Compliance Alignment

At the core of the framework lies financial literacy, which equips underbanked customers of Bank Tepat Syariah with the knowledge, skills, and confidence to comprehend financial concepts, assess products, and manage transactions effectively. Higher literacy reduces confusion around Sharia-compliant contracts (e.g., murabahah or ijarah) and installment obligations, enabling customers to transition from cash-based, manual interactions with field officers to digital engagement. This foundational understanding ensures that access to financial services translates into meaningful inclusion, rather than superficial availability.

Financial literacy directly influences customers' perceptions of mobile banking's ease of use and usefulness, as outlined in the Technology Acceptance Model (TAM) (Sabila & Hasnawati, 2024). Customers who grasp financial processes are more likely to view the app as intuitive and efficient, enhancing perceived ease of use, while also recognizing its practical benefits—such as managing installments, monitoring balances, and conducting secure payments. These positive perceptions foster trust in the platform's reliability, security, and alignment with Sharia principles, bridging the gap between cognitive evaluations and behavioral intentions, especially for customers accustomed to face-to-face interactions.

Trust translates into behavioral intention—the customer's willingness to use mobile banking for routine activities like paying installments or transferring funds. This intention, in turn, drives actual adoption, measured by the frequency and consistency of app usage. Despite contextual barriers like device ownership or connectivity, sustained adoption leads to improved financial inclusion: customers gain convenient, timely access to Sharia-compliant services, strengthening household resilience and supporting productive economic participation. This framework not only guides data collection and analysis in subsequent chapters but also ensures the proposed mobile banking strategy is both theoretically sound and practically tailored to underbanked customers' needs.

RESEARCH METHODOLOGY

A qualitative research design was adopted. Twenty-four semi-structured in-depth interviews were conducted with three groups of participants: (i) internal stakeholders from Business, IT, and Sharia/Compliance functions; (ii) field officers (sales) responsible for onboarding and collecting instalments; and (iii) current and potential financing customers from underbanked segments. Customers were purposively selected from areas representing different readiness categories (Prestasi, Aksi, Upaya, Siaga) to capture variation in adoption levels.

Secondary data included OJK regulations (POJK No.13/POJK.03/2021 on product governance and Sharia oversight; POJK No.21/POJK.03/2023 on digital services), internal policies and SOPs of Bank Tepat Syariah, and industry reports on digital finance and financial inclusion.

The data were analysed using content and thematic analysis: interview transcripts were coded, grouped into categories, and then synthesised into themes following Braun and Clarke (2006) procedure. This interpretivist approach emphasises participants' lived experiences and perceptions of mobile banking, which is crucial for understanding adoption barriers in underbanked, Sharia-oriented contexts.

RESULTS AND DISCUSSION

Findings: Barriers and Reinforcing Loop

Underbanked customers of Bank Tepat Syariah face significant hurdles rooted in low financial and digital literacy, which directly undermine their confidence in using mobile banking independently. Many struggle to comprehend essential Islamic finance terminology -such as akad (contract) and ujrah (fee) - and are uncertain about how installment calculations work, leading to anxiety over *"pressing the wrong button"* in the app (Rusydiana & Ikhwan, 2022). This lack of understanding fosters dependency on field officers for even basic transactions, highlighting that mere access to technology is insufficient without the cognitive tools to navigate it effectively. Without targeted literacy interventions, digital inclusion remains out of reach for these users.

A strong preference for the status quo—relying on familiar cash-based and manual processes—further impedes adoption, as many customers feel more secure when field officers physically collect payments. Crucially, their decisions to engage with the mobile banking app are heavily influenced by social cues: peer recommendations, group leaders' endorsements, or direct encouragement from officers often serve as the tipping point for trying the technology. This underscores the power of social proof in overcoming behavioral inertia, suggesting that adoption strategies must leverage trusted community networks rather than relying solely on technological features or individual incentives.

Users frequently describe the mobile banking interface as cluttered, confusing to navigate, and resource-intensive on older devices, with performance issues exacerbated by limited network coverage and fears of system failure. These usability barriers lead many to restrict their app usage to passive functions like balance checks, avoiding transactional features altogether. Critically, low literacy and digital insecurity fuel behavioral resistance, which in turn magnifies perceptions of complexity and risk—creating a self-reinforcing cycle that explains why high smartphone penetration alone does not drive meaningful adoption. Breaking this loop requires simplifying the user experience, embedding contextual guidance, and aligning design with users' existing mental models and technological realities.

Integrated Adoption Strategy Framework

A three-pillar Integrated Adoption Strategy Framework is proposed to address these barriers simultaneously—strengthening knowledge, guiding behaviour, and improving usability—while ensuring full compliance with regulatory requirements and Sharia principles.

Table 1. Three-Pillar Framework

Pillar	Goal	Design & Mechanisms	Compliance & Alignment
Embedded Financial Literacy	Strengthen understanding and confidence within the app.	• Contextual micro-lessons, tooltips, and short videos during financing inquiries or instalment payments. • For instance, explaining Akad flows and customer rights/obligations in plain language. • Bilingual or local-dialect toggles and budgeting/instalment calculators.	• Educational content validated by DPS. • Supports product governance transparency under POJK 13/2021.
Behavioural Reinforcement	Reduce fear and leverage social proof.	• Guided onboarding (first-use walkthroughs). • Digital Ambassadors and group demonstrations. • First-transaction incentives, "try-safe" sandbox mode, hotline & WhatsApp support.	Complies with consumer protection and usability evaluation standards under POJK 21/2023.
Simplicity-by-Design	Minimise cognitive load and error risk.	• One primary action per screen, maximum three steps per transaction. • Large icons, clear flows, offline queueing for key tasks (balance check, transaction history). • Lightweight interface and local language options.	• Ensures accessibility and operational resilience. • Aligned with internal UX and risk management standards.

Implementation Roadmap (Pilot → Scale → Launch)

The implementation roadmap outlines a phased approach - Pilot, Scale, and Broad Launch - to ensure that the mobile banking application is introduced in a controlled, well-governed manner. Each phase is designed to test, refine, and expand the solution while preserving strong governance, risk management, and Sharia compliance. The roadmap specifies key activities, responsible actors, and performance indicators for each phase, enabling management to monitor adoption, operational robustness, and customer experience.

Table 2: Implementation Plan

Phase	Timeline	Key Activities	Governance & Risk Alignment	Key Metrics
Phase 1 – Pilot	Q1–Q2	• Finalize Product Requirement Document (PRD). • Conduct security and reliability testing. • Upload literacy modules; run usability testing (≈100 participants). • Train 30 field officers as facilitators and recruit Digital Ambassadors. • Soft launch to ~500 customers in Aksi clusters; gather real-time feedback.	• DPS review before launch. • Product notification to OJK. • Apply three-lines-of-defense model for operational control.	• Adoption rate in pilot region. • First-transaction success rate. • User feedback & satisfaction index.
Phase 2 – Scale	Q3	• Refine UX based on analytics and customer complaints. • Expand service to Upaya areas. • Strengthen helpdesk operations and knowledge base. • Introduce gamified literacy modules for user engagement.	• Quarterly usability and risk reports to OJK. • Continuous internal monitoring and review.	• User growth rate. • Literacy module completion. • Complaint resolution time.
Phase 3 – Broad Launch	Q4	• Extending coverage to new geographies. • Add bilingual and local content. • Integrate advanced analytics for performance tracking. • Conduct internal audits and post-launch review.	• Ongoing DPS oversight and compliance verification. • Continuous improvement loop from audit findings.	• 30/90-day active use rate. • Net Promoter Score (NPS). • MTTR (Mean Time to Recovery) and DSAT (Dissatisfaction Rate) metrics.

Risk & Mitigation

To mitigate risks associated with mobile banking adoption, Bank Tepat Syariah must implement a multi-layered strategy: guided onboarding, peer validation, and early success experiences can reduce adoption uncertainty; operational resilience can be strengthened through stress testing, offline queuing, incident runbooks, and transparent communication; Sharia and regulatory compliance require DPS-validated workflows, auditable logs, irtokens, and clear in-app disclosures; and reputational risks demand rapid complaint resolution, proactive field communications during outages, and thoughtful service recovery gestures to maintain trust and credibility among underbanked customers.

Discussion

This framework operationalises TAM by embedding literacy-driven perceived usefulness, simplicity-driven perceived ease of use, and peer-enabled trust, thereby narrowing the intention–behaviour gap. Mobile banking is reframed from a purely transactional channel into a learning and empowerment journey that is suitable for low-literacy, collectivist settings and fully compliant with Sharia law and ethical assurance.

CONCLUSION AND RECOMMENDATION

Conclusion

This study aimed to design actionable strategies for deploying a mobile banking app at Bank Tepat Syariah, targeting underbanked customers to enhance financial literacy and capital accessibility. Through in-depth interviews and data analysis, it revealed that adoption barriers are deeply interconnected: low financial literacy breeds self-doubt in digital transactions, leading users to prefer physical bank visits; behavioral inertia and weak peer support post-adoption further hinder engagement; and complex interfaces amplify perceived risks, discouraging active usage. These findings confirm that technological readiness alone cannot bridge the adoption gap without addressing cognitive, behavioral, and experiential dimensions.

The analysis underscores a reinforcing cycle: low literacy fuels resistance to behavioral change, which in turn magnifies perceived system complexity, creating a chasm between access and meaningful usage. To dismantle this cycle, the study advocates for education-driven interventions, behavioral nudges, and simplified digital interactions tailored to users' mental models. Legally, compliance with POJK No.13/POJK.03/2021 and POJK No.21/POJK.03/2023 mandates Sharia-compliant, transparent, and customer-centric digital services. Embedding literacy modules within the app and involving DPS (Dewan Pengawas Syariah) is critical to build trust and ensure regulatory alignment, transforming compliance into an enabler of inclusive finance.

Three pillars are essential for successful mobile banking adoption among underbanked customers: Integrated Financial Literacy—delivering contextual, bite-sized education directly within the app to demystify concepts like akad and ujrah; Behavioral Reinforcement—leveraging social proof, structured onboarding, and peer networks to normalize app usage; and Simplicity-by-Design—optimizing interfaces for low-connectivity environments, minimizing cognitive load, and preventing transaction errors. Together, these pillars enable Bank Tepat Syariah to fulfill its ethical mission of financial empowerment while advancing Indonesia's broader digital inclusion goals under OJK's framework. The study's human-centered, Sharia-aligned approach offers a replicable model for sustainable digital transformation in Islamic finance.

Recommendation

Bank Tepat Syariah must evolve its mobile banking initiative from a mere digital channel into a holistic customer-centric ecosystem that seamlessly integrates Sharia compliance, financial literacy, and behavioral design. To resonate with underbanked users, the app should embed real-time educational pop-ups during transactions—explaining concepts like akad or profit margins—to reinforce understanding. Onboarding must be personalized through field officers and local "Digital Ambassadors" who guide users in person, alleviating anxiety and building confidence. Additionally, feedback analytics should be continuously monitored to identify usability pain points and iteratively refine the platform for intuitive navigation and error prevention.

To ensure alignment with Indonesia's financial regulations, the bank must institutionalize cross-departmental collaboration between business development, IT, compliance, and the Dewan Pengawas Syariah (DPS). This enables synchronized development of literacy content, usability testing, and regulatory vetting under POJK No.13/POJK.03/2021 and POJK No.21/POJK.03/2023. The bank should conduct periodic product governance reviews per Article 8 of POJK No.13/POJK.03/2021 and submit quarterly usability and risk assessments per Article 18 of POJK No.21/POJK.03/2023, including metrics on adoption rates, customer complaints, and literacy engagement. Strengthening the three-line defense framework—business, compliance, and audit—will further fortify operational resilience against digital risks.

Beyond the app, Bank Tepat Syariah should expand financial literacy through community workshops and bite-sized, gamified educational videos distributed via WhatsApp. Partnering with authoritative entities like OJK's Literasi Keuangan Syariah initiative can amplify credibility and reach. These initiatives must be designed to meet users where they are—leveraging familiar communication channels and social learning environments—to cultivate lasting financial confidence. By embedding education into daily interactions and community networks, the bank transforms passive users into active, informed participants in the digital financial ecosystem.

Future research should expand beyond qualitative insights to include quantitative studies measuring the statistical impact of adoption drivers identified in this work. Comparative analyses between Sharia-compliant and conventional banks can reveal how trust, transparency, and religious alignment influence mobile banking behavior. Longitudinal studies tracking user conduct and financial outcomes over time will provide deeper insights into sustainable inclusion. Ultimately, this thesis affirms that true digital financial inclusion requires more than technology—it demands a human-centered approach that prioritizes literacy, trust, and empowerment. If implemented faithfully, Bank Tepat Syariah's model could become Indonesia's first Sharia-compliant digital inclusion success story, advancing both institutional growth and national financial equity goals.

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