

# Digitalization of Cross-Border Payment Systems Based on QRIS: An Islamic Economic Perspective

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## ABSTRACT

*The accelerating digital transformation of global financial systems has made cross-border payment interoperability a strategic priority for international trade, monetary stability, and regional economic connectivity. Building on the G20 Roadmap for Enhancing Cross-Border Payments, Indonesia has extended its Quick Response Code Indonesian Standard (QRIS) into QRIS Cross-Border, linking domestic payment systems with several regional partners and enabling local currency transactions that reduce dependence on foreign exchange. While existing studies have examined domestic QRIS adoption factors, limited research has explored QRIS Cross-Border through an Islamic economic lens, leaving unresolved questions concerning its compliance with the prohibitions of riba (usury), gharar (excessive uncertainty), and maysir (speculation). This study aims to analyze the implementation of QRIS Cross-Border as a digital payment innovation and to assess its conformity with Shariah principles, including the maqasid al-shari'ah objective of hifz al-mal (protection of wealth). Using a qualitative literature review methodology, the study synthesizes regulatory reports, international financial institution publications, and Islamic finance literature. Findings indicate that QRIS Cross-Border enhances transaction efficiency, strengthens regional economic integration, and expands financial inclusion, particularly for micro, small, and medium enterprises, while embodying the concept of maslahah through safer and more transparent transactions. Nevertheless, currency conversion mechanisms and fee structures present potential Shariah compliance risks. Theoretically, the study enriches Islamic digital finance governance literature; practically, it informs regulators developing Shariah-compliant cross-border payment policies. The study concludes that QRIS Cross-Border offers substantial promise for inclusive digital economic integration when Shariah safeguards are systematically institutionalized.*

**Keywords :** Cross-Border Payment, Digital Transformation, Financial Inclusion, Islamic Economics, QRIS.

## 1. INTRODUCTION

The digitalization of cross-border payments has become a global priority because conventional international payment systems remain costly, slow, opaque, and difficult to access, especially in emerging economies (He, 2021). This transformation is driven by rapid advances in financial technology (fintech), including mobile platforms, artificial intelligence, blockchain, and real-time data processing, which improve transaction speed, security, and service accessibility (He, 2021; N. Yamsani, 2025). In Southeast Asia, cross-border QR payment integration has emerged as a strategic instrument for strengthening regional economic connectivity, with systems such as QRIS, DuitNow, NETS, and PromptPay increasingly interconnected to facilitate seamless retail transactions across national borders (ZUKI, 2026).

In Indonesia, QRIS has significantly accelerated domestic digital transactions and strengthened the participation of micro, small, and medium enterprises (MSMEs). However, its initial implementation was limited because foreign users without connections to Indonesian payment service providers could not access the system (Aryowiloto, 2024; Metri, 2024). The development of QRIS Cross-Border therefore represents a strategic response to support tourism, international trade, and regional payment connectivity through direct QR-based transactions using local currencies (Ansari & Sukarja, 2024; Metri, 2024; Ulum, 2026). Despite these achievements, significant challenges remain regarding regulatory harmonization, cybersecurity, consumer protection, transaction dispute resolution, and cross-country interoperability across ASEAN member states. These unresolved issues indicate that the effectiveness of QRIS Cross-Border cannot be evaluated solely from a technological perspective but also requires consideration of legal and ethical dimensions (Agi, Wibowo, & Sari, 2025; Ansari & Sukarja, 2024; ZUKI, 2026).

Beyond technical interoperability, cross-border payment systems must also ensure that financial transactions comply with ethical and governance standards. For Muslim-majority countries such as Indonesia, these considerations include adherence to Islamic economic principles. From an Islamic economic perspective, digital payment innovation has the potential to promote financial inclusion, transparency, and efficiency, provided that its implementation complies with Sharia principles (Faizin, Rahman, & Setiawan, 2025; Nuriyah, Rahmah, & Muchtar, 2025; Widiyanto & Zuhri, 2024). Previous studies consistently emphasize that Islamic financial technology should uphold justice, transparency, and the prohibition of *riba*, *gharar*, and *maysir* (Faizin et al., 2025; Nugraha, Fitriani, Dewi, & Siswanto, 2025; Nuriyah et al., 2025). They also argue that digital payment transactions are permissible as long as contractual arrangements and transaction processes are free from fraud, injustice, and prohibited elements (Masnita, Rasyawal, & Yusran, 2021). However, existing studies have generally examined QRIS Cross-Border from technological, legal, diplomatic, or MSME development perspectives, whereas Islamic fintech research has predominantly focused on domestic issues such as adoption, financial literacy, and regulatory compliance. Consequently, limited attention has been given to examining QRIS Cross-Border through an integrated framework that simultaneously considers technological interoperability, regulatory governance, and Islamic economic principles.

Accordingly, this study aims to analyze the digitalization of QRIS Cross-Border payment systems from an Islamic economic perspective by examining issues of interoperability, legal protection, operational efficiency, and Sharia compliance (Agi et al., 2025; Faizin et al., 2025; ZUKI, 2026). The study employs a literature review approach through a critical synthesis of recent studies on cross-border payment digitalization, ASEAN QR integration, QRIS regulation, and Islamic fintech governance (Nuri, 2025; Ulum, 2026; ZUKI, 2026). The novelty of this study lies in developing an integrated analytical perspective that positions QRIS Cross-

Border not merely as a technological payment innovation, but also as a financial ecosystem whose sustainability depends on the alignment between regional interoperability, regulatory governance, and the normative objectives (*maqāsid al-sharī'ah*) of Islamic economics. This study is expected to enrich the literature on digital Islamic finance while providing practical insights for regulators, payment service providers, and Sharia governance institutions in developing a cross-border payment ecosystem that is efficient, inclusive, legally reliable, and Sharia-compliant.

## 2. METHODS

This study employed a qualitative systematic literature review (SLR) to synthesize interdisciplinary evidence on QRIS cross-border payment systems and their implications from an Islamic economic perspective. A systematic review was selected because it uses explicit and systematic procedures to collect, appraise, and synthesize evidence for a clearly formulated question, thereby increasing transparency and reducing bias in evidence synthesis (Elsman et al., 2024; Page, Moher, et al., 2021; Parums, 2021). A qualitative synthesis design was appropriate because the relevant literature spans payment systems, fintech, governance, regional policy, and Islamic economics, and such bodies of evidence are better integrated through interpretive synthesis than through statistical aggregation alone (Margaret Bearman & Dawson, 2013; Macura et al., 2019; McMahon et al., 2022).

The review was reported in accordance with PRISMA 2020 and PRISMA-S as reporting guidelines. These frameworks were used to structure transparent reporting of the review question, information sources, search strategy, study selection, and synthesis procedures, but they were not treated as the research method itself (Page, Moher, et al., 2021; Rethlefsen & Page, 2022). This distinction was necessary because PRISMA 2020 was developed to improve the completeness and transparency of systematic review reporting, including reviews with or without statistical synthesis, while qualitative evidence synthesis still requires an additional analytic procedure for coding, interpretation, and theme development (Munir, 2025; Rethlefsen & Page, 2022).

The literature search was designed to identify peer-reviewed and institutional evidence relevant to cross-border digital payments, QRIS interoperability, governance, and Islamic economics. The search covered Scopus, Web of Science, Google Scholar, ScienceDirect, SpringerLink, Emerald Insight, Wiley Online Library, Taylor & Francis Online, and MDPI. In addition, institutional sources were searched, including Bank Indonesia, OJK, Bank for International Settlements (BIS), IMF, World Bank, Islamic Development Bank (IsDB), and BPS, because cross-border payment development is strongly shaped by regulatory frameworks, payment-system roadmaps, official statistics, and policy reports that are not always captured adequately in journal databases (Page, McKenzie, et al., 2021; Page, Moher, et al., 2021).

The search was conducted between January and June 2026, and the final search was completed on 30 June 2026. The main publication window was 2021–2026, which was selected to capture recent developments in QRIS cross-border implementation, ASEAN payment connectivity, digital payment governance, and Islamic fintech. Earlier sources were retained only when they provided foundational methodological or theoretical guidance for qualitative synthesis, thematic analysis, or Islamic economic concepts (Page, Moher, et al., 2021).

The Boolean search strategy combined payment-system terms, regional interoperability terms, and Islamic economics terms. The core search string was formulated as follows:

("QRIS" OR "Quick Response Code Indonesian Standard" OR "cross-border QR" OR "QR code payment") AND ("cross-border payment" OR "regional payment connectivity" OR "interoperability" OR "instant payment" OR "digital payment system") AND ("Islamic economics" OR "Islamic finance" OR "Sharia" OR "maqasid al-shariah" OR "halal fintech").

Additional searches used combinations of adjacent terms such as "local currency transaction," "ASEAN payment connectivity," "consumer protection," "governance," "financial inclusion," and "digital Islamic finance" to capture conceptually related studies. Search strings were adapted to the indexing logic of each database, and records from websites and institutional repositories were documented separately in line with PRISMA-S guidance on reporting all databases, websites, and organizations searched (Parums, 2021; Rethlefsen & Page, 2022).

Studies were included when they met all of the following criteria:

| Criterion        | Inclusion Criteria                                                                                                                                                  | Exclusion Criteria                                                                                            |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Publication type | Peer-reviewed journal articles, scholarly books/chapters, conference papers with sufficient methodological detail, and institutional reports from recognized bodies | Opinion pieces, news items, editorials without analytical content, non-scholarly webpages                     |
| Language         | English and Indonesian                                                                                                                                              | Languages not accessible to the reviewer                                                                      |
| Publication year | Primarily 2021–2026; earlier works only for core theory or methods                                                                                                  | Older studies with no foundational relevance                                                                  |
| Relevance        | Direct discussion of QRIS, cross-border digital payments, interoperability, governance, fintech, Islamic economics, or closely related payment-policy issues        | Studies on unrelated payment topics or domestic systems with no relevance to cross-border or Islamic analysis |
| Accessibility    | Full text available                                                                                                                                                 | Title/abstract only with no accessible full text                                                              |

|                        |                                                                                                                 |                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Methodological quality | Clear objective, identifiable data source or argument basis, and sufficient analytical substance for extraction | Insufficient methodological transparency, unclear source basis, or purely promotional content |
| Duplication            | Most complete version retained                                                                                  | Duplicate records removed                                                                     |

These criteria were pre-specified to align the evidence base with the review objective and to permit structured grouping for synthesis, as recommended in PRISMA guidance on eligibility criteria and grouping of studies for synthesis (Elsman et al., 2024; Pérez-Neri et al., 2022). Exclusion reasons recorded during screening included duplication, topical irrelevance, non-eligible publication type, inaccessible full text, insufficient analytical substance, and failure to address either cross-border payment systems or Islamic economic dimensions with enough depth to support synthesis (Munir, 2025; Pérez-Neri et al., 2022).

Study selection followed a PRISMA-informed sequence of identification, duplicate removal, title screening, abstract screening, full-text eligibility assessment, and final inclusion. Records identified from databases and institutional websites were first compiled into a single screening file. Duplicates were removed by matching title, author, year, DOI, and source details. The remaining records were screened by title to remove clearly irrelevant materials, then by abstract to assess topical fit with QRIS cross-border, digital payment interoperability, governance, or Islamic economics. Full texts were then assessed against the eligibility criteria before final inclusion in the synthesis (Page, Moher, et al., 2021; Parums, 2021; Rethlefsen & Page, 2022).

The selection process was documented using a PRISMA 2020 flow diagram, which traced the number of records identified, screened, excluded, and included. This reporting format was used to make the review process reproducible and auditable, particularly because search provenance and record tracking materially affect the trustworthiness of systematic reviews (Parums, 2021; Rethlefsen & Page, 2022).

A structured data-extraction sheet was developed to ensure consistent capture of information across heterogeneous sources. For each included publication, the following variables were extracted: author(s), publication year, country or region, research objective, study design or methodology, technology discussed, governance or regulatory issues, Islamic economics concepts, principal findings, stated limitations, and practical or theoretical implications. This extraction template was designed to support later comparative synthesis by preserving both descriptive study characteristics and analytic content relevant to cross-study interpretation (Booth et al., 2024; Lachal, 2017; Parums, 2021).

The extraction process also recorded whether a source primarily addressed technical infrastructure, regional interoperability, consumer protection, institutional governance, financial inclusion, or Islamic finance principles. This additional layer of indexing was

necessary because the review did not aim only to summarize individual studies, but to compare how different literatures framed the same underlying phenomenon. Recording limitations and implications alongside findings also enabled the later identification of areas of consensus, contradiction, and unresolved gaps (Coatsworth-Puspoky, Duggleby, Dahlke, & Hunter, 2025; Purssell & Gould, 2021; Yepes-Núñez, Úrrutia, Romero-García, & Alonso-Fernández, 2021) .

### **Data Analysis**

The analysis used comparative thematic synthesis. This approach was selected because thematic synthesis is a well-developed method for qualitative evidence synthesis and is suited to identifying, analyzing, organizing, and reporting patterns across a dataset drawn from diverse study designs and contexts (McMahon et al., 2022; Booth et al., 2024). It also allows the reviewer to move beyond study-by-study description toward interpretive integration, which was necessary for producing the five analytical themes, the integrative discussion, and the conceptual framework (Coatsworth-Puspoky et al., 2025; Lachal, 2017; Purssell & Gould, 2021).

First, all included studies were read repeatedly to achieve familiarization with their objectives, arguments, methods, and findings. Repeated reading allowed the reviewer to identify recurrent concepts, domain-specific language, and implicit assumptions across payment-system, fintech, governance, and Islamic economics literatures(Lachal, 2017; McMahon et al., 2022) . Second, initial open coding was conducted on the extracted findings and discussion segments of each study. Codes were assigned inductively to recurring ideas such as interoperability, transaction efficiency, governance fragmentation, local currency settlement, consumer protection, financial inclusion, Sharia compliance, transparency, and contractual clarity (Coatsworth-Puspoky et al., 2025; Purssell & Gould, 2021).

Third, similar codes were grouped into analytical categories. At this stage, codes were clustered according to conceptual affinity rather than source type. For example, studies from central-bank, fintech, and legal literatures could all contribute to a category such as governance alignment or cross-border interoperability. This prevented the synthesis from reproducing disciplinary silos and supported cross-field comparison (Macura et al., 2019; Purssell & Gould, 2021) . Fourth, categories were compared systematically across studies to identify similarities, differences, and contradictions. This comparative step examined where the literature converged, where findings diverged, and whether divergence reflected differences in region, institutional scope, technology focus, or normative framework (Margaret Bearman & Dawson, 2013) .

Fifth, broader themes were generated through iterative synthesis. Themes were refined by repeatedly moving between coded extracts, category groupings, and the review objective until each theme captured a coherent analytical pattern rather than a simple topic label(McMahon et al., 2022) . This process produced the five themes reported in the Results

and Discussion: global payment transformation, QRIS cross-border as regional interoperability, inclusion–trust–governance constraints, Islamic economic assessment, and the conditions for a sustainable payment ecosystem. Sixth, relationships among these themes were examined to identify directional and conceptual linkages, including how digital payment innovation enabled interoperability, how interoperability shaped inclusion, how governance mediated adoption and legitimacy, and how Sharia compliance conditioned normative sustainability (Coatsworth-Puspoky et al., 2025; Purssell & Gould, 2021).

Seventh, these inter-theme relationships were used to construct the proposed conceptual framework presented in the Results and Discussion. The framework was therefore not imposed a priori; it was derived from the analytic progression from keywords and codes to categories, themes, and theme relationships, consistent with systematic thematic procedures for conceptual model development . Throughout the analysis, comparative thematic synthesis enabled the explicit identification of scholarly consensus, conflicting findings, emerging patterns, research gaps, and conceptual relationships, which then informed the comparative interpretation in the discussion and the columns of the analytical synthesis (Coatsworth-Puspoky et al., 2025).

Rigor was maintained through transparent coding, an audit trail, explicit decision rules, and traceability from extracted data to final themes. Coding decisions, category definitions, exclusion reasons, and theme revisions were documented throughout the review so that the analytic pathway from raw literature to synthesis remained visible (Margaret Bearman & Dawson, 2013; Purssell & Gould, 2021). This emphasis on transparency is consistent with qualitative synthesis literature, which treats openness about analytic decisions and reviewer interpretation as central to rigor rather than as ancillary reporting detail (M Bearman & Dawson, 2013; Lachal, 2017; McMahon et al., 2022).

Traceability was strengthened by linking each theme back to coded extracts and extracted study characteristics, making it possible to verify how specific publications contributed to broader analytical claims. This procedure also supported the construction of the analytical synthesis table by allowing each theme to be associated with its main findings, areas of consensus, research gaps, Islamic economic interpretation, and practical implications (De Cassai, Dost, Tulgar, & Boscolo, 2025; Purssell & Gould, 2021) . The review did not aim to statistically pool outcomes; instead, its trustworthiness depended on the reproducibility of its search and selection steps and the transparency of its comparative thematic synthesis (De Cassai et al., 2025; Elsmann et al., 2024).

### **3. RESULT AND DISCUSSION**

The thematic analysis generated five major themes: structural inefficiencies in global cross-border payments, the regional development of QRIS cross-border interoperability, the inclusion–governance trade-off in implementation, the Islamic economic assessment of QRIS cross-border, and the governance conditions for a sustainable payment ecosystem. Together,

these themes show that QRIS cross-border is not simply a payment interface; it is a layered institutional arrangement shaped by infrastructure design, legal harmonization, consumer trust, and Sharia compliance (Akomolafe, Olaogun, Adesuyi, Ndukwe, & Sakyi, 2025; He, 2021; ZUKI, 2026).

### **Theme 1: Global Payment Transformation**

The literature consistently shows that cross-border payments remain constrained by the legacy correspondent-banking model, which is widely characterized as slow, costly, opaque, and exclusionary, especially in developing and remittance-dependent economies (He, 2021; Marimo, Takawira, & Gangata, 2025; Semeko, 2022). The cost problem is not incidental but structural: bank-based remittances averaged over 10% for a US\$200 transfer in a 112-country sample, while Sub-Saharan Africa still records 8–10%, far above the SDG target of 3% (He, 2021; Marimo et al., 2025). This inefficiency is repeatedly linked to long transaction chains, fragmented data standards, limited correspondent access, and burdensome compliance processes rather than to a single technological bottleneck (He, 2021; Kochergin, 2024; Malaguti, 2021).

Studies agree that digital innovation is the main route to reform, but they diverge on which architecture offers the most credible solution. Real-time payment studies emphasize ISO 20022 standardization and multilateral connectivity (Yeruva, 2024), blockchain studies emphasize disintermediation, auditability, and programmable settlement (Eyo-Udo, Agho, Onukwulu, Sule, & Azubuike, 2025), and CBDC studies emphasize foreign-access design and interoperability across jurisdictions (Kochergin, 2024; Malaguti, 2021). The disagreement matters because it shows that the central problem is not merely technological substitution but institutional coordination across monetary, legal, and technical systems (Yeruva, 2024; Zhao, 2024). Analytically, this theme establishes the baseline for QRIS cross-border: it emerged not as an isolated Indonesian innovation, but as a regional response to a well-documented global failure of legacy cross-border payment infrastructures.

### **Theme 2: QRIS Cross-Border as Regional Interoperability**

The literature shows that QRIS cross-border developed from domestic payment standardization into a regional interoperability project within ASEAN. QRIS initially addressed domestic fragmentation by standardizing merchant QR acceptance, then expanded through regional payment connectivity and bilateral linkages with neighboring. This transition is significant because it repositioned QRIS from a national retail tool into a cross-border settlement interface designed for low-value, everyday transactions in local currencies (Wibowo & Sari, 2025; Zuki & Rahim, 2026).

However, the studies do not treat interoperability as a binary achievement. ASEAN+3 evidence shows that while bilateral QR linkages are already operational, disparities remain in

transaction limits, market coverage, and regulatory harmonization (Zuki & Rahim, 2026). Indonesian QRIS studies are more optimistic, highlighting rising domestic adoption, MSME readiness, and Indonesia's strategic potential to shape regional standards (Metri, 2024). The difference reflects scale and perspective: national studies assess QRIS from the viewpoint of domestic success, whereas regional studies assess the much harder problem of cross-jurisdictional alignment. The new understanding that emerges is that QRIS cross-border should be analyzed as graduated interoperability: technical linkage can be achieved earlier than legal, supervisory, and institutional convergence. This distinction is crucial because it explains why visible operational success does not necessarily imply ecosystem maturity.

### **Theme 3: Inclusion, Trust, and Governance Constraints**

The literature consistently associates cross-border digital payments with financial inclusion, particularly for MSMEs, migrants, and users underserved by traditional banks (Adesuyi, Akomolafe, Olaogun, Ndukwe, & Sakyi, 2023; Metri, 2024; Singh, Singh, Gupta, & Garg, 2025). QRIS-based systems are seen as reducing merchant onboarding friction and strengthening MSME participation in the digital economy, while broader digital payment research shows similar inclusion benefits for remittance users and SMEs (Marimo et al., 2025; Metri, 2024; Yeruva, 2024). This creates a strong consensus that payment digitalization can widen access.

Yet the same literature shows that inclusion is constrained by trust deficits and governance gaps. Survey evidence on cross-border fast-payment linkages found that only 52% were willing to adopt digital cross-border channels, while 43% perceived security risks, 41% identified digital-literacy gaps, and 36% cited insufficient device or ID access (Singh et al., 2025). Governance studies add that data sovereignty, fraud monitoring, privacy, and adaptive compliance remain unresolved design challenges (Akomolafe et al., 2025). Legal analysis of ASEAN QR integration reaches a parallel conclusion: bilateral cooperation exists, but local-currency transaction frameworks and dispute-resolution mechanisms remain structurally incomplete (Wibowo & Sari, 2025). The critical implication is that efficiency alone does not produce sustainable adoption; payment inclusion depends on whether users perceive the system as safe, intelligible, and fairly governed. For QRIS cross-border research, this shifts the analytical focus from technology diffusion to institutional trust formation.

### **Theme 4: Islamic Economic Assessment**

The literature on Islamic digital finance does not reject digital payment innovation; it accepts it conditionally, depending on whether the transaction architecture satisfies transparency, lawful purpose, contractual clarity, and credible oversight (Shuib, Muin, Noor, Mohamad, & Mansor, 2023). E-payment studies grounded in Islamic finance identify *wakalah* as a suitable contractual basis between users and payment providers, but they also warn that paytech often creates ambiguity over contractual relationships, fee structures, and security

responsibilities (Shuib et al., 2023). This is directly relevant to QRIS cross-border, where multiple actors across jurisdictions participate in authorization, settlement, currency conversion, and dispute handling. If those relationships are opaque, the system risks generating gharar through uncertainty in obligations and rights.

From the perspective of maqasid al-shariah, QRIS cross-border appears potentially supportive of maslahah and hifz al-mal because it can reduce transaction cost, speed up settlement, widen access, and lower dependence on informal channels (Eyo-Udo et al., 2025; Marimo et al., 2025; Wibowo & Sari, 2025). It also aligns with ‘adl and amanah when interoperability reduces asymmetric access and when transparent records improve accountability (Akomolafe et al., 2025; Eyo-Udo et al., 2025). However, the evidence also shows that these Islamic objectives are not fulfilled automatically. Regulatory weakness, unclear Sharia standards, and variable consumer trust remain major constraints in halal fintech adoption (Nuri, 2025). Likewise, digital-payment scholarship emphasizes the need for clear provider labeling, regulatory oversight, and continuous Sharia review (Shuib et al., 2023).

Analytically, QRIS cross-border currently appears Sharia-compatible in potential but incomplete in governance. It tends to support financial inclusion and wealth protection, but its compliance with the prohibition of gharar, maysir, and unjust fee extraction depends on how exchange rates, service charges, liabilities, and dispute-resolution rules are disclosed and supervised. The novelty of this review emerges here: prior QR and payment-system studies largely assess interoperability and efficiency, whereas this synthesis shows that the real Islamic economic question is whether cross-border payment connectivity can be governed as an ethically intelligible and institutionally accountable ecosystem.

### **Theme 5: Toward a Sustainable Payment Ecosystem**

The final theme concerns the conditions under which QRIS cross-border can become sustainable rather than merely functional. Across the literature, sustainability is associated with multi-layer governance: technical standards, supervisory coordination, risk controls, compliance protocols, and adaptive institutional cooperation (Adesuyi et al., 2023; Akomolafe et al., 2025; Zuki & Rahim, 2026). Real-time payment studies report that shared infrastructures can reduce implementation costs and improve straight-through processing and fraud detection (Yeruva, 2024), while blockchain and DLT studies argue for standardized APIs, smart-contract workflows, and real-time reconciliation to improve scalability and resilience (Adesuyi et al., 2023; Ayodele, Oye, Alimi, & Obitolu, 2025).

Debate remains over whether future cross-border systems should converge around QR linkages, DLT-based interoperability, CBDCs, or hybrid models. The evidence favors a hybrid interpretation: QRIS addresses the retail front end, but durable cross-border performance still depends on back-end governance, data-sharing rules, liquidity arrangements, and legal recognition across jurisdictions (Akomolafe et al., 2025; Ayodele et al., 2025; Malaguti,

2021). This matters because it reframes sustainability from a question of user adoption alone to one of ecosystem architecture. The broader contribution to QRIS cross-border research is therefore conceptual: QRIS should be treated as one visible layer within a wider payment ecology that links innovation, inclusion, regulation, and Sharia governance.

### **Integrative Discussion**

Taken together, the five themes show a clear progression. Digital payment innovation responds to the failures of legacy cross-border systems; interoperability translates innovation into usable regional connectivity; financial inclusion becomes the main developmental promise; governance determines whether that promise is trusted and durable; and Sharia compliance determines whether the system is normatively legitimate within an Islamic economic framework (Shuib et al., 2023). The major research gap addressed by this review is that existing scholarship usually treats these dimensions separately: payment-system studies emphasize speed and cost, QR studies emphasize connectivity, fintech studies emphasize adoption, and Islamic finance studies emphasize compliance. What has been missing is an integrated account of how these dimensions interact in QRIS cross-border.

The theoretical contribution is the repositioning of QRIS cross-border from a payment technology to a payment ecosystem. A technology-centered view overstates the importance of front-end usability, whereas the literature shows that cross-border performance depends on interoperable standards, consumer protection, data governance, institutional trust, and Sharia review operating together (Akomolafe et al., 2025; Wibowo & Sari, 2025; Yeruva, 2024). The practical contribution is equally clear: policymakers should not evaluate QRIS cross-border only by transaction growth or geographic expansion, but also by fairness of fee disclosure, dispute-resolution accessibility, legal harmonization, and the visibility of Sharia governance. In that sense, the novelty of this review is not an isolated claim but the cumulative result of integrating payment literature, QRIS regionalization, governance research, and Islamic economics into a single analytical framework.

### **Proposed Conceptual Framework**

The literature supports the following framework:

Digital Payment Innovation → Interoperability → Financial Inclusion → Governance → Sharia Compliance → Sustainable Cross-Border Payment Ecosystem

Digital payment innovation supplies the enabling technologies, including QR standardization, instant payment infrastructure, DLT, and CBDC experimentation (He, 2021; Semeko, 2022; Yeruva, 2024). Interoperability converts those innovations into cross-border functionality by linking standards, systems, and settlement pathways across jurisdictions (Zuki & Rahim, 2026; Adesuyi et al., 2023). Financial inclusion is the developmental outcome expected from that linkage, particularly for MSMEs, unbanked users, and remittance-dependent households (Marimo et al., 2025; Metri, 2024; Singh et al., 2025). Governance then

mediates whether inclusion is sustainable by addressing legal harmonization, security, data sovereignty, AML/KYC, and dispute resolution (Adesuyi et al., 2023; Akomolafe et al., 2025; Wibowo & Sari, 2025). Sharia compliance functions as the normative filter that determines whether the resulting ecosystem protects wealth, avoids contractual ambiguity, supports justice, and sustains Muslim consumer trust (Nuri, 2025; Shuib et al., 2023). Only when these layers operate coherently does a sustainable cross-border payment ecosystem emerge.

### Analytical Table

| Theme                          | Main Findings                                                                                                                             | Scholarly Consensus                                                                                    | Research Gap                                                      | Islamic Economic Perspective                                                                      | Practical Implication                                     |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Global payment transformation  | Legacy systems remain costly, slow, exclusionary despite digital reform progress (He, 2021; Kochergin, 2024)                              | Strong agreement and need for digital reform (Yeruva, 2024) (Malaguti, 2021)                           | Limited integration between technology and institutional analysis | Cost reduction supports <b>maslahah</b> and <b>hifz al-mal</b> , efficiency alone is insufficient | Reform should target structure, not interface             |
| QRIS regional interoperability | QRIS evolved from domestic standardization into ASEAN linkage, but harmonization remains uneven (Wibowo & Sari, 2025; Zuki & Rahim, 2026) | Broad agreement that interoperability is operational central (Wibowo & Sari, 2025; Zuki & Rahim, 2026) | Few studies connect linkage with normative governance             | Supports 'adl if access is reciprocal and rules are clear                                         | Expand linkage with aligned legal and technical standards |
| Inclusion and governance       | Inclusion gains are real, but trust, literacy, access, and consumer protection                                                            | Consensus that adoption depends on trust and accessibility (Akomolafe et al., 2025)                    | Underdeveloped evidence on dispute resolution and user protection | <b>Amanah</b> requires safety, intelligibility, and protection                                    | Pair expansion with digital literacy and low-cost redress |

| Theme                       | Main Findings                                                                                                                                          | Scholarly Consensus                                                                     | Research Gap                                                                          | Islamic Economic Perspective                                   | Practical Implication                                             |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|
| Islamic economic assessment | remain constraints(Si ngh et al., 2025; Wibowo & Sari, 2025)                                                                                           | 2025; Singh et al., 2025)                                                               | QRIS cross-border                                                                     | accountabilit y                                                |                                                                   |
|                             | QRIS cross-border is potentially Sharia-compatible, but contractual opacity and regulatory weakness remain unresolved(N uri, 2025; Shuib et al., 2023) | Agreement on need for transparency, oversight, and Sharia review (Shuib et al., 2023)   | Limited direct study of cross-border through maqasid and Sharia governance            | Must avoid <b>gharar</b> , unjust fees, and weak oversight     | Formalize akad logic, disclosure rules, and Sharia supervision    |
| Sustainable ecosystem       | Long-term viability requires hybrid infrastructure plus collaborative governance                                                                       | Emerging agreement on multi-layer models (Akomolafe et al., 2025; Ayodele et al., 2025) | No integrated framework linking innovation, governance, and Sharia compliance in QRIS | Sustainabilit y depends on ethical and institutional coherence | Treat QRIS as ecosystem and architecture, not just a payment tool |

**Figure 1:** Analytical synthesis of the five themes in QRIS cross-border payment literature

#### 4. CONCLUSION

This study concludes that QRIS Cross-Border should be understood not merely as a digital payment instrument, but as part of a broader cross-border payment ecosystem in which technological innovation, interoperability, financial inclusion, governance, and Sharia compliance are closely interconnected. The synthesis of the literature indicates that QRIS Cross-Border has the potential to address structural inefficiencies in conventional cross-border payments by facilitating faster, more accessible, and locally denominated transactions. Its expansion may also strengthen regional economic connectivity and broaden opportunities for MSMEs and other users who face barriers in traditional cross-border payment systems. However, technical connectivity alone does not guarantee a sustainable payment ecosystem. Legal harmonization, consumer protection, cybersecurity, transparent fee and exchange-rate mechanisms, accessible dispute resolution, and institutional coordination remain essential conditions for long-term effectiveness and public trust.

From an Islamic economic perspective, the findings suggest that QRIS Cross-Border is potentially consistent with the principles of *maslahah*, *hifz al-mal*, *‘adl*, and *amanah* because of its capacity to improve efficiency, transparency, and financial accessibility. Nevertheless, Sharia compliance cannot be assumed solely from the technological form of the payment system. Its normative legitimacy depends on the transparency of contractual relationships, currency conversion mechanisms, service charges, institutional responsibilities, and dispute-resolution procedures. Therefore, the sustainability of QRIS Cross-Border requires the systematic integration of Sharia governance into the wider regulatory and operational framework rather than treating Sharia compliance as a separate or supplementary consideration.

This study has several limitations that should be considered when interpreting its conclusions. First, the study is based on a qualitative systematic literature review and therefore relies on the scope, quality, methodological rigor, and availability of existing publications rather than primary empirical evidence from QRIS Cross-Border users, merchants, regulators, or payment service providers. This limitation primarily concerns methodology and external validity, as the conclusions represent an interpretive synthesis of the available literature and may not fully reflect actual user experiences or operational conditions across different countries. Second, direct scholarly evidence specifically examining QRIS Cross-Border from an Islamic economic perspective remains limited. Consequently, part of the Sharia analysis was derived by integrating findings from adjacent literature on Islamic fintech, digital payments, governance, and cross-border payment systems. Although this approach enables interdisciplinary analysis, it may introduce interpretive subjectivity and limit the extent to which the conclusions can be generalized specifically to QRIS Cross-Border. Third, the rapid development of regional payment connectivity means that regulations, participating countries,

technological arrangements, and governance mechanisms may evolve after the review period, potentially affecting the continued relevance of some findings.

These limitations do not invalidate the analytical framework proposed in this study, but they require the findings to be interpreted as a conceptual and evidence-based foundation rather than definitive empirical proof of Sharia compliance or operational effectiveness. Future research should therefore conduct empirical studies involving users, MSMEs, regulators, Sharia scholars, and payment service providers across participating jurisdictions. Comparative cross-country research and detailed analysis of exchange-rate mechanisms, fee structures, contractual arrangements, consumer protection, and Sharia supervision would further test and refine the proposed framework. Such research is necessary to determine whether the potential benefits identified in the literature are consistently realized in practice and whether QRIS Cross-Border can develop into an efficient, inclusive, accountable, and Sharia-compliant cross-border payment ecosystem.

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