
DIGITAL TRANSFORMATION AND THE IMPLEMENTATION OF HIFZH AL-MAL: THE MEDIATING ROLE OF HIFZH AL-MAL IN THE EFFECT OF QRIS ADOPTION ON THE SUSTAINABILITY OF MSMEs IN SUMENEP REGENCY

Asrofil Wiyast*¹

Universitas Annuqayah, Sumenep, Indonesia
asrofilwiyast525@gmail.com

Ubaidullah Muayyad²

Universitas Annuqayah, Sumenep, Indonesia
ubaid.asthow91@ua.ac.id

Abstract

The widespread adoption of the Quick Response Code Indonesian Standard (QRIS) has transformed Micro, Small, and Medium Enterprises (MSMEs) by improving transaction efficiency, financial accessibility, and digital integration. However, existing research on financial technology adoption has predominantly focused on value-neutral perspectives, with limited attention to ethical and religious considerations in faith-based business communities. This study examines the effect of QRIS adoption on MSME sustainability by investigating the mediating role of Hifzh al-Mal (protection of wealth), one of the fundamental objectives of Maqashid al-Sharia. A quantitative explanatory approach was employed, using survey data collected from MSME owners in Sumenep Regency who apply Sharia principles in their business activities. Respondents were selected through purposive and snowball sampling, while the proposed relationships were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The study contributes by operationalizing Hifzh al-Mal as a measurable empirical construct within a structural model. Integrating digital transformation with Islamic economic principles, this research offers a comprehensive perspective on how QRIS adoption may support MSME sustainability through improved wealth protection, financial accountability, and ethical business practices. The findings are expected to contribute to fintech, Maqashid al-Sharia, and sustainable MSME literature while providing practical insights for value-based digital transformation.

Keywords: QRIS, Hifzh al-Mal, Maqashid al-Sharia, MSME Sustainability, SEM-PLS, Digital Transformation

INTRODUCTION

The adoption of cashless payment systems in Indonesia has expanded rapidly in recent years. In response to the fragmentation of digital payment platforms and the need to strengthen financial inclusion, Bank Indonesia launched the Quick Response Code Indonesian Standard (QRIS) in August 2019. QRIS functions as a national payment standard that integrates different digital payment providers into an interoperable system. This development is particularly relevant to Micro, Small, and Medium Enterprises (MSMEs), which play an important role in supporting employment, income generation, and Indonesia's broader economic growth (Seputri & Yafiz, 2022).

QRIS enables businesses to accept payments from various digital platforms through a single standardized QR code. Its implementation can improve transaction efficiency, strengthen payment security, and expand opportunities for businesses to reach digitally oriented consumers (Yuliati & Handayani, 2021). Therefore, the contribution of QRIS extends beyond payment convenience, as its adoption can support MSME resilience and contribute to more inclusive and sustainable economic development.

Nevertheless, the implementation of financial technology in communities with strong socio-cultural and religious values requires consideration beyond technological and economic benefits. From an Islamic economic perspective, financial technology should also be evaluated according to its contribution to the objectives of *Maqashid al-Shariah*, particularly *Hifz al-Mal*, which refers to the protection and preservation of wealth. This principle encompasses efforts to safeguard assets against loss, destruction, uncertainty (*gharar*), fraud, and other forms of economic exploitation (Chapra, 2008; Reksi et al., 2025).

Despite growing research on financial technology, an empirical framework connecting technology adoption with the realization of Islamic objectives remains limited. Existing studies generally focus either on technology adoption and its determinants from a value-neutral perspective (Setiawan & Mahyuni, 2020) or on normative discussions concerning the compatibility of financial technology with Islamic principles (Kusuma, 2024; Reksi et al., 2025). Limited attention has been given to how Islamic values can be translated into measurable outcomes that contribute to MSME sustainability. This study addresses this gap by positioning the Realization of *Hifz al-Mal* as a measurable mediating variable linking QRIS adoption to MSME sustainability.

Sumenep Regency provides a relevant research setting because of the coexistence of strong religious values and an active entrepreneurial environment. This context offers an opportunity to examine the integration of digital payment technology with Islamic economic principles among MSME practitioners. Accordingly, this study investigates whether QRIS adoption influences the Realization of *Hifz al-Mal*, whether *Hifz al-Mal* contributes to MSME sustainability, whether QRIS directly affects MSME sustainability, and whether the Realization of *Hifz al-Mal* mediates the relationship between QRIS adoption and MSME sustainability.

REVIEW OF LITERATURE

Digital Transformation, Financial Technology, and QRIS Adoption

The rapid growth of financial technology (fintech) as a major element of digital

transformation has substantially changed the delivery and use of financial services. Fintech innovations facilitate financial inclusion by offering payment and transaction mechanisms that are increasingly efficient, accessible, convenient, and secure for both individuals and businesses (Sodik & Riza, 2023). In Indonesia, the digital transformation of payment systems has consequently become an important policy and business priority, particularly in strengthening the competitiveness and operational capacity of Micro, Small, and Medium Enterprises (MSMEs).

To establish an integrated digital payment infrastructure, Bank Indonesia introduced the Quick Response Code Indonesian Standard (QRIS) in 2019. QRIS unifies different QR-based payment systems operated by various payment service providers into a standardized and interoperable national platform (Sihaloho et al., 2020). This integration allows merchants to accept payments through multiple digital platforms using a single QR code, thereby reducing payment complexity, improving transaction convenience, and encouraging the transition toward cashless business activities.

Technology adoption research is commonly grounded in frameworks such as Diffusion of Innovations Theory and the Technology Acceptance Model (TAM). TAM explains technology acceptance primarily through perceived usefulness and perceived ease of use. Perceived usefulness reflects the extent to which users believe that a technology can improve their performance, whereas perceived ease of use concerns the extent to which the technology can be utilized with minimal effort (Davis, 1989; Venkatesh et al., 2012). Building on this theoretical perspective, the present study expands the conventional technology adoption framework by introducing an Islamic value dimension, particularly Hifzh al-Mal. This approach allows the study to examine whether QRIS adoption generates benefits beyond operational efficiency and contributes to the achievement of Shariah-oriented objectives in MSME activities.

Maqashid al-Shariah and the Principle of Hifzh al-Mal

Maqashid al-Shariah represents a fundamental framework in Islamic law that seeks to promote *maslahah* (human welfare) and prevent *mafsadah* (harm). Islamic scholars have emphasized that Shariah principles are ultimately directed toward protecting essential human interests and establishing justice and social welfare. Al-Ghazali (2013), for example, identified five fundamental objectives of Shariah: the protection of religion (*Hifzh al-Din*), life (*Hifzh al-Nafs*), intellect (*Hifzh al-'Aql*), lineage (*Hifzh al-Nasl*), and wealth or property (*Hifzh al-Mal*).

In Islamic economics, Hifzh al-Mal is particularly relevant because it concerns how wealth is acquired, managed, transferred, and protected in accordance with Islamic principles. Its meaning extends beyond the accumulation of financial assets and includes protection against loss, misuse, fraud, uncertainty, and unjust exploitation. Based on contemporary Islamic economic perspectives, the realization of Hifzh al-Mal can be represented through several interconnected dimensions.

First, asset security concerns the protection of financial resources against physical and digital threats, including fraud, theft, and cybersecurity risks. Second, transparency and accountability emphasize the availability of clear, traceable, and reliable transaction information, thereby reducing uncertainty (*gharar*) and information asymmetry. Third, transactional justice emphasizes fairness in economic exchanges and the avoidance of

exploitative practices, including *riba* and fraudulent transactions. Fourth, Shariah value alignment concerns the extent to which wealth generation, management, and distribution comply with Islamic ethical and governance principles (Chapra, 2008; Dusuki & Abozaid, 2008). These dimensions provide a conceptual basis for evaluating whether digital payment technologies such as QRIS can support the protection and responsible management of wealth in accordance with Maqashid al-Shariah.

Business Sustainability from an Islamic Economic Perspective

Business sustainability refers to an organization's capacity to maintain its operations, adapt to changes, generate long-term value, and remain economically viable. In conventional sustainability literature, Elkington (1997) introduced the Triple Bottom Line, which emphasizes the integration of economic, social, and environmental dimensions in organizational performance. Although this framework provides an important foundation for understanding sustainability, Islamic economics introduces additional ethical and spiritual considerations.

From an Islamic perspective, sustainable business development is not limited to financial performance or organizational survival. It also involves accountability to God, society, and the environment. Accordingly, this study conceptualizes sustainability as Islamic Economic Sustainability, which combines material objectives with ethical and spiritual values. For MSMEs, this construct consists of four complementary dimensions.

The first is financial performance, which reflects business viability through revenue growth, profitability, and cash-flow stability. The second is Shariah compliance, which represents adherence to Islamic legal and ethical principles, including permissible contractual arrangements, avoidance of *riba*, and the use of lawful sources of capital and income. The third is resilience and continuity, referring to the ability of MSMEs to respond to market changes, manage risks, withstand economic disruptions, and maintain operational stability. The fourth is spiritual value, which reflects the pursuit of *barakah* (divine blessing) through ethical business conduct and compliance with Islamic teachings.

The integration of these dimensions provides a broader understanding of MSME sustainability by combining economic viability, organizational resilience, ethical responsibility, and spiritual values. Thus, Islamic Economic Sustainability differs from conventional sustainability perspectives by recognizing that long-term business success is also associated with moral conduct and alignment with religious principles.

Previous Studies and Research Gap

Previous research has extensively investigated fintech adoption and digital payment technologies among MSMEs, particularly in relation to technological acceptance, transaction efficiency, financial inclusion, and behavioral intention. Most empirical studies utilize established frameworks such as TAM, UTAUT, and Diffusion of Innovations Theory to explain the factors influencing technology adoption and usage.

In contrast, research within Islamic economics has generally focused on normative and jurisprudential assessments of fintech from the perspective of Shariah compliance. These studies examine whether financial technologies are consistent with Islamic principles, ethical requirements, and the objectives of Maqashid al-Shariah. However, relatively few studies have empirically tested the relationship between digital payment adoption, the realization of

Islamic objectives, and business sustainability.

This situation indicates a research gap at the intersection of digital financial technology and Islamic economic objectives. In particular, empirical evidence remains limited regarding whether QRIS adoption contributes to the realization of *Hifzh al-Mal* and whether such realization subsequently strengthens MSME sustainability. Therefore, this study proposes the Realization of Hifzh al-Mal as a mediating construct between QRIS adoption and Islamic Economic Sustainability. Through this integrated framework, the study combines technological adoption theory with Islamic economic principles to develop an empirical model that explains not only the economic benefits of digital payment adoption but also its potential contribution to wealth protection, ethical financial practices, and sustainable MSME development.

Table 1.
Previous Studies and the Positioning of the Present Study

Author(s) & Year	Research Title / Focus	Method	Research Gap and Differences from the Present Study
Setiawan & Mahyuni (2020)	<i>QRIS from the Perspective of MSMEs: An Exploration of Perceptions and Intentions toward QRIS Adoption</i>	Quantitative (TAM)	Focuses primarily on technology acceptance, perceptions, and adoption intentions. It does not incorporate Islamic economic values or examine the relationship between QRIS adoption and MSME sustainability.
Reksi et al. (2025)	<i>Implementation of Maqasid al-Shariah in the Use of QRIS as a Digital Transaction Platform</i>	Qualitative–Normative	Examines QRIS through the Maqashid al-Shariah perspective but does not empirically operationalize <i>Hifzh al-Mal</i> as a measurable construct or test its effect on business outcomes.
Kusuma (2024)	<i>Application of QRIS Services from a Maqasid al-Shariah Perspective</i>	Qualitative–Normative	Provides a conceptual and normative discussion of QRIS within the Maqashid al-Shariah framework but does not employ empirical measurement or statistical testing.
Fauzul et al. (2024)	<i>MSMEs in Takengon City: Analysis of the Impacts and Challenges of Digital Payments from an Islamic Finance Perspective</i>	Qualitative	Discusses digital payment adoption from an Islamic finance perspective but does not specifically examine QRIS or investigate the mediating role of <i>Hifzh al-Mal</i> .
This Study	<i>The Mediating Role of Hifzh al-Mal Realization in the Relationship between</i>	Quantitative (SEM-PLS)	Develops an integrated empirical model that positions the Realization of Hifzh al-Mal as a measurable

Author(s) & Year	Research Title / Focus	Method	Research Gap and Differences from the Present Study
	<i>QRIS Adoption and MSME Sustainability</i>		mediating variable between QRIS adoption and Islamic Economic Sustainability among MSMEs.

Source: Compiled by the authors (2026).

Theoretical Framework and Research Hypotheses

The theoretical perspectives reviewed in the preceding sections provide the foundation for developing an integrated causal model that combines technological adoption with Islamic economic principles. The proposed framework assumes that QRIS adoption can improve business activities through greater transaction efficiency while simultaneously supporting the realization of *Hifzh al-Mal*. The realization of this Islamic objective is subsequently expected to contribute to the long-term sustainability of MSMEs.

In the proposed structural model, QRIS Adoption (X) functions as the exogenous variable, MSME Sustainability (Y) represents the endogenous variable, and the Realization of *Hifzh al-Mal* (Z) serves as the mediating variable. The model evaluates both the direct relationship between QRIS adoption and MSME sustainability ($X \rightarrow Y$) and the indirect relationship through the realization of *Hifzh al-Mal* ($X \rightarrow Z \rightarrow Y$). This framework therefore examines whether the benefits of digital payment adoption extend beyond operational improvements to support wealth protection and other Islamic economic objectives that may strengthen sustainable business practices.

Based on the theoretical foundation and previous empirical findings, the following hypotheses are formulated:

H1: QRIS adoption positively and significantly influences the realization of *Hifzh al-Mal*.

H2: The realization of *Hifzh al-Mal* positively and significantly influences MSME sustainability.

H3: QRIS adoption has a positive and significant direct effect on MSME sustainability.

H4: The realization of *Hifzh al-Mal* significantly mediates the relationship between QRIS adoption and MSME sustainability.

Overall, the proposed framework integrates digital financial innovation with Islamic economic values to provide a broader explanation of MSME sustainability. It emphasizes that technological adoption may generate not only economic and operational benefits but also contribute to wealth protection, ethical financial practices, and the achievement of Shariah objectives.

RESEARCH METHOD

Research Approach and Design

This research applies a quantitative explanatory approach using a non-experimental causal design and a cross-sectional survey. The study aims to investigate the relationships among QRIS Adoption, the Realization of *Hifzh al-Mal*, and MSME Sustainability, with particular emphasis on the mediating function of *Hifzh al-Mal* in the relationship between

QRIS adoption and business sustainability. The proposed model is tested using Structural Equation Modeling–Partial Least Squares (SEM-PLS) supported by SmartPLS 4.0. This analytical technique is appropriate for examining complex relationships among latent variables, including both direct and indirect effects. SEM-PLS is also suitable for relatively limited sample sizes and provides strong predictive capabilities for structural models involving mediation relationships (Hair et al., 2017).

Population and Sample

The population comprises MSME owners or managers in Sumenep Regency who use QRIS as a payment method and conduct their business activities in accordance with Islamic economic principles. Respondents were recruited through purposive and snowball sampling based on predetermined criteria. Eligible participants were required to be active MSME owners or managers, have operated their business for at least six months, and have used QRIS for a minimum of six months before completing the questionnaire. These requirements ensured that participants had adequate experience with both QRIS and business operations. Based on the 10-times rule for SEM-PLS, the minimum sample requirement was 30 respondents. The study ultimately obtained 102 valid responses, exceeding the minimum threshold and providing sufficient observations for model estimation and statistical testing.

Data Collection Techniques

Primary data were obtained using a structured questionnaire measured on a five-point Likert scale, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The instrument measured three latent constructs: QRIS Adoption, Realization of *Hifzh al-Mal*, and MSME Sustainability, with measurement indicators developed from relevant theoretical and empirical literature. Data collection was conducted through both online and offline methods from April to May 2026. Online questionnaires were distributed through Google Forms via MSME association WhatsApp groups and business networks, while offline surveys were conducted through direct visits to traditional markets, business centers, and MSME clusters in Sumenep Regency. The combination of these approaches was intended to broaden respondent coverage, increase participation, and capture MSMEs with different levels of digital literacy and business characteristics.

Table 2.

Operational Definitions and Measurement Indicators of Variables

Variable	Operational Definition	Indicators	Measurement Scale	Source
QRIS Adoption (X)	The extent to which MSME owners accept, use, and integrate QRIS into their business transaction activities.	X1.1 Perceived Usefulness;	5-point Likert Scale	Davis (1989); Venkatesh et al. (2012)
		X1.2 Perceived Ease of Use;		
		X1.3 Operational Convenience;		
		X1.4 Actual Usage Behavior		
Realization of	The extent to which	Z1.1 Reduction of	5-point Likert	Chapra

Variable	Operational Definition	Indicators	Measurement Scale	Source
Hifzh al-Mal (Z)	the principle of wealth preservation (<i>Hifzh al-Mal</i>) is realized through the implementation of QRIS in business transactions.	<i>Gharar</i> (Uncertainty); Z1.2 Transaction Security; Z1.3 Accountability and Transparency; Z1.4 Shariah Compliance	Scale	(2008); Dusuki and Abozaid (2008)
MSME Sustainability (Y)	The capacity of MSMEs to maintain business continuity and achieve sustainable growth while adhering to financial and Shariah principles.	Y1.1 Customer Retention; Y1.2 Cash Flow Stability; Y1.3 Long-Term Business Sustainability; Y1.4 Attainment of <i>Barakah</i> (Blessings)	5-point Likert Scale	Elkington (1997); adapted and integrated with Shariah values

Source: Developed by the authors based on the literature review (2026).

Data Analysis Techniques

The research data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) through SmartPLS 4.0. This method was chosen because it is suitable for examining complex relationships among latent variables, including mediation effects, and can be applied effectively to relatively small samples (Hair et al., 2017). The analysis consisted of two main stages: measurement model (outer model) evaluation and structural model (inner model) evaluation. The measurement model was assessed to establish the validity and reliability of the research instruments. Convergent validity was examined using indicator factor loadings and Average Variance Extracted (AVE). Indicators with loadings above 0.70 were considered satisfactory, while an AVE value greater than 0.50 indicated adequate convergent validity. Discriminant validity was evaluated using the Fornell–Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT). The Fornell–Larcker criterion requires the square root of the AVE for each construct to be higher than its correlations with other constructs, whereas an HTMT value below 0.90 indicates adequate discriminant validity. Construct reliability was assessed through Composite Reliability (CR), with values above 0.70 indicating satisfactory internal consistency.

After the measurement model satisfied the validity and reliability requirements, the structural model was evaluated to test the proposed hypotheses and determine the model's explanatory and predictive capabilities. The significance of the path relationships was assessed using bootstrapping with 5,000 subsamples. Relationships were considered statistically significant when the *t*-statistic exceeded 1.96 and the *p*-value was below 0.05. The explanatory power of the model was assessed using the coefficient of determination (R^2), which indicates the proportion of variance in endogenous constructs explained by their predictors. In

addition, effect size (f^2) was examined to determine the contribution of individual exogenous constructs, with values of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively.

Finally, mediation analysis was conducted to determine whether the Realization of *Hifzh al-Mal* mediates the relationship between QRIS Adoption and MSME Sustainability. The indirect effect was evaluated using the bootstrapping procedure. A statistically significant indirect effect indicates that QRIS adoption influences MSME sustainability through the realization of *Hifzh al-Mal*, thereby demonstrating the role of Islamic economic values in connecting digital payment adoption with sustainable MSME development.

RESULTS AND DISCUSSION

Respondent Characteristics

The study obtained 102 valid respondents, consisting of Micro, Small, and Medium Enterprise (MSME) owners and managers in Sumenep Regency who met the established inclusion criteria. All respondents had used the Quick Response Code Indonesian Standard (QRIS) as a digital payment method for a period of six months to one year. This level of experience was considered adequate for ensuring that respondents were familiar with QRIS and could provide informed evaluations of its application in their business activities.

The respondents' experience with QRIS enabled them to assess its practical benefits, including transaction efficiency, convenience, and payment management. In addition, their continued use of QRIS provided an experiential basis for evaluating its relevance to Islamic economic principles, particularly *Hifzh al-Mal*, which emphasizes the preservation and protection of wealth. Thus, the selected respondents were considered appropriate for evaluating both the technological and Shariah-related aspects investigated in this study. The demographic and business profiles of the respondents are presented in Table 3.

Table 3.
Respondent Characteristics

Category	Description	Frequency (N)	Percentage (%)
Business Type	Food and Beverage	77	75.5
	Grocery Store / Daily Necessities Retailer	19	18.6
	Service Businesses (Repair Shops, Salons, Mobile Credit Counters, etc.)	6	5.9
Business Location	Sumenep District	62	60.8
	Ganding District	16	15.7
	Guluk-Guluk District	11	10.8
	Lenteng District	8	7.8
	Gapura District	5	4.9

Category	Description	Frequency (N)	Percentage (%)
Duration of QRIS Use	6 Months–1 Year	102	100.0
Total Respondents	—	102	100.0

Source: Primary data processed by the authors (2026).

The majority of respondents operated in the food and beverage sector, accounting for 75.5% of the total sample, followed by grocery and daily necessities retailers (18.6%) and service businesses (5.9%). Geographically, most respondents were located in Sumenep District (60.8%), while the remainder were distributed across Ganding, Guluk-Guluk, Lenteng, and Gapura districts. Furthermore, all respondents had used QRIS for a period ranging from six months to one year, indicating that they possessed sufficient experience to evaluate the impact of QRIS adoption on business operations and the realization of Islamic economic values.

The demographic profile of respondents based on business sector reveals a concentration in several dominant lines of business. As presented in Table 3, the majority of respondents operate in the food and beverage sector, accounting for 75.5% of the total sample, followed by grocery and daily necessities businesses at 18.6%, while service-related businesses represent the smallest proportion at 5.9%. This predominance of food and beverage enterprises reflects the actual structure of MSMEs in the urban areas of Sumenep Regency, where the culinary industry has experienced substantial growth in recent years.

From an operational perspective, businesses in the food and beverage sector typically engage in a high volume of daily transactions with relatively low transaction values. Such characteristics make digital payment solutions particularly beneficial, as they enable faster transaction processing, reduce customer waiting times, eliminate the need to provide cash change, and minimize errors in daily cash management and financial record-keeping. Consequently, these operational requirements provide a strong incentive for food and beverage entrepreneurs to adopt QRIS as a practical and efficient payment system.

From a geographical perspective, the respondents were predominantly concentrated in Sumenep District, which accounted for 60.8% of the total sample. This distribution is economically justifiable, as Sumenep District serves as the primary center of economic activity, commerce, and public administration within Sumenep Regency. As the region's commercial hub, it benefits from relatively advanced telecommunications infrastructure, a larger network of merchants, and a higher level of digital financial literacy among both business owners and consumers compared to other districts. These favorable environmental conditions have accelerated the diffusion of digital payment technologies and contributed to the development of a more mature cashless transaction ecosystem. As a result, MSMEs located in Sumenep District are generally more exposed to and more likely to adopt QRIS than those operating in less urbanized areas.

Descriptive Statistical Analysis

A preliminary assessment of the empirical data was conducted through descriptive statistical analysis to identify the general patterns and distribution characteristics of respondents' perceptions regarding the variables examined in this study. The analysis focused on the mean values of each measurement indicator to provide an overview of respondents' attitudes toward QRIS adoption, the realization of *Hifzh al-Mal*, and MSME sustainability.

The results indicate that the mean scores for all indicators ranged from 4.108 to 4.324 on a five-point Likert scale. These values fall within the “Agree” to “Strongly Agree” categories, suggesting that respondents generally held highly favorable perceptions of the constructs under investigation. The consistently high mean scores demonstrate that MSME owners and managers perceive QRIS as a useful and beneficial payment innovation, recognize the importance of implementing *Hifzh al-Mal* principles in business transactions, and place considerable emphasis on achieving long-term business sustainability.

From a methodological standpoint, the relatively high and narrowly distributed mean values indicate a strong degree of response convergence among participants. This pattern suggests the existence of a shared understanding and collective agreement regarding the benefits of QRIS adoption, the relevance of Islamic wealth preservation principles, and the importance of sustaining business performance over time. Furthermore, the limited variation in extreme responses implies that the integration of digital financial technology and Sharia-based ethical values has become increasingly embedded in the daily business practices of MSME operators. Rather than being perceived as abstract normative concepts, these principles appear to have been translated into practical operational behaviors that support both economic and ethical business objectives.

Table 4.
Descriptive Statistics of Research Variables

Code	Indicator	Mean	Std. Deviation	Min	Max
QRIS Adoption (X)					
X1.1	QRIS accelerates payment transactions	4.108	0.953	1	5
X1.2	QRIS facilitates real-time monitoring of transaction history	4.147	0.801	2	5
X1.3	The QRIS application is easy to use	4.196	0.868	1	5
X1.4	Customers experience no difficulty in scanning QRIS codes	4.245	0.801	2	5
Realization of Hifzh al-Mal (Z)					

Code	Indicator	Mean	Std. Deviation	Min	Max
Z1.1	QRIS reduces the risk of cash loss or theft	4.284	0.849	1	5
Z1.2	QRIS protects businesses from the risk of receiving counterfeit currency	4.265	0.820	1	5
Z1.3	QRIS ensures highly accurate payment transactions with minimal errors	4.304	0.830	1	5
Z1.4	Digital transactions enhance transparency and clarity in financial records	4.324	0.892	1	5
MSME Sustainability (Y)					
Y1.1	QRIS helps retain customers who prefer cashless payments	4.255	0.740	2	5
Y1.2	Digitalization contributes to more stable business cash flow	4.284	0.776	1	5
Y1.3	Secure digital transactions support long-term business continuity	4.275	0.798	1	5
Y1.4	Transparent and secure financial record-keeping enhances business prosperity (<i>barakah</i>)	4.245	0.763	1	5

Source: Primary data processed by the authors (2026).

The highest mean score was observed for indicator Z1.4 (*Digital transactions enhance transparency and clarity in financial records*) with a value of 4.324, indicating strong respondent agreement that QRIS contributes to accountability and transparency, which are essential elements of *Hifzh al-Mal*. The lowest mean score was recorded for indicator X1.1 (*QRIS accelerates payment transactions*) at 4.108. Nevertheless, all indicators achieved mean values above 4.00, reflecting consistently positive perceptions toward QRIS adoption, the realization of *Hifzh al-Mal*, and MSME sustainability.

A more detailed analysis of the item scores reveals that indicator Z1.4 achieved the highest mean value, at 4.324. This indicator reflects the degree of clarity in business financial record-keeping facilitated by the use of digital transactions. The high score obtained by this indicator confirms that the benefits of QRIS functionality are most strongly manifested in strengthening the accounting principle of transparency (disclosure). For many traditional

MSME operators, manual financial record-keeping has long been a critical weakness due to the heightened risk of calculation errors, delayed entries, and the commingling of personal and business funds. Through the implementation of QRIS, every transaction is automatically recorded in a systematic, real-time, and accurate manner within the digital platform. From the perspective of Islamic economics, such automation extends beyond operational efficiency; it represents the practical realization of the Sharia mandate to document non-cash muamalah transactions, including commercial and credit-related agreements, in order to minimize disputes (*tanazu*) and reduce uncertainty (*gharar*). These findings indicate that the transparency dimension embedded within the concept of *Hifzh al-Mal* has been translated into tangible operational practices through the support of financial technology.

Conversely, the lowest mean score was observed for indicator X1.1, which recorded a value of 4.108 and measures business actors' perceptions of transaction processing speed. Although this score remains within the "high" category, its relatively lower position suggests the existence of several technical constraints experienced by a proportion of respondents. In the context of Sumenep Regency, these limitations generally do not originate from deficiencies in the QRIS standardization system itself. Rather, they are largely attributable to external factors, including uneven telecommunications network coverage, signal disruptions in certain traditional market locations, and delays in payment confirmation notifications within merchant applications. Such infrastructural challenges occasionally prolong the verification process for incoming payments, leading some business operators to perceive that transactions are not yet processed in a fully instantaneous and optimal manner. This finding highlights an important consideration: the successful adoption of financial technology in promoting public welfare is highly dependent on the reliability and adequacy of supporting digital infrastructure.

Evaluation of the Measurement Model (Outer Model)

Outer Model: Loading Factors

The evaluation of the measurement model commenced with an examination of the outer model generated through SmartPLS analysis. Figure 1 presents the loading factor values of each indicator in relation to its respective latent construct, providing an initial assessment of indicator reliability and convergent validity.

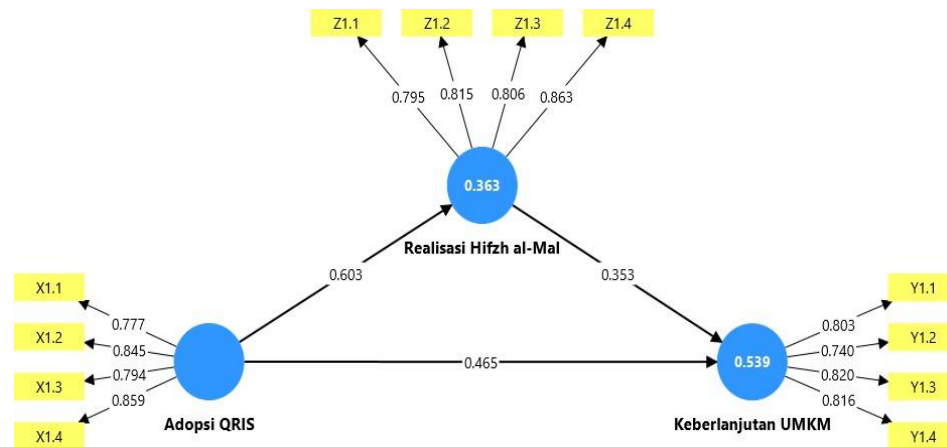


Figure 1.
Outer Model (Loading Factors): SmartPLS 4.0 Analysis Results

Convergent Validity

Convergent validity was assessed by examining the outer loading values and the Average Variance Extracted (AVE) of each latent construct. Within the Structural Equation Modeling–Partial Least Squares (SEM-PLS) framework, an indicator is considered to demonstrate adequate convergent validity when its outer loading value exceeds 0.70, indicating a strong correlation with the construct it is intended to measure. In addition, a construct is deemed to possess satisfactory convergent validity when its AVE value is at least 0.50, signifying that the construct explains more than half of the variance of its indicators. The results of the outer loading coefficient estimates for all indicators included in this study are presented in Table 5. These results provide empirical evidence regarding the extent to which each indicator reliably represents its corresponding latent construct and contribute to the overall assessment of the measurement model's validity.

Table 5.
Outer Loading Factors

Code	Indicator	Outer Loading	Description
X1.1	QRIS Adoption: Perceived Usefulness – Transaction Processing Speed	0.777	Valid ✓
X1.2	QRIS Adoption: Real-Time Transaction History Monitoring	0.845	Valid ✓
X1.3	QRIS Adoption: Operational Ease of Use	0.794	Valid ✓
X1.4	QRIS Adoption: Ease of QR Code Scanning by Customers	0.859	Valid ✓
Z1.1	Hifzh al-Mal Implementation: Reduced Risk of Financial Loss	0.795	Valid ✓

Code	Indicator	Outer Loading	Description
Z1.2	Hifzh al-Mal Implementation: Prevention of Counterfeit Currency Risks	0.815	Valid ✓
Z1.3	Hifzh al-Mal Implementation: Accuracy of Transaction Amounts	0.806	Valid ✓
Z1.4	Hifzh al-Mal Implementation: Clarity and Transparency of Financial Records	0.863	Valid ✓
Y1.1	MSME Sustainability: Retention of Non-Cash Transaction Customers	0.803	Valid ✓
Y1.2	MSME Sustainability: Cash Flow Stability	0.740	Valid ✓
Y1.3	MSME Sustainability: Long-Term Business Sustainability	0.820	Valid ✓
Y1.4	MSME Sustainability: Business Prosperity and Growth	0.816	Valid ✓

Source: *Processed primary data using SmartPLS 4.0 (2026).*

A deeper examination of the outer loading values reveals that indicator Z1.4 achieved the highest loading factor, with a value of 0.863. This indicator, which measures the clarity and transparency of financial records facilitated by digital systems, emerged as the strongest and most representative manifestation of the Hifzh al-Mal (Z) construct. From a theoretical perspective, the magnitude of this loading factor suggests that, for MSME operators in Sumenep Regency, the principle of wealth preservation within Islamic economics is most effectively reflected through transparent, systematic, and automated financial record-keeping practices. When financial transactions are recorded accurately and can be verified in real time through QRIS, the potential for uncertainty (gharar), information asymmetry, and disputes regarding transaction values is substantially reduced. Consequently, financial transparency becomes a fundamental pillar in assessing the effectiveness of business asset protection and the practical implementation of Hifzh al-Mal.

Similarly, within the QRIS Adoption (X) construct, indicator X1.4 recorded the highest loading factor, at 0.859. This indicator represents the ease with which customers can conduct transactions through QRIS, thereby reflecting the broader dimension of perceived ease of use. The high loading value indicates that operational simplicity—encompassing intuitive application features, straightforward scanning procedures, and clear transaction instructions—constitutes the most influential aspect shaping MSME owners' acceptance of QRIS technology. These user-friendly characteristics significantly reduce both psychological resistance and technical barriers that are commonly encountered by traditional micro and small business operators during the transition toward digital financial systems.

Taken together, the strong loading factors observed for indicators Z1.4 and X1.4 provide important empirical and theoretical insights. The findings demonstrate that the

successful adoption of digital payment technology is not driven solely by technological efficiency, but also by its ability to support core Islamic economic values, particularly transparency, accountability, and the protection of wealth. The synergy between technological convenience and Sharia-based financial transparency has evolved beyond a purely conceptual framework and has become a tangible mechanism through which MSME operators experience and recognize the practical benefits of digital transformation in their daily business activities.

Construct Reliability and Average Variance Extracted (AVE)

Table 6.
Construct Reliability and Convergent Validity Assessment

Construct	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)	Interpretation
QRIS Adoption	0.837	0.842	0.891	0.671	Meets Reliability and Validity Criteria ✓
Hifzh al-Mal Implementation	0.838	0.842	0.892	0.673	Meets Reliability and Validity Criteria ✓
MSME Sustainability	0.807	0.815	0.873	0.633	Meets Reliability and Validity Criteria ✓

Acceptance Criteria: Cronbach's Alpha > 0.70; rho_A > 0.70; Composite Reliability (CR) > 0.70; AVE > 0.50.

Source: *Processed primary data using SmartPLS 4.0 (2026).*

The results presented in Table 6 demonstrate that all constructs included in the research model exhibit a high level of reliability and satisfy the recommended criteria for measurement quality. Internal consistency reliability was assessed using Cronbach's Alpha and Composite Reliability (CR). The Cronbach's Alpha values ranged from 0.807 to 0.838, substantially exceeding the minimum threshold of 0.70, thereby indicating strong consistency among the indicators within each construct. Similarly, the Composite Reliability values ranged from 0.873 to 0.892, surpassing the recommended benchmark of 0.70 and confirming the robustness of the measurement model.

The simultaneous reporting of Cronbach's Alpha and Composite Reliability provides important methodological support for the reliability assessment. While Cronbach's Alpha assumes equal indicator loadings and therefore tends to provide a conservative estimate of reliability, Composite Reliability accounts for the actual contribution of each indicator based on its loading value. Consequently, Composite Reliability is generally regarded as a more accurate measure of internal consistency within the SEM-PLS

framework. The consistently high values obtained from both reliability measures indicate that the constructs are measured with a high degree of precision and are free from significant internal consistency issues.

The strength of the measurement model is further supported by the Average Variance Extracted (AVE) values, which range from 0.633 to 0.673. Since all AVE values exceed the recommended minimum threshold of 0.50, the results provide empirical evidence that each latent construct explains more than 63% of the variance in its associated indicators. This substantial proportion of explained variance suggests that the level of measurement error is relatively low, accounting for less than 37% of the total variance. Therefore, the indicators demonstrate a strong convergence in representing their respective constructs. Based on these findings, it can be concluded that the constructs of QRIS Adoption, Hifzh al-Mal Implementation, and MSME Sustainability possess satisfactory convergent validity and strong construct reliability. The measurement model is therefore considered statistically robust and appropriate for further evaluation through structural equation modeling.

Discriminant Validity

Discriminant validity was evaluated using two complementary approaches: the Fornell–Larcker Criterion and the Heterotrait–Monotrait Ratio (HTMT). The use of both methods provides a comprehensive assessment of whether the latent constructs are empirically distinct from one another. The first approach, the Fornell–Larcker Criterion, is based on a comparison between the square root of the Average Variance Extracted (AVE) for each construct and its correlations with other constructs in the model. According to this criterion, the square root of a construct's AVE must exceed its highest correlation with any other latent construct. When this condition is satisfied, it indicates that the construct shares more variance with its own indicators than with indicators belonging to other constructs, thereby supporting discriminant validity.

To complement this traditional approach, discriminant validity was also assessed using the Heterotrait–Monotrait Ratio (HTMT). Recent methodological studies have suggested that the Fornell Larcker Criterion may not always be sufficiently sensitive in detecting discriminant validity problems, particularly in complex models. Consequently, HTMT has been proposed as a more rigorous and reliable criterion for evaluating discriminant validity (Henseler, Ringle, & Sarstedt, 2015). Under this approach, the estimated HTMT values between constructs should remain below 0.90. HTMT values below this threshold indicate that the constructs are empirically distinct and that the indicators accurately measure different theoretical concepts rather than overlapping dimensions.

Accordingly, the discriminant validity assessment in this study was based on both the Fornell Larcker Criterion and HTMT analysis. Satisfying these two criteria provides strong empirical evidence that the constructs of QRIS Adoption, Hifzh al-Mal Implementation, and MSME Sustainability are conceptually and statistically distinct from one another, thereby reinforcing the overall validity of the measurement model.

Table 7.
Fornell–Larcker Criterion

Construct	QRIS Adoption	MSME Sustainability	Hifzh al-Mal Implementation
QRIS Adoption	0.819		
MSME Sustainability	0.678	0.795	
Hifzh al-Mal Implementation	0.603	0.633	0.820

Source: Processed primary data using SmartPLS 4.0 (2026).

Table 8.
Heterotrait–Monotrait Ratio (HTMT)

Construct	QRIS Adoption	MSME Sustainability	Hifzh al-Mal Implementation
QRIS Adoption	–		
MSME Sustainability	0.817	–	
Hifzh al-Mal Implementation	0.710	0.757	–

Source: Processed primary data using SmartPLS 4.0 (2026).

Based on the empirical results presented in Table 7, the discriminant validity assessment using the Fornell Larcker Criterion demonstrates that all constructs satisfy the established methodological requirements. The square root of the Average Variance Extracted ($\sqrt{\text{AVE}}$) values, displayed along the principal diagonal of the correlation matrix, are 0.819 for QRIS Adoption, 0.795 for MSME Sustainability, and 0.820 for Hifzh al-Mal Implementation. When compared with the corresponding inter-construct correlation coefficients (off-diagonal values), each $\sqrt{\text{AVE}}$ value is substantially greater than the correlations associated with that construct. The highest correlation observed among the latent variables is 0.678, which remains considerably lower than the respective diagonal values. These findings confirm that each construct shares more variance with its own indicators than with any other construct in the model, thereby providing strong evidence of discriminant validity.

The robustness of these findings is further reinforced by the Heterotrait–Monotrait Ratio (HTMT) results reported in Table 8. The estimated HTMT values range from 0.710 to 0.817, all of which fall well below the recommended threshold of 0.90. This outcome indicates a high degree of conceptual distinctiveness among the constructs and confirms that the measurement items adequately capture different theoretical dimensions. Although the highest HTMT value of 0.817 suggests the presence of a meaningful relationship between QRIS Adoption and MSME Sustainability, the value remains within the acceptable range, indicating that the two constructs retain clear conceptual boundaries and do not exhibit problematic overlap.

The convergence of evidence from both the Fornell Larcker Criterion and HTMT analysis provides compelling empirical support for the discriminant validity of the measurement model. Accordingly, the constructs of QRIS Adoption, Hifzh al-Mal Implementation, and MSME Sustainability can be regarded as distinct and independently measured latent variables. The satisfactory discriminant validity results indicate that the model is free from significant construct redundancy and conceptual overlap, thereby minimizing the risk of biased parameter estimates. Consequently, the measurement model demonstrates adequate psychometric quality and is considered fully suitable for advancing to the structural model evaluation and hypothesis testing stage (inner model analysis).

Structural Model Evaluation (Inner Model)

Inner Model: Structural Model Diagram

The evaluation of the structural model (inner model) was conducted to assess the hypothesized relationships among the latent constructs included in the research framework. Following the confirmation of the measurement model's validity and reliability, the next stage involves examining the structural relationships between QRIS Adoption, Hifzh al-Mal Implementation, and MSME Sustainability.

Figure 2 presents the structural model generated through the SmartPLS 4.0 bootstrapping procedure. The diagram illustrates the estimated path coefficients, t-statistics, and p-values associated with each hypothesized relationship. These parameters provide empirical evidence regarding the magnitude, direction, and statistical significance of the causal relationships among the latent constructs.

The path coefficients indicate the strength and direction of the influence exerted by one construct on another, while the corresponding p-values serve as the basis for determining the statistical significance of each proposed hypothesis. Through the bootstrapping procedure, the stability and robustness of the parameter estimates are evaluated, enabling a more reliable assessment of the structural relationships within the model.

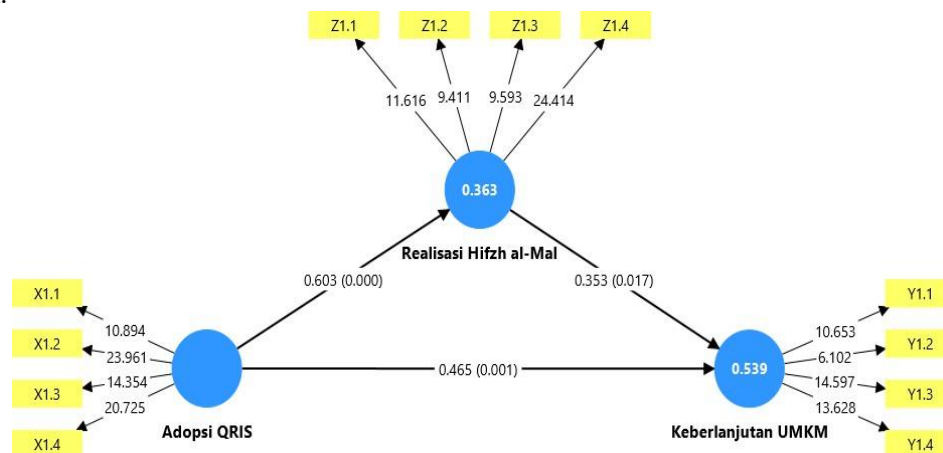


Figure 2.
Structural Model (Inner Model) Results from SmartPLS 4.0 Bootstrapping Analysis

Multicollinearity Assessment (VIF)

Prior to evaluating the structural relationships and testing the proposed hypotheses, a multicollinearity assessment was conducted using the Variance Inflation Factor (VIF). This procedure is essential to ensure that the predictor constructs included in the structural model do not exhibit excessive collinearity, which could bias parameter estimates and compromise the validity of the model's results. Within the SEM-PLS framework, VIF values below 5.00 indicate the absence of problematic multicollinearity, while values below 3.30 are often considered indicative of an even more conservative standard of collinearity control. The results of the VIF analysis revealed that all values in the structural model ranged from 1.000 to 1.570, well below the recommended threshold of 5.00.

These findings demonstrate that the predictor constructs are sufficiently independent of one another and do not share excessive variance. Consequently, multicollinearity is not a concern in this study, and the estimated path coefficients can be interpreted with confidence. The absence of collinearity problems further supports the robustness of the structural model and ensures that each construct contributes uniquely to explaining the endogenous variables within the research framework.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) was examined to evaluate the explanatory power of the structural model. R^2 represents the proportion of variance in an endogenous construct that can be explained by its predictor variables. In the context of SEM-PLS, R^2 serves as an important indicator of the model's predictive accuracy and explanatory capability.

According to commonly accepted guidelines, R^2 values of approximately 0.75, 0.50, and 0.25 may be interpreted as substantial, moderate, and weak explanatory power, respectively. Higher R^2 values indicate that the exogenous constructs included in the model are more effective in explaining variations in the endogenous construct. The R^2 results for the endogenous variables are presented in Table X. These values provide insight into the extent to which QRIS Adoption and Hifzh al-Mal Implementation contribute to explaining the variance in MSME Sustainability, as well as the extent to which QRIS Adoption explains variations in Hifzh al-Mal Implementation. The interpretation of these results serves as the basis for assessing the predictive relevance and overall explanatory strength of the proposed structural model.

Table 9.
Coefficient of Determination (R^2)

Endogenous Variable	R^2	Adjusted R^2	Category
Hifzh al-Mal Implementation (Z)	0.363	0.357	Moderate
MSME Sustainability (Y)	0.539	0.529	Moderate–Strong

Classification Criteria: Weak (< 0.25); Moderate ($0.25–0.50$); Strong (> 0.50) (Hair et al., 2017).

Source: *Processed primary data using SmartPLS 4.0 (2026).*

The coefficient of determination results indicate that the proposed structural model possesses meaningful explanatory power. The R^2 value of 0.363 for Hifzh al-Mal Implementation suggests that 36.3% of the variance in the implementation of Hifzh al-Mal principles can be explained by QRIS Adoption, while the remaining 63.7% is attributable to other factors not included in the model. According to the classification proposed by Hair et al. (2017), this level of explanatory power is categorized as moderate, indicating that QRIS adoption serves as an important determinant in promoting the practical realization of Hifzh al-Mal among MSMEs.

Furthermore, the R^2 value of 0.539 for MSME Sustainability indicates that QRIS Adoption and Hifzh al-Mal Implementation jointly account for 53.9% of the variance in MSME sustainability. This result falls within the moderate-to-strong explanatory category and demonstrates that the model provides a substantial explanation of sustainability outcomes among MSMEs. In other words, more than half of the variation in business sustainability can be attributed to the combined influence of digital payment adoption and the implementation of Islamic wealth-preservation principles. These findings underscore the significant role of both technological innovation and Sharia-based financial practices in enhancing the long-term sustainability and resilience of MSMEs.

Effect Size (f^2)

In addition to assessing the overall explanatory power of the model through the coefficient of determination (R^2), the effect size (f^2) was examined to evaluate the relative contribution of each exogenous construct to the endogenous constructs. The f^2 statistic measures the extent to which an exogenous variable contributes to the explained variance of an endogenous variable when included in the model. This analysis provides a deeper understanding of the practical significance of each structural relationship beyond mere statistical significance. According to the guidelines proposed by Cohen (1988), f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effect sizes, respectively. The results of the effect size analysis are presented in Table X and serve as an important basis for assessing the substantive impact of each predictor within the structural model.

Table
10. Effect Size (f^2)

Structural Path	f^2	Effect Size Category
QRIS Adoption → Hifzh al-Mal Implementation	0.570	Large
QRIS Adoption → MSME Sustainability	0.298	Moderate to High
Hifzh al-Mal Implementation → MSME Sustainability	0.172	Medium

Classification Criteria: Small ($f^2 < 0.02$); Medium ($0.02 \leq f^2 < 0.15$); Large ($f^2 > 0.35$) (Cohen, 1988, as cited in Hair et al., 2017).

Source: *Processed primary data using SmartPLS 4.0 (2026).*

The effect size analysis demonstrates that QRIS Adoption exerts the strongest influence on Hifzh al-Mal Implementation, with an f^2 value of 0.570, indicating a large practical effect. This finding suggests that the adoption of QRIS contributes substantially to the realization of wealth-preservation principles among MSMEs. In addition, the effect

of QRIS Adoption on MSME Sustainability is reflected by an f^2 value of 0.298, which represents a moderate-to-high effect size, highlighting the important role of digital payment adoption in supporting business continuity and growth. Furthermore, the relationship between Hifzh al-Mal Implementation and MSME Sustainability yielded an f^2 value of 0.172, indicating a moderate effect. Collectively, these results confirm that all structural relationships included in the model possess meaningful practical significance and contribute substantially to explaining variations in the endogenous constructs.

Hypothesis Testing (Path Coefficients and Bootstrapping)

Hypothesis testing was performed using the bootstrapping procedure in SmartPLS 4.0 with 5,000 bootstrap subsamples and a 95% confidence level. This approach was employed to assess the statistical significance and robustness of the estimated structural path coefficients. A hypothesis was considered supported when the T-statistic exceeded 1.96 and the p-value was less than 0.05, indicating significance at the 5% level. The results of the path coefficient estimation, including the original sample estimates, T-statistics, and p-values, are presented in Table 11.

Table 11.
Hypothesis Testing Results (Bootstrapping with 5,000 Subsamples)

Hypothesis	Structural Path	Path Coefficient (β)	Sample Mean	T-Statistic	p-Value	Decision
H1	QRIS Adoption → Hifzh al-Mal Implementation	0.603	0.597	5.538	0.000	Supported ✓
H2	Hifzh al-Mal Implementation → MSME Sustainability	0.353	0.369	2.379	0.017	Supported ✓
H3	QRIS Adoption → MSME Sustainability (Direct Effect)	0.465	0.449	3.432	0.001	Supported ✓
H4	QRIS Adoption → Hifzh al-Mal Implementation → MSME Sustainability (Indirect Effect)	0.213	0.225	1.969	0.049	Supported ✓

Acceptance Criteria: T-Statistic > 1.96 and p-Value < 0.05.

Bootstrapping Procedure: 5,000 subsamples with a 95% confidence level.

Source: Processed primary data using SmartPLS 4.0 (2026).

Mediation Analysis – Testing Hypothesis H4

To determine the nature and extent of the mediating role of Hifzh al-Mal Implementation, a mediation analysis was performed by examining the indirect effect of QRIS Adoption on MSME Sustainability. This analysis involved comparing the magnitude and significance of both the direct effect and the indirect effect to assess whether the mediating variable partially or fully transmits the influence of QRIS Adoption on MSME Sustainability.

Table 12.
Summary of Direct, Indirect, and Total Effects

Structural Relationship	Path Coefficient (β)	T-Statistic	p-Value	Effect Type
QRIS Adoption → MSME Sustainability	0.465	3.432	0.001	Direct Effect
QRIS Adoption → Hifzh al-Mal Implementation → MSME Sustainability	0.213	1.969	0.049	Indirect Effect
QRIS Adoption → MSME Sustainability (Total Effect)	0.678	7.916	0.000	Total Effect

Source: *Processed primary data using SmartPLS 4.0 (2026).*

The mediation analysis indicates that the direct relationship between QRIS Adoption and MSME Sustainability remains positive and statistically significant ($\beta = 0.465$; $p = 0.001$) even after incorporating Hifzh al-Mal Implementation as a mediating variable. At the same time, the indirect effect transmitted through the mediator is also significant ($\beta = 0.213$; $p = 0.049$). These findings provide evidence that Hifzh al-Mal Implementation functions as a partial mediator in the relationship between QRIS Adoption and MSME Sustainability. In practical terms, this suggests that QRIS enhances MSME sustainability through two complementary pathways. The first is a direct pathway, whereby digital payment adoption improves operational efficiency, transaction convenience, and financial management. The second is an indirect pathway, through which QRIS facilitates the implementation of Islamic wealth-preservation principles, thereby reinforcing financial transparency, accountability, and the protection of business assets. Consequently, the sustainability benefits of QRIS Adoption arise not only from technological advantages but also from the integration of Sharia-based economic values into business practices.

Predictive Relevance (Q^2 PLSpredict)

Table 13.
 Q^2 Predictive Relevance (PLSpredict Results)

Code	Indicator	Q^2 Predict
Y1.1	Non-Cash Customer Retention	0.267
Y1.2	Cash Flow Stability	0.180
Y1.3	Long-Term Business Sustainability	0.327
Y1.4	Business Prosperity	0.257
Z1.1	Reduction of Gharar and Risk of Financial Loss	0.143
Z1.2	Prevention of Counterfeit Currency	0.269
Z1.3	Accuracy of Transaction Amounts	0.166
Z1.4	Clarity and Transparency of Financial Records	0.205

Acceptance Criterion: Q^2 Predict > 0 indicates predictive relevance (Hair et al., 2017).

Source: *Processed primary data using SmartPLS 4.0 (2026).*

The PLSpredict analysis reveals that all Q^2 Predict values are positive, ranging from 0.143 to 0.327, thereby confirming that the structural model possesses satisfactory predictive relevance across all endogenous constructs. Since each Q^2 value exceeds zero, the model demonstrates an adequate ability to predict observations beyond the estimation sample and exhibits meaningful out-of-sample predictive performance. Among all indicators, Y1.3 (Long-Term Business Sustainability) achieved the highest Q^2 Predict value of 0.327, suggesting that the model exhibits its strongest predictive capability in explaining the long-term resilience and continuity of MSME operations. This finding highlights the model's particular effectiveness in capturing factors that contribute to sustainable business performance over time.

Model Goodness of Fit

The overall fit of the model was evaluated using the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI). The analysis yielded an SRMR value of 0.080, which is below the recommended threshold of 0.10, indicating an acceptable level of model fit. In addition, the NFI value of 0.780 suggests that the model demonstrates a reasonable degree of fit, although it does not fully reach the ideal benchmark of 0.90. Taken together, these results indicate that the proposed structural model adequately represents the observed data and is sufficiently robust for hypothesis testing and interpretation of the relationships among the constructs.

Discussion

The Influence of QRIS Adoption on the Implementation of Hifzh al-Mal (H1)

The findings of the first hypothesis test reveal that QRIS adoption exerts a positive and statistically significant effect on the implementation of Hifzh al-Mal, as indicated by a path coefficient of $\beta = 0.603$ ($T = 5.538$; $p < 0.001$). This result represents one of the key contributions of the present study, providing empirical evidence that the adoption of QRIS extends beyond its technological function and serves as a practical mechanism for advancing the Islamic principle of wealth preservation.

Several underlying mechanisms help explain this relationship. First, QRIS standardization reduces the likelihood of payment inaccuracies and errors in cash handling, thereby minimizing the occurrence of gharar (uncertainty) within commercial transactions. Second, the automatic recording of digital transactions generates a transparent and verifiable audit trail, which parallels the Islamic concept of shahadah (testimony) and strengthens accountability in financial dealings. Third, the reduced dependence on cash transactions lowers exposure to theft, loss, and counterfeit currency, all of which represent direct threats to wealth protection and are specifically addressed within the framework of Hifzh al-Mal (Chapra, 2008).

These findings support and extend previous studies by Reksi et al. (2025) and Kusuma (2024), which conceptually argued that QRIS is consistent with the objectives of Maqashid al-Shariah but did not provide quantitative verification. By demonstrating a substantial effect size ($f^2 = 0.570$), this study offers robust empirical confirmation of the

practical significance of QRIS in promoting Islamic wealth-preservation objectives among MSMEs.

The Influence of Hifzh al-Mal Implementation on MSME Sustainability (H2)

The second hypothesis is supported by the empirical results, with a path coefficient of $\beta = 0.353$ ($T = 2.379$; $p = 0.017$), indicating that stronger implementation of Hifzh al-Mal contributes positively to MSME sustainability. This finding carries important theoretical implications, suggesting that Islamic economic principles function not only as normative ethical guidelines but also as practical determinants of business continuity and resilience.

The observed relationship can be explained through both operational and behavioral mechanisms. From an operational perspective, effective asset protection against theft, fraud, counterfeit currency, and transaction errors contributes directly to greater financial stability and improved cash-flow management. From a behavioral perspective, adherence to Sharia-compliant business practices fosters trust, confidence, and a perception of barakah (blessing), which may strengthen entrepreneurial commitment and enhance customer loyalty. This interpretation is supported by the high evaluation score recorded for the business prosperity indicator.

These findings are consistent with the Maqashid al-Shariah perspective advanced by Al-Ghazali, who emphasized that the preservation of wealth constitutes a fundamental prerequisite for social and economic well-being. In this context, protected assets serve not only economic purposes but also support long-term productivity, ethical business conduct, and sustainable growth (Al-Ghazali, 2013).

Direct Effect of QRIS Adoption on MSME Sustainability (H3)

The results also confirm a significant direct relationship between QRIS adoption and MSME sustainability, with a path coefficient of $\beta = 0.465$ ($T = 3.432$; $p = 0.001$) and a moderate-to-high effect size ($f^2 = 0.298$). This direct pathway captures the contribution of QRIS through its technological and operational advantages, independent of the Sharia-value mechanism represented by Hifzh al-Mal.

Several factors explain this effect. First, QRIS enables businesses to serve a broader segment of consumers who prefer digital payment methods, thereby improving customer retention and market accessibility. Second, automated transaction recording enhances financial administration and facilitates more efficient cash-flow monitoring. Third, reducing cash-based transactions decreases security risks associated with carrying and storing physical currency, thereby contributing to greater operational stability and long-term business continuity. These findings corroborate previous studies by Setiawan and Mahyuni (2020) as well as Sihalo et al. (2020), both of which documented the positive contribution of QRIS adoption to MSME performance. The present study further strengthens this evidence by demonstrating similar outcomes within the context of MSMEs operating in Sumenep Regency.

The Mediating Role of Hifzh al-Mal Implementation (H4)

The mediation analysis confirms that Hifzh al-Mal Implementation partially mediates the relationship between QRIS Adoption and MSME Sustainability ($\beta = 0.213$; $T = 1.969$; $p = 0.049$). The existence of partial mediation provides important insights into the mechanisms through which digital payment adoption contributes to business sustainability.

The results indicate that QRIS influences sustainability through two interconnected pathways. The first pathway is direct, operating through improvements in efficiency, convenience, and operational effectiveness ($\beta = 0.465$). The second pathway is indirect, operating through the enhancement of Islamic wealth-preservation practices ($\beta = 0.213$). Combined, these pathways generate a substantial total effect ($\beta = 0.678$) on MSME sustainability.

Theoretical implications emerge from this finding. The results suggest that the sustainability benefits of financial technology are not derived solely from technical innovation but are amplified when accompanied by the internalization of Sharia values. Thus, technological capabilities and Islamic economic principles should be viewed as complementary components rather than alternative approaches. The effectiveness of digital financial systems is strengthened when they facilitate transparency, accountability, and wealth protection in accordance with the objectives of Maqashid al-Shariah.

A major contribution of this study lies in bridging the gap between technology-oriented financial research and normative Islamic economic scholarship. The findings demonstrate that these two perspectives can be integrated within a unified and empirically validated framework, providing a more comprehensive understanding of how digital financial innovation contributes to sustainable MSME development.

CONCLUSION

This study develops an integrative framework linking digital transformation, Islamic economic values, and MSME sustainability through the adoption of QRIS and the implementation of Hifzh al-Mal principles. The findings provide strong empirical evidence supporting all proposed hypotheses. First, QRIS adoption was found to have a positive and significant influence on the implementation of Hifzh al-Mal. This result indicates that QRIS functions not only as a digital payment instrument but also as a practical mechanism for protecting wealth through enhanced transaction security, reduced uncertainty (gharar), and improved financial transparency. The large effect size further confirms the substantial contribution of QRIS to the realization of Islamic wealth-preservation objectives among MSMEs.

Second, the implementation of Hifzh al-Mal was shown to positively affect MSME sustainability. This finding demonstrates that Islamic economic principles possess tangible instrumental value beyond their normative and ethical dimensions. By strengthening financial accountability, asset protection, and trust, the implementation of Hifzh al-Mal contributes directly to the resilience and long-term continuity of business operations.

Third, QRIS adoption was found to exert a direct positive effect on MSME sustainability. This relationship reflects the operational benefits of digital payment technology, including greater transaction efficiency, improved financial management, broader customer reach, and enhanced business security. These advantages contribute directly to the sustainability and competitiveness of MSMEs.

Fourth, the implementation of Hifzh al-Mal partially mediates the relationship between QRIS adoption and MSME sustainability. This finding suggests that the sustainability benefits of QRIS are maximized when technological adoption is accompanied

by the internalization of Islamic values related to wealth preservation. Therefore, QRIS enhances business sustainability through both technical-economic mechanisms and Sharia-based value mechanisms.

Overall, the structural model demonstrates that QRIS adoption explains 36.3% of the variance in Hifzh al-Mal implementation, while QRIS adoption and Hifzh al-Mal implementation jointly explain 53.9% of the variance in MSME sustainability. These results confirm that the integration of financial technology and Islamic economic principles constitutes a significant predictor of business sustainability among MSMEs in Sumenep Regency.

Theoretical Implications

This study contributes to the literature in two important ways. First, it successfully translates the normative concept of Hifzh al-Mal into measurable empirical indicators within the context of digital financial transactions, thereby addressing a methodological challenge that has long existed in Islamic economics research. Second, the study introduces an integrated mediation framework that combines the Technology Acceptance Model (TAM) with the Maqashid al-Shariah perspective. This integrated approach provides a more comprehensive theoretical explanation of fintech adoption by incorporating both technological and value-based determinants of behavior.

Practical Implications

The findings offer several practical implications for key stakeholders. For MSME owners, the adoption of QRIS should be viewed not only as a technological innovation but also as a strategic tool for implementing Islamic principles in everyday business activities. Increasing awareness and understanding of Hifzh al-Mal through training, education, and mentoring programs may further enhance the sustainability benefits derived from QRIS usage.

For policymakers, financial regulators, and the Islamic fintech industry, the results highlight the importance of developing digital payment systems that explicitly support the objectives of Maqashid al-Shariah. Potential innovations include Sharia-compliant financial reporting features, transaction-monitoring tools designed to reduce uncertainty, and integration with digital zakat, infaq, and charitable payment platforms. In addition, local governments may strengthen MSME empowerment programs by integrating technical QRIS education with Islamic financial literacy initiatives, particularly in regions where religious values play a significant role in economic activities.

Limitations and Future Research Directions

Despite its contributions, this study is subject to several limitations. First, the cross-sectional research design limits the ability to observe changes in Hifzh al-Mal internalization over time as QRIS adoption becomes more established. Second, the concentration of respondents within Sumenep City District may limit the generalizability of the findings to rural or geographically remote areas with different socioeconomic characteristics. Third, demographic variables such as gender were not explicitly examined, although they may influence perceptions of digital technology and Sharia-based values.

Future research may address these limitations by employing longitudinal research designs to investigate how the implementation of Hifzh al-Mal evolves as users gain greater

experience with QRIS. Expanding the study to different regions with varying cultural and religious characteristics would also provide valuable insights into the contextual applicability of the proposed model. Furthermore, future studies may incorporate moderating variables such as religiosity, digital literacy, gender, age, and business scale to better understand the conditions under which QRIS adoption contributes to sustainability outcomes. Finally, researchers are encouraged to develop a more comprehensive measurement framework for Hifzh al-Mal that captures broader dimensions of wealth preservation within contemporary digital economic environments.

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