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Strategic Mapping of Sharia Fintech Development in Indonesia: A SWOT-Based Analysis

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Abstract

This study examines sharia fintech development in Medan City, Indonesia, amid growing fintech adoption and persistent concerns about literacy, trust, and cybersecurity in urban financial ecosystems. Using a qualitative descriptive design with SWOT scoring, data were collected from 25 purposively selected informants (academics, active users, and sharia fintech practitioners) through open-ended questionnaires and semi-structured interviews, supported by document and literature review. Findings from the IFAS/IFE and EFAS/EFE matrices indicate a supportive internal environment (IFAS = 3.000000) and a favorable external environment (EFAS = 3.543854), positioning Medan in Cell I of the IE matrix (Growth). Key strengths center on perceived sharia compliance and the availability of sharia-based digital financial products, while major constraints include weak regulatory socialization, low public literacy, and uneven IT infrastructure. External threats are dominated by cybersecurity vulnerabilities, conventional fintech dominance, and persistent perceptions that sharia fintech is indistinguishable from conventional services. The strategic map suggests that sustainable growth requires "vertical integration" interpreted as institutional consolidation—strengthening governance and sharia assurance, literacy and user education, security-by-design practices, and reliable service delivery. These priorities align with POJK-based market conduct and the sharia parameters articulated in DSN–MUI fatwas, supporting user trust and the ethical objective of protecting wealth (ḥifẓ al-māl).

Keywords: sharia fintech; SWOT analysis; institutional trust; cybersecurity; Medan City

Abstrak

Penelitian ini menganalisis strategi pengembangan sharia fintech di Kota Medan, Indonesia, di tengah peningkatan penggunaan fintech dan masih kuatnya persoalan literasi, kepercayaan, serta risiko keamanan siber dalam ekosistem keuangan perkotaan. Metode yang digunakan adalah desain kualitatif deskriptif dengan SWOT scoring. Data diperoleh dari 25 informan yang dipilih secara purposif (akademisi, pengguna aktif, dan praktisi sharia fintech) melalui kuesioner terbuka dan wawancara semi-terstruktur, diperkuat studi dokumen dan literatur. Hasil matriks IFAS/IFE dan EFAS/EFE menunjukkan kondisi internal yang relatif mendukung (IFAS = 3,000000) dan lingkungan eksternal yang menguntungkan (EFAS = 3,543854), sehingga posisi strategis berada pada Sel I matriks IE (Growth). Kekuatan utama terletak pada persepsi kepatuhan syariah dan ketersediaan produk layanan keuangan digital berbasis syariah. Namun, hambatan dominan meliputi lemahnya sosialisasi regulasi, rendahnya literasi publik, dan ketimpangan infrastruktur TI. Ancaman eksternal yang menonjol adalah kerentanan keamanan data, dominasi institusi konvensional, dan persepsi publik bahwa sharia fintech tidak berbeda secara bermakna dari fintech konvensional. Pemetaan strategi menegaskan bahwa pertumbuhan berkelanjutan perlu ditempuh melalui penguatan institusional—tata kelola dan penjaminan syariah, program literasi, penerapan

security-by-design, dan reliabilitas layanan—selaras dengan kerangka POJK serta parameter kepatuhan syariah dalam fatwa DSN–MUI, guna memperkuat kepercayaan dan ḥifẓ al-māl.
Kata kunci: *sharia fintech; analisis SWOT; kepercayaan institusional; keamanan siber; Kota Medan*

Introduction

Development *Financial Technology* (fintech) in Indonesia showed a significant upward trend, supported by high internet penetration and usage *Smartphone*, especially in urban areas such as Medan City. Digital transformation has driven changes in people's interaction patterns with financial services, including a shift towards more efficient and inclusive non-banking digital financial services (Buckley et al., 2016; Gomber et al., 2018). The majority of the population is Muslim and the growth of micro, small, and medium enterprises (MSMEs), the city of Medan has great potential for development *Sharia Fintech* as an alternative to digital financial services that are in accordance with sharia principles and support financial inclusion based on ethical values (Firmansyah & Anwar, 2019).

Growth *Sharia Fintech* It is not fully optimal. The main problems include the limitation of public literacy towards the mechanism *Sharia Fintech*, low understanding of sharia compliance, as well as concerns about data security and increased risk of cybercrime. These factors have a direct impact on the level of user trust, which is a key determinant in the adoption and sustainability of sharia-based fintech services (Unal & Aysan, 2022). Trust is a crucial issue because digital financial services are highly dependent on the perception of system security and the credibility of service providers (Jiang et al., 2021).

Previous research on fintech in Indonesia has tended to focus on aspects of regulation, the banking sector, or analysis on a national scale (Muryanto et al., 2021) On the other hand, studies that discuss development strategies *Sharia Fintech* Based on user perception, especially in the non-banking sector and at the city level, is still very limited. The lack of empirical research in the local context has led to the lack of strategic mapping that is able to reflect real conditions, challenges, and user needs *Sharia Fintech* in urban areas such as Medan City (Ağca et al., 2013). Scientifically, filling this research gap is important because of acceptance, legitimacy, and sustainability *Sharia Fintech* is heavily influenced by trust levels, literacy, and user experience (Muryanto et al., 2021) Therefore, this study aims to analyze the development strategy *Sharia Fintech* in the city of Medan based on user perception through a SWOT analysis approach. This approach is seen as relevant for systematically mapping internal and external factors as the basis for the formulation of contextual and applicative development strategies (Gürel & Tat, 2017).

POJK No. 10/POJK.05/2022 provides the key regulatory framework for Layanan Pendanaan Bersama Berbasis Teknologi Informasi (LPBBTI)—explicitly covering funding activities conducted "conventional or based on sharia principles" through electronic systems using the internet, which positions sharia fintech as a recognized modality within the national fintech regime. The regulation is introduced on the premise that earlier rules were no longer adequate for industry complexity and consumer protection needs, and it adopts a more adaptive, principle-based orientation emphasizing market conduct and public transparency to strengthen trust. Substantively, it strengthens governance obligations (including clear roles for directors/commissioners and Sharia Supervisory Board (Dewan Pengawas Syariah / DPS, compliance, audit, risk management, and IT governance), mandates consumer protection principles (transparency, fairness, reliability, confidentiality and data security, and accessible complaint/dispute handling), requires disclosure of organizational profiles and performance indicators in the platform's system (including information that the provider is supervised by OJK), and imposes IT security controls such as audit trails/log retention and an information security management certification timeline after licensing. The presence of administrative sanctions—potentially including system blocking and license revocation—also signals an enforcement backbone relevant to institutional credibility and user trust in sharia fintech ecosystems (Otoritas Jasa Keuangan, 2022).

From an Islamic law perspective, the strategic development of sharia fintech should also be situated within the normative foundation of muamalah, where the general legal maxim holds that "the الأصل (default rule) in transactions is permissibility (al-aṣl fī al-muʿāmalāt al-ibāḥah)" as long as the activity does not violate clear prohibitions and fulfills the requirements of fairness, transparency, and mutual consent (Al-Syatibi, 1997; Mufid, 2019). Accordingly, financial innovation—including digital platforms—may be adopted and scaled, but it must remain free from *ribā* (usurious gain), *gharar* (excessive uncertainty), and *maysir* (gambling/speculation), which are widely recognized as core prohibitive elements that undermine justice and expose users to hidden harm (Antonio, 2001). Beyond formal compliance, sharia fintech is expected to advance the ethical objectives of Islamic law through the lens of *maqāṣid al-sharīʿah*, classically articulated by Imām al-Ghazli in the protection of the five essentials (al-ḍarūriyyāt): religion (*ḥifẓ al-dīn*), life (*ḥifẓ al-nafs*), intellect (*ḥifẓ al-ʿaql*), lineage (*ḥifẓ al-nasl*), and wealth (*ḥifẓ al-māl*) (al-Ghazali, n.d.). In this sense, sharia fintech development is not merely a matter of market expansion, but a question of whether the ecosystem can deliver public benefit (*maṣlaḥah*)—such as inclusive access, consumer protection, data security, and equitable financing—while minimizing harm and

ensuring legitimacy in the eyes of users (Alfian & Abd Majid, 2025; Hutagalung et al., 2025). This normative-ethical dimension strengthens the rationale for mapping internal and external strategic factors, because user trust and adoption in sharia fintech are closely tied to perceptions of both digital performance and sharia integrity**.**

Based on these conditions, this research is focused on answering the problem of how the *sharia fintech* development strategy in Medan City can be formulated based on the results of a SWOT analysis based on user perception. In line with the formulation of the problem, the purpose of this research is to find out and formulate *a sharia fintech* development strategy in Medan City based on SWOT analysis to support sustainable growth. The results of the research are expected to provide strategic recommendations for *fintech sharia providers*, regulators, and MSME actors in strengthening governance, improving literacy and security, and encouraging the sustainable growth of the *fintech sharia* ecosystem at the city level.

Methods

This study adopts a qualitative descriptive design complemented by SWOT scoring to explore user perceptions and formulate development strategies for sharia fintech in Medan City (Syahbudi et al., 2023). This design enables in-depth understanding of perceptions and experiences while translating qualitative judgments into a structured strategic assessment (Creswell, 2021). Informants were drawn from three stakeholder groups within the local sharia fintech ecosystem—academics in Islamic finance and the digital economy, active users of sharia fintech services, and representatives of sharia fintech companies operating in Medan. Using purposive sampling, 25 informants were selected based on relevance, experience, and knowledge to prioritize analytical depth rather than statistical generalization.

Primary data were collected through open-ended questionnaires and semi-structured interviews to identify and clarify perceived strengths, weaknesses, opportunities, and threats of sharia fintech development (Scott, 2022). Secondary data were compiled from scholarly literature, official reports, and policy/statistical documents, including publications by the Financial Services Authority (OJK), to contextualize and triangulate findings (Otoritas Jasa Keuangan, 2023). Data were reduced and coded to generate SWOT factors (Miles et al., 2014), then each factor was assigned a weight (0.00–1.00) and a rating (1–4) based on the frequency and emphasis of informants' views and theoretical relevance, with weights normalized to 1.00 for internal and external factors respectively. Weighted scores (weight × rating) were summarized into IFE/EFE matrices to map the strategic position and to derive SO, WO, ST, and WT strategies. Trustworthiness was strengthened through methodological

triangulation (questionnaires–interviews–documents), source triangulation across stakeholder groups, and selective member checking for key interpretations (Arianto, 2024).

Strategic Mapping of Sharia Fintech Development

Sharia fintech represents a contemporary manifestation of Islamic teachings within the domain of sharia economics, where digital financial innovation is directed to uphold ethical principles, justice, and public welfare in muamalat. In Islamic law, economic transactions are not merely technical exchanges but moral-legal acts that must be conducted in a lawful and beneficial manner; therefore, the development of sharia fintech can be understood as part of a broader effort to institutionalize Islamic values in modern economic life. This orientation is consistent with the Qur'anic command to cooperate in righteousness—*"And cooperate in righteousness and piety"* (Q. 5:2)—and to promote good and prevent harm (Q. 3:104), which provides a normative basis for building financial systems that protect society from injustice and exploitation.

Accordingly, strengthening sharia fintech is not only a strategic-economic agenda, but may also be viewed as a form of dakwah through practice—making Islamic norms visible and accessible in everyday financial behavior—so long as it is guided by sharia compliance and responsible governance. This aligns with the prophetic principle that lawful earning and beneficial economic activity are virtuous, as the Prophet ﷺ stated: *"The truthful and trustworthy merchant will be with the Prophets, the truthful, and the martyrs"* (al-Tirmidhī). When sharia fintech expands access to halal financing, improves transparency, and protects users' wealth and rights, its development carries religious value and can be approached as an act of service (khidmah) that is rewarded, because it facilitates lawful transactions and supports societal benefit while minimizing harm.

To produce a contextual strategic map of sharia fintech development in Medan, this study combines internal–external factor evaluation (Tables 1–2), strategic positioning via the IE matrix (Table 3), and the identification of priority governance-related issues derived from key SWOT linkages (Table 4).

Table 1. IFAS (IFE) Matrix – Internal Factors

Strength	Weight	Rating	Weight*Rating
Easy Financial Services/Products	0.0864	3	0.259200
Sharia compliance in terms of Islamic principles.	0.1821	3	0.546230
Digital financial services/products based on sharia.	0.1912	3	0.573479
Sub Total (Strength)			**1.378770**
Weakness	**Weight**	**Rating**	**Weight*Rating**

Regulations and the lack of socialization to the community	0.1808	3	0.542394
The lack of community literacy in the use of Sharia Fintech	0.1850	3	0.554960
The information technology infrastructure that is not evenly distributed in the region.	0.1746	3	0.523876
Sub Total (Weakness)			*1.621230*
Total IFAS	1.00		**3.000000**

The information used to construct this EFAS matrix comes from the external factor weights normalization table.

Table 2. EFAS Matrix. External

Opportunity	**Weight**	**Rating**	**Weight*Rating**
The majority of the population in Medan city is Muslim.	0.1514	3	0.454200
Sharia fintech can be felt by all segments of society.	0.0895	3	0.268627
Enter into the category of leaders in the global sharia fintech ecosystem	0.1384	3	0.415094
Sub Total (Opportunity)			1.137856
Threat	**Weight**	**Rating**	**Weight*Rating**
The risk of data security that is vulnerable to hacking	0.0769	3	0.230584
Fintech is still dominated by conventional institutions.	0.3481	4	1.392469
The public perception that sharia fintech is the same as conventional fintech.	0.1957	4	0.782945
Sub Total (Threats)			***2.405998***
Total EFAS	1.00		3.543854

In this matching stage, two methods are used, namely, the internal matrix (Strengths and Weaknesses) and the external matrix (Opportunities and Threats). The SWOT matrix is a tool used in this matching process, helping to develop four types of strategies: SO, WO, ST, and WT. This is done to obtain strategies that are truly suitable for implementation by the relevant sharia fintech entities.

Table 3. Results of the Internal-External (IE) Matrix Internal Strengths

	STRONG (3.0 – 4.0)	**AVERAGE (2.0 – 2.99)**	**WEAK (1.0 – 1.99)**
HIGH (3.0 – 4.0)	I. GROWTH (Vertical Integration)	II. GROWTH (Horizontal Integration)	III. GROWTH (Turnaround)
MEDIUM (2.0 – 2.99)	IV. STABILITY (Careful)	V. GROWTH (Horizontal Integration / Stability)	VI. RETRENCHMENT (Divestment)
LOW (1.0 – 1.99)	VII. GROWTH (Concentric Diversification)	VIII. GROWTH (Conglomerate Diversification)	IX. RETRENCHMENT (Liquidation)

The IFE/IFAS matrix (Table 1) summarizes internal conditions shaping sharia fintech development in Medan City. The total IFAS score of 3.000000 indicates that internal factors

are generally supportive, with key strengths concentrated in perceived sharia compliance and the availability of sharia-based digital financial services/products. These strengths signal that users recognize sharia fintech's value proposition not only in terms of convenience, but also in terms of perceived legitimacy. However, the weakness subtotal remains substantial, highlighting internal constraints that directly affect adoption—especially limited regulatory socialization, low public literacy, and uneven IT infrastructure that restricts access and weakens diffusion across communities.

The EFAS matrix (Table 2) shows a favorable external environment, reflected in the total EFAS score of 3.543854. Opportunities are supported by Medan's Muslim-majority demographic profile and the inclusive potential of sharia fintech across social segments. Nevertheless, external threats are pronounced: cybersecurity vulnerability, the continuing dominance of conventional institutions, and persistent public perceptions that sharia fintech is not meaningfully different from conventional fintech. These threats indicate that market growth is heavily conditioned by users' trust, perceived security, and clarity of differentiation.

To determine the overall strategic posture, IFAS and EFAS scores are matched using the IE matrix (Table 3). With IFAS = 3.000000 and EFAS = 3.543854, sharia fintech development in Medan is positioned in Cell I (Growth), which supports a growth strategy through vertical integration. In this study, vertical integration is interpreted as strengthening control over critical elements of the sharia fintech value chain—governance and sharia assurance mechanisms, user education and literacy programs, secure digital infrastructure, and service delivery reliability—so that expansion is accompanied by stronger institutional credibility and technological resilience. In short, the strategic mapping indicates strong development potential, but sustainable growth depends on converting strengths and opportunities into coordinated actions that reduce literacy gaps, tighten security safeguards, and strengthen differentiation from conventional fintech.

Building on Tables 1–3, the SWOT matrix (Table 4) is used to translate the most salient internal and external factors into priority strategic issues. The mapping highlights three interlinked problems that repeatedly emerge from respondents' assessments: (1) limited regulatory socialization and low public literacy reinforce the perception that sharia fintech is similar to conventional fintech (W1–W2 linked to T3); (2) uneven IT infrastructure constrains access and usability, which in turn sustains the dominance of conventional institutions (W3 linked to T2); and (3) low digital literacy increases exposure to cybersecurity risks, which weakens user trust and discourages adoption (W2 linked to T1). Taken together, these linkages indicate that sharia fintech development in Medan is not constrained by a lack of

demographic potential, but by institutional and socio-technical bottlenecks that blur differentiation and reduce trust.

From a governance perspective, the concentration of weaknesses in regulatory communication, literacy, and infrastructure signals a gap between formal policy availability and effective implementation at the local level. When regulatory messages are not translated into public understanding, sharia compliance becomes a "label" rather than a verifiable governance feature, and users evaluate platforms primarily through accessibility, usability, and perceived security. This condition amplifies competitive pressure from conventional fintech, which is often perceived as more reliable due to stronger networks and more familiar service routines. Therefore, the growth posture indicated by the IE matrix should be operationalized as institutional consolidation: strengthening sharia assurance mechanisms, improving consumer-facing communication of sharia value propositions, integrating cybersecurity safeguards with user education, and reducing access inequality through infrastructure support and ecosystem partnerships.

Viewed through maqāṣid al-sharīʿah, the priority issues identified in Table 4 point to incomplete realization of ḥifẓ al-māl and public welfare (maṣlaḥah) when literacy gaps and weak cybersecurity expose users to avoidable harm, and when infrastructural inequality limits equitable access to sharia-based services. Accordingly, the strategic implication is that sharia fintech growth in Medan must be anchored in trust-building measures—clear regulatory socialization, systematic digital and sharia financial literacy programs, and security-by-design implementation—so that expansion is accompanied by stronger legitimacy, consumer protection, and operational resilience.

To translate the IFAS–EFAS findings into actionable priorities, Table 4 summarizes the key strategic issues derived from the most salient SWOT linkages that shape sharia fintech development in Medan City.

Table 4. Priority Strategic Issues Derived from the SWOT Linkages (Medan City)

Priority Strategic Issue (Empirical Linkage)	SWOT Linkage	Strategic Implication for Development
Weak regulatory socialization and low literacy blur differentiation, leading to the perception that sharia fintech is similar to conventional fintech.	**W1–W2 → T3**	Strengthen regulatory communication, sharia value communication, and public literacy to improve legitimacy and differentiation.
Uneven IT infrastructure restricts access and usability, reinforcing the dominance of conventional institutions.	**W3 → T2**	Reduce access barriers through infrastructure support and ecosystem partnerships to expand reach and competitiveness.
Low digital literacy increases exposure to cybersecurity risks, weakening trust and adoption.	**W2 → T1**	Integrate security-by-design with user education (safe practices, awareness, reporting channels) to reduce risk and rebuild trust.

Table 4 clarifies that the main constraints to sharia fintech development in Medan are not demographic potential, but a set of interrelated institutional and socio-technical barriers. First, the linkage W1–W2 → T3 shows that weak regulatory socialization combined with low public literacy blurs the distinctive value of sharia fintech, resulting in the perception that it is no different from conventional fintech; this directly undermines legitimacy and weakens competitive positioning. Second, the linkage W3 → T2 indicates that uneven IT infrastructure restricts access and usability, which structurally reinforces the dominance of conventional institutions that are perceived as more reliable and easier to reach. Third, the linkage W2 → T1 highlights that limited digital literacy amplifies cybersecurity vulnerability, and in turn erodes trust—an essential condition for adoption in digital finance. Collectively, these linkages imply that the most relevant development pathway is to consolidate governance and trust-building mechanisms through clearer regulatory communication, systematic literacy interventions, and security-by-design implementation, while simultaneously reducing access inequality so that sharia fintech's ethical value proposition can be experienced as a secure and functional service.

Regulatory Socialization, Sharia Fintech Literacy, and Institutional Trust

Dewan Syariah Nasional–Majelis Ulama Indonesia (DSN–MUI) occupies a central position in Indonesia's sharia finance ecosystem by providing normative-legal guidance (fatwa) that functions as a reference for sharia compliance in financial products and services (DSN-MUI, 2024; Law, 2008). In the fintech domain, the presence of DSN–MUI fatwas strengthens regulatory certainty because it clarifies which contractual structures and operational mechanisms are permissible under sharia principles, thereby helping regulators, industry actors, and the public distinguish sharia-compliant innovation from conventional financial practices. This is particularly relevant because POJK-level regulation governs the institutional and conduct aspects of fintech, while DSN–MUI fatwas articulate the sharia parameters that ensure Islamic legitimacy and standardization across providers.

Within the sharia fintech context, at least three DSN–MUI fatwas provide a clear regulatory anchor. First, Fatwa DSN–MUI No. 117/DSN-MUI/II/2018 regulates technology-based financing services based on sharia principles, including key prohibitions (e.g., riba, gharar, maysir) and permissible contractual models used in sharia fintech operations. Second, Fatwa DSN–MUI No. 140/DSN-MUI/VIII/2021 governs Islamic securities crowdfunding (sharia-compliant urun dana), providing sharia standards for offering sharia securities via IT-based platforms. Third, Fatwa DSN–MUI No. 116/DSN-MUI/IX/2017 regulates sharia electronic money, which is relevant for digital payment instruments and e-money practices that frequently interface with fintech platforms (DSN-MUI, 2017, 2018, 2021).

Although Indonesia already provides a regulatory foundation for sharia fintech—both through DSN–MUI fatwas that define sharia compliance parameters and OJK regulations

(POJK) that govern institutional conduct and supervision—this study finds that limited socialization remains a pivotal driver of low public literacy on sharia fintech in Medan City. Empirically, many respondents perceive sharia fintech as largely indistinguishable from conventional fintech, not due to ideological resistance, but because they have limited understanding of how sharia principles are operationalized within fintech products. These findings indicate that regulatory availability alone is insufficient; without effective dissemination, clear public communication, and sustained engagement, existing rules cannot translate into user understanding and trust, and therefore fail to operate as a practical instrument of institutional legitimacy.

This result is consistent with prior studies showing that Sharia fintech adoption depends more on users' cognitive understanding of sharia compliance than on formal branding or labels (Bangun, 2024; Unal & Aysan, 2022). In Medan, the absence of clearly communicated and context-specific regulatory guidance reinforces ambiguity and weakens differentiation from conventional fintech. Consequently, sharia fintech loses its symbolic and normative advantage in a market where conventional financial institutions are already dominant. Importantly, the empirical pattern also indicates that low literacy is not merely a knowledge deficit but a trust and governance problem: respondents frequently link regulatory uncertainty with doubts about data security and ethical accountability. This supports the argument that trust in Islamic financial services is constructed through the interaction of sharia compliance, transparency, and perceived governance quality (Nafiah & Faih, 2019). When governance mechanisms are unclear, trust erosion follows, increasing perceived cyber risk and lowering willingness to adopt digital financial services.

From a maqāṣid al-sharīʿah perspective, these conditions reflect an incomplete realization of *ḥifẓ al-māl* (protection of wealth) and *maṣlaḥah* (public interest). Limited literacy and weak regulatory socialization expose users to preventable financial harms, which contradicts the ethical mandate of Islamic finance to minimize harm and safeguard welfare. This reinforces arguments that sharia fintech must move beyond technological innovation by strengthening governance and education frameworks that make sharia value propositions understandable, verifiable, and accountable (Bianda, 2024; Djumadi et al., 2025; Mohd Haridan et al., 2023). As an additional reinforcing point, when users cannot clearly identify what makes a product sharia-compliant (beyond its label), skepticism tends to intensify and adoption becomes highly sensitive to practical concerns such as usability and perceived security.

Infrastructure Gaps and Access Barriers to Sharia Fintech Adoption

The uneven distribution of information technology infrastructure (Pick & Azari, 2008) is a decisive structural factor explaining why Sharia fintech in Medan and similar regions remains dominated by conventional financial institutions. Empirically, respondents emphasized that limited access to stable internet networks, inadequate digital devices, and weak supporting infrastructure restrict both individuals and small and medium enterprises from utilizing sharia-based fintech services. This condition creates a practical barrier that precedes ideological or religious considerations, even in a society where the majority of the population adheres to Islam. From a socio-demographic perspective, Indonesia's Muslim-majority population represents a substantial potential market for Sharia fintech. Normatively, Islamic law emphasizes halal transactions and economic activities that promote welfare and justice, which theoretically should align with the objectives of sharia fintech. However, the empirical findings demonstrate that religious preference alone does not automatically translate into adoption when technological readiness is insufficient. This supports the argument that financial behavior in the digital era is shaped more by accessibility and usability than by normative alignment alone.

The dominance of conventional financial institutions is further reinforced by their relatively superior infrastructure and established networks (Claessens et al., 2003; Sissoko, 2025). Respondents perceive conventional fintech platforms as more reliable and easier to access, particularly in areas with limited digital facilities. This finding aligns with Mookerjee (2025) assertion that financial inclusion through fintech is constrained when infrastructural inequality persists. In this context, infrastructure functions not merely as a technical prerequisite but as a determinant of institutional trust. When access is unreliable, users tend to associate Sharia fintech with higher uncertainty and risk, regardless of its ethical appeal. Moreover, limited IT infrastructure indirectly increases operational challenges for Sharia fintech providers. The data suggest that higher operational costs associated with infrastructure development and the scarcity of skilled human resources in underdeveloped areas weaken the competitiveness of Sharia fintech institutions. This condition hampers innovation, platform maintenance, and service expansion, thereby widening the gap between Islamic and conventional fintech.

Rohman et al., (2023) observe that public response and sharia compliance cannot be fully realized without adequate technological support is empirically reinforced by this study. Importantly, the findings reveal that public hesitation toward Sharia fintech is not rooted in resistance to sharia principles but in practical concerns related to accessibility, system

reliability, and service continuity. This confirms that the realization of Sharia fintech's role in promoting financial inclusion requires more than compliance with sharia norms. It demands an enabling ecosystem where infrastructure, human capital, and institutional capacity develop simultaneously. In this regard, Sharia fintech should be understood not only as a financial innovation but as part of a broader socio-technical system. Consistent with Djumadi (2025) the uneven regional distribution of Sharia fintech indicates that growth in the Islamic financial industry has not been matched by equitable digital development. Consequently, strengthening IT infrastructure becomes a strategic prerequisite for translating Islamic ethical values into inclusive and functional financial services. Overall, this discussion underscores that infrastructural inequality is a core explanatory factor behind the limited penetration of Sharia fintech, despite strong demographic and normative support. Addressing this challenge is essential to ensure that Sharia fintech can move beyond symbolic compliance and effectively contribute to financial inclusion, transparency, and sustainable Islamic economic development.

Low Digital Literacy and Cybersecurity Risks in Sharia Fintech

Low public literacy in using sharia fintech significantly increases vulnerability to data security risks, including hacking and misuse of personal financial information (Ogunola et al., 2024). Empirically, respondents associate security breaches not only with technological weaknesses but also with users' limited understanding of digital financial practices, such as weak password management, unsafe data sharing, and low awareness of cyber threats. This shows that data security risks in sharia fintech are not purely technical issues, but socio-educational problems rooted in digital and financial literacy gaps. This finding supports the broader literature on the digital transformation era following the Industrial Revolution 4.0, which emphasizes that technological advancement must be accompanied by adequate digital education to avoid new forms of risk (Ameliany et al., 2022; Harahap, 2023; Irawan et al., 2022; Suci Marlina & Fatwa, 2021). While fintech innovation both conventional and sharia-based has transformed financial transactions into faster and more efficient digital systems, the empirical evidence from this study confirms that users who lack sufficient literacy are more exposed to cybercrime.

Thus, technological progress without user readiness creates a paradox in which innovation increases efficiency while simultaneously amplifying vulnerability. In the context of Sharia fintech, this problem becomes more complex because security failures directly affect institutional trust and sharia credibility. Respondents perceive that security breaches

undermine not only financial safety but also ethical accountability. This aligns with (Isa & Suryomurti, 2023; Suci Marlina & Fatwa, 2021) who argues that limited understanding of sharia contracts and digital mechanisms weakens users' ability to distinguish Sharia fintech from conventional platforms, thereby reducing confidence in sharia compliance. When users do not understand how sharia principles are embedded in digital systems, security incidents are easily interpreted as governance failure rather than isolated technical issues.

Empirical concerns expressed by respondents resonate with real cases in the Islamic banking sector, such as data security issues experienced by Bank Syariah Indonesia's mobile application. As noted by Alrababah (2024) such incidents highlight that cybersecurity preparedness is a critical requirement in Islamic financial services. However, this study extends that argument by showing that cybersecurity cannot be addressed solely through technological investment; it must be complemented by systematic user education. Without sufficient literacy, even advanced security systems remain ineffective due to human error and negligence, as also emphasized by (Unal & Aysan, 2022).

From an Islamic economic perspective, these findings indicate a gap in realizing the ethical objectives of sharia finance, particularly the protection of wealth (*ḥifẓ al-māl*). Financial literacy, as noted by (Gomber et al., 2018) is essential to ensure that economic activities function sustainably. The empirical data confirm that insufficient literacy not only disrupts economic efficiency but also exposes users to harm, contradicting the normative mandate of Islamic finance to prevent risk and ensure justice. Therefore, cybersecurity risks in sharia fintech should be understood as a failure of both technical governance and educational responsibility. Overall, the discussion demonstrates that low public literacy is a key explanatory factor behind the heightened security risks faced by sharia fintech. The challenge lies not merely in adapting to rapid digitalization but in synchronizing technological innovation with user capacity and institutional governance. Strengthening digital and sharia financial literacy emerges as a strategic necessity to reduce security risks, enhance trust, and ensure that sharia fintech fulfills both its functional role in financial inclusion and its ethical commitment to safeguarding users in the digital economy.

To address low digital literacy and cybersecurity risks in sharia fintech, stakeholders should implement an integrated strategy aligned with POJK No. 10/POJK.05/2022 (LPBBTI) and the sharia compliance parameters set by DSN–MUI fatwas by combining governance, education, and technology: (1) institutionalize continuous public literacy programs (safe transactions, phishing awareness, data privacy) and embed them into platform onboarding and user journeys; (2) strengthen IT governance and risk management through security-by-design (MFA, encryption, secure e-KYC,

risk-based authentication) complemented by periodic security testing and operational controls; (3) ensure consumer protection as a market-conduct obligation—transparent product information, fair treatment, reliability of services, confidentiality and security of user data, and accessible complaint handling—supported by clear incident-response SOPs, rapid reporting channels, and breach communication; (4) reinforce traceability and accountability by maintaining audit trails/log records and internal control documentation to support supervision and dispute resolution; (5) enhance sharia governance credibility by making the role of the Sharia Supervisory Board (DPS/SSB) visible and communicating sharia contracts and compliance mechanisms in plain language; and (6) drive ecosystem collaboration (OJK, industry associations, local government, and cybersecurity stakeholders) to standardize minimum cybersecurity and consumer-protection practices so that user behavior, platform safeguards, and institutional accountability jointly support the ethical objective of protecting wealth (*ḥifẓ al-māl*).

Conclusion

Based on a user-perception-based SWOT analysis, this study concludes that the most relevant development strategy for sharia fintech in Medan City is a corrective, trust-building, and institution-strengthening approach that prioritizes reducing key internal weaknesses while mitigating major external threats. The dominant constraints include weak regulatory socialization and low public literacy, which blur differentiation and sustain the perception that sharia fintech is similar to conventional fintech, alongside uneven IT infrastructure that limits access and indirectly reinforces conventional dominance, and low digital literacy that increases exposure to cybersecurity risks. Accordingly, the study recommends: (1) strengthening the regulatory and sharia governance ecosystem (POJK-based market conduct and DSN–MUI compliance parameters) with clear and continuous public socialization; (2) implementing integrated and sustainable digital and sharia financial literacy programs; (3) enforcing security-by-design, data protection, and responsive complaint/incident mechanisms; and (4) accelerating more equitable digital infrastructure development to expand inclusion and service reliability. These measures are expected to rebuild trust, sharpen differentiation, and create a stronger foundation for sustainable sharia fintech growth at the city level.

This study is limited by its city-specific scope (Medan) and qualitative purposive sampling (25 informants), which supports depth of insight but does not aim for statistical generalization. The analysis also relies on user perceptions and stakeholder judgments, which may be shaped by local experiences and information exposure at the time of data collection. Future research should (1) expand comparative designs across multiple cities/provinces to test whether similar strategic constraints emerge in different socio-infrastructural settings; (2)

employ mixed-method or large-scale survey approaches to validate the relative weight of SWOT factors and model adoption determinants; (3) incorporate platform-level operational and cybersecurity audit indicators to complement perception-based findings; and (4) evaluate the measurable impact of literacy interventions and regulatory socialization programs on trust, differentiation, and adoption outcomes over time.

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