ENHANCING SHARIA FINANCIAL INCLUSION IN RURAL AREAS: INTEGRATING SERVICE QUALITY, TECHNOLOGICAL INNOVATION, AND FINANCIAL LITERACY IN BAITUL MAAL WAT TAMWIL

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Abstract

Sharia financial inclusion (SFI) plays a crucial role in promoting equitable economic development, particularly in rural areas where access to formal financial services remains limited. This study examines the integrated effects of service quality, financial literacy, and technological innovation on SFI among active Baitul Maal wat Tamwil (BMT) customers in rural South Kalimantan, Indonesia, while assessing whether socio-economic status moderates these relationships. Using survey data and Partial Least Squares Structural Equation Modeling (PLS-SEM), the findings show that financial literacy and service quality have significant positive effects on SFI, underscoring the importance of customers' capability readiness and the quality of institutional interaction in fostering participation. Technological innovation shows no significant direct effect, suggesting that digital or technological initiatives alone may be insufficient without adequate literacy and service support. Additionally, socio-economic status does not significantly moderate the proposed relationships, indicating that the positive roles of literacy and service quality are relatively consistent across socio-economic groups. The study contributes by offering an integrated empirical model of key drivers of sharia financial inclusion in rural Islamic microfinance and provides practical insights for BMTs and policymakers to prioritize service improvement and financial literacy development to strengthen sustainable SFI.

Keywords: sharia financial inclusion; Baitul Maal wat Tamwil; financial literacy; service quality; rural areas

Introduction

Inclusive finance is widely recognized as one of the key instruments for poverty alleviation and the achievement of the Sustainable Development Goals (SDGs) (Ahmed & Salleh, 2016; Zulkhibri, 2016). However, the Global Findex Report (2022) indicates that 1.4 billion people worldwide, particularly in rural areas, still lack access to formal financial services. This issue not only affects individuals but also undermines the economic potential of developing countries, including Indonesia. Globally, rural areas face unique challenges such as limited infrastructure, low financial literacy, and the inadequate adoption of financial technologies that align with local community needs (Demirgüç-Kunt et al., 2022). Therefore, strengthening inclusive finance in rural regions has become a critical priority to address widening socio-economic disparities.

In Indonesia, financial inclusion has shown a positive trend, with the inclusion index reaching 85.10% in 2022. Nevertheless, sharia financial inclusion remains relatively low at only 12.12%, significantly lagging behind conventional financial services (OJK, 2022). This gap reflects the limited adoption of sharia financial products, despite their potential to offer value-based solutions grounded in principles of justice, transparency, and sustainability (Zulhilmi, 2024). South Kalimantan, as a region characterized by geographical and infrastructural constraints, records a financial literacy rate of only 42.08%, far below the national average. These conditions underscore the urgent need for a more holistic and integrated strategy to enhance sharia financial inclusion in rural areas.

Sharia financial inclusion is conceptually defined as the extent to which individuals are able to access and effectively utilize financial products and services that adhere to Islamic principles, including the avoidance of riba, gharar, and maysir, while emphasizing ethical values such as justice, transparency, and risk-sharing (Ahmed & Salleh, 2016; Zulkhibri, 2016). From a theoretical perspective, sharia financial inclusion represents a multidimensional construct that goes beyond access to encompass actual usage, behavioral engagement, and sustained participation in the formal financial system. This perspective aligns with capability-based theories of financial inclusion, which emphasize that meaningful inclusion depends on individuals' cognitive readiness and institutional conditions rather than mere availability of financial services.

Within Islamic microfinance contexts, sharia financial inclusion is shaped by the interaction between institutional quality and individual capability. Institutions such as Baitul Maal wat Tamwil (BMT) function as relational intermediaries that reduce informational asymmetry and trust deficits through personalized service delivery and value-based engagement (Suseno, 2020). However, theoretical and empirical studies suggest that institutional access alone is insufficient to generate inclusion without complementary factors such as financial literacy and supportive service quality (Khan et al., 2022; Takidah & Kassim, 2021). Accordingly, sharia financial inclusion can be understood as an outcome of the alignment between service provision, enabling mechanisms, and users' capability readiness, providing a strong theoretical foundation for examining its key determinants in rural Islamic microfinance settings.

Although numerous studies have examined the role of Islamic microfinance institutions such as BMT, most have focused on a single dimension, such as service quality (Zouari & Abdelhedi, 2021), technology innovation (Shaikh, 2021), or financial literacy (Gunawan et al., 2021). The lack of integration among these elements represents a critical research gap, particularly in rural contexts. Moreover, previous studies often overlook rural-specific challenges, including low digital adoption and limited infrastructure access (Ezzahid & Elouaourti, 2021). As a result, more comprehensive research is required to integrate service delivery, technology, and financial literacy in promoting sharia financial inclusion.

As a sharia-based microfinance institution, BMT holds a strategic position in reaching marginalized communities, especially in rural areas. With approximately 3,000 BMTs operating across Indonesia, these institutions not only provide financial access but also empower communities through sharia-based principles (Suseno, 2020). However, the effectiveness of BMTs in advancing sharia financial inclusion in rural regions continues to face significant challenges, including suboptimal service quality, limited technological adoption, and low levels of financial literacy among communities (Takidah & Kassim, 2021). Addressing these challenges through the integration of services, technology, and financial literacy could enable BMTs to function as transformative agents of sharia financial inclusion in Indonesia.

Among the various challenges faced by BMTs, technological innovation and financial literacy emerge as two critical mechanisms that directly shape how services are accessed and utilized in rural settings. Technological innovation has been shown to act as a catalyst for expanding financial access in rural areas (Freeman et al., 2022). Nevertheless, low levels of digital literacy often hinder the adoption of such innovations (Shaikh, 2021). At the same time, financial literacy plays a crucial role in helping communities understand sharia financial products, including interest-free concepts, Islamic financial planning, and microfinancing mechanisms (Khan et al., 2022). By integrating technological innovation and financial literacy into BMT services, communities can be empowered to utilize sharia financial services more effectively and sustainably.

Socio-economic status (SES) is widely acknowledged as an important contextual factor influencing individuals' access to and use of financial services, particularly in rural and underserved areas (Allen, 2016; Cull et al., 2007).

Differences in income, education, and living conditions shape individuals' capacity to benefit from service quality, adopt financial technologies, and apply financial knowledge in practice (Demirgüç-Kunt et al., 2022).

Service quality is widely recognized as a fundamental institutional driver of financial inclusion, particularly in contexts where trust, interpersonal interaction, and perceived fairness strongly influence financial decision-making. In Islamic financial institutions, service quality extends beyond operational efficiency to include transparency, ethical conduct, and compliance with sharia principles, which are critical for fostering customer confidence and long-term engagement (Janahi & Al Mubarak, 2017; Abror et al., 2020).

Prior studies argue that high service quality reduces perceived risk and informational asymmetry, thereby encouraging individuals to access and use formal financial services (Burton, 2002; Uzir et al., 2021). In rural settings, where customers often rely on relational banking and face limited alternatives, service quality becomes even more salient in shaping financial participation (Bruin et al., 2020). Islamic microfinance institutions such as BMTs play a relational role by providing personalized assistance, flexible procedures, and value-based interactions that align with community norms and religious values (Suseno, 2020).

Empirical evidence from Islamic banking and microfinance literature consistently supports the positive association between service quality and financial inclusion, suggesting that customers are more likely to engage with institutions they perceive as reliable, responsive, and trustworthy (Zouari & Abdelhedi, 2021; Takidah & Kassim, 2021). Therefore, improved service quality is expected to enhance sharia financial inclusion by strengthening customer trust and lowering behavioral barriers to participation.

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Technological innovation is often promoted as a key mechanism for expanding financial inclusion by reducing transaction costs, overcoming geographical barriers, and improving service accessibility (Chambers et al., 2021; Ediagbonya & Tioluwani, 2023). Digital platforms, mobile applications, and fintech solutions enable financial institutions to reach underserved populations, particularly in remote and rural areas where traditional banking infrastructure is limited (Ezzahid & Elouaourti, 2021).

In the context of Islamic finance, technological innovation has the potential to facilitate access to sharia-compliant products, enhance operational efficiency, and support inclusive growth (Shaikh, 2021). Prior studies suggest that digital financial services can promote inclusion by offering convenient, low-cost, and user-friendly alternatives to conventional banking channels (Liu et al., 2024). However, the effectiveness of technological innovation depends on users' digital readiness, institutional support, and contextual suitability. In rural areas, limited digital literacy and infrastructural constraints may hinder the translation of technological availability into actual usage (Freeman et al., 2022). Despite these challenges, technological innovation remains theoretically expected to support financial inclusion by expanding outreach and accessibility.

From a resource-constraint perspective, lower SES may limit individuals' ability to translate financial knowledge into actual usage due to affordability concerns, risk exposure, and limited financial buffers. Meanwhile, from a rural digital divide perspective, SES may shape access to smartphones, internet connectivity, and digital familiarity, which can affect whether technological innovation truly reduces barriers to participation.

Financial literacy is widely acknowledged as a critical demand-side determinant of financial inclusion, as it shapes individuals' ability to understand, evaluate, and effectively use financial products and services (Khan et al., 2022;

Pandey et al., 2022). In Islamic finance, financial literacy encompasses not only basic financial knowledge but also an understanding of sharia principles, contracts, and risk-sharing mechanisms (Setiawati et al., 2018). Higher levels of financial literacy reduce uncertainty and cognitive barriers, enhance financial confidence, and promote informed decision-making, thereby increasing participation in formal financial systems (Sohn et al., 2012). Empirical studies consistently demonstrate that financially literate individuals are more likely to open accounts, use savings and financing products, and engage in long-term financial planning (Tulcanaza-Prieto et al., 2025).

In rural Islamic microfinance contexts, financial literacy plays a particularly important role in bridging the gap between the availability of sharia-compliant products and their actual utilization. Customers who understand the ethical foundations and operational mechanisms of Islamic finance are more inclined to trust and adopt these services (Gunawan et al., 2021). Accordingly, financial literacy is expected to directly enhance sharia financial inclusion.

Socio-economic status (SES), typically reflected through income level, educational attainment, and living conditions, has long been recognized as a critical contextual factor shaping individuals' access to, adoption of, and sustained engagement with financial services (Allen, 2016; Cull et al., 2018). From a resource-based and capability perspective, SES determines the extent to which individuals possess the financial, cognitive, and social resources necessary to convert institutional offerings into actual financial participation. Higher SES individuals generally have greater capacity to absorb financial risks, bear transaction costs, and respond to institutional incentives, while lower SES individuals often face structural and behavioral constraints that limit their ability to fully benefit from financial services.

In the context of financial inclusion, SES is therefore not merely an antecedent of access but a boundary condition that shapes how institutional and individual-level drivers operate. Particularly in rural settings, socio-economic disparities may influence whether improvements in service quality, technological innovation, and financial literacy translate into meaningful inclusion or remaining potential. This study conceptualizes SES as a moderating variable that conditions the strength of the relationships between key determinants and sharia financial inclusion.

From an institutional perspective, service quality enhances trust, reduces perceived risk, and improves user experience, thereby encouraging engagement with financial services. However, the extent to which high-quality services result in actual inclusion may depend on customers' socio-economic capacity. Individuals with higher SES are generally better positioned to respond to service improvements because they possess greater financial flexibility, mobility, and decision-making autonomy (Cull et al., 2018). In contrast, lower SES individuals may remain constrained by affordability concerns, income volatility, or limited financial buffers, even when service quality improves.

In rural contexts, where access constraints and livelihood uncertainty are more pronounced, service quality may thus yield differential inclusion outcomes across socio-economic groups. Empirical evidence suggests that individuals with higher SES are more likely to leverage high-quality financial services into sustained usage, whereas lower SES customers may prioritize immediate subsistence needs over long-term financial engagement (Chung & Kim, 2024). Accordingly, SES is expected to condition the effectiveness of service quality in fostering sharia financial inclusion.

Technological innovation is widely regarded as a tool for expanding financial inclusion by reducing physical barriers and transaction costs. However, the digital divide literature emphasizes that access to digital infrastructure, devices, and skills is unevenly distributed, particularly across socio-economic groups in rural areas (Freeman et al., 2022). Higher SES individuals are more likely to own smartphones, have stable internet access, and possess the digital competencies required to navigate technology-enabled financial services.

As a result, technological innovation may disproportionately benefit higher SES customers, who are better equipped to adopt and utilize digital financial solutions. In contrast, lower SES individuals may face infrastructural limitations, lower digital literacy, and heightened perceived risks, which weaken the inclusionary impact of innovation (Mpofu & Mpofu, 2024). This suggests that technological innovation does not operate uniformly across socio-economic strata but interacts with SES to shape inclusion outcomes.

Financial literacy enhances individuals' understanding of financial products, improves confidence, and supports informed decision-making. However, possessing financial knowledge does not automatically lead to financial participation. The translation of financial literacy into behavior depends critically on individuals' socio-economic capacity to act upon that knowledge. Individuals with lower SES may struggle to convert financial understanding into actual usage due to limited income, liquidity constraints, and higher exposure to economic shocks (Hart & Laher, 2015).

Conversely, individuals with higher SES are more likely to operationalize financial literacy by accessing savings, financing, and investment products, as they face fewer affordability constraints and can sustain longer-term financial commitments. Prior studies therefore suggest that the effect of financial literacy on financial inclusion varies across socio-economic groups, with stronger effects observed among individuals who possess sufficient economic resources to implement their knowledge (Khan et al., 2022; Setiawati et al., 2018; Tulcanaza-Prieto et al., 2025). This highlights the role of SES as a conditioning factor in the literacy–inclusion relationship.

In this regard, the impact of service quality and technological innovation on sharia financial inclusion may vary across socio-economic groups rather than operate uniformly. Similarly, the effectiveness of financial literacy in fostering inclusion depends on individuals' socio-economic capacity to translate knowledge into actual financial behavior (Khan et al., 2022; Setiawati et al., 2018; Tulcanaza-Prieto et al., 2025). Therefore, this study conceptualizes socio-economic status as a moderating variable that conditions the relationships between service quality, technological innovation, financial literacy, and sharia financial inclusion.

This study seeks to address the identified research gap by developing an integrated model that combines service quality, technological innovation, and financial literacy to explain sharia financial inclusion in rural areas, particularly in South Kalimantan. While prior studies often test these drivers in isolation, evidence remains limited on their combined effects within Indonesian BMTs, which operate as community-based Islamic microfinance institutions with strong relational service delivery and localized outreach. Employing a quantitative approach based on Structural Equation Modeling (SEM), the study aims to provide deeper insights into the synergy among these three elements and clarifies whether technological innovation contributes to inclusion beyond service improvement and literacy development in rural BMT settings.

In addition, by testing SES as a boundary condition, the study examines whether the proposed relationships operate consistently across socio-economic groups in rural communities. The findings contribute to the literature on sharia financial inclusion in Islamic microfinance and offer strategic recommendations for BMTs and policymakers to strengthen inclusion in rural contexts.

Method

This study employs a quantitative design to test an integrated model of sharia financial inclusion in rural Islamic microfinance. The approach is suitable for evaluating how service quality, financial literacy, and technological innovation jointly shape customers' participation in BMT services. PLS-SEM is used to estimate the structural relationships and to examine socio-economic status as a boundary condition, allowing the study to compare the strength of each determinant and to assess whether the proposed effects hold consistently across socio-economic groups.

The research population consists of all active BMT customers in South Kalimantan, a region with strong potential for the development of Islamic microfinance (Shaddiq et al., 2025). BMTs in this area play a strategic role in promoting sharia financial inclusion, although they face challenges related to socio-economic disparities and limited infrastructure (Muhaimin, 2022). Respondents were selected using purposive criteria, including a minimum of six months of BMT service usage, basic understanding of Islamic finance, and access to digital devices for completing an online questionnaire.

The sample size was determined following the guideline proposed by Hair et al. (2017), which recommends a minimum of ten observations per indicator in SEM analysis. 222 data were collected using a structured questionnaire distributed via Google Forms, leveraging internal BMT networks, social media, and WhatsApp groups to enhance response rates, in line with recommendations from prior survey-based studies (Hair et al., 2018).

The questionnaire consisted of two sections, as presented in the appendix. The first section contained questions related to respondents' demographic characteristics, including age, gender, education level, place of residence, and monthly income. These indicators were combined to form a composite measure of socio-economic status. In this study, socio-economic status is treated as an observed moderating variable that conditions the strength of the relationships between service quality, financial literacy, technological innovation, and sharia financial inclusion.

The second section comprised Likert-scale statements (1-5) designed to measure the research variables, including service quality (Ali & Raza, 2015; Bruin et al., 2020; Uzir et al., 2021), financial literacy (Kapadia, 2019; Khan et al., 2022; Sohn et al., 2012), technological innovation (Aziz & Naima, 2021; Ediagbonya & Tioluwani, 2023), as well as attitudes, subjective norms, perceived behavioral control, intention, and actual behavior related to financial inclusion (Ahmed & Salleh, 2016; Zulkhibri, 2016).

With this integrated approach, this study is expected to contribute to the development of more effective BMT services and to advance the empirical literature on sharia financial inclusion in rural Islamic microfinance. From a practical perspective, the findings are expected to help BMTs better understand their customers' needs and design more relevant strategies to enhance sharia financial inclusion in South Kalimantan, as illustrated in Figure 1.

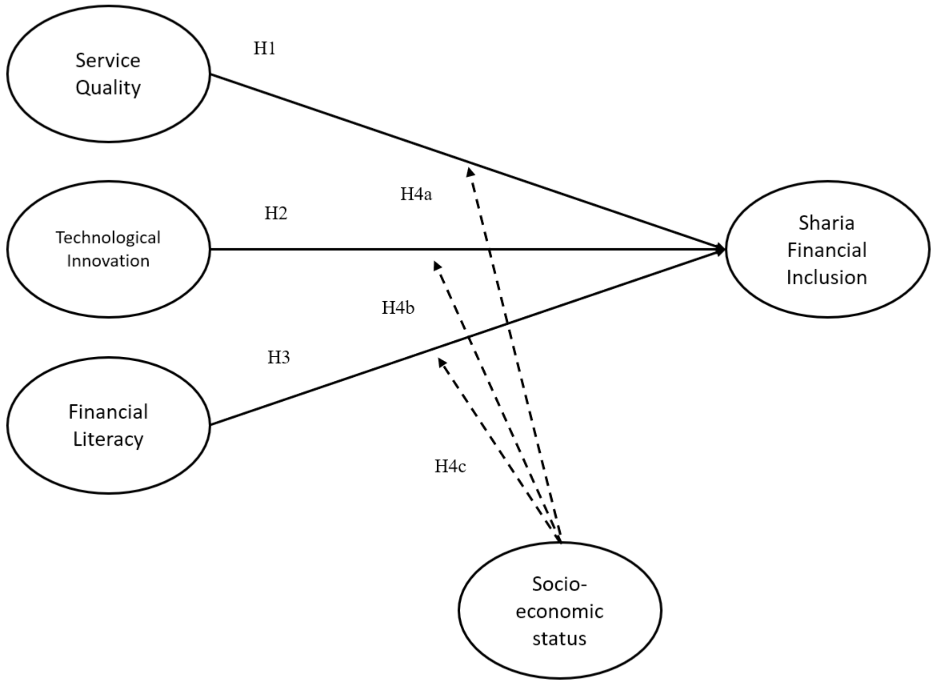

Figure 1. Research Model

H1: Service quality has a positive effect on sharia financial inclusion.
H2: Technological innovation has a positive effect on sharia financial inclusion.
H3: Financial literacy has a positive effect on sharia financial inclusion.
H4a: Socio-economic status moderates the relationship between service quality and sharia financial inclusion.
H4b: Socio-economic status moderates the relationship between technological innovation and sharia financial inclusion.
H4c: Socio-economic status moderates the relationship between financial literacy and sharia financial inclusion.

Results and Discussion

Respondent Profile

Data was collected using a structured questionnaire developed through the Google Forms platform. Google Forms was selected due to its flexibility and efficiency in reaching respondents across diverse geographic areas. The questionnaire was distributed through internal BMT networks, social media platforms, and WhatsApp groups of BMT customer communities. This distribution strategy follows the recommendations of Kock & Lynn (2012) and Bhalerao & Tiwari (2024), which emphasize the importance of utilizing digital technologies to enhance response rates in survey-based research.

To better understand the findings of this study, it is important to first consider the structure of the respondents involved. Based on table 1, the sample was largely composed of individuals in their productive age, with most respondents aged between 31 and 40 years, followed by those in the 21–30 age group. This indicates that the participants were predominantly economically active. In terms of education, most respondents had completed senior high school or held a bachelor's degree, reflecting a moderate to relatively high level of educational attainment.

With respect to monthly income, the majority of respondents fell within the middle-income category, earning between IDR 3–6 million per month. Smaller shares were observed among respondents with lower and higher income levels. Overall, this profile suggests a respondent group with diverse yet relatively balanced socio-economic characteristics, providing a suitable context for examining Islamic financial inclusion across different social strata.

Table 1. Respondent Profile

Category	**Subcategory**	**Frequency**	**Percentage**
Age	< 20 years	21	9%
	21-30 years	76	34%
	31-40 years	106	48%
	> 40 years	19	9%
Education	Elementary school	2	1%
	Junior high school	7	3%
	Senior high school	110	50%
	Bachelor's degree	103	46%
Monthly income	< Rp 3 million	52	23%
	Rp 3-6 million	127	57%
	> Rp 6 million	43	19%
	Total	**222**	**100%**

Validity and reliability tests are essential to ensure that the measurement instruments used in this study meet accepted scientific standards. Reliability assesses the consistency of the indicators in measuring a construct, while validity evaluates whether the indicators truly capture the concept they are intended to represent. In PLS-SEM, these tests are widely applied as a preliminary step to confirm that the measurement model is robust before examining the structural relationships.

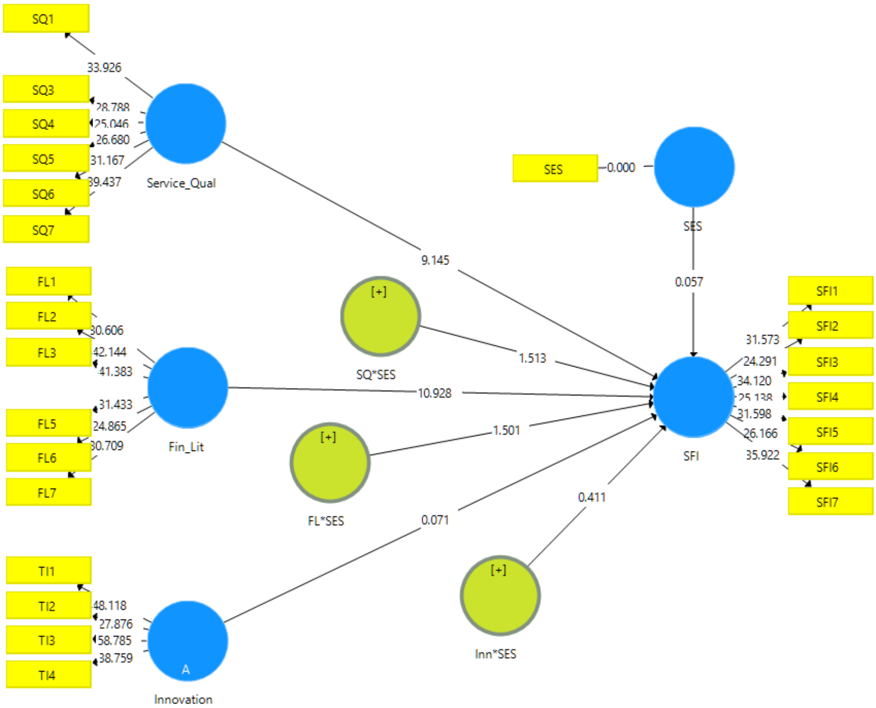

Figure 2. Path analysis model

Based on international methodological consensus in PLS-SEM studies, reliability is considered acceptable when Cronbach's alpha and composite reliability values exceed 0.70, indicating adequate internal consistency. Based on the Table 2, convergent validity is established when the average variance extracted (AVE) is greater than 0.50, meaning that a construct explains more than half of the variance of its indicators. The results of this study show that all constructs meet these commonly accepted thresholds, demonstrating strong reliability and satisfactory convergent validity. Overall, the measurement model provides a reliable and valid foundation for further structural analysis.

Table 2. Reliability and Validity Constructs

	CA	rho_A	CR	AVE
Financial Literacy (FL)	0,929	0,929	0,944	0,738
Technology Innovation (TI)	0,908	0,909	0,936	0,785
Service Quality (SQ)	0,921	0,922	0,939	0,718
Sharia Financial Inclusion (SFI)	0,931	0,932	0,945	0,709

Cross-loading analysis is used to assess discriminant validity by examining whether each indicator is more strongly associated with its intended construct than with other constructs in the model. The main purpose of this test is to ensure that the indicators capture distinct concepts and do not overlap excessively across different latent variables. In this study, cross-loadings are evaluated to confirm that financial literacy, innovation, service quality, and sharia financial inclusion represent conceptually separate dimensions, allowing the structural relationships among them to be interpreted with confidence.

The Table 3 show that all indicators load highest on their respective constructs compared to other constructs, indicating satisfactory discriminant validity. Although some indicators exhibit relatively high correlations with other constructs, their primary loadings remain dominant, suggesting that each construct retains its conceptual uniqueness. Consequently, no indicators need to be removed, and the measurement model can be considered well specified. This finding supports the credibility of the subsequent structural analysis, as the observed relationships among constructs are unlikely to be driven by measurement overlap or ambiguity.

Table 3. Cross Loading Test

	Financial Literacy	**Innovation**	**Service Quality**	**Sharia Financial_Inclusion**
FL1	**0,850**	0,774	0,763	0,810
FL2	**0,889**	0,811	0,837	0,855
FL3	**0,870**	0,795	0,791	0,830
FL5	**0,861**	0,807	0,820	0,822
FL6	**0,818**	0,725	0,800	0,803
FL7	**0,866**	0,806	0,845	0,838
SFI1	0,805	0,721	0,790	**0,850**
SFI2	0,793	0,773	0,806	**0,820**
SFI3	0,816	0,766	0,809	**0,860**

SFI4	0,780	0,746	0,782	**0,819**
SFI5	0,832	0,788	0,813	**0,845**
SFI6	0,815	0,777	0,806	**0,830**
SFI7	0,825	0,788	0,842	**0,868**
SQ1	0,788	0,796	**0,871**	0,813
SQ3	0,788	0,777	**0,840**	0,809
SQ4	0,788	0,754	**0,816**	0,787
SQ5	0,780	0,761	**0,830**	0,814
SQ6	0,812	0,798	**0,854**	0,810
SQ7	0,833	0,816	**0,871**	0,840
TI1	0,832	**0,912**	0,820	0,800
TI2	0,754	**0,837**	0,796	0,786
TI3	0,823	**0,918**	0,826	0,825
TI4	0,834	**0,876**	0,834	0,812

Structural model analysis

The results of the structural model analysis indicate on the table 4 that only financial literacy and service quality have a statistically significant effect on sharia financial inclusion. Financial literacy shows a strong positive relationship with sharia financial inclusion, as reflected by a high t-statistic and a p-value well below the 0.05 threshold, suggesting robust empirical support for this path. Similarly, service quality demonstrates a significant positive effect, confirming the importance of institutional interaction and service delivery in enhancing access to sharia financial services. In contrast, technological innovation and socio-economic status do not exhibit significant direct effects, as indicated by very low t-statistics and non-significant p-values. Furthermore, the interaction terms between socio-economic status and the main explanatory variables are also not statistically significant. These findings suggest that the positive influence of financial literacy and service quality on sharia financial inclusion operates consistently across different socio-economic groups, while innovation alone does not serve as a primary driver of inclusion in the rural BMT context examined in this study.

Table 4. Result of Path Coefficient

	Standard Deviation	T Statistics	P Values	Supported
FL -> SFI	0,046	11,379	**0,000**	**Yes**
TI -> SFI	0,044	0,069	**0,945**	**No**
SQ*SES -> SFI	0,049	1,475	**0,141**	**No**

FL*SES -> SFI	0,039	0,406	**0,685**	**No**
TI*SES -> SFI	0,054	1,558	**0,120**	**No**
SQ -> SFI	0,053	8,778	**0,000**	**Yes**

Discussion

Financial literacy and sharia financial inclusion

From a theoretical perspective, financial literacy is widely recognized as a key driver of financial inclusion (Khan et al., 2022; Pandey et al., 2022). In the context of Islamic finance, financial literacy not only reflects an individual's understanding of basic financial concepts but also their awareness of sharia principles, products, and contracts (Setiawati et al., 2018; Sohn et al., 2012; Tulcanaza-Prieto et al., 2025). Prior studies suggest that higher literacy reduces informational asymmetry, increases confidence in financial decision-making, and encourages individuals to participate more actively in formal financial systems, including Islamic financial institutions.

The empirical results of this study confirm this theoretical expectation. Financial literacy shows a strong and significant positive effect on sharia financial inclusion, indicating that respondents with better financial understanding are more likely to access and use Islamic financial services. This finding suggests that knowledge plays a decisive role in bridging the gap between Islamic financial products and potential users. In the context of this study, financial literacy appears to function as an enabling mechanism that transforms awareness into actual participation, reinforcing the importance of education-based strategies to expand Islamic financial inclusion.

Service quality and sharia financial inclusion

Theoretically, service quality is considered a critical institutional factor influencing individuals' willingness to engage with financial services (Abror et al., 2020; Burton, 2002; Uzir et al., 2021). In Islamic finance, service quality encompasses not only efficiency and accessibility but also trust, transparency, and compliance with sharia values. The literature emphasizes that high-quality services reduce perceived risk, strengthen customer trust, and enhance the overall user experience, which in turn supports broader financial inclusion (Bruin et al., 2020; Janahi & Al Mubarak, 2017).

Consistent with this view, the findings reveal that service quality has a significant positive effect on sharia financial inclusion. This result indicates that respondents are more inclined to utilize Islamic financial services when they perceive the services as reliable, responsive, and easy to access. In the context of this research, service quality appears to compensate for structural limitations by creating a favorable interaction between institutions and users. This suggests that improving service delivery can be an effective pathway to promoting inclusion, particularly in settings where technological innovation alone may not yet be fully effective.

Innovation and sharia financial inclusion

From a theoretical standpoint, innovation is often expected to enhance financial inclusion by lowering transaction costs, expanding outreach, and improving service accessibility (Chambers et al., 2021). Digital platforms, mobile banking, and innovative financial products are commonly viewed as tools that can overcome geographical and operational barriers, thereby increasing participation in formal financial systems (Ezzahid & Elouaourti, 2021; Liu et al., 2024).

However, the empirical results of this study do not support this expectation. Innovation does not show a significant direct effect on sharia financial inclusion. This finding suggests that innovation, in isolation, may not automatically translate into greater inclusion. In the context of this study, innovation appears to play a supporting rather than a driving role, requiring adequate financial literacy and service readiness to be effective. This highlights a potential gap between the availability of innovative solutions and their actual adoption, indicating that innovation must be accompanied by user capability and institutional support to meaningfully contribute to Islamic financial inclusion.

The moderating role of socio-economic status

Socio-economic status (SES) has been widely recognized as an important contextual factor influencing individuals' access to and use of financial services, particularly in rural and underserved areas (Allen, 2016; Cull et al., 2018). Differences in income, education, and living conditions are often argued to shape individuals' capacity to benefit from service quality, adopt technological innovations, and translate financial literacy into effective financial behavior (Chung & Kim, 2024; Hart & Laher, 2015; Mpofu & Mpofu, 2024). Based on this reasoning, prior studies commonly conceptualize SES as a moderating variable that conditions the strength of the relationships between service-related determinants and financial inclusion outcomes, especially in contexts characterized by structural and resource constraints.

However, the empirical findings of this study indicate that SES does not significantly moderate the relationships between service quality, technological innovation, financial literacy, and sharia financial inclusion. This suggests that the positive effects of service quality and financial literacy remain relatively consistent across socio-economic groups within the rural BMT context. One plausible explanation is the community-oriented and value-based nature of BMT services, which emphasize inclusivity, personal interaction, and trust-based relationships, thereby mitigating socio-economic disparities in access and usage. In addition, the relatively homogeneous socio-economic characteristics of rural respondents may have limited the moderating potential of SES, a finding that is consistent with previous studies reporting weaker SES moderation effects in community-based or rural financial systems compared to more heterogeneous or urban settings (Gunawan, 2024; Zulkhibri & Ismail, 2017).

Conclusion

This study set out to examine how service quality, financial literacy, and technological innovation shape sharia financial inclusion in rural areas, with socio-economic status considered as a moderating factor. The findings demonstrate that financial literacy and service quality play a decisive role in enhancing sharia financial inclusion, while technological innovation does not exhibit a significant direct effect. These results indicate that inclusive access to Islamic financial services in rural contexts is driven primarily by users' cognitive readiness and the quality of institutional interaction, rather than by technological availability alone. Moreover, the absence of a significant moderating effect of socio-economic status suggests that the influence of financial literacy and service quality is relatively consistent across different social and income groups.

From a theoretical perspective, this study contributes to the literature by providing integrated empirical evidence on the drivers of sharia financial inclusion in rural Islamic microfinance settings. The results emphasize that capability related factors, particularly financial literacy, serve as critical mechanisms enabling customers to translate institutional offerings into actual financial participation. By showing that technological innovation without adequate literacy and service readiness does not automatically lead to greater inclusion, this study challenges assumptions in financial inclusion research that may overstate the transformative role of technology. Overall, the study advances a more integrated and context sensitive understanding of sharia financial inclusion in rural BMT settings in Indonesia.

Practically and from a policy standpoint, the findings suggest that strengthening sharia financial inclusion in rural Indonesia is more likely to succeed through capability and service-based interventions than through technology-led initiatives alone. For BMT practitioners, service quality improvements should focus on frontline responsiveness, transparent communication of sharia contracts and costs, and relationship-based assistance that reduces uncertainty for first-time or hesitant users. In parallel, financial literacy programs need to be embedded into routine interactions. These programs should emphasize basic financial planning and an understanding of sharia contracts, and be paired with simple digital guidance to support the gradual uptake of technology-enabled services.

For policymakers, the results underscore the importance of human capital development and institutional capacity building for BMTs (e.g., staff training, standardized service support, and community-based outreach), aligning rural inclusion initiatives with the National Strategy for Financial Inclusion (SNKI).

Theoretically, the evidence indicates that in rural BMT contexts, inclusion is primarily driven by institutional interface (service quality) and user capability readiness (financial literacy), while technological innovation alone does not automatically translate into greater inclusion without complementary service and literacy foundations. The non-significant moderating role of SES further suggests that these inclusion drivers may operate relatively consistently across socio-economic groups in the studied rural setting, reinforcing the value of broad-based service and literacy interventions.

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