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| Research Article |

Halal FinTech Models and Sharia MSME Strengthening: Digital Financial Inclusion in Indonesia

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Abstract: The rapid expansion of digital finance in the Society 5.0 era has reshaped how Sharia-based Micro, Small, and Medium Enterprises (MSMEs) access capital and conduct business, yet Sharia MSMEs in Muslim-majority markets still face persistent barriers to financial inclusion limited formal financing, low digital literacy, and weak integration with halal value chains. This study examines whether Halal FinTech business models are associated with the strengthening of Sharia MSMEs and how digital literacy and Sharia compliance mediate that relationship. Using a sequential explanatory mixed-methods design, the study surveyed 312 Sharia MSME actors across five Indonesian provinces and interviewed 18 key informants from FinTech operators, regulators, and Islamic finance scholars; quantitative data were analysed with partial least squares structural equation modelling (PLS-SEM) and qualitative data thematically. Halal FinTech business models were positively and significantly associated with MSME strengthening ($\beta = 0.412$, $p < 0.001$), and the model explained 62.1% of the variance in the outcome ($R^2 = 0.621$). Digital literacy (indirect effect = 0.187) and Sharia compliance (indirect effect = 0.224) both partially mediated this relationship, with Sharia compliance the stronger pathway. The qualitative analysis identified three reinforcing mechanisms capital accessibility, operational efficiency, and market reach and three dominant business-model archetypes. The study's contribution is an integrative, firm-level framework that, unlike prior macro-regulatory or adoption-focused work, links Halal FinTech architecture analytically to maqashid al-shariah and the human-centred logic of Society 5.0. Because the evidence is cross-sectional and drawn from five provinces, the findings describe associations within the Indonesian context rather than causal or nationally generalisable effects.

Keywords: Halal FinTech; Sharia MSMEs; Digital Financial Inclusion; Society 5.0; Islamic Business Model.

INTRODUCTION

The rapid digital transformation in the era of Society 5.0 has placed technology as the main instrument in integrating cyberspace with physical space to solve complex social and economic problems (Deguchi et al., 2020). In the financial context, the development of financial technology (FinTech) is an important catalyst that fundamentally changes the landscape of the financial services industry, including in the Islamic financial sector. Indonesia, as a country with the largest Muslim population in the world, has huge market potential for the development of sharia-based FinTech, especially in encouraging financial inclusion for sharia Micro, Small, and Medium Enterprises (MSMEs). Data from the Financial Services Authority shows that the contribution of MSMEs to Indonesia's Gross Domestic Product reaches more than 60%, but the level of Islamic financial inclusion is still far behind compared to the conventional sector (Hudaefi, 2020; Rusydiana, 2018).

Although the number of Halal FinTech platforms continues to grow, Islamic MSMEs still face a number of structural obstacles that hinder the optimization of their utilization. These obstacles include limited digital literacy, product mismatches with the real needs of business actors, weak integration of the halal value chain, and lack of optimal regulations that ensure comprehensive sharia compliance (Rabbani et al., 2021; Ali et al., 2019). On the other hand, Halal FinTech offers strategic opportunities to overcome the classic problems of sharia MSMEs, such as the financing gap, limited market access, and low operational efficiency. Business models such as peer-to-peer sharia financing, sharia equity crowdfunding, halal payment gateways, and sharia e-wallets have shown significant growth trends in recent years (Hassan et al., 2022; Sa'ad et al., 2022).

Previous studies have discussed various aspects of Islamic FinTech from various perspectives. Hassan et al. (2022) mapped the Islamic FinTech ecosystem in the Southeast Asian region and found regulatory disparities between countries. Rabbani et al. (2021) highlight the role of sharia FinTech in supporting sustainable development goals, while Hudaefi (2020) examines how FinTech supports the achievement of sharia maqashid. Several other researchers such as Disemadi and Prananingtyas (2020) focused on the legal dimension of sharia FinTech in Indonesia, and Mohd Haridan (2023) discussed the framework of sharia governance in the digital ecosystem. However, studies that specifically integrate the Halal FinTech business model with strategies to strengthen sharia MSMEs in the context of Society 5.0 are still very limited. Most of the literature tends to discuss sharia FinTech from a macro-regulatory perspective or consumer adoption in general, without in-depth exploring how the Halal FinTech business architecture can be designed to strengthen sharia MSMEs in a human-centric digital ecosystem.

This literature gap is an important gap that this study seeks to fill. This study argues that strengthening sharia MSMEs in the Society 5.0 era requires a Halal FinTech business model that not only meets sharia compliance principles, but also accommodates the character of human-centered technology, data interoperability, and halal value chain sustainability. The objectives of this study are, first, to identify the characteristics of the Halal FinTech business model that is developing in the Indonesian Islamic finance ecosystem; second, analyzing the influence of the Halal FinTech business model on strengthening sharia MSMEs; third, formulate a digital financial inclusion strategy that is in accordance with the dynamics of Society 5.0. Thus, this study complements the lack of previous literature by presenting an integrative framework that connects the Halal FinTech business model, strengthening sharia MSMEs, and digital financial inclusion strategies holistically.

To move from this gap to a testable model, the study draws on three complementary theoretical lenses. Financial-inclusion theory frames inclusion as a sequence running from access to usage to welfare outcomes, in which the binding constraint for small firms is rarely the mere existence of services but their usability and fit (Shinkafi et al., 2020). A capability and technology-adoption perspective explains why digital infrastructure yields firm-level gains only when users possess the literacy to absorb it, so that digital literacy operates as a form of absorptive capacity (Alsmadi et al., 2025; Itang et al., 2023). Maqashid al-shariah is applied here analytically rather than rhetorically: the objectives of preserving wealth (hifz al-mal), upholding justice, and advancing collective welfare (maslahah) explain why Sharia compliance is not merely a constraint but a source of legitimacy and trust that conditions participation in Islamic financial markets (Laldin & Furqani, 2018; Hudaefi, 2020). Together these lenses position the Halal FinTech business model as an antecedent whose association with MSME strengthening is transmitted and bounded by digital literacy and Sharia compliance.

Theoretical Framework and Hypotheses Development

The Halal FinTech business model is conceptualised as the configuration of value propositions, Sharia-compliant contracts, and digital delivery channels through which platforms serve MSMEs. From a financial-inclusion and resource-based standpoint, such models lower search, transaction, and collateral costs and widen the resource set available to resource-constrained firms (Todorof, 2018; Shaikh, 2020). Where these capabilities are actually used, they are expected to be associated with stronger MSME outcomes in capital access, efficiency, and market reach. Accordingly, H1 proposes that the Halal FinTech business model is positively associated with the strengthening of Sharia MSMEs.

Beyond this direct path, the business model is also expected to shape the two intervening conditions. Platforms increasingly embed onboarding, in-app guidance, and educational content, so that exposure to a well-designed Halal FinTech model is itself a driver of users' digital capability (Yulianto, 2024). Likewise, the defining feature of a halal model Sharia governance enacted through Supervisory Board oversight and compliant contracts such as mudharabah, musyarakah, and wakalah signals and reinforces perceived compliance among users (Khan et al., 2021; Muneeza & Mustapha, 2020). H2 therefore proposes that the Halal FinTech business model is positively associated with the digital literacy of MSME actors, and H3 that it is positively associated with perceived Sharia compliance.

The two intervening constructs are, in turn, expected to strengthen MSMEs. Digital literacy, understood as absorptive capacity, allows actors to convert platform access into productive use while mitigating risks of data misuse and contractual misunderstanding (Alsmadi et al., 2025). Perceived Sharia compliance functions as legitimacy and trust capital that, consistent with maqashid reasoning, raises willingness to transact and sustains engagement in the Islamic digital ecosystem (Hassan et al., 2022). H4 thus proposes that digital literacy is positively associated with the strengthening of Sharia MSMEs, and H5 that perceived Sharia compliance is positively associated with it.

Combining these paths implies that part of the association between the Halal FinTech business model and MSME strengthening is transmitted indirectly through the two intervening constructs rather than operating solely as a direct effect. Because the model is expected both to raise digital capability and to reinforce compliance, and because each of these is expected to support MSME strengthening, H6 proposes that digital literacy mediates the relationship between the Halal FinTech business model and the strengthening of Sharia MSMEs, and H7 that perceived Sharia compliance mediates the same relationship. These seven hypotheses constitute the structural model estimated in this study (Figure 1). The remainder of the article presents the research method, the quantitative and qualitative results, a discussion situating the findings within the international literature, and conclusions with their theoretical and practical implications.

METHOD

This study uses a mixed-methods approach with a sequential explanatory design. This approach was chosen because the complexity of the issue of Halal FinTech and Islamic MSMEs requires a combination of quantitative measurements that can generalize the pattern of relationships between variables with qualitative exploration that can explain the contextual meaning behind the numerical findings (Creswell & Plano Clark, 2018). The quantitative stage was carried out first to test the hypothesis of the relationship between the Halal FinTech business model, digital literacy, sharia compliance, and strengthening sharia MSMEs. The qualitative stage was then carried out to deepen the interpretation of quantitative findings through in-depth interviews with key informants.

The research population is sharia MSME actors in Indonesia who have used sharia FinTech services for at least the last six months. The research locations include five provinces that represent the main clusters of sharia MSMEs in Indonesia, namely DKI Jakarta, West Java, Central Java, East Java, and South Sulawesi. The location selection is based on the concentration of sharia MSME actors and the high penetration rate of sharia FinTech based on data from the Indonesian Joint Funding FinTech Association. The sample was determined using a purposive sampling technique with the following criteria: (a) MSMEs that apply sharia principles in business operations; (b) have used Halal FinTech services for at least six months; and (c) be willing to participate in research. Based on the minimum formula of SEM-PLS samples with the ten times rule, the number of quantitative samples obtained was 312 respondents, exceeding the minimum requirement of 200 respondents.

The research instruments were developed based on the adaptation of validated instruments from the previous literature. The construct of the Halal FinTech business model was adapted from Hudaefi (2020) and Rabbani et al. (2021), the construct of digital literacy was adapted from Saiti et al. (2021), the construct of sharia compliance was adapted from Mohd Haridan (2023) and Hassan et al. (2022), while the construct of strengthening sharia MSMEs was adapted from Beik and Arsyianti (2016) and Antonio et al. (2020). Each construct was measured on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). Construct definitions and the literature sources from which the instruments were adapted are summarized in Appendix A. The full measurement instrument is available from the corresponding author upon reasonable request. The validity of the instrument was tested through content validity by three experts in the fields of Islamic economics and FinTech, then followed by convergent and discriminant tests using Average Variance Extracted (AVE) and the Heterotrait-Monotrait Ratio (HTMT). Reliability was measured through Cronbach's alpha and composite reliability with a threshold of 0.70 each.

Because all source instruments were originally in English while respondents were Indonesian MSME actors, the questionnaire underwent a forward–back-translation procedure to establish linguistic equivalence. Two bilingual translators independently rendered the items into Bahasa Indonesia, a third reconciled discrepancies, and an independent translator back-translated the reconciled version into English; the back-translation was compared with the original and divergent items were revised.

The study followed established research-ethics principles. Participation was voluntary and based on informed consent: respondents were informed of the study's purpose, assured of anonymity and the confidentiality of their data, and free to withdraw at any stage, and all interviews were audio-recorded only with the explicit prior consent of the informant. As the study relied on an anonymous, voluntary survey and did not collect sensitive personal data, it did not undergo formal review by an institutional ethics committee.

Quantitative data collection was carried out through online and offline surveys for four months, with the support of local sharia MSME associations as gatekeepers to ensure data accuracy. Qualitative data was obtained through semi-structured interviews with 18 key informants consisting of six medium-scale sharia MSME actors, five executives of Halal FinTech platforms, three regulators from OJK and Bank Indonesia, as well as four academics and Islamic finance experts who have National Sharia Council certification. The selection of informants uses the snowball sampling technique with the principle of data saturation. Interviews were conducted face-to-face and online with an average duration of 60-90 minutes per session, and all interviews were recorded with the consent of the informant.

The quantitative analysis technique used Structural Equation Modeling-Partial Least Squares (SEM-PLS) with the help of SmartPLS 4 software. SEM-PLS was chosen because of its flexibility in handling complex models with latent variables and does not require the assumption of data normality (Hair et al., 2019). Model evaluation is carried out in two stages, namely external model evaluation to assess the validity and reliability of constructs, and internal model evaluation to test hypotheses. The qualitative analysis used a six-stage thematic analysis technique from Braun and Clarke (2019) with the support of NVivo 12 software. To ensure the validity of qualitative data, the researcher applied source triangulation, member checking, and peer debriefing. The triangulation process is carried out by comparing findings from MSME actors, FinTech executives, regulators, and experts to ensure the consistency of thematic interpretation.

RESULTS

The respondents' profiles show the diversity of characteristics of sharia MSMEs in Indonesia. The majority of respondents (64.1%) are micro business actors with a turnover of less than IDR 300 million per year, while 28.5% are small businesses and 7.4% are medium enterprises. As many as 71.2% of respondents are engaged in the halal food, Muslim fashion, and religious education sectors, while the rest are spread across the microfinance services, halal agribusiness, and sharia tourism sectors. Most of the respondents (58.3%) have been using the Halal FinTech platform for one to three years, with the most popular types of services being peer-to-peer sharia financing (43.2%), sharia payment gateway (29.5%), and sharia equity crowdfunding (15.7%). The characteristics of the respondents are briefly presented in Table 1.

Table 1. Characteristics of Research Respondents

Categories	**Sub-categories**	**Frequency**	**Percentage (%)**
Scale of Efforts	Micro	200	64.1
	Small	89	28.5
	Intermediate	23	7.4
Business Sector	Halal food	128	41.0
	Muslim fashion	63	20.2
	Religious education	31	10.0
	Others	90	28.8

FinTech Services	P2P sharia financing	135	43.2
	Sharia payment gateway	92	29.5
	Sharia equity crowdfunding	49	15.7
	Sharia e-wallet	36	11.6

The results of the outer model evaluation showed that all indicators met the convergent validity criteria with a loading factor value above 0.70 and AVE above 0.50. The validity of the discriminant is also confirmed through the HTMT ratio which is below 0.85 for all construct pairs. The reliability of the construct is met with the composite reliability value and Cronbach's alpha is in the range of 0.832 to 0.914. The results of the internal model test showed that the Halal FinTech business model had a positive and significant effect on strengthening sharia MSMEs with a path coefficient of 0.412 ($t = 6.318$, $p < 0.001$). Both digital literacy and sharia compliance significantly mediated the relationship, with indirect effects of 0.187 ($t = 4.415$) and 0.224 ($t = 4.892$), respectively, each significant at $p < 0.001$. Because the direct path from the Halal FinTech business model to MSME strengthening (H1) remained significant alongside these indirect effects, the pattern indicates complementary partial mediation rather than full mediation (Hair et al., 2019). A summary of the hypothesis test results is presented in Table 2.

Table 2. Hypothesis Testing Results

H	Intervariable Relationships	Path Coefficients	t-statistic	Verdict
H1	Halal FinTech → Strengthening Sharia MSMEs	0.412	6.318	Accepted
H2	Halal FinTech → Digital Literacy	0.498	8.041	Accepted
H3	Halal FinTech → Shariah Compliance	0.557	9.624	Accepted
H4	Digital Literacy → Strengthening Sharia MSMEs	0.376	5.742	Accepted
H5	Shariah Compliance → Strengthening Sharia MSMEs	0.402	6.089	Accepted
H6	Halal FinTech → Strengthening MSMEs (via Digital Literacy)	0.187	4.415	Accepted
H7	Halal FinTech → Strengthening MSMEs (via Sharia Compliance)	0.224	4.892	Accepted

The research model's R-square value of 0.621 shows that the variables of Halal FinTech business model, digital literacy, and sharia compliance are simultaneously able to explain 62.1% of the variation in strengthening sharia MSMEs. Predictive relevance (Q-square) of 0.438 indicates that the model has good predictive ability. In addition, the effect size value (f-square) for the influence of the Halal FinTech business model on the strengthening of sharia MSMEs was 0.247 which was categorized as medium effect, while the influence of digital literacy and sharia compliance was categorized as small to medium effects. These results indicate that the Halal FinTech business model not only plays a direct role, but also requires the support of an ecosystem that provides adequate digital literacy and guarantees of sharia compliance.

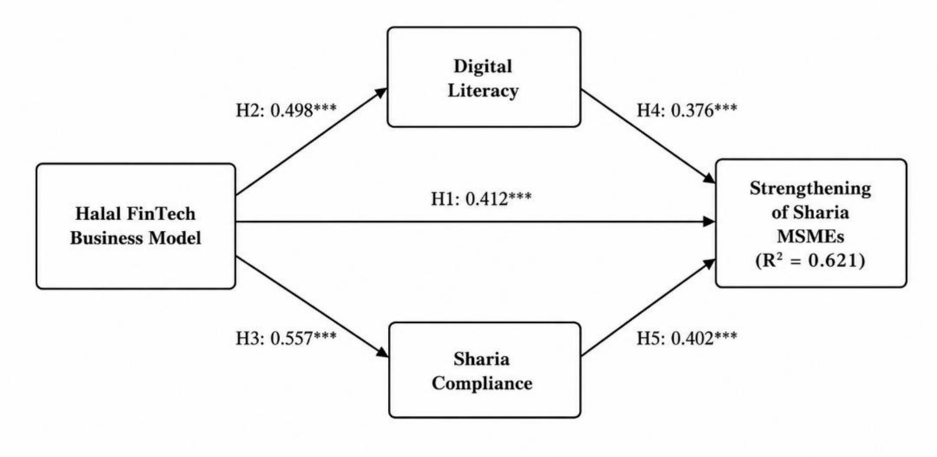

Figure 1. Estimated structural model with PLS-SEM path coefficients.

The results of the qualitative analysis deepen the quantitative findings by identifying three main themes that explain the mechanism for strengthening sharia MSMEs through Halal FinTech. The first theme is flexible capital accessibility, where almost all MSME informants stated that the Halal FinTech platform provides access to financing with lighter administrative requirements than conventional formal financial institutions. One of the MSME informants revealed that the profit-sharing scheme in sharia P2P provides breathing space when businesses experience seasonal fluctuations. The second theme is operational efficiency and transaction transparency made possible by the integration of Islamic payment platforms with digital bookkeeping systems. The third theme is to expand market reach through a digital ecosystem connected to the halal marketplace, so that sharia MSMEs can reach consumers outside their geographical area.

Interviews with executives of the Halal FinTech platform revealed that there are three dominant business model archetypes, namely (1) a purely sharia-based P2P intermediation model that connects individual financiers with MSMEs through mudharabah and musyarakah contracts; (2) an integrated platform model that combines financing, payments, and market access in a single ecosystem; and (3) a collaborative model based on partnerships with Islamic banks that use FinTech as a distribution channel. Meanwhile, regulators emphasized the importance of sharia governance that is adaptive to digital innovation, including strengthening the role of the Sharia Supervisory Board and developing an innovation-friendly regulatory sandbox. Islamic finance experts emphasize that the sustainability of the Halal FinTech business model is highly dependent on a balance between technological innovation, sharia compliance, and social impact that is in line with the sharia maqashid.

DISCUSSION

Growing FinTech Halal Business Model

The findings of the study indicate that the Halal FinTech business model in Indonesia is associated with three main archetypes, each of which has its own advantages and challenges. The archetype of pure intermediation based on peer-to-peer sharia financing is the model most widely used by micro MSMEs, reflecting the simplicity of the process and looser administrative requirements. This is in line with the findings of Rabbani et al. (2021), who described sharia P2P as a form of democratization of financial access relevant to the profile of MSMEs in emerging markets. The integrated platform archetype reflects the super-app trend that is also found in the conventional FinTech market, but with the sharia compliance layer as the main differentiator (Hassan et al., 2022). Meanwhile, the collaborative model with Islamic banks reflects a paradigm shift from competitive disruption to cooperative integration, similar to the pattern observed by Saiti et al. (2021) in the Middle East market.

The unique characteristic of the Halal FinTech business model lies in the role of the Sharia Supervisory Board which not only functions as a compliance supervisor, but also as a product innovation consultant. This is different from the conventional FinTech model which is generally oriented towards efficiency and profit alone (Mohd Haridan, 2023). Thus, the Halal FinTech business architecture accommodates three layers of value at once: commercial value, social value, and spiritual value. These layers are consistent with the framework of sharia maqashid which places the protection of property (hifz al-mal), the maintenance of justice, and the welfare of the ummah as the main goals of financial transactions (Hudaefi, 2020; Antonio et al., 2020). This research expands the framework by adding a human-centered technology Society 5.0 dimension that places humans as the main subject, not just the object of digital transactions.

The Role of Halal FinTech in Sharia MSME Financial Inclusion

The results of the main hypothesis test indicate that the Halal FinTech business model is positively and significantly associated with the strengthening of sharia MSMEs (β=0.412). Because the present design is cross-sectional and the structural estimates are correlational, this coefficient should be read as evidence of association rather than proof of a causal effect. The finding is nonetheless consistent with studies by Rabbani et al. (2021) in the GCC region and Hudaefi (2020) in Indonesia, which reported a positive contribution of Islamic FinTech to small-business performance. The estimated association in this study is somewhat larger than that of earlier work reporting coefficients in the range of 0.28 to 0.35. We interpret this difference cautiously and treat the following explanation as a conjecture that the present data cannot directly test: it is possible that Halal FinTech in Indonesia has moved towards a more mature stage in which platforms no longer provide a single service but offer an integrated ecosystem addressing the end-to-end needs of MSMEs, an interpretation broadly echoed in the collaborative platform arrangements documented by Sapulette et al. (2021). The observed gap may equally reflect differences in measurement, sampling frames, or national context across studies rather than a genuine difference in the underlying effect size. Disemadi and Prananingtyas (2020) likewise suggested that a more developed regulatory framework in Indonesia may be associated with a stronger role for FinTech among MSMEs.

In the accounts of our interviewees, the strengthening of sharia MSMEs through Halal FinTech is described as operating along three mutually reinforcing pathways. First, improved capital accessibility is associated with the use of alternative credit-scoring technology that relies on digital data rather than physical collateral. This is in line with the argument of Sa'ad et al. (2022) that Halal FinTech can help overcome the credit rationing that has long constrained the growth of MSMEs. Second, operational efficiency is linked to the integration of digital payments with bookkeeping and supply-chain management systems. Third, market expansion is associated with the connection of Halal FinTech platforms to the global halal marketplace, increasingly mediated by blockchain-based settlement and traceability infrastructures (Kunhibava et al., 2021), so that MSMEs can reach cross-border markets with lower barriers to entry. Taken together, these accounts suggest that, for the firms studied, Halal FinTech is increasingly perceived less as a stand-alone financing instrument and more as a broader sharia economic infrastructure.

The Role of Digital Literacy and Sharia Compliance Mediation

Another important finding is the confirmation of the mediating role of digital literacy and sharia compliance in the relationship between Halal FinTech and the strengthening of sharia MSMEs. The indirect association through digital literacy of 0.187 and through sharia compliance of 0.224 suggests that both variables function as critical bridges that may need to be in place for the adoption of Halal FinTech to translate into stronger sharia MSMEs. These findings are in line with Saiti et al. (2021), who emphasise the importance of digital readiness as a prerequisite for successful digital transformation in the Islamic finance sector. Where digital literacy is limited, MSME actors appear more exposed to the risk of data misuse, contract misunderstanding, and technical dependence on platforms that can erode business autonomy, risks that Wahyuni-TD et al. (2021) link to weaknesses in cybersecurity governance within Islamic digital finance.

Sharia compliance serves as a more significant mediation in magnitude, hinting that trust in the halalness of transactions is a very valuable social capital in the Islamic financial market. Hassan et al. (2022) refer to this as a premium trust in the sharia economy, where the perception of sharia compliance increases the willingness to engage customers substantially. In the context of sharia MSMEs, this compliance is not just a technical issue of contracts, but also involves moral beliefs that determine the sustainability of MSMEs' participation in the digital ecosystem. Therefore, regulators and Halal FinTech platforms need to integrate digital literacy and sharia literacy on an ongoing basis, for example through structured education programs, integration of educational modules on application interfaces, and collaboration with religious higher education institutions.

Implementation Challenges and Barriers

Although the results show a significant positive impact, the qualitative analysis reveals a number of challenges that need to be addressed. First, there is a regulatory gap between the development of Islamic FinTech innovation and the existing legal framework. Disemadi and Prananingtyas (2020) have reminded that many new practices in Halal FinTech do not have specific regulatory references, so they are vulnerable to causing legal uncertainty. Second, there is still a diversity of fatwa interpretations between the Sharia Supervisory Board platforms that can confuse MSME actors. This is in line with Mohd Haridan (2023) criticism of the fragmentation of sharia governance in the digital sector. Third, uneven digital infrastructure, especially in areas outside Java, limits the effectiveness of Halal FinTech in reaching sharia MSMEs in the region.

The fourth challenge is the increasingly complex cybersecurity risk as the volume of digital transactions increases. Beik and Arsyianti (2016) previously emphasized that transaction security is a fundamental prerequisite in Islamic finance because it is directly related to the principle of asset protection. In the era of Society 5.0, cybersecurity threats come not only from technical weaknesses, but also from low digital security literacy at the user level. The fifth challenge that arises is the sustainability of the business model itself. Some Halal FinTech platforms that rely on investor initial subsidies face pressure to achieve profitability, which risks shifting the focus from MSME services to more profitable segments. Commercial pressures like this are reminded by Oseni and Ali (2019) as a potential mission drift in Islamic social finance that needs to be mitigated through strong governance.

Digital Financial Inclusion Strategy in the Society 5.0 Era

Based on quantitative and qualitative findings, this study formulates a digital financial inclusion strategy for sharia MSMEs in the Society 5.0 era which consists of five main pillars. The first pillar is the development of a human-centered Halal FinTech architecture, which means that service design not only considers technical efficiency but also the psychological, social, and cultural aspects of sharia MSME actors. This approach is in line with the vision of Society 5.0 which places humans as the main subjects of digital transformation (Deguchi et al., 2020). The second pillar is the comprehensive strengthening of sharia digital literacy through standardized training programs, certifications, and direct mentoring. The study of Saiti et al. (2021) shows that personal mentoring is more effective than classical training in increasing the adoption of Islamic FinTech.

The third pillar is the harmonization of sharia regulations and governance across platforms. This can be achieved through the development of minimum standards of Halal FinTech governance, synergy between financial sector regulators and fatwa authorities, and the establishment of a coordination forum between the Sharia Supervisory Board platforms. A good practice that can be learned is the Bahrain and Malaysia model that have established a specific regulatory sandbox for Islamic FinTech with structured coordination (Hassan et al., 2022). The fourth pillar is the strengthening of the halal value chain ecosystem that integrates MSMEs manufacturers, distributors, halal certification bodies, and Halal FinTech platforms. This integration will result in a complete halal value chain, reduce transaction costs, and increase consumer confidence as analyzed by Antonio et al. (2020) in the context of the global halal economy.

The fifth pillar is the development of technological capabilities that are adaptive to the needs of sharia MSMEs, including the use of artificial intelligence for alternative data-based credit scoring, blockchain for sharia compliance trail audits, and big data analysis for service personalization. Rabbani et al. (2021) noted that the use of 4.0 technology in Islamic finance is still relatively lagging behind the conventional sector, so it is a strategic area to be accelerated. This strategy needs to be supported by close collaboration between industry, academia, and the sharia technology development community. This research adds an important contribution by showing that the five pillars should not be carried out separately, but must be integrated in a complete framework in order to produce maximum impact on the strengthening of sharia MSMEs.

Theoretical and Practical Implications

Theoretically, this study enriches the literature on Islamic finance and FinTech by presenting an integrative framework that connects Halal FinTech business models, digital literacy, sharia compliance, and strengthening sharia MSMEs in the context of Society 5.0. This framework goes beyond the conventional approach that places FinTech as a single variable by placing it in a more complex and multidimensional system. The findings on the mediating role of digital literacy and sharia compliance strengthen the thesis that the successful adoption of financial technology in the sharia context is better understood through a socio-technical approach that emphasizes the interaction between human, social, and technological factors (Hudaefi, 2020; Sa'ad et al., 2022). The study also modifies the previous argument that placed sharia compliance as a competitive constraint, by showing that sharia compliance serves as a source of competitive advantage and social capital in the sharia financial market.

Practically, the research findings provide implications for three key stakeholder groups, as summarised in Figure 2. For sharia MSME actors, the results of the study recommend diversifying the use of Halal FinTech services in accordance with the needs of the business growth stage, starting from digital payment services in the early stages, P2P financing in the expansion stage, and equity crowdfunding in the significant growth stage. For Halal FinTech platforms, the study recommends the development of integrated services that combine financing, payments, education, and market access in a single ecosystem. For regulators, the research recommends strengthening cross-platform sharia governance, developing a regulatory sandbox based on sharia principles, and expanding digital infrastructure to unreached areas. This implication is in line with the recommendations of Hassan et al. (2022) to build an inclusive and sustainable Islamic FinTech ecosystem in the Southeast Asian region.

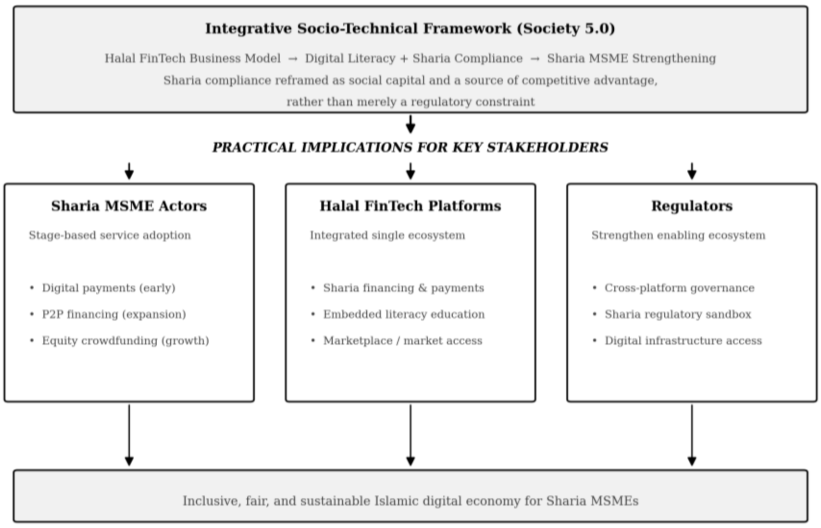

Figure 2. Theoretical and practical implications of Halal FinTech for strengthening Sharia MSMEs.

CONCLUSION

This research indicates that, among the sharia MSMEs surveyed across five Indonesian provinces, the Halal FinTech business model plays a strategic role in the Society 5.0 era and is associated with improved capital accessibility, operational efficiency, and broader market reach. Based on the quantitative analysis, the Halal FinTech business model has a positive and significant association with the strengthening of sharia MSMEs, with digital literacy and sharia compliance acting as crucial mediators. The qualitative analysis deepened these findings by identifying three dominant business-model archetypes, namely pure sharia P2P intermediation, an integrated platform, and a collaborative model with sharia banks. This finding also addresses the research problem by underlining that the strengthening of sharia

MSMEs through Halal FinTech is closely tied to the integration between technology design, sharia compliance, and the empowerment of MSME actors' capabilities.

It is important to distinguish what this study has empirically demonstrated from what it recommends on the basis of those results. The evidence supports three sets of findings. First, the Halal FinTech business model is positively and significantly associated with the strengthening of sharia MSMEs, with the qualitative data indicating that this association operates through three mechanisms: improved capital accessibility, operational efficiency, and market expansion. Second, this association is partially mediated by two factors, digital literacy and sharia compliance. Third, the qualitative analysis identified three recurring business-model archetypes, namely pure sharia P2P intermediation, integrated platforms, and collaborative models with sharia banks. Building on, but going beyond, this evidence, we propose a normative digital financial inclusion strategy organised around five mutually reinforcing pillars: human-centred technology architecture, sharia digital literacy, regulatory harmonisation, a halal value-chain ecosystem, and adaptive technological capabilities. These pillars are offered as practitioner- and policy-oriented recommendations that are consistent with the observed patterns rather than as separately tested propositions; the effectiveness of each pillar remains to be evaluated in future research.

This research has limitations that are also an opportunity for the development of further studies. First, the research location is limited to five provinces in Indonesia that may not fully represent the dynamics of sharia MSMEs in all regions, so that further research can expand the geographical scope to include cross-border comparisons in the Southeast Asia and Middle East regions. Second, this research focuses on the perspectives of MSME actors and key stakeholders, so that further research can include the perspectives of end consumers and investors to build a more complete understanding of the ecosystem. Third, the sustainability dimension of the Halal FinTech business model in the long term is a promising area to be researched through a longitudinal approach. Future research implications include the development of composite indicators to measure the maturity of the Halal FinTech ecosystem as well as empirical tests of certain policy interventions. Thus, this research is expected to be the foundation for future more in-depth studies on the role of Halal FinTech in creating an inclusive, fair, and sustainable Islamic economy.

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