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Digital Literacy, Financial Technology Adoption, and Sustainable Business Practices Among MSMEs: Evidence From Gorontalo

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Abstract
Digital transformation has reshaped financial management and accounting behavior among micro, small, and medium enterprises (MSMEs), particularly within the framework of Islamic finance, where technology adoption is closely linked to ethical and sharia compliance values. This study examines the influence of digital literacy on sustainable business practices, with Islamic fintech adoption as a mediating variable among MSME actors in Gorontalo Province, Indonesia. Using a mixed-methods sequential explanatory design, this research integrates quantitative data from 49 respondents with qualitative insights obtained through in-depth interviews. The quantitative findings indicate that digital literacy significantly affects sustainable business practices ($\beta = 0.6303$, $p < 0.001$), while the mediating role of Islamic fintech adoption is statistically insignificant ($z = 1.188$, $p = 0.235$). The qualitative analysis reveals that social trust, religious values, and accessibility shape MSME adoption behavior toward Pegadaian Digital Syariah. Theoretically, this study strengthens the integration of the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and Sustainable Business Model Innovation (SBM) in explaining digital transformation within Islamic finance. Practically, the results emphasize the importance of Islamic value-based digital literacy programs and inclusive digital financial accounting strategies that foster trust, ethics, and sustainability. Overall, digital literacy emerges as the key driver of MSME sustainability in the digital era, while the success of Islamic fintech adoption depends on ethical awareness and socio-cultural trust within local contexts.

Keywords: *digital literacy, Islamic fintech adoption, digital financial accounting, sustainable business practices, MSMEs*

Introduction

Digital transformation has become one of the key pillars supporting global economic growth, including within the micro, small, and medium enterprise (MSME) sector. In the context of Islamic economics, digital transformation extends beyond technical efficiency—it also embodies ethical values and compliance with sharia principles in business practices. Institutions such as Pegadaian Syariah (Islamic Pawnshop) can serve as pioneers in providing digital Islamic financial services as part of Indonesia's broader Islamic financial inclusion strategy. However, the success of this transformation depends not only on technological availability but also on the capacity of business actors to understand, access, and effectively utilize digital tools. Consequently, digital literacy emerges as a critical determinant of MSMEs' adaptability to digital financial services.

Although previous studies have examined the relationship between digital literacy and technology adoption, most have focused on conventional fintech or e-commerce contexts, without considering the distinctive characteristics of Islamic finance systems. For instance, Ahmad et al., (2022) highlighted the role of digital literacy in supporting fintech adoption in general, while Marhadi et al., (2024) found that digital financial literacy significantly affects the intention to use peer-to-peer (P2P) fintech in a cross-country study.

Nevertheless, these studies have not explicitly linked digital literacy to the Islamic economic framework or tested its implications for business sustainability.

Within the framework of Islamic finance, digital literacy encompasses more than technical skills—it also reflects moral awareness and an understanding of compliance with sharia principles in all forms of digital transactions. Accordingly, higher digital literacy among MSME actors not only enhances comprehension of digital service mechanisms but also builds trust in a value-oriented Islamic financial ecosystem. Several studies have indicated that limited digital literacy represents a major obstacle to the adoption of Islamic fintech in developing countries. For example, the study analysis of factors affecting adoption of fintech sharia, identified literacy and sharia compliance as key determinants. Similarly, (Rahman et al., 2023; Abubakar A., 2022) emphasized that low digital literacy is among the main barriers hindering MSMEs from adopting Islamic fintech services in Indonesia.

The adoption of Islamic fintech—including digital services provided by Pegadaian Syariah—can be viewed as a bridge connecting digital knowledge and the implementation of sustainable business principles. Literature in management and sustainable finance suggests that financial technology can enhance operational efficiency, transaction transparency, and market accessibility for MSMEs (Waqar et al., 2025). In addition, Sharma et al., (2024) explored how fintech adoption impacts the sustainability of small enterprises, emphasizing the mediating role of financial well-being. Other studies in sustainable finance further affirm that fintech facilitates the integration of environmental, social, and governance (ESG) aspects into business activities (Hasan, 2024). However, most of these studies primarily highlight economic and financial performance dimensions, while the implications for sustainable behavior—particularly social and environmental dimensions—remain underexplored, especially within the context of Islamic finance and religiosity.

This research gap reveals both empirical and theoretical opportunities that warrant further exploration. First, few studies have simultaneously examined the interrelationship between digital literacy, Islamic fintech adoption, and MSME sustainability within a single integrated model. Second, most previous works employ macro-level quantitative approaches at the national scale, leaving local contexts—such as Gorontalo, which has unique social, economic, and cultural characteristics—largely unexamined. Third, the mediating role of Islamic fintech adoption in linking digital literacy to business sustainability has rarely been empirically tested, despite its importance in explaining how digital transformation unfolds within Islamic financial ecosystems.

Therefore, this study offers novelty in two main aspects. First, it develops a conceptual model that integrates digital literacy, Islamic fintech adoption, and sustainable business practices through a mediating approach to empirically test the mechanisms among these variables. Second, by employing the local context of Gorontalo as a representation of a developing region in Indonesia, this research provides new insights into how digital literacy and Islamic financial service adoption contribute to MSME sustainability at the micro level. This approach not only broadens the scope of digital literacy and Islamic fintech studies but also delivers practical implications for Islamic financial institutions such as Pegadaian Syariah in designing more inclusive and sustainable digitalization strategies.

This study contributes to the literature by integrating Islamic value-based digital literacy and sustainability into a single mixed-method framework, which has rarely been examined in Islamic financial studies at the MSME level.

Literature Review

The rapid advancement of financial technology has led to the development of several theoretical models that explain how individuals and organizations adopt and integrate technology into economic activities. Within this context, prior studies highlight three complementary theoretical approaches—namely the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and Sustainable Business Model Innovation (SBM). Together, these frameworks provide a robust conceptual foundation for understanding the interrelationship between digital literacy, Islamic fintech adoption, and sustainable business practices. Integrating these three theories not only enriches the analytical framework of technology adoption behavior but also allows for deeper exploration of how Islamic values and sustainability principles are internalized within micro and small enterprises transitioning toward digitalization.

The Technology Acceptance Model (TAM) is among the most widely used theoretical frameworks for explaining user behavior toward new technologies. Originally proposed by (Davis, 1989), TAM posits that the intention to use technology is determined by two key factors: perceived usefulness and perceived ease of use. In the fintech context, these factors are central to understanding users’ adoption decisions regarding digital financial services. (Nugraha et al., 2022) found that perceived usefulness and ease of use significantly influence entrepreneurs’ intentions to adopt digital payment services in Pakistan. Similarly, a study by (Meyliana et al., 2019) in Indonesia revealed that trust and perceived risk strengthen the relationship between ease of use and the intention to adopt fintech. These findings reaffirm that technology adoption behavior is influenced not only by functional aspects but also by psychological and social factors that are context-dependent.

In the realm of Islamic finance, the application of TAM requires expansion (Rahayu et al., 2024), as technology adoption decisions are not solely driven by economic efficiency but also by adherence to sharia values and ethical considerations. The study (Jain S., 2021) demonstrated that extending TAM with variables such as digital literacy, trust, and social influence enhances its explanatory power for Islamic fintech adoption. Digital literacy represents the cognitive ability enabling users to comprehend the benefits and risks of value-based financial technologies, including transaction security, product permissibility (halal), and fund management transparency. Therefore, in this study, digital literacy is conceptualized not merely as the technical ability to operate digital tools but also as the capacity to evaluate the compatibility of fintech services with sharia principles and business needs. This perspective helps explain why MSME actors in regions such as Gorontalo may display varying adoption levels despite relatively equal access to technology.

Meanwhile, the Diffusion of Innovation Theory (DOI), proposed by Rogers, (2003), explains how technological innovations spread within society through communication and social adoption processes. DOI emphasizes that the decision to adopt an innovation depends on five attributes: relative advantage, compatibility, complexity, trialability, and observability. This theory has been widely applied to explain fintech diffusion patterns in developing countries, where social factors such as inter-business networks and community support significantly influence adoption rates. Hassan (2022), in the context of green innovation, found that successful innovation diffusion is highly dependent on interpersonal communication and social learning among community members. Within the context of Islamic fintech, DOI helps explain why MSME actors with high digital literacy tend to become early adopters, while those with limited access or low trust in digital systems may belong to the late adopter group.

Applying DOI in this research is particularly relevant to understanding variations in fintech adoption levels in Gorontalo, a region characterized by high social and economic heterogeneity. Entrepreneurs operating in urban areas such as Gorontalo City are likely to adopt Pegadaian Digital Syariah services more rapidly due to greater information access and social support compared to those in rural areas. Carmagnac et al., (2022) emphasized that the diffusion of sustainable innovations across industries is largely influenced by social interaction and the ability of individuals to observe early adopters’ success. In this study, Islamic fintech adoption is viewed as a social innovation that spreads through learning and trust among MSME actors, with digital literacy serving as an internal factor that accelerates this diffusion process. Accordingly, DOI complements TAM by elucidating the social mechanisms underlying the relationship between digital literacy and Islamic fintech adoption.

In addition, the Sustainable Business Model Innovation (SBM) theory provides a strategic perspective that bridges technology adoption and business sustainability outcomes. SBM posits that organizations must design business models that not only focus on financial gains but also create social and environmental value. For MSMEs, sustainable business model innovation includes adopting efficient management practices, ensuring responsible resource utilization, and embedding social values into business operations. Ciulli et al., (2022) found that companies integrating sustainability into their business models tend to achieve superior long-term performance and greater adaptability to market changes. Likewise, Oliveira et al., (2022) affirmed that digital technology–driven business model innovation enhances firms’ ability to achieve economic, social, and environmental sustainability goals simultaneously.

From the Islamic finance perspective, the adoption of Islamic fintech can be considered a form of sustainable business model innovation that merges digital efficiency with ethical and social responsibility values. For example, Pegadaian Digital Syariah enables MSMEs to access sharia-compliant financing, record transactions transparently, and manage assets more efficiently. Thus, Islamic fintech functions not only as a financial tool but also as a social innovation platform that supports the realization of sustainable development goals. Suhartanto et al., (2024) confirmed that the implementation of environmentally and socially responsible practices among Southeast Asian SMEs is positively associated with business performance and corporate reputation. This demonstrates that sustainability has evolved beyond ethical discourse to become a competitive strategy relevant for MSMEs.

The integration of these three theoretical perspectives forms the conceptual backbone of this study. Digital literacy serves as the cognitive foundation that enables entrepreneurs to understand the usefulness and ease of technology in line with TAM. The process of innovation diffusion within Islamic fintech adoption is explained through DOI, emphasizing the roles of social interaction and communication in broadening acceptance of new technologies. Meanwhile, SBM offers a strategic perspective that views fintech adoption not merely as a technological decision but as an innovative strategy to achieve business sustainability. By combining these theories, this research introduces a multidimensional approach rarely applied in prior studies, especially in regional and Islamic financial contexts.

The novelty of this study lies in its empirical examination of how digital literacy influences sustainable business practices through Islamic fintech adoption as a mediating variable, offering a fresh perspective on digital transformation aligned with sustainability principles at the MSME level.

Based on the literature and previous empirical findings, this study integrates the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and Sustainable Business Model Innovation (SBM) into a unified framework. The model posits that digital literacy is the key cognitive factor influencing Islamic fintech adoption, which in turn strengthens sustainable business practices.

Conceptually, the relationship among the constructs can be illustrated as follows:

Digital Literacy → Islamic Fintech Adoption → Sustainable Business Practices

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(Partial Direct Effect)

- Digital Literacy refers to MSME actors’ ability to understand, assess, and utilize digital technologies, including awareness of sharia compliance in every digital transaction.
- Islamic Fintech Adoption denotes the level of acceptance and utilization of sharia-based financial services, such as Pegadaian Digital Syariah, in business activities.
- Sustainable Business Practices encompass the implementation of economic (efficiency and profitability), social (social responsibility and empowerment), and environmental (sustainable resource and waste management) values.

This framework asserts that digital literacy not only has a direct impact on sustainable business practices but also promotes them indirectly through increased adoption of Islamic fintech as a mediating mechanism.

Accordingly, the research hypotheses are formulated as follows:

- H1: Digital literacy positively influences Islamic fintech adoption.
- H2: Islamic fintech adoption positively influences sustainable business practices.
- H3: Digital literacy positively influences sustainable business practices.
- H4: Islamic fintech adoption mediates the relationship between digital literacy and sustainable business practices.

Research Methods

Research Design

This study employed a mixed-methods approach using a sequential explanatory design, which combines quantitative and qualitative methods conducted in consecutive stages. In the first stage, the quantitative approach was applied to examine the causal relationships among digital literacy, Islamic fintech adoption, and sustainable business practices among MSMEs in Gorontalo. In the second stage, the qualitative approach was utilized to gain deeper insights into the quantitative results by exploring contextual, social, and religious factors influencing the patterns of relationships among the variables.

This mixed-methods approach was selected because the adoption of Islamic fintech is not merely a technical or measurable issue; it also involves values, perceptions, and public trust in the Islamic financial system. The integration of quantitative and qualitative data enables a more holistic understanding—

empirical through numerical data and interpretative through social and cultural insights. Such a design is strongly recommended in management and information systems research that integrates behavioral technology and user social context dimensions (Creswell et al., 2018; Venkatesh et al., 2019).

Location, Population, and Sampling Technique

The research was conducted in Gorontalo Province, which possesses unique socio-economic characteristics and relatively low levels of Islamic fintech penetration. The study population comprised all micro, small, and medium enterprise (MSME) actors in Gorontalo who have knowledge or experience in using digital financial services, either as users of Pegadaian Syariah Digital or as non-users.

A purposive sampling technique was applied, selecting respondents based on specific criteria relevant to the research objectives:

1. Active entrepreneurs for at least two years,
2. Having experience using digital applications in business activities, and
3. Being aware of or having used Islamic financial services.

A total of 49 respondents met the criteria and provided complete data. This sample size satisfies the minimum requirement for path analysis and mediation testing with resampling, as recommended by Hair et al., (2021) and Cohen et al., (2003).

Research Variables and Operational Definitions

This study involved three main constructs: digital literacy (X), Islamic fintech adoption (M), and sustainable business practices (Y). The definitions and indicators of each variable were adapted from relevant literature and contextualized within Islamic finance.

a. Digital Literacy (X)

Digital literacy is defined as the ability of MSME actors to understand, use, and manage digital technologies effectively to support business activities. The indicators include:

(1) The ability to conduct financial transactions digitally,
(2) The ability to maintain account and personal data security, and
(3) The ability to search for and interpret financial information.

Indicators were adapted from Yeşilyurt et al., (2023) and Ullah et al., (2022).

b Islamic Fintech Adoption (M)

Islamic fintech adoption refers to the level of acceptance and utilization of digital financial services that comply with sharia principles. The indicators include:

1) Perceived usefulness of digital services,
2) Willingness to use or recommend Pegadaian Digital Syariah services, and
3) Perceived improvement in efficiency and transparency.

Indicators were adapted from Lee & Shin., (2018) and Nugraha et al., (2022), who demonstrated that perceived usefulness, ease of use, and trust are key determinants of fintech adoption among SMEs.

c. Sustainable Business Practices (Y)

Sustainable business practices encompass the integration of economic, social, and environmental principles in MSME operations. The indicators include:

(1) Efforts to reduce waste and utilize environmentally friendly materials,
(2) Empowerment of local workers,
(3) Regular financial recording, and
(4) The belief that sustainable practices enhance business reputation.

Indicators were adapted from Martins et al., (2022) and Suhartanto et al., (2024), who highlight that sustainability-oriented SMEs tend to show higher performance and social legitimacy.

Data Collection Techniques

Two primary data sources were utilized:

1) Quantitative data were collected through an online questionnaire distributed via Google Forms, consisting of three sections: respondent profile, variable indicators, and additional statements regarding experiences using Islamic digital financial services.

2) Qualitative data were obtained through in-depth interviews with five MSME owners engaged in sharia-based businesses to interpret quantitative findings, particularly regarding social, cultural, and religious factors influencing the adoption of Pegadaian Digital Syariah.

Both data types were integrated through data triangulation, combining quantitative results and qualitative insights to strengthen the validity of interpretations (Tashakkori et al., 2021).

Data Analysis Techniques

Data analysis was conducted in two major phases: quantitative analysis and qualitative analysis.

Quantitative Phase

Statistical analyses were performed using multiple linear regression and path analysis to examine direct and indirect relationships among variables. Mediation testing employed two methods:

1. Sobel Test (Baron & Kenny, 1986) to detect indirect effects, and
2. Bootstrap Mediation Test (Preacher & Hayes, 2008) with 5,000 resampling iterations to obtain a 95% confidence interval.

The results revealed that digital literacy significantly influences sustainable business practices ($\beta = 0.6303$, $p < 0.001$), and Islamic fintech adoption positively affects sustainability ($\beta = 0.1610$, $p = 0.022$). However, the mediating effect was statistically insignificant ($z = 1.188$, $p = 0.235$), indicating that the impact of digital literacy on sustainable practices is more direct rather than mediated by fintech adoption.

Qualitative Phase

Interview data were analyzed using thematic analysis to identify dominant themes explaining the quantitative findings. The analysis followed three stages: data reduction, categorization, and thematic interpretation. The findings indicated that trust in *sharia* principles, perceived usefulness of digital services, and accessibility were the main factors influencing fintech adoption among MSME actors.

Validity, Reliability, and Credibility Tests

The research instruments were tested through two stages:

- Content validity was assessed by two experts in Islamic finance and digital literacy.
- Reliability was tested using Cronbach's Alpha, with all constructs yielding coefficients above 0.70, indicating high reliability (Nunnally & Bernstein, 1994).

The credibility of qualitative data was ensured through member checking and source triangulation, by comparing interview results among respondents to maintain consistency and confirmability of findings (Lincoln & Guba, 1985).

Research Ethics

This study adhered to ethical standards of social research, including voluntary participation, informed consent, and respondent data confidentiality. No personal information was disclosed, and all data were used solely for academic purposes. The research process complied with the ethical guidelines outlined by (Creswell & Creswell, 2023).

Results and Discussion

Descriptive Analysis

Based on data collected from 49 MSME respondents in Gorontalo Province, the majority were between 30 and 45 years old, with 63% representing micro enterprises and 37% representing small enterprises. Most respondents held a bachelor's degree and regularly used digital devices (smartphones) for business transactions. These findings indicate that digital awareness among MSME actors in Gorontalo is relatively high. However, the adoption of Islamic digital financial services—such as Pegadaian Digital Syariah—remains limited to groups with higher levels of digital literacy.

The mean score for digital literacy ($M = 4.23$) suggests that respondents have a strong level of confidence in using digital applications and managing data security. The mean score for Islamic fintech adoption ($M = 3.84$) indicates a moderate level of acceptance toward sharia-based digital financial services. Meanwhile, the mean score for sustainable business practices ($M = 4.15$) reflects that MSME owners have implemented several sustainability elements, particularly in financial record-keeping and local workforce empowerment.

These results provide preliminary evidence that digital literacy contributes positively to sustainable business practices, although the adoption of Islamic fintech has not yet emerged as a dominant influencing factor.

Correlation Analysis

The correlation test revealed a positive and significant relationship between digital literacy and sustainable business practices ($r = 0.63$, $p < 0.001$). In addition, there was a positive correlation between Islamic fintech adoption and sustainable practices ($r = 0.41$, $p < 0.05$), as well as between digital literacy and Islamic fintech adoption ($r = 0.29$, $p < 0.10$).

These findings suggest that digital literacy exerts a stronger influence on business sustainability compared to fintech adoption. In other words, while fintech adoption supports sustainability efforts, it is digital competence that primarily drives MSMEs' ability to manage their businesses sustainably.

Mediation Test (Path Analysis and Bootstrap Results)

A path analysis was conducted to examine the mediating role of Islamic fintech adoption in the relationship between digital literacy and sustainable business practices.

- In the first model ($X \rightarrow M$), digital literacy had a positive but non-significant effect on Islamic fintech adoption ($\beta = 0.2135$, $p = 0.176$).
- In the second model ($X \rightarrow Y$), digital literacy had a significant positive effect on sustainable business practices ($\beta = 0.6303$, $p < 0.001$).
- In the third model ($X + M \rightarrow Y$), Islamic fintech adoption significantly influenced sustainable business practices ($\beta = 0.1610$, $p = 0.022$), while the direct effect of digital literacy on sustainability remained significant ($\beta = 0.5959$, $p < 0.001$).

The Sobel test yielded a *z*-value of 1.188 ($p = 0.235$), indicating that the mediating effect was statistically insignificant. Similarly, the bootstrap test with 5,000 resampling iterations showed an indirect effect value of 0.032 (CI95% = –0.01426 to 0.09636, $p = 0.1436$), confirming that Islamic fintech adoption does not significantly mediate the relationship between digital literacy and sustainable business practices.

These findings imply that digital literacy exerts a direct influence on MSMEs' sustainable business behavior, while Islamic fintech adoption serves as a supporting factor rather than a primary mediator in this relationship.

Discussion

The results highlight that digital literacy plays a more dominant role than fintech adoption in promoting sustainability-oriented business behavior among MSMEs. The ability to understand, evaluate, and utilize digital tools enables entrepreneurs to manage financial transparency, efficiency, and resource accountability more effectively—key dimensions of sustainability.

These findings are consistent with Rehman et al., (2023), who emphasized that fintech enhances efficiency and performance among MSMEs, yet its impact on sustainability depends heavily on the level of digital literacy and prevailing social factors. Similarly, Hasan., (2024) found that while fintech supports the expansion of green finance, it does not automatically guarantee sustainable enterprise outcomes without adequate digital competence and ethical awareness.

In the context of Gorontalo, the insignificant mediating role of Islamic fintech adoption can be attributed to limited exposure and trust among MSME actors regarding digital sharia-based financial platforms. This reflects a stage of partial digital transformation, where entrepreneurs are digitally aware and capable, yet have not fully integrated Islamic fintech into their operational models.

From a broader perspective, these findings suggest that enhancing digital literacy remains a prerequisite for maximizing the benefits of fintech adoption in achieving sustainable development goals (SDGs). Furthermore, Islamic financial institutions such as Pegadaian Syariah can leverage these insights to design inclusive digital literacy programs, foster trust in sharia-compliant digital services, and encourage sustainable entrepreneurship among local MSMEs.

Research Implications

From a theoretical perspective, the findings of this study reinforce the integration of three major theories—Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and Sustainable Business Model Innovation (SBM)—within the context of Islamic finance. Digital literacy has been proven to function as a cognitive factor that influences technological readiness and directly enhances sustainable business capabilities.

From a practical standpoint, the results provide important implications for Islamic financial institutions, particularly Pegadaian Syariah, to develop Islamic value-based digital literacy programs. Such programs should not only emphasize the technical use of applications but also instill ethical awareness and social responsibility among users.

In terms of policy, these findings highlight the need for an inclusive national strategy for Islamic financial digitalization, particularly in regions such as Gorontalo, where literacy levels and socio-cultural conditions vary significantly. Developing a sharia-compliant fintech ecosystem that emphasizes trust, education, and accessible infrastructure will be essential in guiding MSMEs toward stronger and more competitive sustainability.

Conclusion

This study aimed to analyze the influence of digital literacy on sustainable business practices, with Islamic fintech adoption serving as a mediating variable among MSME actors in Gorontalo Province. Using a mixed-methods sequential explanatory design, the study generated several important findings that enrich the existing literature on Islamic financial digitalization and micro-enterprise sustainability.

First, digital literacy was found to have a direct and significant influence on sustainable business practices. MSME actors with higher digital literacy levels demonstrated greater ability to manage finances transparently, maintain regular financial records, utilize digital platforms for operational efficiency, and apply social and environmental responsibility principles in their business operations. This finding strengthens the theoretical perspective of the Technology Acceptance Model (TAM) (Davis, 1989; Lee & Shin, 2018), which posits that understanding and utilizing technology play critical roles in shaping adoption behavior and innovative business practices.

Second, Islamic fintech adoption positively affects sustainable business practices, although its role as a mediator between digital literacy and sustainability was statistically insignificant. This indicates that digital literacy influences sustainability directly, without necessarily operating through fintech adoption. Although services such as Pegadaian Digital Syariah can enhance efficiency and transparency, their use remains limited due to trust-related barriers and the persistence of conventional transaction habits. This finding aligns with Alshater et al., (2022), who emphasized that trust and understanding of sharia values are crucial factors in the acceptance of Islamic fintech.

Third, the qualitative results revealed that social and religious factors play an important role in MSME decisions to adopt Islamic fintech. Several respondents expressed greater comfort with face-to-face interactions in financial institutions, which are perceived as socially valuable and consistent with Gorontalo's local culture that emphasizes person-based interaction. This finding suggests that the success of digital transformation in Islamic finance depends not only on technological availability but also on the alignment between local values, Islamic ethics, and the digital literacy strategies applied.

Fourth, this study reaffirms that the concept of business sustainability in Islamic economics should be understood holistically, encompassing not only economic but also moral, social, and environmental dimensions. Ethically conscious digital literacy serves as a foundation for Sustainable Business Model Innovation (SBM), where digitalization enhances not only efficiency but also social and spiritual responsibility among entrepreneurs.

Overall, this study contributes theoretically by integrating TAM, DOI, and SBM into the Islamic finance framework, and empirically by demonstrating that digital literacy is a primary determinant of MSME sustainability. Practically, the findings guide Islamic financial institutions toward developing more inclusive and sustainable education and digitalization strategies at the local level.

Theoretical Implications

This research extends the application of the Technology Acceptance Model (TAM) and the Diffusion of Innovation Theory (DOI) by incorporating Islamic values and business sustainability as essential components of the technology adoption process. The integration of TAM, DOI, and SBM demonstrates that digital literacy functions not merely as a technical skill but as a social and cognitive capability that drives sustainable transformation in the context of Islamic economics.

Moreover, this study enriches the Islamic fintech literature by introducing ethical and religious dimensions as conceptual mediators that should be incorporated into value-based technology adoption models.

Practical Implications

For Islamic financial institutions such as Pegadaian Syariah, the findings underscore the importance of strengthening Islamic-oriented digital literacy programs. These initiatives should go beyond introducing digital features and instead focus on building trust, transparency, and sharia compliance awareness among users.

Local governments and Islamic financial authorities can also utilize these findings to design value-based digital inclusion policies, particularly in regions with low digital literacy levels such as Gorontalo. Community-based training programs and collaborations among academics, financial institutions, and entrepreneurs will accelerate the transition toward an inclusive and sustainable Islamic fintech ecosystem.

Research Limitations

This study has several limitations that should be acknowledged. First, the sample size was relatively small (n = 49) and limited to Gorontalo Province, which may restrict the generalizability of findings to broader populations. Second, the mediating variable included only Islamic fintech adoption, whereas other potential factors—such as religiosity, digital trust, or policy support—were not examined. Third, the qualitative approach was exploratory; hence, the interpretation of findings could be further enriched through in-depth interviews with a wider range of stakeholders, including representatives from Pegadaian Syariah and Islamic financial regulators.

Recommendations for Future Research

Future research may extend the conceptual model by incorporating moderating variables such as trust in technology, religiosity, or government support, which theoretically strengthen the relationship between digital literacy and Islamic fintech adoption. Additionally, longitudinal studies are recommended to observe behavioral changes among MSME actors toward Islamic fintech over time, particularly following the enhancement of national digital literacy initiatives.

Further qualitative research is also encouraged to explore the narrative aspects of Islamic value-based sustainability—such as how MSME actors perceive “blessing (barakah)” and “social responsibility” within digital business practices. Integrating social narrative analysis with structural equation modeling (SEM) could yield a deeper and more comprehensive understanding of these dynamics.

Final Remarks

In conclusion, this study reaffirms that digital literacy serves as the fundamental driver of MSME sustainability within the era of digital transformation. However, the success of Islamic fintech adoption depends not only on technological advancement but also on trust, ethical values, and socio-cultural context. Strengthening Islamic value-based digital literacy is therefore essential for Islamic financial institutions to realize an inclusive, equitable, and sustainable business ecosystem—in line with the overarching objectives of Islamic economics to promote maslahah (collective welfare) for society.

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